

Environmental Noise Survey & Assessment

Prepared: 7th May 2015

Report No – 15889-1
Client – Futuremost Ltd
Site – Market Parade
Havant
PO9 1PY

1. Executive Summary

- 1.1.1. An environmental noise survey has been carried out on a proposed residential development at Market Parade, Havant in order to assess the impact of environmental noise. This report details the findings of the survey and assess the results against any relevant criteria.

1.2. Measurement, assessment and evaluation

The survey was conducted to BS7445-1:2003 “Description and measurement of environmental noise – Part 1: *Description of quantities and procedures*” and BS7445-2:1991 “*Guide to the acquisition of data pertinent to land use*” which are covered under our UKAS Accreditation.

The interpretation of the data and the specification of suitable mitigation or treatment is outside the scope of our UKAS accreditation but is covered in our 17025 Quality Management System and reporting procedure.



1.3. Recommended Glazing Configuration

Noise Sensitive Receiver	Living Rooms	Dining Rooms	Bedrooms
NSR Facade 1	4 (12) 4	4 (12) 4	4 (6) 6

2. Limitations

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- 2.1.3. The methodology adopted and the sources of information used by Noise in providing its services are outlined in this report. The work described in this report was undertaken on 7th May 2015 and is based on the conditions encountered and the information available up to the said date. The scope of this report and the services are accordingly factually limited by these circumstances.
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4. Scope

4.1.1. noise.co.uk Ltd has been instructed by Futuremost Ltd to undertake an environmental noise assessment at Market Parade, Havant to assess the impact of environmental noise on a proposed residential development.

4.1.2. This report covers all aspects of the survey, including:

- An objective sound pressure level survey of the existing site
- Prediction of the internal sound pressure levels in internal areas
- Comparison of these calculated levels to any specific Local Authority requirements, local planning policies for noise or otherwise to the most appropriate criteria; BS8233:2014 *"Sound insulation and noise reduction in buildings – code of practice"*
- The design of any mitigation to meet the required internal noise levels

5. Introduction

- 5.1.1. The rail line runs parallel to North Street along the northern facade of site. The surrounding road are small access roads
- 5.1.2. A site plan of the proposed development is shown in Figure 1.



Figure 1 - Site plan showing the location of the proposed development

5.2. Proposed development

- 5.2.1. Futuremost Ltd are proposing a residential development consisting of a residential block with commercial at ground floor.

6. Background

6.1. National planning policy framework

- 6.1.1. Until recently Planning Policy Guidance 24: Noise, (PPG24) was used to survey, assess and categorise noise exposure levels for residential development and advise on how to minimise the impact of noise. In March 2012 the National Planning Policy Framework was published superseding PPG24. The NPPF document covers all aspects of planning including transport and sustainability, not just noise. Unfortunately there has been a movement away from the comprehensive guidance provided in PPG24 and the guidance specifically regarding noise limits is inadequate. Noise is first mentioned in a section about conserving and enhancing the natural environment, it states:

"109. 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 soil, air, water or **noise** pollution or land instability"*

"123. Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts 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 uses since they were established; 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."*

Noise is later mentioned in the National Planning Policy Framework in regard to the sustainable use of minerals and says an environmental criteria should be set out to ensure: *"permitted operations do not have unacceptable adverse impacts on the natural and historic environment or human health, including from **noise**, dust, visual intrusion"* etc. Noise limits are mentioned in this section, the policy says:

*"ensure that any unavoidable **noise**, dust and particle emissions and any blasting vibrations are controlled, mitigated or removed at source, and establish appropriate noise limits for extraction in proximity to **noise** sensitive properties"*

- 6.1.2. No quantitative values are provided to assist the assessment procedure.

- 6.1.3. The Noise Policy Statement for England, published by DEFRA in 2010, is referenced in the National Planning Policy Framework and states the policy vision is to: *"Promote good health and a good quality of life through the effective management of **noise** within the context of Government policy on sustainable development"*. The NPSE introduces "No observed effect level" (NOEL), "Lowest observed effect level" (LOAEL) and "Significant observed adverse level" (SOAEL). A grouping method similar to this is already an established concept in toxicology health. The NPSE goes on to explain why they have not introduced specific values for each of the categories.

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."

- 6.1.4. The lack of any specific values in the new policy gives no indication of the reduction index required by building element to provide good living conditions. Therefore it is desirable to refer back to the most appropriate British Standard which is BS8233:2014 which provides the internal design criteria for habitable rooms.

7. Local Authority Requirements

- 7.1.1. We have been passed the following information from the client stating planning conditions issued by the Local Authority:

(8) **Noise** Impact Assessment - required
In order to achieve the level of development proposed for the site it would appear from the illustrative elevations that a number of flats will have their sole external facades directly facing the railway line. An understanding of the implications of this relationship in terms of the design and resultant building characteristics of the development should, as a minimum, form part of the Design and Access Statement (where it is noted as a constraint but not addressed subsequently in the design rationale).

Figure 2 - Local Authority planning condition

- 7.1.2. In the absence of any specific internal noise criteria, the most relevant criteria to apply to this assessment is BS8233:2014 *"Sound insulation and noise reduction in buildings – code of practice"*.
- 7.1.3. A summary of the criteria to be applied to this development is as such:

Criteria ID	Quantity	Living Space	Inclusive Hours	Inclusive Days	Maximum Value(dB)
1	$L_{Aeq,16hr}$	Living Rooms	0700-2300	Mon-Fri	35
2	$L_{Aeq,16hr}$	Dining Rooms	0700-2300	Mon-Fri	40
3	$L_{Aeq,16hr}$	Bedrooms	0700-2300	Mon-Fri	35
4	$L_{Aeq,8hr}$	Bedrooms	2300-0700	Mon-Fri	30
5	$L_{Amax,T}$	Bedrooms	2300-0700	Mon-Fri	45

Table 1 - Design criteria for sound pressure level limits

8. Survey

8.1. Measurement Locations

- 8.1.1. Fixed position monitoring took place at one location around the site to take into consideration the likely dominant noise sources and the requirements of the Local Authority.
- 8.1.2. The monitoring equipment was positioned to measure representative sound pressure levels over a typical period at the worst affected facades of the proposed residential, with respect to noise.
- 8.1.3. The microphone position was free field and 1.5m from the ground.
- 8.1.4. The monitoring location can be seen in Figure 3.



Figure 3 - Noise monitoring locations on site

8.2. Noise climate

8.2.1. The general noise climate is described subjectively by the survey engineer in the following table.

Position	Engineer's Description
1	The general noise climate was dominated by rail movements from the adjacent rail line and station. Sporadic traffic movements also had a small contribution

Table 2 - Survey engineer noise climate description

8.2.2. Other less specific noise sources will also have contributed to the measured sound pressure levels.

8.3. Measurement instrumentation

8.3.1. The measurement instrumentation used during the survey is detailed in the appendix (see section 12.2).

- 8.3.2. The acoustic equipment was calibrated to comply with Section 4.2 of BS7445-1:2003¹ before and after the surveys. The calibration details are also detailed in the appendix.

8.4. Measurement and timescale

- 8.4.1. Unattended noise monitoring took place over a typical period between 27/04/2015 and 30/04/2015. The following quantities were measured:

$$L_{Amax,1 min}$$

$$L_{Aeq,1 min}$$

- 8.4.2. Sound pressure measurements were subsequently averaged into hourly, day time and night-time periods.
- 8.4.3. The acoustic measurements and their interpretation shall be in accordance with BS 7445: Parts 1, and 2². All sound pressure levels are in dB (re 20μPa).

8.5. Meteorology

- 8.5.1. During the survey the weather information was noted. This is shown in the following table.

	Position	Survey Start	Survey End
Roads(Wet/Dry)	All	Dry	Dry
Temperature (°C)	All	1.0	12.0
Wind Speed (ms ⁻¹) / Direction	1	1.5/Variable	3.6/West

Table 3 - Meteorological data noted during the survey

9. Results

9.1. Fixed Position Results Summary

- 9.1.1. The measurement results are summarised in Table 4.

¹ B7445-1:2003 "Description and measurement of environmental noise – Part 1: Guide to quantities and procedures"

² BS7445-2:2003 "Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use"

Result ID	Measurement	Quantity	Inclusive Hours	SPL (dB)
1	Pos 1	$L_{Aeq,16hr}$	0700-2300	56.7
2	Pos 1	$L_{Aeq,8hr}$	2300-0700	53.2
3	Pos 1	$L_{Amax,T}$	2300-0700	77.5

Table 4 - Summary of the sound pressure levels measured during the fixed monitoring survey

- 9.1.2. Where Daytime is defined as the period 0700-2300 and night-time is defined as the period 2300-0700.
- 9.1.3. It is usual practice to take the 10th highest recorded L_{Amax} result over a period to account for any erroneous readings that would unfairly dictate the mitigation. The values shown here are representative maximums over each relevant period. NB: See footnote 4 from Table 4, p24, BS8233: 2014.
- 9.1.4. Further details and the full measurement results can be found in the Appendix.
- 9.1.5. No corrections were necessary to the measurement results.

10. Mitigation

10.1. Internal noise levels

- 10.1.1. The prevailing ambient noise at the monitoring positions is described in Table 2. The glazing performance selection for these affected façades will be based on the rail traffic corrected sound reduction index R_{Rail}^4 ($R_{Rail} = R_{TRA} + 3$), for the calculation of necessary sound reduction. These sound reduction indices take into account the frequency characteristics of the noise.
- 10.1.2. Based on the measurement data the simple calculation method from BS8233:2014 is followed to determine the necessary sound reduction in each instance and select the glazing. Standard forms of construction are assumed such that the glazing is likely to be the lowest performing facade element.

10.2. Calculation: Necessary Sound Reduction and Recommended Glazing

- 10.2.1. The 'Noise Sensitive Receiver Facade' (NSR Facade) is considered to have consistent exposure, to the dominant noise source, across it.
- 10.2.2. Referring to Table 1, each criteria to be applied to this development is matched with the corresponding measurement results in Table 4. A cross reference table, detailing which criteria and which measurement result have been used to derive each individual glazing calculation, can be found in the appendix.

- 10.2.3. The single figure glazing performance requirements in order to achieve the internal design criteria based on the measurement results in 9.1 are calculated in the Appendix and are summarised below:

Noise Sensitive Receiver	Living Rooms (dB)	Dining Rooms (dB)	Bedrooms (dB)
NSR Facade 1	21.7	16.7	32.5

Table 5 - Required facade sound insulation

- 10.2.4. Our recommended glazing configurations which achieve the required performance from Table 5 are as follows:

Noise Sensitive Receiver	Living Rooms	Dining Rooms	Bedrooms
NSR Facade 1	4 (12) 4	4 (12) 4	4 (6) 6

Table 6 - Recommended glazing specification

- 10.2.5. The preceding table summarises the glazing configurations required to meet the relevant criteria. **NOTE:** These are suggested glazing configurations. Any other glazing configuration can be used provided it achieves the minimum glazing performance level.

- 10.2.6. Our glazing selection makes use of a comprehensive database of glazing data provided by Saint Gobain Glass.

- 10.2.7. A full glazing mark-up for the Client's proposed layout plan is detailed in the Appendix.

10.3. Ventilation

- 10.3.1. It should be noted that in order to achieve these internal levels the windows must remain closed on the building facade. The Client must decide on a suitable ventilation strategy to comply with Building Regulation requirements.

- 10.3.2. Passive ventilation can be provided by an appropriate acoustic slot vent which must be matched to the relative window acoustic performance.

- 10.3.3. Acoustic performance data provided by Greenwood has been used to calculate the effect on internal levels with the installation of different ventilation systems on a facade.

- 10.3.4. The calculation method from the previous section is expanded to consider both the glazing and the ventilation system as the weakest points of a facade. A composite sound reduction index based on the sound reducing performance of these two elements is calculated and the simple calculation method from BS8233:2014 outlined previously is followed using this value.

- 10.3.5. Guidance from Approved Document F: Means of Ventilation:2010³ is used to determine the number of vents of each specification that are required in habitable spaces. Section 5.2 of this document states that: '*Background ventilators should be located in all rooms with external walls, with at least 5000 mm² equivalent area in each habitable room.*' This minimum equivalent area is assumed for the purpose of the calculation.
- 10.3.6. Given the assumptions in this method the information in this section should be treated as general guidance only. The acoustic performance of third party products cannot be guaranteed by noise.co.uk.
- 10.3.7. The following table outlines the Greenwood ventilation products considered and the number of vents assumed for each unit. The subsequent tables outline the internal noise level calculation for each space at each NSR receiver. Green numbers indicate compliance with the relevant criteria and red numbers indicate non compliance.

Product Code	Description	A- weighted level $D_{n,ew} + C_{tr}$	Number of Vents Used In Calculation
AAB4000	Acoustic Wall Ventilator	48.2	2
AWV39	Acoustic Wall Ventilator	51.5	2
MA3051	Acoustic Wall Ventilator	65	2
EAR 42W	Acoustic Window Ventilator	50	2
1600DN	Acoustic Window Ventilator	39.2	4
2500EAW.AC1	Vent 2500EA + 1 Acoustic Set	43.9	2
2500EAW.AC2	Vent 2500EA + 2 Acoustic Set	52.6	2
5000EAW.AC1	Vent 5000EA + 1 Acoustic Set	43	1
5000EAW.AC2	Vent 5000EA + 2 Acoustic Set	53.3	1
5000EA	Vent 5000 EA	31	1
4000DF	Window Ventilator	30.2	2
1250F	Window Ventilator	36.7	4
2500F	Window Ventilator	32.3	2
4000HD	Window Ventilator	31.7	2
8000HD	Window Ventilator	31.1	1
2000L	Window Ventilator	37.6	4
8000HD	Window Ventilator	31.1	1
2000L	Window Ventilator	37.6	4
4000L	Window Ventilator	34.2	2
3000S	Window Ventilator	36	3
4000S	Window Ventilator	33.4	2
6000S	Window Ventilator	32.9	2

Table 7 - Greenwood products used in calculations

³ Approved Document F: Means of Ventilation: The Building Regulations 2010

- 10.3.8. **Note:** It is to be expected that not all ventilation systems will work with our recommended glazing specifications. The vents listed above are a full range from low acoustic performance through to high performance acoustic vents.

NSR Facade 1 Calculated Internal Levels			
Product Code	Living Rooms (dB)	Dining Rooms (dB)	Bedrooms (dB)
	<35	<40	<45
AAB4000	26.8	26.8	43.8
AWV39	26.7	26.7	43.7
MA3051	26.7	26.7	43.5
EAR 42W	26.8	26.8	43.7
1600DN	28.4	28.4	46.9
2500EAW.AC1	27.0	27.0	44.3
2500EAW.AC2	26.7	26.7	43.6
5000EAW.AC1	26.9	26.9	44.0
5000EAW.AC2	26.7	26.7	43.6
5000EA	29.2	29.2	48.3
4000DF	31.3	31.3	51.1
1250F	29.4	29.4	48.5
2500F	30.0	30.0	49.5
4000HD	30.4	30.4	49.9
8000HD	29.2	29.2	48.2
2000L	29.0	29.0	47.9
8000HD	29.2	29.2	48.2
2000L	29.0	29.0	47.9
4000L	29.1	29.1	48.1
3000S	29.1	29.1	48.1
4000S	29.5	29.5	48.7
6000S	29.7	29.7	49.0

Table 8 - Internal noise levels achieved with different Greenwood ventilation products (Green = Compliant with determining Criteria, Red = Noncompliant)

- 10.3.1. With the introduction of a ventilation system in to the calculation the sound reduction of the facade is reduced and the predicted internal levels higher than compared with a glazing only consideration. In cases where only a high end vent will meet the internal level criteria with our recommended glazing, it may be cost effective to increase the glazing specification marginally so a more appropriate vent can be matched.
- 10.3.2. We would recommend the services of Greenwood (or equal and approved) for expert advice on ventilation strategies. For more information please contact:

Mike Beck, Greenwood
M: 07801039584

11. Conclusions

- 11.1.1. An environmental noise assessment has been conducted on a proposed site at Market Parade, Havant in order to assess the impact of environmental noise on a proposed residential development.
- 11.1.2. Suitable mitigation in the form of a glazing configuration has been specified to allow even the worst affected properties to achieve the relevant internal noise criteria.
- 11.1.3. We strongly recommend that this report be passed to the Local Authority for approval before any works are carried out.

Dr Bill Whitfield BA, MSc, PhD, MIOA

Managing Director

12. Appendix

12.1. Summary Information

Required ISO Test Report Information (cross referenced where required)			
		Measurements carried out to:	Analysed to:
A	Standards	BS 7445-1: 2003 BS 7445-2: 1991	BS 8233:2014
B	Organisation performed the measurements	noise.co.uk Ltd, The Haybarn, Newnham Grounds, Kings Newnham Lane, Bretford, Coventry, CV23 0JU.	
C	Name of Client	Futuremost Ltd	
D	Full site address	Market Parade, Havant, PO9 1PY	
E	Date of surveys	Survey Start Date: 27/04/2015 Survey End Date: 30/04/2015	
F	Description & identification of proposed development	It is proposed to develop the site for residential.	
G	Brief Description of details of Procedure & equipment	See section 5 of this report	

12.2. Technical appendix

12.2.1. Measurements were made using the following equipment:

Monitoring Position	Sound Level Meter (Serial Number)	Calibrator (Serial Number)
1	Norsonic 140 (1405559)	Norsonic 1251 (33823)

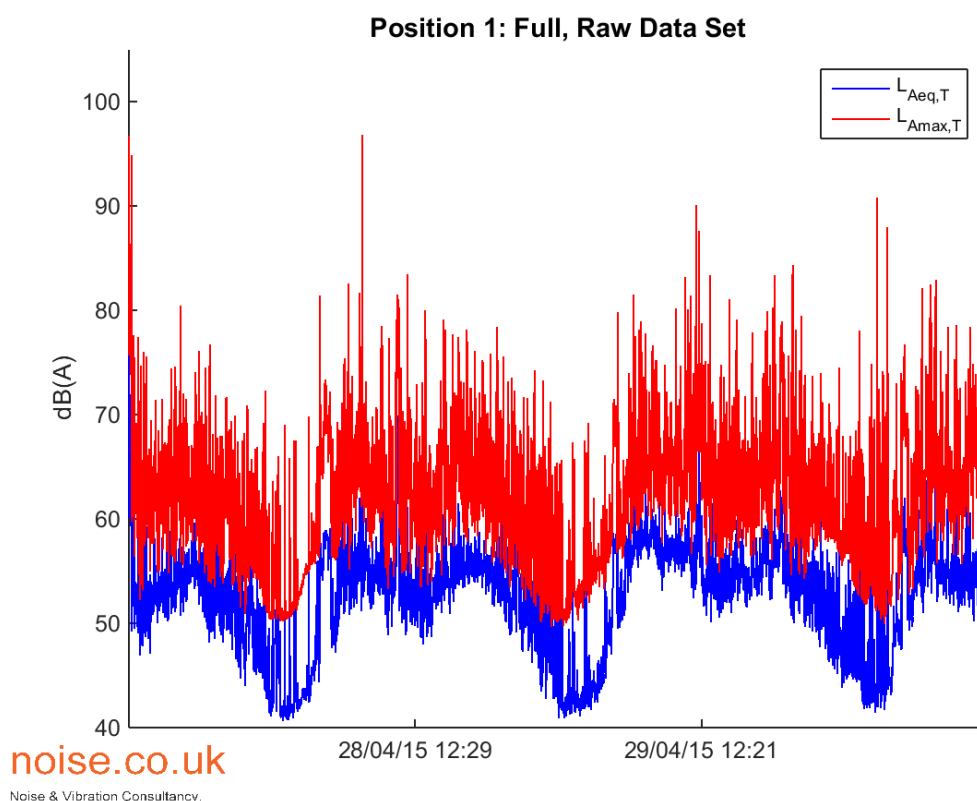
12.2.2. The equipment has traceable calibration.

12.2.3. The sound level meter was calibrated immediately prior to and immediately after the measurements were carried out.

Sound Level Meter	Before	After
Norsonic 140 (1405559)	114.0dB	114.0dB

12.2.4. There was no adverse deviation.

12.3. Recorded Raw Data-Figures:



12.4. Average Hourly Raw L_{Aeq} Levels - Tables

Position 1: Hourly L_{Aeq} Levels		
Date & Time	Day	$L_{Aeq,T}$
27/04/2015 13:00	Mon	55.7
27/04/2015 14:00	Mon	53.0
27/04/2015 15:00	Mon	53.2
27/04/2015 16:00	Mon	55.0
27/04/2015 17:00	Mon	55.0
27/04/2015 18:00	Mon	55.2
27/04/2015 19:00	Mon	53.7
27/04/2015 20:00	Mon	53.1
27/04/2015 21:00	Mon	52.3
27/04/2015 22:00	Mon	51.4
27/04/2015 23:00	Mon	49.9
28/04/2015 00:00	Tue	46.3
28/04/2015 01:00	Tue	47.8
28/04/2015 02:00	Tue	45.2
28/04/2015 03:00	Tue	45.2
28/04/2015 04:00	Tue	55.7
28/04/2015 05:00	Tue	55.5
28/04/2015 06:00	Tue	58.2
28/04/2015 07:00	Tue	56.0
28/04/2015 08:00	Tue	59.1
28/04/2015 09:00	Tue	55.7
28/04/2015 10:00	Tue	56.2
28/04/2015 11:00	Tue	61.0
28/04/2015 12:00	Tue	53.5
28/04/2015 13:00	Tue	54.0
28/04/2015 14:00	Tue	54.7
28/04/2015 15:00	Tue	56.2
28/04/2015 16:00	Tue	56.5
28/04/2015 17:00	Tue	56.1
28/04/2015 18:00	Tue	55.2
28/04/2015 19:00	Tue	54.9
28/04/2015 20:00	Tue	53.5
28/04/2015 21:00	Tue	53.0
28/04/2015 22:00	Tue	51.4
28/04/2015 23:00	Tue	50.2
29/04/2015 00:00	Wed	47.5
29/04/2015 01:00	Wed	47.4
29/04/2015 02:00	Wed	44.7
29/04/2015 03:00	Wed	44.2

Position 1: Hourly L _{Aeq} Levels		
Date & Time	Day	L _{Aeq,T}
29/04/2015 04:00	Wed	48.9
29/04/2015 05:00	Wed	54.9
29/04/2015 06:00	Wed	57.4
29/04/2015 07:00	Wed	58.9
29/04/2015 08:00	Wed	58.5
29/04/2015 09:00	Wed	57.0
29/04/2015 10:00	Wed	57.1
29/04/2015 11:00	Wed	57.8
29/04/2015 12:00	Wed	58.9
29/04/2015 13:00	Wed	55.2
29/04/2015 14:00	Wed	54.5
29/04/2015 15:00	Wed	55.6
29/04/2015 16:00	Wed	54.8
29/04/2015 17:00	Wed	56.6
29/04/2015 18:00	Wed	56.8
29/04/2015 19:00	Wed	56.9
29/04/2015 20:00	Wed	55.8
29/04/2015 21:00	Wed	54.1
29/04/2015 22:00	Wed	53.0
29/04/2015 23:00	Wed	51.3
30/04/2015 00:00	Thu	49.0
30/04/2015 01:00	Thu	48.6
30/04/2015 02:00	Thu	47.5
30/04/2015 03:00	Thu	53.2
30/04/2015 04:00	Thu	48.7
30/04/2015 05:00	Thu	55.8
30/04/2015 06:00	Thu	55.4
30/04/2015 07:00	Thu	59.0
30/04/2015 08:00	Thu	55.9
30/04/2015 09:00	Thu	55.2
30/04/2015 11:00	Thu	54.7

12.5. Raw $L_{Amax,T}$ - Tables

Position 1: Highest Recorded 2300-0700, Mon-Thu, L_{Amax} Levels (1 min)		
Rank	$L_{Amax,T}$	Date & Time
1	90.8	30/04/2015 03:01
2	88.0	30/04/2015 03:54
3	82.6	28/04/2015 06:58
4	82.1	30/04/2015 06:46
5	81.5	29/04/2015 06:44
6	81.4	28/04/2015 04:34
7	80.0	28/04/2015 04:33
8	79.8	29/04/2015 05:23
9	78.0	30/04/2015 01:32
10	77.5	29/04/2015 06:50

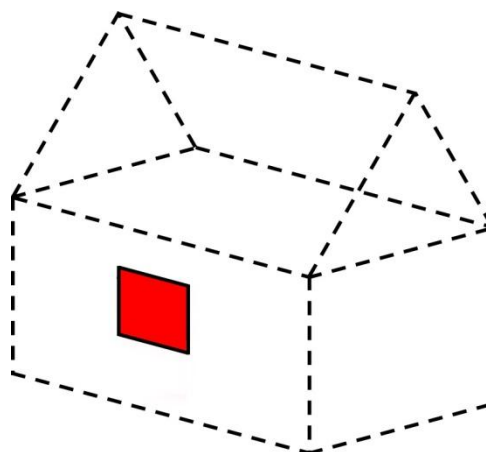
12.6. Calculations Matrix

Calculation ID	Criteria ID	Result ID
1	1	1
2	2	1
3	3	1
4	4	2
5	5	3

12.7. Glazing Design –Worst affected properties

To reduce the noise exposure inside the dwelling the façade sound insulation should be considered. The windows and trickle ventilators will normally be the weakest part of a brick and block façade⁴.

The glazing specification has been based on the corrected sound reduction index, R_{TRA} or R_{RAIL} depending on the dominant source of noise at the facade(see table 1).



12.7.1. The following table details the information used in each Internal or external calculation for reference purposes.

NSR Facade 1							
Calc ID	Living Space	SPL (dB)	Internal Max Value (dB)	Required Sound Insulation (dB)	Recommended Glazing	Performance of Selected Glazing	Calculated Internal Level (dB)
1	Living Rooms	56.7	35	21.7	4 (12) 4	30.0 R_{rail}	26.7
2	Dining Rooms	56.7	40	16.7	4 (12) 4	30.0 R_{rail}	26.7
3	Bedrooms	56.7	35	21.7	4 (12) 4	30.0 R_{rail}	26.7
4	Bedrooms	53.2	30	23.2	4 (12) 4	30.0 R_{rail}	23.2
5	Bedrooms	77.5	45	32.5	4 (6) 6	34.0 R_{rail}	43.5

⁴ BS8233:2014 "Sound insulation and noise reduction for buildings – Code of practice", P15

12.8. Glazing Mark-up



Noise Sensitive Receiver	Living Rooms (dB)	Dining Rooms (dB)	Bedrooms (dB)
NSR Facade 1	21.7	16.7	32.5

Table 9 - Required facade sound insulation

12.8.1. All other glazing on site can be a minimum specification.

12.8.2. Glazing to be applied at all levels of development.

12.9. Client Drawings



1B - 6
2B - 14
Total = 20



Market Parade - Havant
Development Proposals
Residential Levels 1-4



1B - 5
2B - 10
Total = 15



Market Parade - Havant
Development Proposals
Residential Levels 5-7



