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Environmental Associates

Noise Assessment

Junction of Fairy Lane and Bury New Road, Manchester

December 2020

BOI Trading Company Ltd

Noise Assessment

Junction of Fairy Lane and Bury New Road, Manchester

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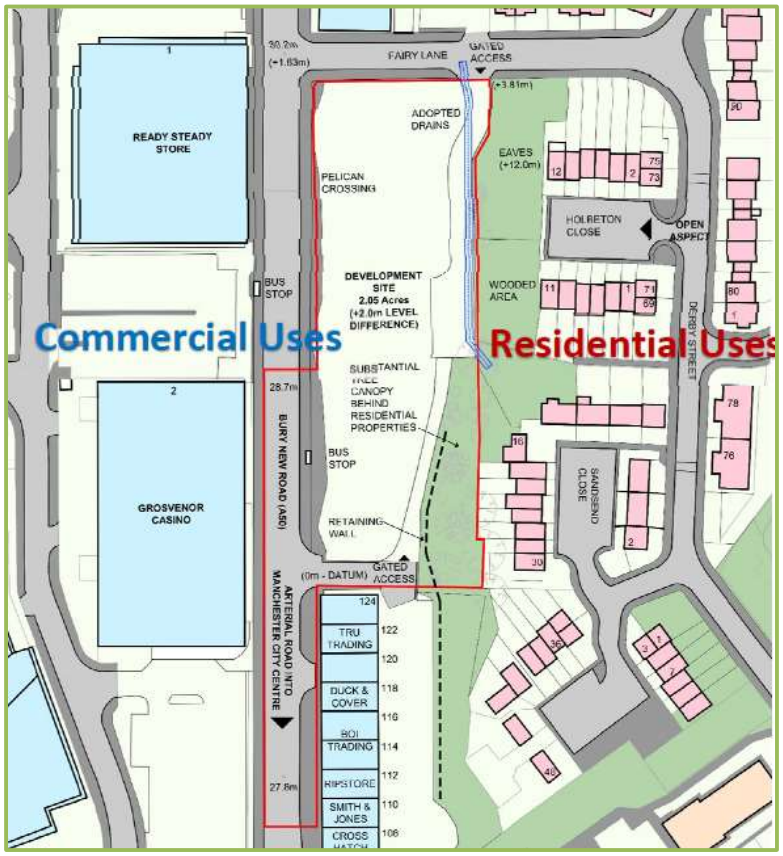
1 INTRODUCTION

1.1 Background

1.1.1 NJD Environmental Associates LTD was instructed by BOI Trading Company Ltd to undertake a noise assessment in support of an outline planning application for the redevelopment of brownfield land, to deliver a new building to be used for retail and residential within a stylish, modern building. The proposal is supported by a ground level under-croft car park with vehicle manoeuvring/servicing area, and perimeter hard and soft landscaping.

1.1.2 Vehicular access will be via Bury New Road with a modified junction, that currently serves a terrace of retail units [106-124 Manchester Road). The main pedestrian access to the building will be Bury New Road with an alternative residents' only access off Fairy Lane.

1.1.3 Circa 668sqm of single storey retail units is provided at street level fronting Bury New Road, with a total of 141no. apartments comprising a combination of 1 and 2no. Bed units of varying sizes. The site location is shown below in Drawing 1.



Drawing 1: Site Location

1.1.4 A noise assessment report has been prepared in support of the planning application; with measurements taken of noise sources impacting the development, calculations performed using noise modelling software, and the results interpreted in accordance with the relevant standards.

2 ASSESSMENT METHODOLOGY

2.1 BS8233:2014 and WHO 1999 Guidance Levels

2.1.1 BS8233:2014 *'Guidance on sound insulation and noise reduction for buildings'* provides guidance for the control of noise in and around buildings. It applies to the design of new buildings, or refurbished buildings undergoing a change of use.

2.1.2 BS8233 refers to the World Health Organisation research and recommendations when defining acceptable and upper guidance noise levels within gardens during the day, and within habitable rooms in dwellings during the day and night-time periods as follows:

Table 1: Summary of BS8233 and WHO guidance noise levels

Activity	Location	0700 to 2300h	2300 to 0700h
Resting	Living room	35dB LAeq,16h	-
Relaxing	Gardens	55dB LAeq,16h	-
Dining	Dining room	40dB LAeq,16h	-
Sleeping (daytime resting)	Bedroom	35dB LAeq,16h	30dB LAeq,8h 45dB LAmax

2.1.3 The above levels have been adopted for the purpose of this assessment.

2.2 BS4142:2014+A1:2019 Industrial and Commercial Sound Guidance

2.2.1 Where industrial or commercial noise is present or proposed and likely to impact a residential receptor, the guidance contained within BS4142:2014 *'Methods for rating and assessing industrial and commercial sound'* should be followed. The guidance enables the effects of such noise on people nearby to be assessed and the associated risks to be minimised.

2.2.2 The guidance provides a methodology for determining an initial estimate of significance through subtracting the measured background noise level from the rating level (the specific sound level of the source corrected for any distinctive acoustic characteristics).

2.2.3 Typically, the greater the difference, the greater the magnitude of the impact.

- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

2.2.4 The context, as defined within BS4142, relates to the following factors:

- The absolute level of sound.
- Character and level of the residual sound compared to the character and level of the specific sound.
- Acoustic design measures.

3 NOISE SURVEY

3.1 Introduction

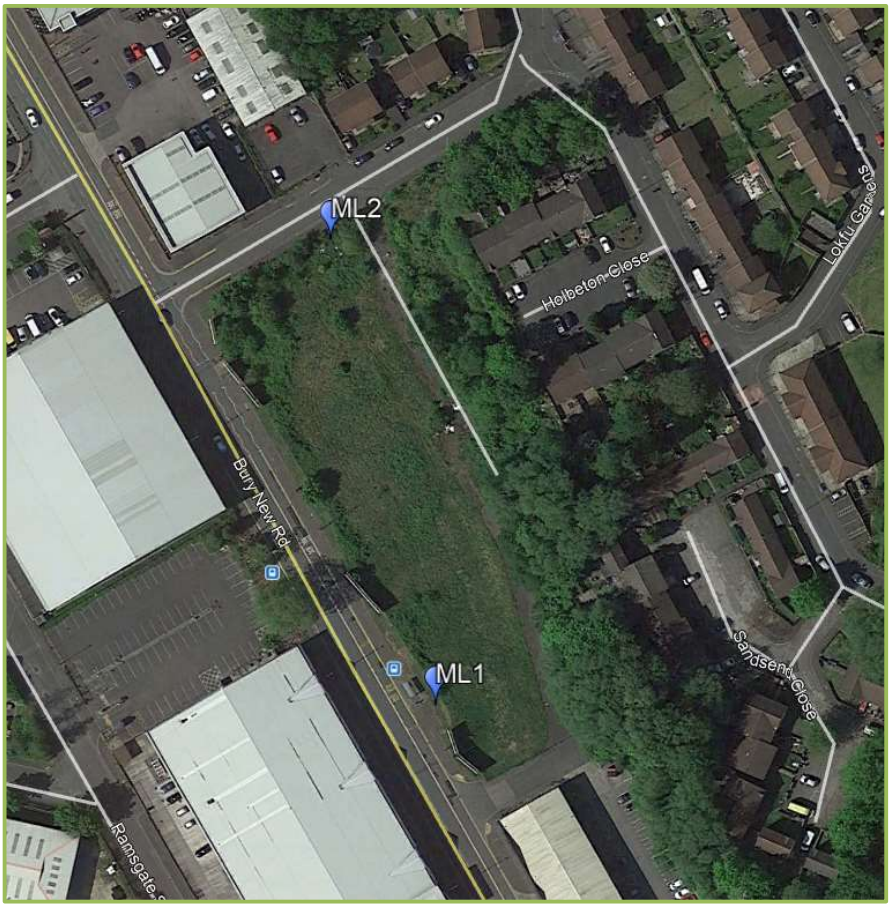
3.1.1 In March 2020, noise measurements were taken in the vicinity of the development site, in order to quantify noise from surrounding sources.

3.1.2 Measurements were taken using two Acoem 01dB Fusion sound level meters. The Class 1 instruments logged 1/3 octave levels throughout the measurements, in addition to audio recordings to aid subsequent analysis. The instruments were calibrated before and after the measurements to a reference level of 94dB, with no notable drift observed.

3.1.3 The sound level meters and field calibrator hold valid calibration certificates traceable to national standards. All calibration certificates can be made available upon request.

3.2 Monitoring Locations

3.2.1 Measurements were taken at the locations shown in Drawing 2 below.



Drawing 2: Noise monitoring locations

3.2.2 The monitoring locations were as follows:

- **ML1**: Approximately 6m from the nearside carriage of Bury New Road, towards the western perimeter of the site. The location was selected in order to measure traffic noise associated with the adjacent road.

  The measurement took place during the following dates and times:
  - 1100h on the 5th to 1100h on the 6th March 2020.

- **ML2**: Approximately 40m from the nearside carriage of Bury New Road, towards the northern perimeter of the site. The location was selected in order to measure background, residual and ambient noise in order to understand the potential for any commercial noise impact associated with nearby sources.

  The measurement took place during the following dates and times:
  - 1100h on the 5th to 1100h on the 6th March 2020.

3.2.3 Weather conditions were dry and calm (2 to 4ms^{-1}) throughout the duration of the survey.

3.3 Existing Noise Levels

3.3.1 The noise levels from the identified monitoring locations are summarised in Tables 2 and 3 below.

Table 2: Summary of measured daytime noise levels (dBA)

Location	Daytime LAeq 0700 to 2300h	Daytime LA90 0700 to 2300h	Daytime LA10 0700 to 2300h	Daytime LAmax 0700 to 2300h
ML1	71	58	74	98
ML2	63	51	66	94

Table 3: Summary of measured night-time noise levels (dBA)

Location	Night-time LAeq 2300 to 0700h	Night-time LA90 2300 to 0700h	Night-time LA10 2300 to 0700h	Night-time LAmax 2300 to 0700h
ML1	67	45	72	87
ML2	59	41	63	88

3.3.2 Full details of the measurements are presented in Appendix 1.

3.4 LAmax Analysis

3.4.1 WHO Guidelines for Community Noise (1999) suggests guideline values for internal noise exposure which take into consideration the identified health effects and are set, based on the lowest effect levels for general populations.

3.4.2 The WHO (1999) recommends a guidance level of 45dB LAmax(f) within bedroom areas during the night-time, with the recommendation that;

'For intermittent noise, it is emphasized that it is necessary to take into account both the maximum sound pressure level and the number of noise events.'

3.4.3 World Health Organisation (WHO 2009), states in Section 3.4:

3.4.4 *'For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB LAmax more than 10 – 15 times per night.'*

3.4.5 The ProPG Noise further expands this point with reference to BS8233 Table 4, Note 4, stating:

'In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB LAmax,F more than 10 times a night.'

3.4.6 In light of the above, analysis has been conducted based on the LAmax events observed during the night-time period at ML1. The analysis found that the 10th highest measured LAmax during the night-time period at ML1 was 81dB. This level has therefore been adopted for use in the noise modelling exercise, as detailed in the following Section.

4 CADNAA NOISE MODELS

4.1 Input Data

4.1.1 Topographic data of the site and surrounding land (5m resolution Lidar satellite data) has been incorporated into the noise models, with buildings and roads positioned to reflect proposed conditions.

4.1.2 Proposed buildings have been assigned heights based on the elevation plans provided by the architect.

4.1.3 For the purpose of these calculations, the ground absorption has been set to G=0 (which represents acoustically hard and reflective ground around the development site), with buildings and roads also set to G=0 (acoustically hard and reflective), with two orders of reflection considered.

4.1.4 The models have been programmed to assess scenarios based on the daytime (0700 to 2300h) and night-time (2300 to 0700h) periods. During both the day and night-time period, receptor points have been set at 8m above ground level, as this is deemed to be the approximate location of the first floor living room and bedroom windows.

4.1.5 Point (LAmax) and line (LAeq) sources have been set using the road traffic data measured from ML1.

4.2 Model Results

4.2.1 The results from each scenario assessing transportation noise are shown in Figures 1 to 3.

4.2.2 Table 4 summarises the highest levels expected in the vicinity of Proposed Sensitive Receptor (PSR) locations across the blocks during the respective periods.

4.2.3 The PSR locations have been selected on the basis of those apartments generally most exposed to noise in the different areas of the development, and therefore provide an indication of the highest impact that can be expected across the

site, with lower levels expected in those areas of the development located away from the transportation sources, as shown in the Figures.

Table 4: Summary of highest modelled noise levels			
Assessment Metric →	**dB LAeq,16h**	**dB LAeq,8h**	**dB LAmax**
Area of Site ↓	**Living Room Façade**	**Bedroom Façade**	**Bedroom Façade**
PSR1 Western elevation	71	67	80
PSR2 Southern elevation	65	62	77
PSR3 Eastern elevation	36	32	48
PSR4 Northern elevation	62	58	74

4.2.4 The modelled noise levels have been assessed with reference to the required standards to determine appropriate mitigation, as discussed in the following Sections.

4.3 Noise Model Factors and Limitations

4.3.1 The noise models presented in this assessment calculate noise propagation to the methodologies contained within ISO 9613-2 Acoustic – Attenuation of sound during propagation outdoors. This gives a higher level of accuracy for the level of attenuation provided by intervening topography and barriers than the method provided by BS5228.

4.3.2 All noise level predictions are based on simplified models of sound generation and propagation; however, some local conditions such as gusts of wind or bursts of turbulence in the air are too complex to be factored into the algorithms.

4.3.3 The noise models may therefore be subject to some minor uncertainties; however, it is noted that all predictions assume theoretical down-wind propagation from all sources to all receptors, and as such the models are more likely to over-predict noise levels compared to real-life conditions.

4.3.4 The primary factor that governs the validity of the models is the quality of the input data. As such, all practicable means have been explored to ensure that the data used in the models is as accurate as possible.

5 BS8233 ASSESSMENT OF NOISE LEVELS IN GARDENS, LIVING ROOMS AND BEDROOMS

5.1 Outdoor Living Areas During the Daytime

5.1.1 The plans submitted as part this application show an area of hard landscape amenity space at podium level to the east of the building. Following discussions with the Client and architect, it has been confirmed that these areas are designated as shared amenity space, and no private outdoor amenity space is proposed as part of the development.

5.1.2 Due to the shared amenity space designation, the guidance noise levels from BS8233/WHO would not apply, as these specifically relate to '. . . *traditional external areas that are used for amenity space, such as gardens and patios*. . .'.

5.1.3 Whilst the guidance levels from BS8233/WHO may not apply, it is nevertheless considered useful to observe the calculated daytime noise levels from this area of the site, as presented in Figure 1. The model indicates that noise levels of approximately 36 to 40dB LAeq,16h can be expected in this area of the site, which would provide comfortable acoustic conditions for relaxation in outdoor amenity areas.

5.2 Living Rooms and Bedrooms During the Daytime

5.2.1 During the daytime period, BS8233 recommends a guidance level of 35dB LAeq,16h inside living room and bedroom areas.

5.2.2 WHO (1999) indicates that with a window partially open for ventilation, approximately 15dB of attenuation from external noise sources should be achieved.

5.2.3 On this basis, the large majority of living rooms and bedrooms with partial or full line-of-sight to Bury New Road will not achieve daytime guidance noise levels with windows open and will therefore require an alternative means of ventilation.

5.3 Bedrooms During the Night-time

5.3.1 During the night-time period, BS8233 and WHO (1999) recommend a guidance level of 30dB LAeq,8h and 45dB LAmax inside bedroom areas.

5.3.2 As per the daytime requirements, the majority of bedrooms with partial or full line-of-sight to Bury New Road will not achieve the night-time guidance noise levels with windows open and will therefore require an alternative means of ventilation.

5.3.3 Appropriate mitigation measures are discussed in the following Section.

6 MITIGATION MEASURES TO ACHIEVE INTERNAL GUIDANCE LEVELS

6.1.1 The receiving rooms subject to the highest potential impact are generally those with the greatest ratio of window area to room volume, in closest proximity to the dominant noise sources surrounding the development.

6.1.2 The rooms most exposed to noise ingress during both the day and night-time periods are found to be those overlooking Bury New Road on the western elevation of the proposed development (PSR1).

6.1.3 Based on the results from Figures 1 to 3 (summarised in Table 4), the level of attenuation required to achieve the internal guidance levels in these areas of the site has been calculated.

6.1.4 BS8233 and BS EN12354-3 provide equations for performing detailed noise break-in calculations for composite facades and individual façade elements such as ventilators. The equations are shown below.

$$L_2 = L_{1,in} - R + 10 \times Log\ (S/V) + 10 \times Log(T) + 11$$

$$L_2 = L_{1,in} - D_{n,e} - 10 \times Log\ (V) + 10 \times Log(T) + 21$$

6.1.5 The calculation uses dimensions of glazing and façade elements from the plots experiencing the highest noise impact in combination with the highest glazing to internal room volume ratio.

6.1.6 Tables 5 and 6 show examples of the calculation process for a first-floor bedroom overlooking Bury New Road during both the day and night-time periods.

6.1.7 In the absence of detailed information relating to window area and construction detail at this stage of the outline application, robust estimations have been incorporated into the calculations where appropriate.

Table 5: Detailed noise break-in calculation for bedroom of first floor apartment in the vicinity of PSR1 (dB LAeq,16h)								
External Noise Level	**125**	**250**	**500**	**1000**	**2000**	**Total**	**Room Volume**	29m³
Broadband + Ctr Spectrum	57	61	64	67	65	71	**Glazing Area**	3m²
Attenuation	**125**	**250**	**500**	**1000**	**2000**	**Total**	**Wall Area**	3.5m²
Glazing 10/12/6.4mm	27	33	35	41	40	38	**R/T**	0.5s
ADF System 4 MVHR	n/a	n/a	n/a	n/a	n/a	n/a	**Number Vents**	n/a
Element Contribution	**125**	**250**	**500**	**1000**	**2000**	**Total**		
Glazing	28	26	27	24	23	33		
Ventilation	n/a	n/a	n/a	n/a	n/a	n/a		
Internal Noise Level	**125**	**250**	**500**	**1000**	**2000**	**Total**		
Combined (dB LAeq,16h)	28	26	27	24	23	**33**		
Guidance Level						**35**		

Table 6: Detailed noise break-in calculation for bedroom of first floor apartment in the vicinity of PSR1 (dB LAeq,8h)								
External Noise Level	**125**	**250**	**500**	**1000**	**2000**	**Total**	**Room Volume**	29m³
Broadband + Ctr Spectrum	53	57	60	63	61	67	**Glazing Area**	3m²
Attenuation	**125**	**250**	**500**	**1000**	**2000**	**Total**	**Wall Area**	3.5m²
Glazing 10/12/6.4mm	27	33	35	41	40	38	**R/T**	0.5s
ADF System 4 MVHR	n/a	n/a	n/a	n/a	n/a	n/a	**Number Vents**	n/a
Element Contribution	**125**	**250**	**500**	**1000**	**2000**	**Total**		
Glazing	24	22	23	20	19	29		
Ventilation	n/a	n/a	n/a	n/a	n/a	n/a		
Internal Noise Level	**125**	**250**	**500**	**1000**	**2000**	**Total**		
Combined (dB LAeq,8h)	24	22	23	20	19	**29**		
Guidance Level						**30**		

6.1.8 As the worst case-scenario has been assessed for a first-floor apartment overlooking Bury New Road, receptors in upper levels or with partial line of site to the road will also achieve the guidance levels based on the example specification provided.

6.1.9 Receptors on the eastern elevation of the development (PSR3) are likely to achieve the guidance noise levels will basic thermal double glazing and open windows.

6.1.10 The mitigation recommendations are summarised as part of the acoustic design statement in Section 8.

7 BS4142 ASSESSMENT

7.1 Existing Noise Sources

7.1.1 Due to the location and nature of the development, the potential for industrial and/or commercial noise impacting proposed residential receptors should be considered.

7.1.2 A desk study and site walkover has indicated that there are a number of potential sources of commercial noise in the vicinity of the development site, namely:

Drawing 3: Potential sources of commercial noise in the vicinity of the development site

- **A: Triumph Motorcycle Garage** – The facility is understood to sell and service motorcycles. During a walkover, customers and staff could at times be seen looking at bikes, however no bikes were observed being ridden. The facility is

largely screened from the development site by intervening buildings. No noise from external plant was found to be audible.

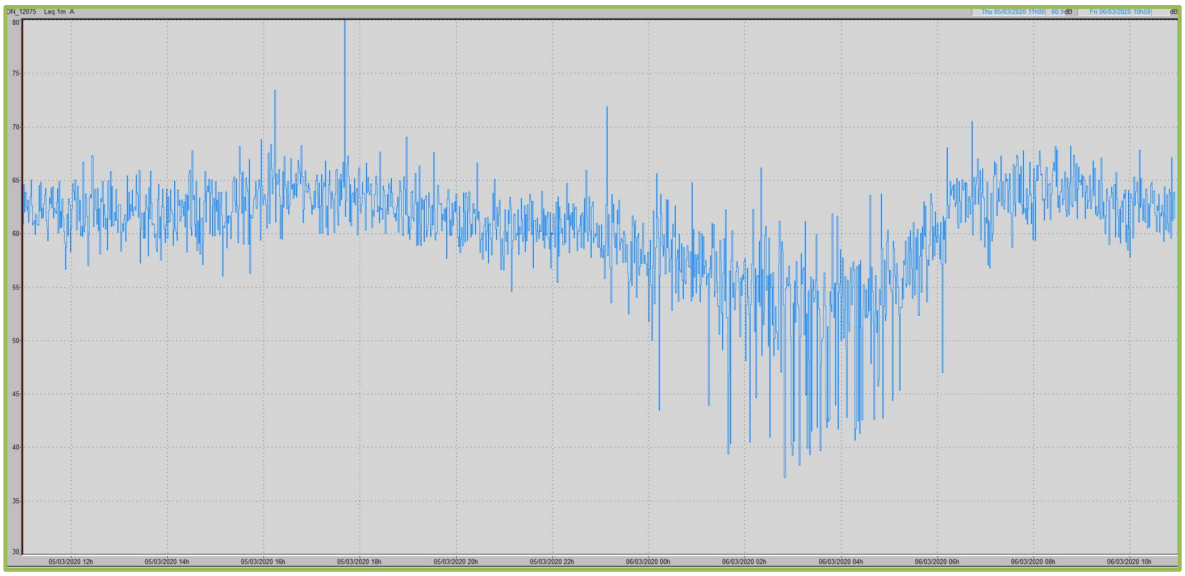
- **B: Halfords Autocentre** – A motor vehicle service and repair garage, to the north of the site. The facility was observed as having staff occasionally using the side door (north-eastern elevation) for cigarette breaks. No other activity was found to be audible from this source, with the majority of the works believed to take place internally, and on the forecourt at the north-western elevation.

- **C: Grosvenor Casio and Ready Steady Store facility** – Both facilities were observed to have moderate sized car parks, with cars occasionally seen manoeuvring. The Grosvenor Casino was found to have a ventilation outlet on the north-eastern elevation, however no noise from this was found to be audible at the site boundary due to the prominence of road traffic noise. The Storage facility was not found to have any sources of external vents or plant with line-of-sight to the development site. In light of the above, any noise from these facilities is considered to be negligible at worst, and no further assessment should therefore be required.

- **D: Commercial Units** – Modern commercial units occupied by clothing stores and associated office space. External plant was noted to the rear of the buildings, and it is also understood that deliveries take place in a similar area. Noise from the fixed plant (AHUs) was not found to be audible at the site boundary, and due to the nature of the products sold, deliveries are understood to be conducted by vans, small trucks and cars. The impact associated with these sources is expected to therefore be negligible at the proposed receptor locations. As existing noise sensitive receptors are in closer proximity to the delivery areas and external plant areas, any restrictions on the existing business will be dictated by the impact associated with the existing receptors. As such, the proposals brought forward shall not pose any additional restrictions on the ongoing operation of these businesses.

7.1.3 With reference to the above, the potential for commercial noise impact associated with existing sources is focused on the Triumph and Halfords garages to the north-west of the site.

7.1.4 In order to identify any noise associated with the garages, analysis of the time history log from ML2 was conducted.



Graph 1: Time history log (dB LAeq, 1-minute resolution) from ML2

7.1.5 As shown in Graph 1 above, a small number of spikes were observed in the time-history data from ML2. The audio associated with the spikes was therefore analysed in order to characterise the source.

7.1.6 In each instance, the noise was believed to be associated with road traffic movements. The highest spike at approximately 1740h on the 5th March is believed to be associated with a motorcycle manoeuvring on Fairy Lane to the north of the site.

7.1.7 Given the time of the occurrence, it is plausible that the event could be associated with a customer taking a bike from the Triumph Garage for a test drive (garage is understood to close at 1800h). However, given that the motorcycle was on a public road and not necessarily associated with any particular facility, assessing the impact from this event should not fall within the scope of BS4142.

7.1.8 Whilst it is acknowledged that noise from commercial sources may at times be present at the development site, no evidence exists to suggest that the noise may be either dominant or clearly perceptible in the context of the elevated residual noise level associated with Bury New Road. As such, any impact associated with existing commercial sources is deemed to be negligible at worst,

and should not therefore warrant a specific assessment in accordance with BS4142.

7.2 Noise Limit for Proposed External Plant

7.2.1 As noted in the introduction, the proposals for the scheme incorporate a commercial unit (or units) at ground floor level. At this stage of the application, in the absence of any detailed information with regards to the end operator or the specification or position of any proposed plant, a detailed assessment of such sources is not considered realistic.

7.2.2 It is therefore considered appropriate to set a noise limit based on the measured background noise level, with reference to the guidance presented in BS4142.

Background Noise Level

7.2.3 To determine representative background levels during the day and night-time periods, the data from ML2 has been analysed to determine the mean, modal and median average 15-minute noise levels during the respective periods. The results are shown in Table 7.

Table 7: Summary of background noise levels (dBA)

Metric	Daytime LA90 0700 to 2300h	Night-time LA90 2300 to 0700h
Mean	52	43
Modal	53	44
Median	52	42

7.2.4 In order to ensure a robust assessment is achieved, the lower levels associated with the median metric have been adopted for the purpose of setting the noise limit.

Rating Noise Level Limit

7.2.5 BS4142 states the following with regards to the excess of the rating level over the measured background noise level; '*A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context*.'

7.2.6 However, as the introduction of the proposed building is likely to reduce background noise levels at the receptor location to the east of the site, caution should be applied when determining the limits.

7.2.7 On this basis, it is recommended that the rating noise level should be 5dB below the existing measured background noise level for any cumulative impacts

associated with plant, deliveries or other external commercial noise associated with the scheme. The proposed limits are therefore summarised as follows:

Table 8: Summary of recommended rating level limits (dBA)		
Location	**Daytime LAeq,1h 0700 to 2300h**	**Night-time LAeq,15m 2300 to 0700h**
Proposed noise sensitive receptors on the northern elevation of the building	47	37

7.2.8 It should be noted that these indicative limits are dependent on the result of the assessment of context, in accordance with BS4142. Lower or higher limits may therefore be suitable, depending on the nature of the noise source and other associated characteristics, as defined with BS4142.

7.2.9 Due to the design of the scheme, with an enclosed access and parking area below the first-floor level of apartments, the opportunity exists to eliminate any potential commercial noise impact through appropriate design of the detailed scheme, should the LPA be minded to grant the outline application.

7.2.10 It is advised that noise from any proposed commercial activities could therefore be effectively managed via planning condition based on the proposed noise limits set out above. Any such conditions should be discharged when more detailed information relating to the commercial activities (i.e. specification of external plant or points of extraction etc.) is available.

8 ACOUSTIC DESIGN STATEMENT

8.1 Introduction

8.1.1 In accordance with the ProPG: Planning and Noise, an acoustic design statement has been prepared to supplement the noise assessment report.

8.1.2 The statement has been informed by the results presented in the previous sections of this report, and also based on the discussions, processes and limitations considered during the design of the development prior to submission of this planning application.

8.2 Gardens

8.2.1 As outlined in Section 5, the shared outdoor amenity spaces proposed as part of this development do not fall under the scope outlined in BS8233/WHO guidance, and therefore require no further input from an acoustic design perspective.

8.3 Internal Guidance Levels

8.3.1 The ProPG recommends where it is not considered practical to achieve the internal noise level guidelines with windows open, justification should be provided to the LPA setting out the reasons for this.

8.3.2 Due to the nature of the development and inherent space restrictions the only realistic means of reducing internal noise levels to an acceptable standard would be through the use of an alternative means of ventilation.

8.3.3 Where limiting factors exist that make achieving internal guidance levels with windows open impractical, acoustic ventilation is considered a suitable solution that meets the good acoustic design test, as per Paragraph 2.33 to 2.34 of the ProPG, which states:

"It should be noted that the acoustic performance of the building envelope will be reduced in the event windows are opened for ventilation or cooling purposes, typically reducing the insulation to no more than 10 to 15 dB(A).

Most residents value the ability to open windows at will, for a variety of reasons, and LPAs should therefore normally request that designers principally aim, through the use of good acoustic design, to achieve the internal noise level guidelines in noise-sensitive rooms with windows open. Where internal noise levels are assessed with windows closed the justification for this should be included in the ADS.

Where the LPA accepts that there is a justification that the internal target noise levels can only be practically achieved with windows closed, which may be the case in urban areas and at sites adjacent to transportation noise sources, special care must be taken to design the accommodation so that it provides good standards of acoustics, ventilation and thermal comfort without unduly compromising other aspects of the living environment.

In such circumstances, internal noise levels can be assessed with windows closed but with any façade openings used to provide "whole dwelling ventilation" in accordance with Building Regulations Approved Document F (e.g. trickle ventilators) in the open position (see Supplementary Document 2). Furthermore, in this scenario the internal LAeq target noise levels should not generally be exceeded."

8.3.4 It is felt that in this circumstance, with due consideration to the factors set out above, achieving the internal guidance levels through use of an alternative means of ventilation is a suitable solution that meets the good acoustic design test.

8.3.5 Table 9 below summarises the acoustic design recommendations.

Table 9: Glazing and ventilation outline recommendation summary

Location	Glazing	Ventilation
Living rooms and bedrooms with partial or full line-of-sight to Bury New Road	10/12/6.4mm Double Glazing	ADF System 4 MVHR
Living rooms and bedrooms on the eastern elevation with no line-of-sight to Bury New Road	4/12-20/4mm Double Glazing	No specific requirements

8.3.6 The above recommendations are provided on the basis of the information available at the time of submission of the outline application.

8.3.7 Should a detailed scheme be brought forward in the future, then the acoustic mitigation recommendations may change depending on the proposed construction detail (i.e. surface area of glazing, construction detail of walls etc.).

8.3.8 It is however considered unlikely that any scheme can brought forward without reliance on mechanical ventilation for apartments overlooking Bury New Road, due to the elevated levels of associated noise.

9 CONCLUSIONS

9.1 Introduction

9.1.1 NJD Environmental Associates has undertaken a noise assessment in support of an outline planning application for the redevelopment of brownfield land, to deliver a new building for retail and residential uses.

9.1.2 The assessment considers noise from the nearby transportation and commercial sources, with measurements taken of noise sources impacting the development, calculations performed using noise modelling software, and the results interpreted in accordance with the relevant standards.

9.2 BS4142 Assessment

9.2.1 An evaluation of existing sources commercial noise may at times be present at the development site, no evidence exists to suggest that the noise may be either dominant or clearly perceptible in the context of the elevated residual noise level associated with Bury New Road. As such, any impact associated with existing commercial sources is deemed to be negligible at worst, and should not therefore warrant a specific assessment in accordance with BS4142.

9.2.2 In the absence of information relating to external plant specification and other proposed commercial sources, rating noise limits have been proposed based on measured background noise levels during both the day and night-time periods. The proposed limits are as follows

- Daytime 47dB LAeq,1h
- Night-time 37dB LAeq,15m

9.2.3 It is advised that noise from any proposed commercial activities could be effectively managed via planning condition based on the proposed noise limits set out above. Any such conditions should be discharged when more detailed information relating to the commercial activities (i.e. specification of external plant or points of extraction etc.) is available.

9.3 BS8233 and WHO Assessment

9.3.1 The BS8233:2014 assessment found that the majority of apartments with partial or full line-of-sight to Bury New Road will not achieve internal guidance noise levels in living rooms and bedrooms without the provision of an alternative means of ventilation.

9.3.2 Noise break-in calculations have been performed, outlining appropriate schemes of glazing and ventilation that can be adopted across the site, with details of the recommended mitigation measures summarised in Table 9.

9.4 ProPG: Planning and Noise

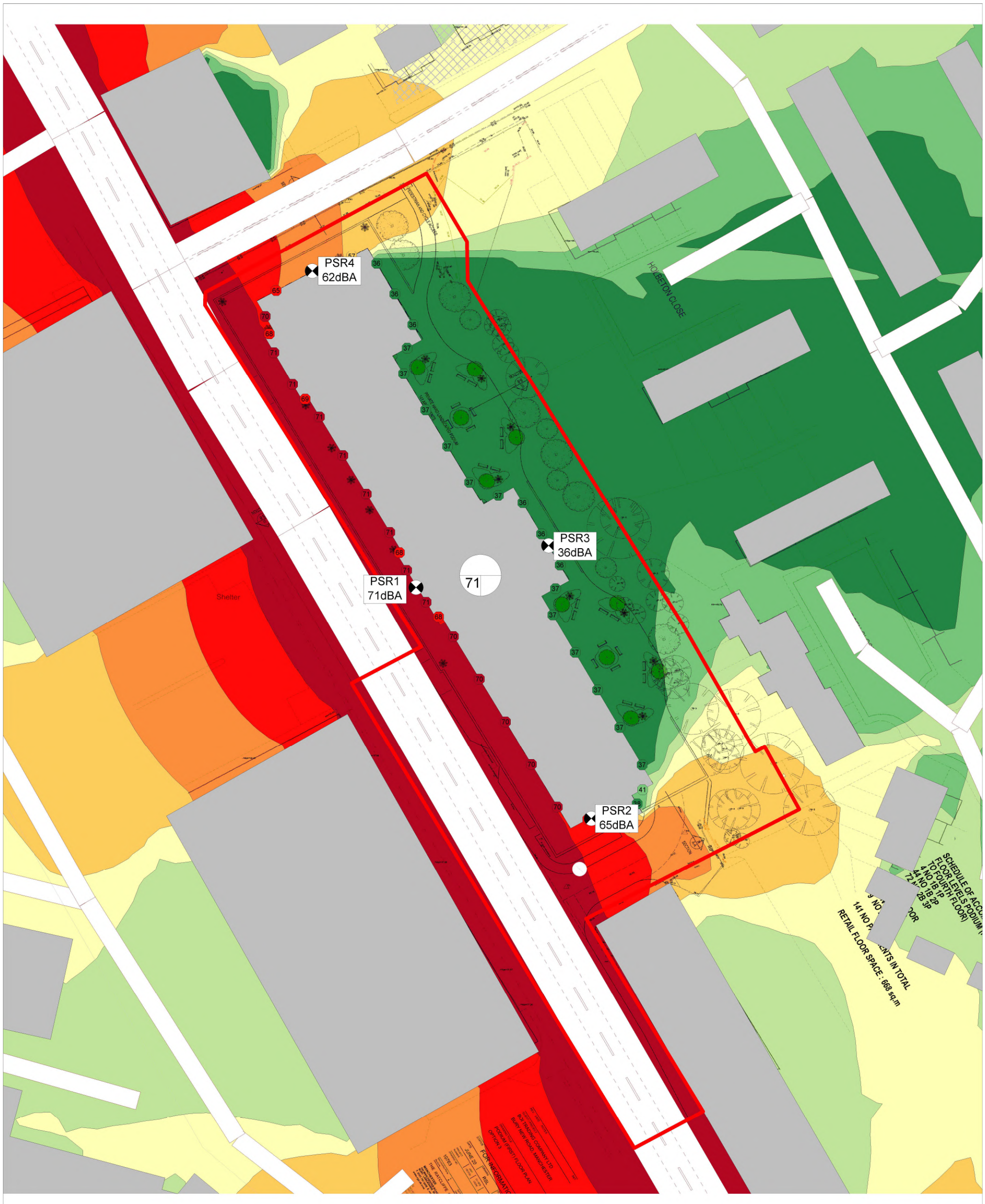
9.4.1 The acoustic design statement concluded that based on the site context and limitations, reasonable measures have been taken to ensure the recommendations pass the good acoustic design test in accordance with the ProPG.

It is concluded that subject to the recommended mitigation measures being implemented, noise should not be a prohibitive factor in the determination of this planning application.

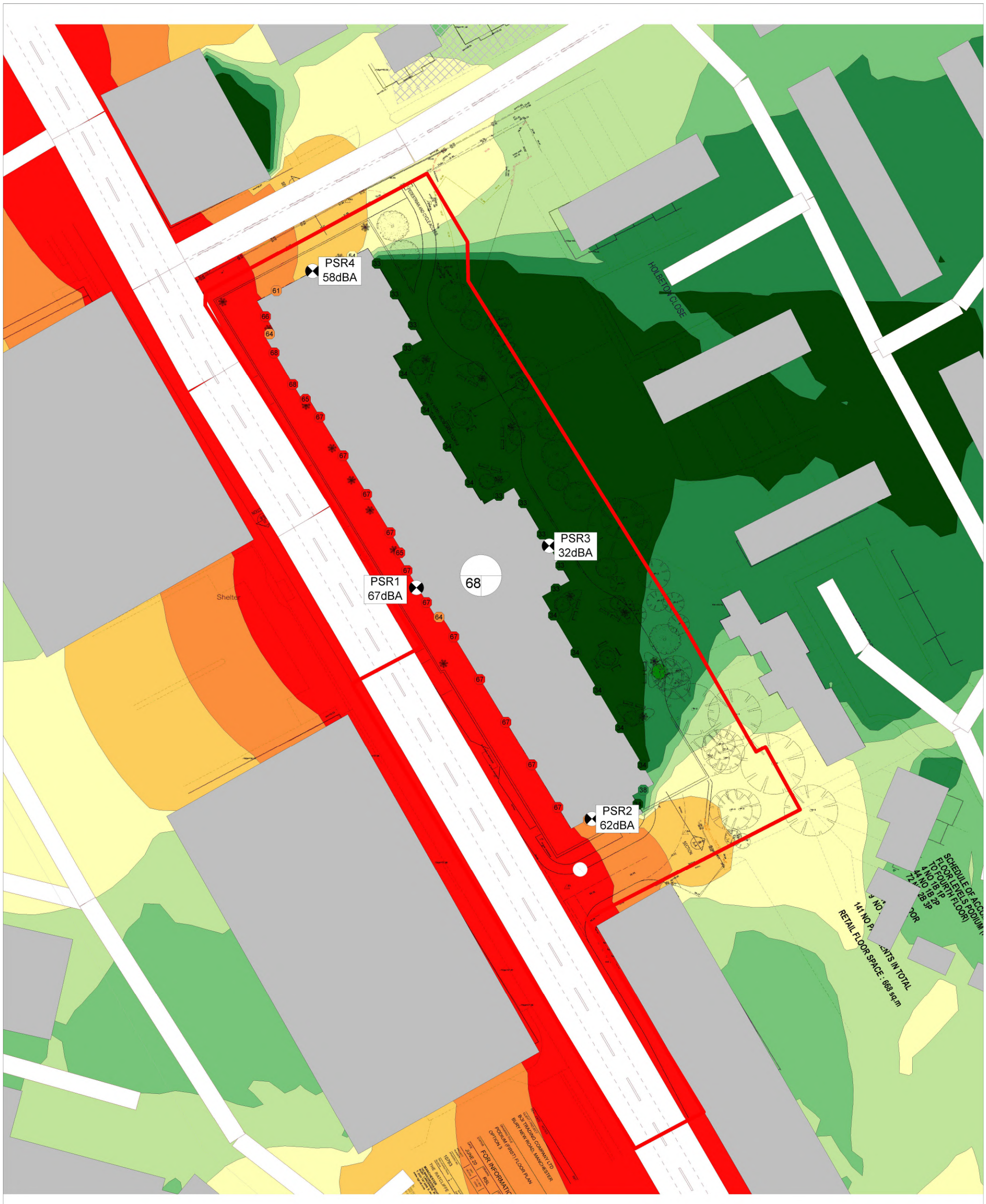
NJD Environmental Associates LTD

www.njdenvironmental.co.uk

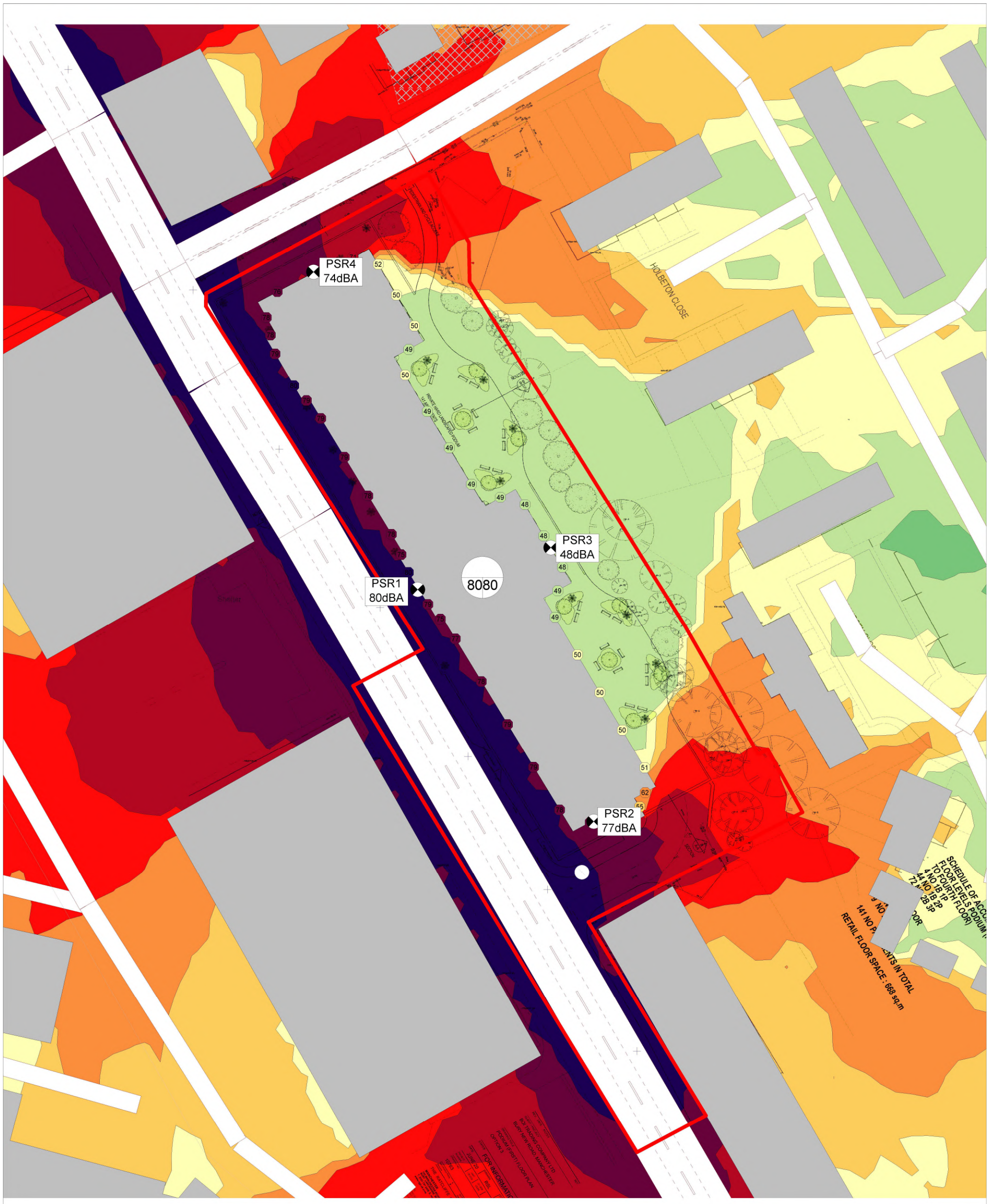
Company Registration No 10956987



njd Environmental Associates	Client: BOI Trading Company Ltd	Figure 1: Daytime LAeq,16hr (8m receptor height)	0 <= ... < 35 35 <= ... < 40 40 <= ... < 45 45 <= ... < 50 50 <= ... < 55 55 <= ... < 60 60 <= ... < 65 65 <= ... < 70 70 <= ... < 75 75 <= ... < 80 80 <= ...	N
	Job Title: NJD20-0030-001R Junction of Fairy Lane and Bury New Road, Manchester	Drawn By: NJ Dennon		Date: Nov 2020



njd Environmental Associates	Client: BOI Trading Company Ltd	Figure 2: Night-time LAeq,8hr (8m receptor height)	0 <= ... < 35 35 <= ... < 40 40 <= ... < 45 45 <= ... < 50 50 <= ... < 55 55 <= ... < 60 60 <= ... < 65 65 <= ... < 70 70 <= ... < 75 75 <= ... < 80 80 <= ...	N
	Job Title: NJD20-0030-001R Junction of Fairy Lane and Bury New Road, Manchester	Drawn By: NJ Dennon		Date: Nov 2020



njd Environmental Associates	Client: BOI Trading Company Ltd	Figure 3: Night-time LAmax (8m receptor height)	0 <= ... < 35 35 <= ... < 40 40 <= ... < 45 45 <= ... < 50 50 <= ... < 55 55 <= ... < 60 60 <= ... < 65 65 <= ... < 70 70 <= ... < 75 75 <= ... < 80 80 <= ...
	Job Title: NJD20-0030-001R Junction of Fairy Lane and Bury New Road, Manchester	Drawn By: NJ Dennon	Date: Nov 2020

Appendix 1 – Noise Measurements:

File	20200305_103405_000000_1.CMG				
Location	ML1				
Data type Weighting Unit	Leq A dB				
Start End	05/03/2020 11:00:00 06/03/2020 11:00:00				
Period	Day (Ld)				
Time slots	Day 07:00 23:00 Kd = 0 dBA				
	Ld dB	Leq dB	Lmax dB	L90 dB	L10 dB
Level	70.6	70.6	97.9	58.0	74.0
Period	Night (Ln)				
Time slots	Night 23:00 07:00 Kn = 0 dBA				
	Ln dB	Leq dB	Lmax dB	L90 dB	L10 dB
Level	66.9	66.9	86.5	44.5	71.7

File	20200305_101941_000000_1.CMG				
Location	ML2				
Data type Weighting Unit	Leq A dB				
Start End	05/03/2020 11:00:00 06/03/2020 11:00:00				
Period	Day (Ld)				
Time slots	Day 07:00 23:00 Kd = 0 dBA				
	Ld dB	Leq dB	Lmax dB	L90 dB	L10 dB
Level	63.3	63.3	93.8	51.4	65.6
Period	Night (Ln)				
Time slots	Night 23:00 07:00 Kn = 0 dBA				
	Ln dB	Leq dB	Lmax dB	L90 dB	L10 dB
Level	59.0	59.0	87.5	40.6	63.1