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Proposed Commercial Development Land at the Rear of Firths Yard, Mill Road, Dewsbury

Noise Impact Assessment

For:
Mr. Mohammed Sadiq

22nd March 2024

Ref: NIA-11321-24-11554-v2 Firth's Yard, Dewsbury
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1 Introduction

1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned by Mr Mohammed Sadiq to carry out a noise impact assessment in relation to a proposed commercial development for two storage units at land to the rear of Firths Yard, Mill Road, Dewsbury WF13 2HP (hereafter referred to as 'the site').

Planning Permission (ref: 2022/62/93046/E) for the development was granted by Kirklees Council in November 2023, subject to conditions. Planning Condition 3 relates to the control of noise as follows:

'3. Before construction work commences, a noise assessment report by a suitably competent person shall be submitted to and approved in writing by the Local Planning Authority. The report shall include:

a) an assessment of all of the noise emissions from the proposed development

b) details of existing background and predicted future noise levels at the boundary of the nearest noise sensitive premises

c) a written scheme of how the occupants of the above-mentioned noise sensitive premises will be protected from noise from the proposed development including details of all necessary noise attenuation.

The development shall not be brought into use until all works comprised within the measures specified in the approved report have been carried out in full and such works shall be thereafter retained.

Reason: To ensure the proposed development does not cause harmful noise pollution within neighbouring noise sensitive locations, in the interest of amenity, to comply with the aims and objectives of Policies LP24 and LP52 of the Kirklees Local Plan and Chapters 12 and 15 of the National Planning Policy Framework.'

The objectives of the noise impact assessment were therefore to:

- Determine current external noise levels at the site
- Assess the noise impact of any proposed development on the nearest noise sensitive receptors (surrounding residential uses) with reference to pertinent guidelines
- If appropriate, recommend a scheme of noise mitigation

This report details the methodology and results of the assessment and provides recommendations as appropriate. It has been prepared to aid in the discharge of Condition 3 of Planning Permission ref: 2022/62/93046/E.

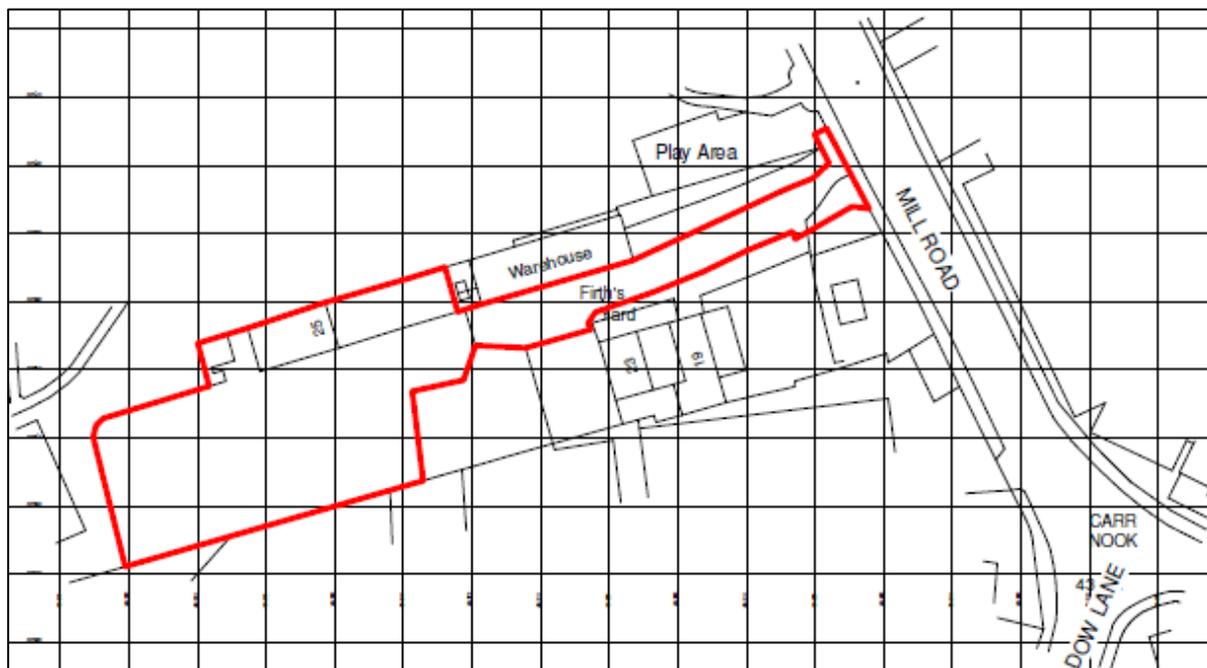
The report has been prepared for Mr Mohammed Sadiq for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult Mr Mohammed Sadiq and ENS as to the extent to which the findings may be appropriate for their use.

A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

1.2 Site Description and Development Proposals

The site is located in a mixed-use residential/commercial setting to the north of Dewsbury town centre. The site boundary is indicated (in red) in Figure 1.1 below.

Figure 1.1: Location of Development



The site is bound by (see Appendix 2):

- Scrap yard and Hartley Street Dyeworks to the south and south-east.
- Firths Yard and parking area to the east.
- Green space to the west with residential dwellings beyond on Rockhouse Drive.
- Public open space to the north with residential dwellings beyond to the north on Lidgate Gardens

The nearest noise sensitive receptors (NSRs) to the development are considered to be (see Appendix 4 for locations):

- Residential dwelling to the east, No. 23 Mill Road to the east (NSR1)
- Residential dwellings to the west on Rockhouse Drive (NSR2)
- Residential dwellings to the north on Lidgate Gardens (NSR3)

The ambient (L_{Aeq}) and background (L_{A90}) noise climate in the vicinity of the site was characterised by road traffic on Mill Road.

Proposals are to erect a warehouse containing two B8 commercial units (a site layout is shown in Appendix 5 for reference).

The proposed operating hours of the units are as follows:

- 08:00 – 18:00 hrs Monday to Friday
- 08:00 – 13:00 hrs Saturdays
- Closed – Sundays / Bank Holidays

The final occupants are unknown, but it has been confirmed by the developer that there will be no external plant. It is understood that due to the size of the units they do not have a formal service yard, manual loading / unloading will therefore take place within the units only, without the use of forklifts.

The warehouse will be constructed of lightweight wall cladding on a steel frame structure with 40mm insulated corrugated roof sheeting.

2 Policy Context and Assessment Guidance

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)¹ was updated in December 2023 and sets out the Government's planning policies for England and how these are expected to be applied.

Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 180 where it states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of.....noise pollution'.

Paragraph 191 advises that:

'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should.....mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life'.

The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

2.2 Noise Policy Statement for England

The Noise Policy Statement for England² (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision is supported by the following aims:

- Avoid significant adverse impacts on health and quality of life
- Mitigate and minimise adverse impacts on health and quality of life
- Where possible, contribute to the improvement of health and quality of life

The NPSE describes the following levels at which noise impacts may be identified:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur

According to the explanatory notes in the statement, where a noise level falls between the lowest observable adverse effect level (LOAEL) and a level which represents a significant observable adverse effect level (SOAEL):

1 National Planning Policy Framework. Ministry of Housing, Communities and Local Government (2021)

2 Government Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. March 2010.

'...all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.'

2.3 Planning Practice Guidance on Noise

Planning Practice Guidance³ (PPG) is an online resource which provides additional guidance and elaboration on the NPPF. It advises that the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur
- Whether or not an adverse effect is occurring or likely to occur
- Whether or not a good standard of amenity can be achieved

In line with the Explanatory Note of the NPSE, the PPG references the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

'...the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation.'

Table 2.1 summarises the PPG noise exposure hierarchy.

Table 2.1: PPG Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not Noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

3 Planning Practice Guidance on Noise: <http://planningguidance.planningportal.gov.uk/blog/guidance/noise/>

The PPG also provides general advice on the typical options available for mitigating noise, suggesting that Local Plans may include noise standards applicable to proposed developments within the Local Authority's administrative boundary, although it states that:

'Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed'.

The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation. The following guidance documents provide some meaningful context.

2.4 BS 4142 'Methods for Rating and Assessing Industrial and Commercial Sound'

BS 4142:2014+A1-2019 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS 4142)⁴ describes methods for determining, at the outside of a building, noise levels from factories or industrial premises and a method for assessing whether the noise is likely to give rise to adverse impacts, and states:

'The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. Typically, the greater this difference, the greater the magnitude of the impact. For example:

A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context

A difference of around +5 dB 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 a 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'

The rating level is described as the specific sound level (the equivalent continuous A-weighted sound pressure level at the assessment position (NSR) produced by the specific sound source over the given reference time interval) plus any adjustment for the characteristic features of the sound. The character correction relates to whether and to what degree the specific sound is assessed to have an element of tonality, impulsivity and/or characteristics that are readily distinctive against the residual acoustic environment.

The background noise level is the A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90 percent of a given time interval, T, measured using time weighting 'F' and quoted to the nearest whole number of decibels.

The reference time interval of the specific sound is 1 hour during the daytime and 15 minutes during the night-time.

4 British Standard 4142:2014+A1-2019 Methods for rating and assessing industrial and commercial sound, BSI (2014)

3 Noise Survey

Reference is made to planning approval (Kirklees Council ref: 2021/62/92771/E) for the erection of two business units (mixed class E(G)(III) and B8 uses) at Firths Yard, Mill Road, Dewsbury (adjacent to the application site).

A noise impact assessment was undertaken (ENS Ref: NIA-9632-21-9592-v1-Firths Yard) for the aforementioned approved application by ENS in June 2021, the noise data of which is publicly available on Kirklees planning portal. This noise data is adopted for the assessment of the site.

The previous noise survey was undertaken on Tuesday 9th March 2021. A single monitoring position (MP1) was located in a free field position at 1.5 metres above ground level in the vicinity of No. 23 Mill Road (see Appendix 2 for location).

The report summarises the ambient noise climate in the vicinity of the site as being characterised by road traffic on Mill Road.

Table 3.1 within the noise impact assessment summarises the noise measurement data, this is provided within Appendix 3 of this report.

The typical background noise levels at MP1 are adopted for assessment purposes, they are summarised within the report as follows:

*Typical daytime and night time background noise levels at MP1 were circa **41 dB** L_{A90} (15 min) and **38 dB** L_{A90} (15 min), respectively.*

4 Noise Assessment

The principal noise sources potentially associated with the proposed development are considered to be:

- Noise associated with any fixed external plant.
- Noise associated with internal operations.

The following sections of the noise impact assessment discuss the potential noise impacts of the above activities on the nearest residential dwellings.

4.1 Noise Associated with Fixed External Plant

It has been confirmed by the developer that the proposed commercial unit will not have any external plant or machinery. However, if any plant is proposed in the future, this report should be used to aid in the specification.

Based upon the principles of BS 4142, it is considered appropriate that sound rating levels from fixed installations do not exceed the background sound levels detailed below in a free field position at the location of the nearest NSRs:

- 41 dB L_{Ar} (1 hour) during the daytime / evening period (0700-2300 hours)
- 38 dB L_{Ar} (15 min) during the night-time period (2300-0700 hours)

It should be noted that the above limits are rating levels (i.e. plant noise levels when appropriate acoustic feature corrections have been applied in accordance with the penalties described in BS4142:2014). These are cumulative limits for all proposed plant operating simultaneously.

It is recommended that the Client reviews any considered plant against the noise level criteria above.

It is considered that appropriate noise control can be achieved by the judicious selection and siting of plant and/or standard noise mitigation techniques.

4.2 Noise Associated with Internal Operations

At this stage, the final occupants of the proposed units are to be determined; therefore, it is not possible to predict a precise internal noise level for the proposed units. However, in order to assist with the assessment of noise break-out from units at the proposed development, a relatively high internal reverberant noise level of 72 dB $L_{Aeq,T}$ has been robustly adopted based on the following:

(Note: Reverberant internal noise levels inside a busy distribution (B8) unit, operating on a much larger scale than is expected at the subject site, have been measured previously by ENS at circa 68–72 dB $L_{Aeq, T}$.)

In order to assess the propagation of noise from activities at the site to the nearest receptors, noise level predictions have been performed using iNoise acoustic modelling software. This is a software program specifically developed for the prediction and assessment of environmental noise.

The model calculates noise levels on horizontal and vertical grids with a user defined spacing of receiver points. From these levels, calculated at thousands of points, contour lines of constant noise levels are generated and printed as noise maps. All scaling was based on direct import from Google Earth, with 2nd order reflections considered and absorption coefficients based on the iNoise default for brick-built structures.

The following assumptions were used in the model:

- Meteorological conditions: Temp. 20 °C, Relative Humidity 60%
- Foliage/woodland areas not considered to provide any reduction
- Reflections: set to two orders of reflection permitted in the model
- Ground absorption set to $G = 0.5$ (mixed)

The sound reduction index (SRI) of the units is taken as 25 dB R_w based on the sound reduction performance of insulated panels. It is assumed that both service doors remain closed except for access.

A noise level contour map is contained in Appendix 4. The predicted resultant noise level at the nearest NSRs is ≤ 22 dB L_{Aeq} (15 min).

BS 4142 requires that an adjustment can be made for the characteristic features of the sound. Whilst noise from the units is not expected to be tonal nor impulsive it may be considered to be readily distinctive against the residual acoustic environment, therefore a penalty of +3 dB is applied.

On the basis of the above a daytime BS 4142 noise assessment is set out in Table 4.1.

Table 4.1 – Daytime BS 4142 Noise Assessment at the Nearest Receptors

Results	Receptor			Comment
	NSR1	NSR2	NSR3	
Specific sound level	20 dB L_{Aeq} (1 hour)	22 dB L_{Aeq} (1 hour)	22 dB L_{Aeq} (1 hour)	Calculated level at nearest NSR
Acoustic feature correction	3 dB	3 dB	3 dB	Character penalty
Rating level	23 dB L_{Ar} (1 hour)	25 dB L_{Ar} (1 hour)	25 dB L_{Ar} (1 hour)	Rating level at NSRs
Background sound level	41 dB L_{A90} (15 min)	41 dB L_{A90} (15 min)	41 dB L_{A90} (15 min)	Daytime background noise level at receptors
Excess of rating over background sound level	-18 dB	-16 dB	-16 dB	Indication of a low impact, subject to context

Rating levels are at least 16 dB below the existing daytime background noise levels at the nearest receptors. In accordance with BS 4142, this is an indication of a low impact, subject to context.

4.3 Context

The proposed units will be located within an existing commercial / industrial setting. Although NSR1 is within close proximity to the proposed units, the dwelling is already located adjacent to a warehouse building and a neighbouring scrap yard. The access for the units will be shared with existing businesses, some of which operate HGV's along the access road. The proposed units are therefore in keeping with the existing setting and noise climate.

5 Summary and Conclusions

A noise impact assessment has been undertaken for a proposed commercial development at Firths Yard, Mill Road, Dewsbury.

At the nearest noise sensitive receptors, noise level associated with the internal operations of the proposed development is predicted to be below existing background noise levels.

Rating noise level limits have been set for any future proposed external plant use.

In accordance with BS 4142 methodology, this is an indication of the proposed development having a low impact.

Appendix 1 – Abbreviations and Definitions

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 μPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$$L_p = 20 \log_{10}(p/p_0)$$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 μPa).

A-weighting

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T , has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T . $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T . L_{A90} is typically taken as representative of background noise.

$L_{AF \max}$

The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Single Event Level / Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, regardless of the event duration. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_w)

Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_w is used to characterise the insulation of a material or product that has been measured in a laboratory).

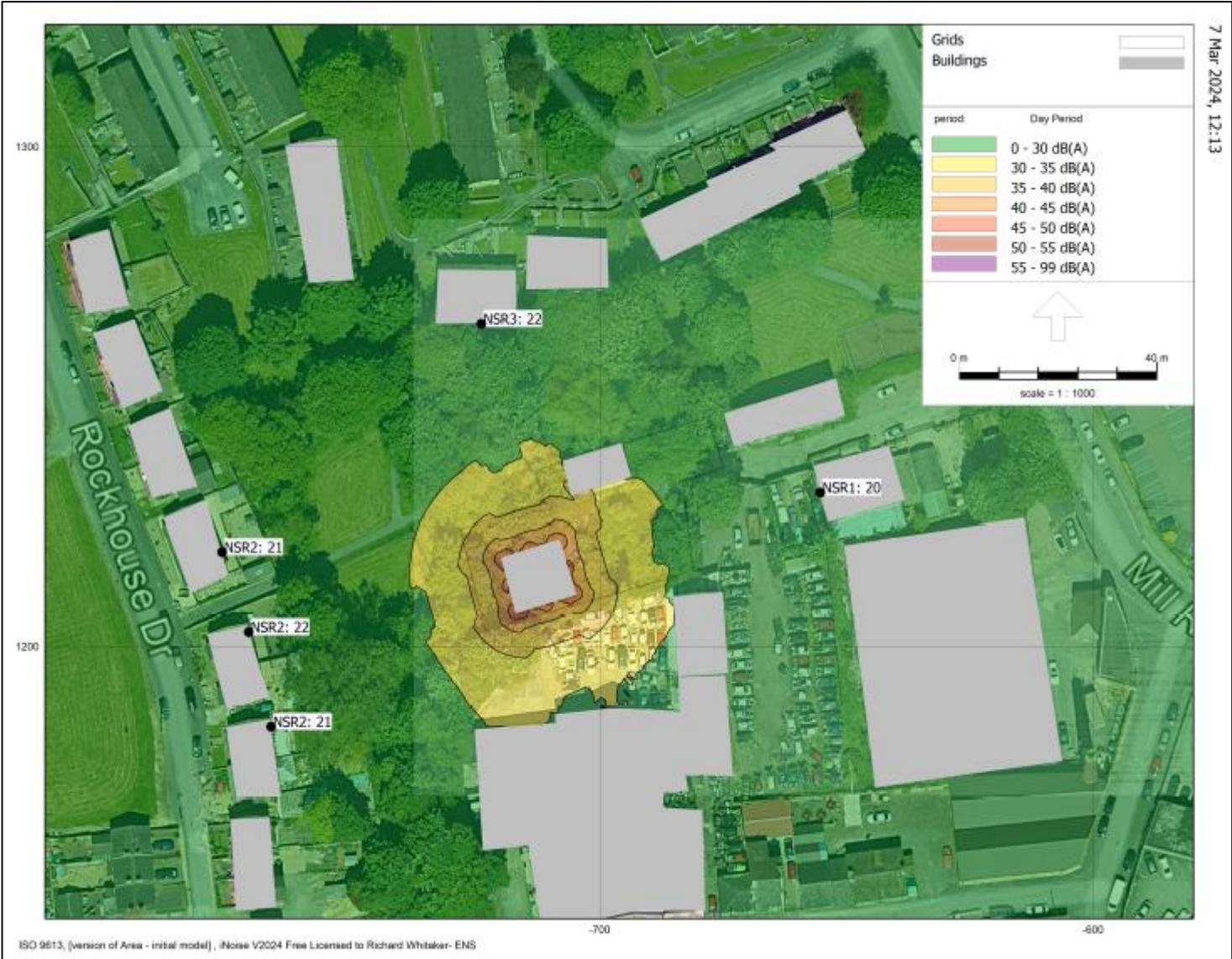
Appendix 2 – Noise Measurement Position



Appendix 3 – Noise Measurement Data

Position	Date	Time	L _{Aeq, T} (dB)	L _{A90, T} (dB)	Comment
MP1	09/03/21	0533-0603	43	36	Birdsong
		0637-0707	47	39	Road traffic on Mill Road
		1002-1032	49	44	Road traffic on Mill Road / distant A652 Occasional scrapyard activity (bangs / clangs)
		1106-1136	51	41	
		1210-1240	51	40	
		1315-1345	48	40	
		1426-1501	51	41	
MP2	09/03/21	0500-0530	44	34	Birdsong
		0605-0635	52	46	Road traffic on Mill Road / distant A652
		0708-0738	53	40	Road traffic on Mill Road / distant A652
		0930-1000	53	42	
		1034-1104	53	42	
		1137-1207	57	42	
		1242-1312	57	41	
		1349-1424	56	43	

Appendix 4 – Internal Noise Breakout Contour Map



Appendix 5 – Site Drawing

