Our ref: NIA/10533/22/10679/v2/Blackmoorfoot Road, Lidl

5th April 2023

Lidl GB Ltd

NOISE IMPACT ASSESSMENT FOR PROPOSED NEW LIDL STORE, LAND AT THE FORMER ST LUKE'S HOSPITAL SITE, BLACKMOORFOOT ROAD, CROSLAND MOOR, HUDDERSFIELD

1.00 INTRODUCTION

1.01 Environmental Noise Solutions Ltd (ENS) has been commissioned by Lidl GB Ltd undertake a noise impact assessment for a proposed food store at the former St Luke's Hospital Site, Blackmoorfoot Road, Crosland Moor, Huddersfield (hereafter referred to as the application site).

1.02 The objectives of the noise impact assessment were to:

- Measure the baseline noise levels at the application site and its surrounding environs during representative periods of the daytime and night-time
- Assess the potential impact of the proposed development with reference to pertinent guidelines
- Provide recommendations for structural and management controls, as necessary, to protect the noise amenity of the nearest residential dwellings

1.03 This report details the methodology and results of the assessment. It has been prepared to accompany a planning application to be submitted to Kirklees Council.

1.04 This report has been prepared for Lidl GB Ltd for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult Lidl GB Ltd and ENS as to the extent to which the findings may be appropriate for their use.

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

2.00 PROPOSED FOODSTORE DEVELOPMENT AND APPLICATION SITE SETTING

2.01 The proposed development consists of the erection of a foodstore (Use Class E) with associated access, parking, servicing area and landscaping. The proposed layout plan is contained in Appendix 2 for reference.

2.02 The application site is located at the former St Luke's Hospital site in the Crossland Moor area of Huddersfield. Irregular in shape, the application site is bound by (see Appendix 3 for site location plan):

- Blackmoorfoot Road to the north-west with residential dwelling opposite the application site.
- Residential dwellings to the south and south-west on Turnstone Way.
- Turnstone Way to the north-east with residential dwellings beyond on Chapel Terrace.

2.03 The nearest noise sensitive receptors (NSRs) to the application site are considered to be the following:

- NSR1 – Residential dwellings to the south and west on Turnstone Way
- NSR2 – Residential dwelling to the north-east on Chapel Terrace
- NSR3 – Residential dwellings to the north-west on Blackmoorfoot Road

2.04 For reference, outline planning permission (ref: 2018/70/93098/W) for a mixed-use residential/commercial scheme at the application site was granted by Kirklees Council in August 2019, subject to conditions. Condition 12 relates to the control of noise from deliveries to commercial uses at the site as follows:

> *12. Between the hours of 0600 and 0700 Monday to Friday and 0700 to 0800 Saturdays, deliveries to any commercial use on the site shall take place by small vehicles (e.g. vans) only. There shall be no other deliveries to or dispatches from any commercial use on the site outside the hours of 0700 and 2200 Monday to Friday and 0800 and 2200 Saturdays and 1000 and 1600 Sundays or Bank Holidays.*

2.05 It is understood that delivery hours at the proposed food store will be consistent with those detailed in the above condition.

3.00 BASELINE NOISE SURVEY

3.01 In order to determine the baseline noise levels in the vicinity of the application site, a baseline noise survey was undertaken on Wednesday 31st August 2022 through to Thursday 1st August 2022.

3.02 For the purpose of the assessment, the following noise monitoring positions were adopted (see Appendix 3 for approximate monitoring positions):

- MP1 was located in the southern corner of the application site adjacent to the residential dwellings on Turnstone Way (NSR1)
- MP2 was located to the north-east of the application site on in a position representative of the residential dwellings on Chapel Terrace (NSR2)
- MP3 was located in the north-western corner of the application site (screened from Blackmoorfoot Road) in a position representative of the rear façades of the residential dwellings on Blackmoorfoot Road (NSR3)
- MP4 was located on Blackmoorfoot Road

3.03 Noise measurements were undertaken in free field conditions using a Bruel & Kjaer 2250 Type 1 integrating sound level meter at 1.5 metres above ground level. Measurements consisted of A–weighted broadband parameters, together with linear octave band L_{eq} levels.

3.04 The measurement system calibration was verified immediately before the commencement of the measurement sessions and again at the end, using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted. Weather conditions throughout the surveys were appropriate for monitoring, with dry conditions and wind speeds of < 5 m/s.

3.05 The following table contains a summary of the measurement data for each monitoring session, at each monitoring position, rounded to the nearest decibel.

Table 3.1 – Baseline Noise Measurement Data Summary

Position	Date	Time	$L_{Aeq, T}$ (dB)	$L_{A90\ (15\ min)}$ (dB)	
				Range	Typical
MP1	31/08/22	0833-0933	46	43–44	43
	31/08/22	1223-1325	49	43–45	44
	31/08/22	1630-2036	48	40–45	43
	31/08/22	2038-2300	44	34–39	37
	31/08/22	2300-2345	40	31–32	32
	01/09/22	0208-0700	45	30–43	33
	01/09/22	0700-1131	53	42–49	46
MP2	31/08/22	0948-1050	56	43–44	43
MP3	31/08/22	1105-1136	54	47–48	47
	31/08/22	1328-1401	54	46–47	46
MP4	31/08/22	1143-1216	67	52	52
	31/08/22	1416-1446	67	54–57	56

3.06 The ambient noise climate in the vicinity of the application site is due to road traffic on Blackmoorfoot Road and the wider surrounding road network.

3.07 Typical[1] background noise levels at MP1 (representative of NSR1) were measured at circa **43 dB $L_{A90\ (15\ min)}$** during the daytime (07:00 – 23:00hrs), and circa **33 dB $L_{A90\ (15\ min)}$** during the night-time (23:00–07:00). Noise levels at remaining positions were higher due to increased proximity to Blackmoorfoot Road.

1 'Typical' values are considered to be either the modal average (i.e. most occurring) or the mean average, whichever is the lower of the two data sets.

4.00 NOISE IMPACT ASSESSMENT CRITERIA

National Planning Policy Framework

4.01 The National Planning Policy Framework (NPPF) was updated in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.

4.02 Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 174 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'.

4.03 Paragraph 185 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'.

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

Noise Policy Statement for England

4.05 The Noise Policy Statement for England (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.

4.06 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.

Planning Practice Guidance – Noise

4.07 Planning Practice Guidance on Noise (PPG) is an online resource (as updated October 2019) 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.

4.08 In line with the Explanatory Note of the NPSE, the PPG references the LOAEL and SOAEL in relation to noise impact. It also presents a table of noise exposure hierarchy, which relates the NOAEL, LOAEL and SOAEL levels to the subjective perception of noise and examples of outcomes (reproduced in Table 4.1 below).

Table 4.1: Summary of noise exposure hierarchy (from NPPG, Noise)

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

4.09 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'.

BS 4142:2014+A1-2019 'Methods for Rating and Assessing Industrial and Commercial Sound

4.10 British Standard BS 4142:2014+A1-2019 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS 4142) 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*

Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the absolute level of sound.

4.11 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.

4.12 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.

5.00 NOISE IMPACT OF THE PROPOSED FOOD STORE

5.01 The principal noise sources potentially associated with the proposed Lidl food store are considered to be:

- Noise associated with fixed external plant
- Noise associated with servicing arrangements (deliveries)

5.02 The following sections of the noise impact assessment discuss the potential noise impacts of the above activities on the amenity of the nearest NSRs.

Noise Associated with Fixed External Plant

5.03 Detailed information regarding fixed external plant at the proposed store was not available at the time of writing and therefore this report should be used to aid in the specification of any plant.

5.04 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:

- **43 dB $L_{Ar\ (1\ hour)}$** during the daytime period (0700-2300 hours)
- **33 dB $L_{Ar\ (15\ min)}$** during the night-time period (2300-0700 hours)

5.05 It is considered that this is amenable to suitably worded planning condition, and that appropriate noise control can be achieved by the judicious selection and siting of plant and/or standard noise mitigation techniques.

Noise Associated with Servicing Arrangements (Deliveries)

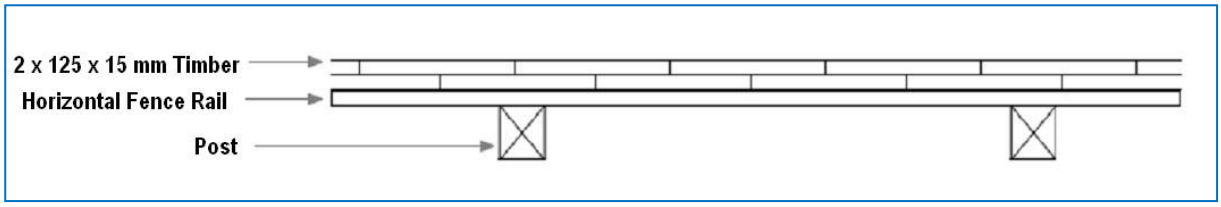
5.06 In order to minimise the impact of deliveries to the store, proposed delivery hours are to be restricted in accordance with Condition 12 of the previously approved Planning Permission ref: 2018/70/93098/W at the site, as summarised below:

Table 5.1 – Proposed Delivery Hours

Delivery Type	Monday to Friday	Saturdays	Sundays and Bank Holidays
Main HGV deliveries	0700–2200 hours	0800–2200 hours	1000–1600 hours
Small vehicle (van) deliveries	0600–2200 hours	0700–2200 hours	1000–1600 hours

5.07 In order to screen the loading bay from receptors to the south and west (NSR1), it is recommended that a 2.4-metre-high solid timber fence is installed along the southern and south-western boundary of the loading bay (see Appendix 2 for location of fence).

5.08 The timber barrier should be built in double-thickness solid timber construction as illustrated below. The barrier should have no gaps or holes (cover strips should also be used to prevent gaps forming over time) and should be fully sealed at the ground (i.e. include a gravel board).



6.00 CONCLUSIONS

6.01 A noise impact assessment has been undertaken for a proposed food store at land at St Luke's Hospital Site, Blackmoorfoot Road, Crosland Moor, Huddersfield.

6.02 The ambient noise climate in the vicinity of the application site is due to road traffic on Blackmoorfoot Road and the wider surrounding road network.

6.03 An assessment of the noise impact of the proposed Lidl food store has been undertaken, in line with the National Planning Policy Framework Planning Practice Guidelines on Noise. Mitigation measures have been recommended, as appropriate.

6.04 Provided the recommendations contained within this noise impact assessment are implemented, noise is not considered to represent a constraint to the proposed Lidl food store.

I trust the foregoing is sufficient for your needs. Should you have any queries regarding the above, please do not hesitate to contact me.

Yours sincerely

Richard Whitaker BSc Hons
MIOA, Diploma in Acoustics & Noise Control
For Environmental Noise Solutions Limited

Appendix 1
Glossary of Acoustic Terms

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 Network

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.

Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparison between different noise events which occur over different lengths of time.

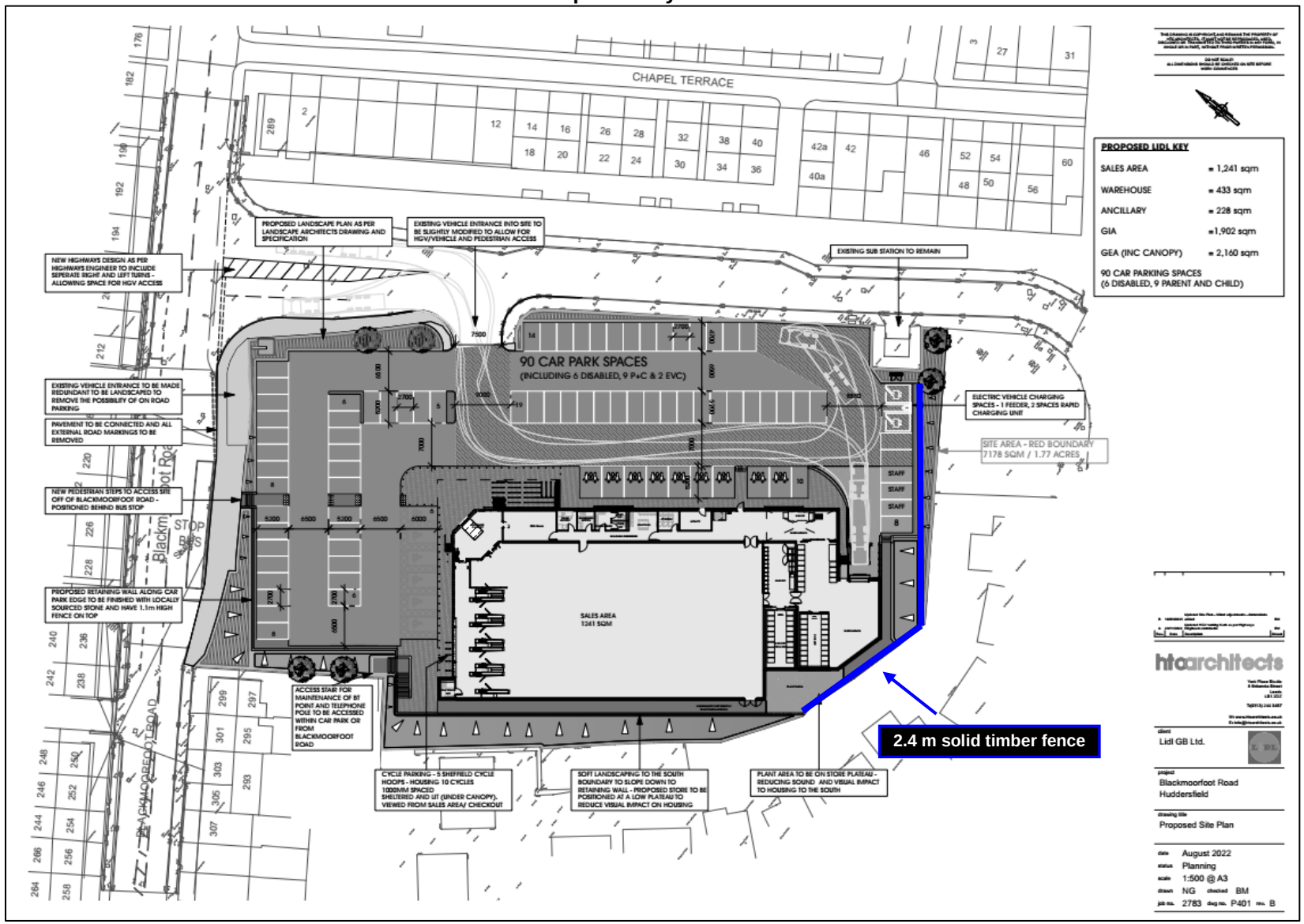
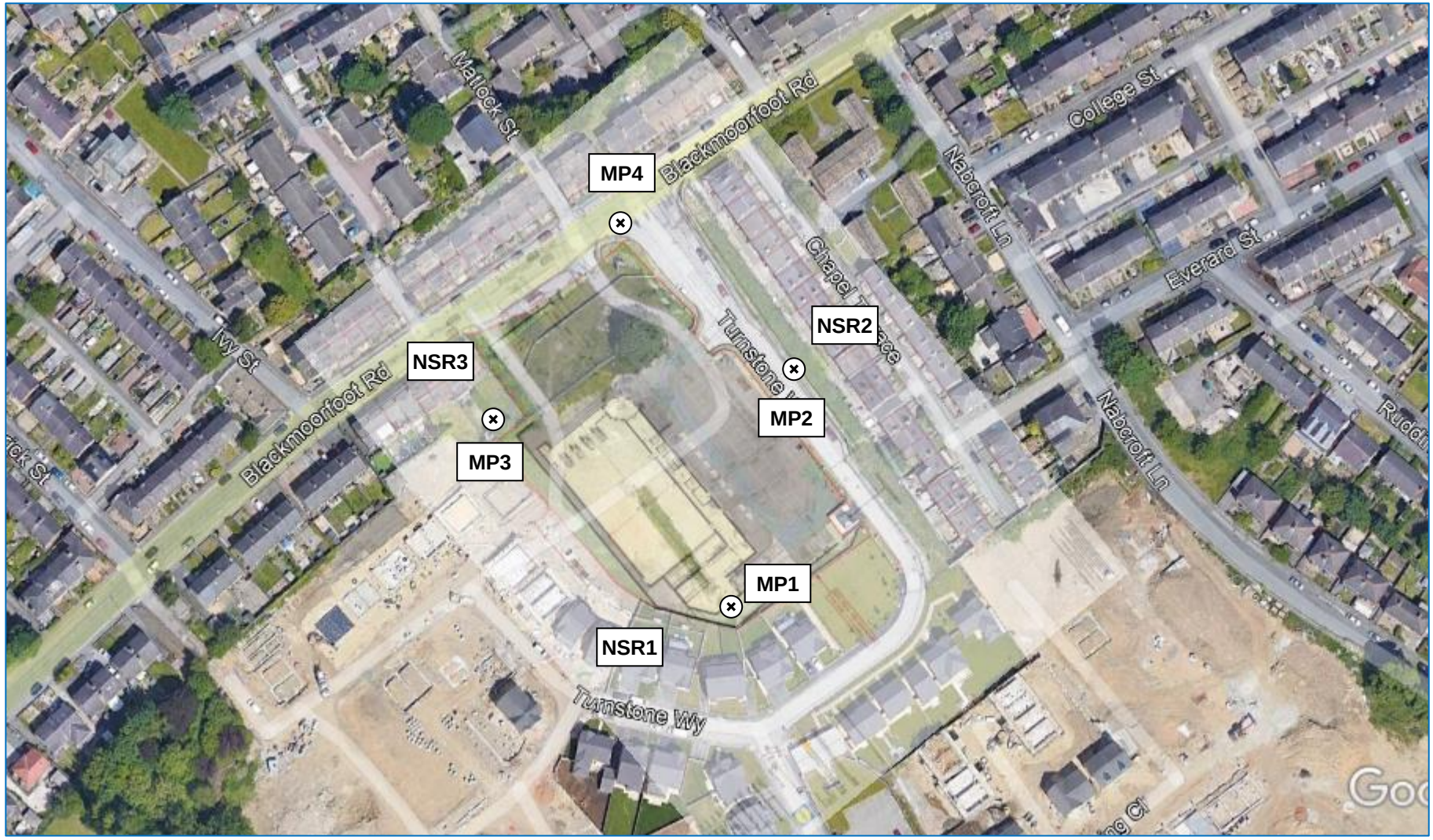
Weighted Sound Reduction Index (R_W)

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).

Weighted Airborne Sound Insulation ($D_{nT,w}$)

Single number quantity which characterises the airborne sound insulation between rooms.

Appendix 2
Proposed Layout Plan



Appendix 3
Site Plan and Noise Monitoring Locations