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Proposed Children's Nursery
Former Cobcar Sports and Social Club, Cobcar Street, Elsecar

Noise Impact Assessment

For:
Mr. David Kay

15th June 2023

Ref: NIA-10901-23-11051-v1 Cobcar Street
Issue: Final
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Contents

1 Introduction

1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned by Mr. David Kay to undertake a noise impact assessment for a proposed Children's Nursery at the former Cobcar Sports and Social Club, Cobcar Street, Elsecar (hereafter referred to as 'the site').

The objectives of the noise impact assessment were to:

- Determine the existing ambient noise levels in the vicinity of the site
- Establish the potential noise emissions associated with the proposed development
- Assess the noise impact of the development on the nearest noise sensitive receptors (surrounding residential uses) in accordance with pertinent guidance
- Provide specific recommendations, where required, to avoid any potential for loss of amenity due to noise associated with the development

This report details the methodology and results of the assessment and provides recommendations for noise attenuation as appropriate. It has been prepared to accompany a planning application to be submitted to Barnsley Metropolitan Borough Council (BMBC).

The report has been prepared for Mr. David Kay 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. David Kay 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 comprises an existing warehouse building (with small upper floor office) with associated storage yard. Vehicle access to the site is via Humber Road at the northeast corner of the site. The proposed development is located at Former Cobcar Sports and Social Club, Cobcar Street, Elsecar.

The site is located at the former Cobcar Sports and Social Club, Cobcar Street, Elsecar, and comprises an existing single storey building with associated external amenity area. For reference, the operating hours of the club were 11:00-00:00 hours. The location of the site is given in Figure 1.1 overleaf (outlined in red).

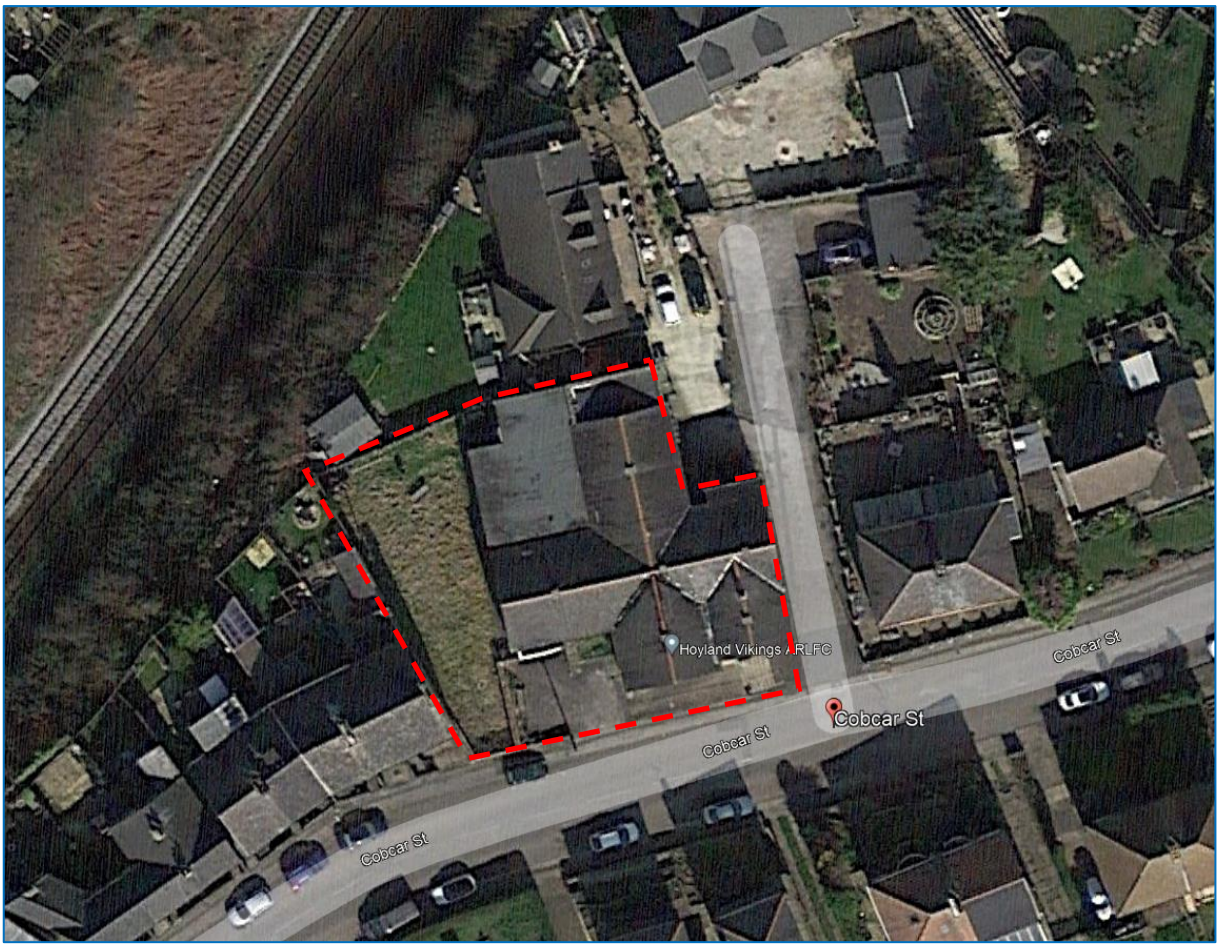
Development proposals are for a nursery at the site. The hours of operation of the nursery are understood to be 0700 to 1800 hours Monday to Friday, with arrival and pick up of children typically occurring at the start and end of these hours.

The site is exposed to road traffic noise from Cobcar Street and the wider surrounding road network, and occasional train passes on the Hallam railway line.

The nearest noise sensitive receptors (NSRs) to the development are considered to be:

- No. 16 Cobcar Street to the west of the site (NSR1)
- No. 16A Cobcar Street to the north of the site (NSR2)

Figure 1.1: Location of Development



2 Assessment Guidance

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)[1] was updated in July 2021 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 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'.

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'.

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 England[2] (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 (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 Guidance[3] (PPG) is an online resource providing 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/

2.4 British Standard 8233:2014

British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233)[4] defines a range of ambient noise levels for design criteria, in order that good or reasonable conditions are achieved in certain environments, as shown in the following table.

Table 2.2: Indoor Ambient Noise Levels in Dwellings

Location	Ambient Noise Levels	
	Good	Reasonable
Habitable Rooms	35 dB $L_{Aeq\ (0700\text{-}2300)}$	35 dB $L_{Aeq\ (0700\text{-}2300)}$
Gardens	50 dB $L_{Aeq\ (0700\text{-}2300)}$	55 dB $L_{Aeq\ (0700\text{-}2300)}$

It is considered that the achievement of the 'reasonable' conditions set out in Table 2.2 in the surrounding residential properties surrounding the site cannot represent a significant adverse impact.

2.5 IEMA Guidelines for Environmental Noise Impact Assessment

The Guidelines for Environmental Noise Impact Assessment[5] provide recommendations for approaches to noise impact assessment in the context of the Environmental Impact Assessment (EIA) process. However, the principles in the guidelines are relevant to all types of project where noise effects are likely to occur, regardless of size including small developments which are not screened as EIA development.

The guidelines provide a number of examples regarding approach to impact assessment. In circumstances where a noise environment may be altered by addition or removal of a noise source, considered to be within the prevailing acoustic character of an area, assessment of impact magnitude may be performed by considering the relative change in ambient noise level, as shown in Table 2.3.

Table 2.3: Example Noise Impact Magnitude Descriptors

Relative Change dB(A)	Magnitude / Scale of Change
≤ 2.9	Negligible
3 – 4.9	Minor
5 – 9.9	Moderate
≥ 10	Major

Negligible to minor impacts are not generally considered to be significant; conversely, moderate to major impacts are generally considered to be significant.

4 British Standards Institution (2014). *British Standard 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings.*
5 Guidelines for Environmental Noise Impact Assessment, Institute of Environmental Management and Assessment (2014)

3 Noise Survey

3.1 Overview

In order to establish the ambient noise levels in the vicinity of the site, a baseline noise survey was carried out on Wednesday 26th April 2023.

For the purpose of the assessment, the following noise monitoring positions were adopted (see Appendix 2 for the approximate monitoring positions):

- MP1 was located on the southern boundary of the site
- MP2 was located on the northern boundary of the site

Noise measurements were undertaken in free field conditions at 1.5 metres above ground level, using a Bruel & Kjaer 2250 Type 1 integrating sound level meter. The meter was connected to a windshield covered microphone positioned at the locations detailed above.

The measurement system calibration was verified immediately before and after the survey period using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration levels greater than 0.5 dB was noted. The noted weather conditions during the survey were dry with wind speeds < 5 m/s. Weather conditions were therefore considered appropriate for noise monitoring.

Measurements consisted of A–weighted broadband parameters including L_{Aeq} and L_{A90}, together with linear octave band data.

3.2 Summary

Table 3.1 presents a summary of the noise data for each measurement session, at each measurement position, rounded to the nearest decibel.

Table 3.1: Summary of Noise Measurement Data

Position	Date	Time	L_{Aeq} (dB)	Comment
MP1	26/04/2023	0652–0852	61	Road traffic on Cobcar Street and the wider surrounding road network
		1722–1829	61	
MP2	26/04/2023	1033–1100	46	Road traffic on Cobcar Street and the wider surrounding road network, train passes on the Hallam line
		1100–1200	46	
		1200–1300	49	
		1300–1400	47	
		1400–1500	46	
		1500–1600	48	
		1600–1700	47	

The ambient noise climate in the vicinity of the site is on the whole dependent on road traffic on Cobcar Street and the wider surrounding road network, with occasional train passes on the Hallam line.

Noise levels in the vicinity of the nearest NSRs (MP2) were measured at circa **47 dB $L_{Aeq\ (1\ hour)}$** during the daytime.

Noise levels at the front of the development (MP1) were circa **61 dB $L_{Aeq\ (1\ hour)}$** during pick-up and drop-off times.

4 Noise Assessment

4.1 Overview

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

- Noise associated with nursery use of the external amenity area
- Noise associated with drop-offs and collections

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

4.2 Noise Associated with External Amenity Area

It is understood that typically 15 no. children would be expected to use the external play area at any time. The use of the external play area will be restricted until after 09:30 hours.

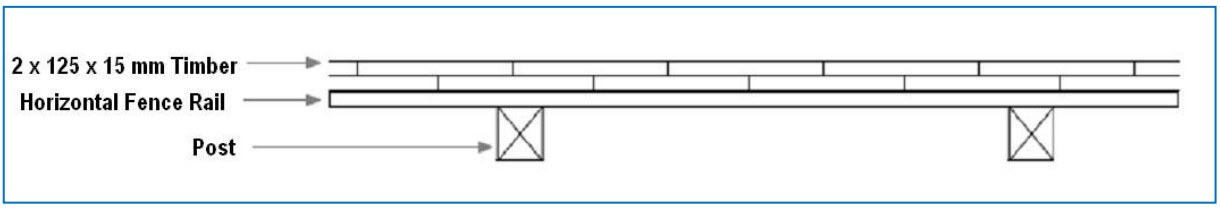
ENS has previously measured noise levels of up to **62 dB $L_{Aeq\ (15\ min)}$** at 8 metres from the centre of a soft play area in use by 16 no. children (unscreened).

No. 16 Cobcar Street (NSR1) is screened from the proposed external area by a substantial 3.5–5.0-metre-high existing brick wall, which drops to circa 1.5 metres at the northern end of the garden.

In order to further screen NSR1 from the external area, it is recommended that a circa 2.4-metre-high solid timber fence is installed to supplement the existing area of 1.5-metre-high brick (see Appendix 2 for location of fence).

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).

Figure 4.1: Example Timber Noise Barrier Construction



No. 16A Cobcar Street (NSR2) is screened from the proposed external area by an existing circa 2-metre-high existing double-boarded fence with gravel boards. Ground level at NSR2 is circa 1.5 metre lower than ground lower of the external area.

In order to assess the propagation of noise from the external area 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)

A noise level contour map is contained in Appendix 3. With the provision of the acoustic fencing as proposed, the predicted resultant noise levels at the nearest NSRs are ≤ **46 dB $L_{Aeq,\,T}$.**

Such levels are at least 4 dB below the 'good' standard as described in BS 8233 and should not therefore result in any loss of residential amenity.

It is also considered that use of the external area by the proposed nursery represents a reduction in noise impact compared with its use as an external area for the former social club, which would have potentially been in use until 0000 hours and over weekends.

Notwithstanding the above, it is recommended that a Noise Management Plan (as set out in Appendix 4) is also implemented. It is considered that this aspect is amenable to suitably worded planning condition, such as:

'The noise management details outlined within ENS report ref: NIA/10901/23/11051 shall be adhered to throughout the lifetime of the use.'

Provided the measures outlined above are implemented, in terms of the NPPF, noise associated with the proposed development is considered to represent a No Observed Adverse Effect Level (NOAEL) in that such noise is noticeable and not intrusive i.e. noise may be heard, but does not cause any change in behaviour or attitude and such noise may slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life. The noise impact of the external area is therefore considered to be negligible.

4.3 Noise Associated with Drop-offs and Collections

With respect to drop-offs and collections the potential noise impact is considered to be negligible in the context of: a) these activities are highly transient; b) existing road traffic noise from Cobcar Street; and c) these activities occur during the daytime period only.

In terms of the NPPF, noise associated with drop-offs and collections is considered to represent a No Observed Adverse Effect Level (NOAEL) in that such noise is noticeable and not intrusive i.e. noise may be heard, but does not cause any change in behaviour or attitude and such noise may slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life. The noise impact is therefore considered to be negligible.

5 Summary and Conclusions

A noise survey and assessment has been performed for a proposed Children's Nursery at the former Cobcar Sports and Social Club, Cobcar Street, Elsecar.

Baseline noise monitoring was carried out on Wednesday 26th April 2023 to determine prevailing noise levels in the vicinity of the site.

Recommendations, in the form of acoustic fencing and a noise management plan, have been provided in order to minimise the noise impact of the proposed nursery.

Provided the measures outlined in this report are implemented, noise associated with the proposed development is considered to represent a No Observed Adverse Effect Level (NOAEL) in that such noise is noticeable and not intrusive i.e. noise may be heard, but does not cause any change in behaviour or attitude and such noise may slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life. The noise impact of the external area is therefore considered to be negligible.

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:

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

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_o = 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.

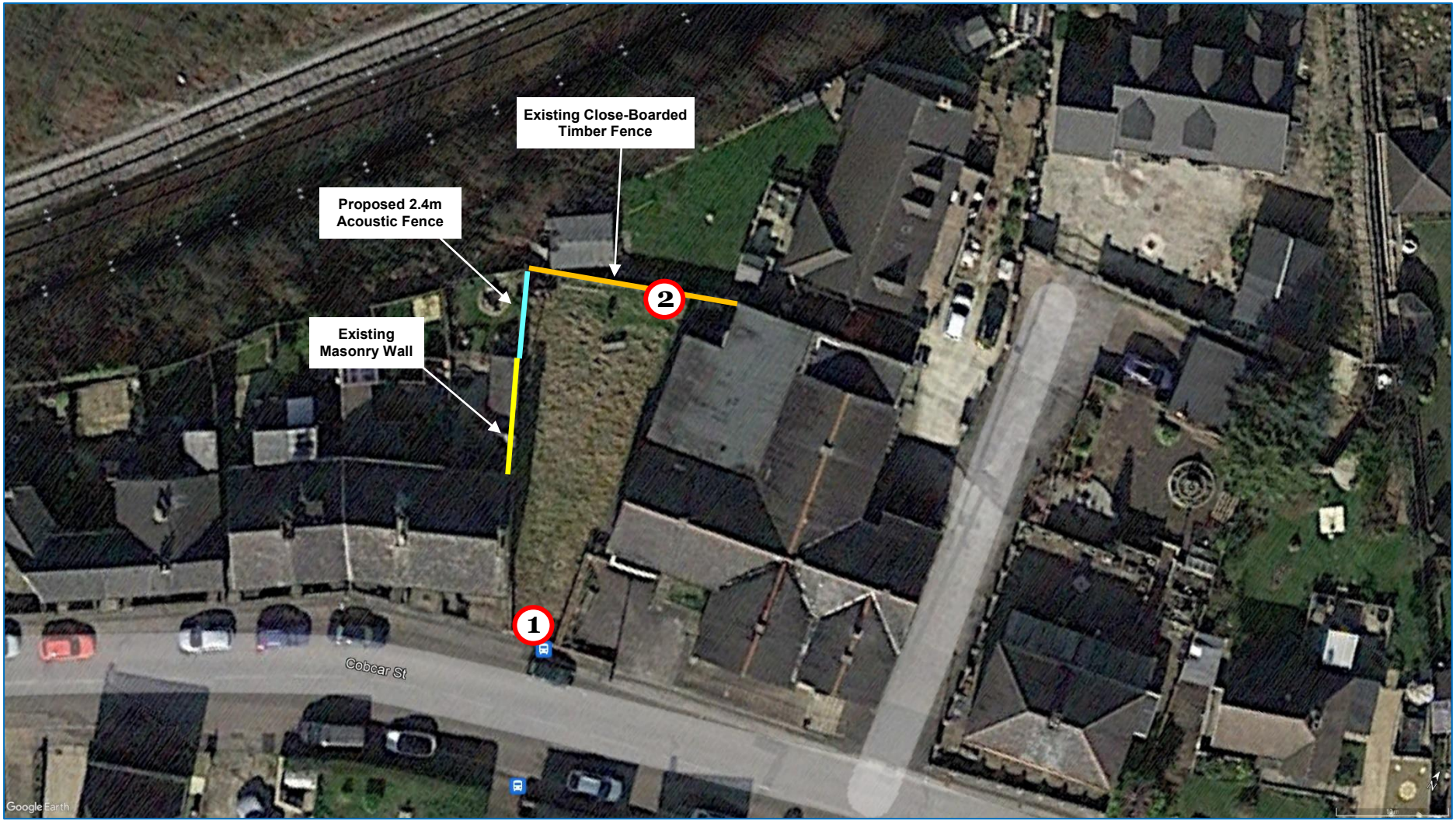
$L_{A90, T}$
The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{AF\ max}$
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 – Approximate Noise Measurement Positions



Appendix 3 – External Amenity Noise Contour Plot

Appendix 4 – Noise Management Plan

- To minimise noise, the staff ratio will be 1 adult to every 4 children using the external area.
- Any crying children will be removed from the external area and returned to the internal areas until they are calm.
- No loud music will be played within the external area.
- Any play equipment that is used or stored in the outside areas will be regularly maintained and positioned so not to cause a nuisance, including when not in use.
- An acoustic fence is to be installed to the boundary with No. 16 Cobcar Street and maintained for the lifetime of the nursery.