

Distribution Centre
St Marys Gate
Rochdale
OL12 0TY

Planning Noise Assessment

On behalf of

ERP (Accrington) Ltd

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1.0 Introduction

- 1.1. Noise Solutions Ltd (NSL) has been commissioned to undertake a planning-stage noise assessment for the proposed change of use at St Marys Gate, Rochdale.
- 1.2. This report presents the results of an environmental noise survey, the applicable policies and guidance, and outline noise impact assessments of the various proposed activities and operations on the site, to demonstrate that it is suitable for those uses without introducing adverse noise effects on the neighbouring areas.
- 1.3. To assist with the understanding of this report a brief glossary of acoustic terms can be found in **Appendix A**. A more in-depth glossary of acoustic terms can be assessed at the following web address <http://www.acoustic-glossary.co.uk/>.

2.0 Site layout and development proposals

- 2.1. The Site is located north of Rochdale town centre, immediately north of St Mary's Gate (A58). The Site comprises a single building divided into two units and the lawful planning use is for non-food retail as controlled by planning permission reference 00/D37893, which was approved on 25 August 2000.
- 2.2. In order to be market facing and commercially attractive, the Applicant is seeking to expand the existing non-food retail use to include Use Class B8 (storage and distribution) including trade counter (i.e. open Use Classes E(a) and B8). The proposed change of use would enable the Site to be used flexibly between retail, storage and distribution, trade counter, or any combination of those uses to respond to market demand. For the avoidance of doubt, the proposal does not seek to make any physical external alterations to the existing units.
- 2.3. The proposed description of development comprises:

"Proposed change of use to allow flexible or mixed use for retail (Use Class E(a)), storage and distribution (Use Class B8) including trade counter with ancillary office space (Use Class E(G))."
- 2.4. **Appendix B** contains an aerial photograph showing the site and surrounding area, with an overlay of the proposed development. A site plan is shown in **Appendix C**.

Scope of outline assessments

- 2.5. Outline assessments have been made of potential noise from services plant at the proposed unit, and from noise related to the use of the commercial unit, primarily relating to vehicle movements.

Nearest noise-sensitive receptors

- 2.6. Noise levels have been predicted to the following:
- Receptor R1, 21 Whitehall Street, to the northwest of the site, currently operating as a nursery;
 - Receptor R2, houses to the west of the site.
- 2.7. The receptors above are shown on the aerial view in [Appendix B](#).

3.0 Environmental sound levels

Environmental sound survey

- 3.1. An unattended environmental sound pressure level survey was undertaken between 16.30 hours on Monday 18th October and 11.00 hours on Tuesday 19th October 2023. Measurements were made on Union Street, as shown in [Appendix B](#). The survey location was chosen so as to be representative of the noise levels in the residential areas around the site.
- 3.2. Full details of the survey are provided in [Appendix D](#) with a history graph of the unattended measurements.
- 3.3. The relevant results of the survey have been summarised in Table 1 below.

Table 1 Summary of survey results

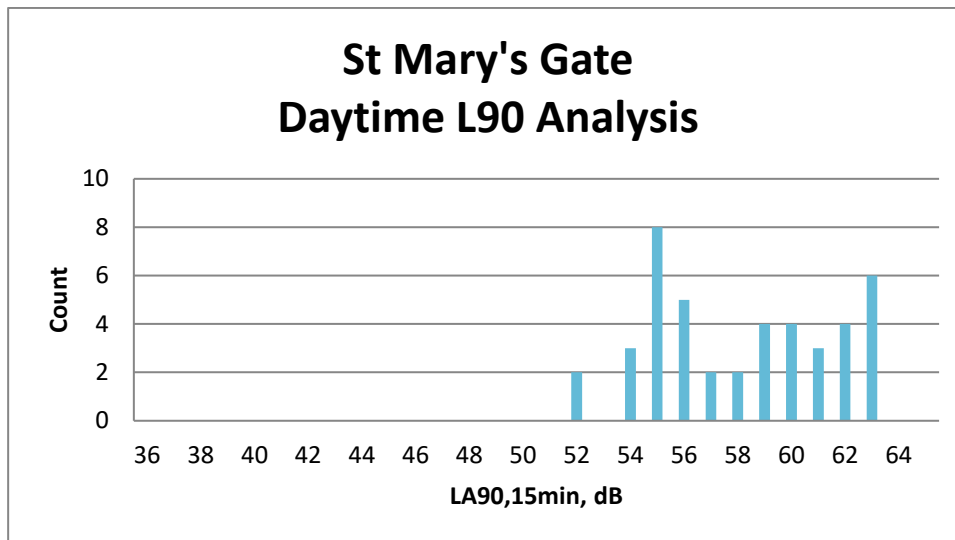
	Measurement period	Range of recorded sound pressure levels (dB)			
		L _{Aeq} (15mins)	L _{AFmax} (15mins)	L _{A10} (15mins)	L _{A90} (15mins)
L1	Daytime (07.00 – 23.00 hours)	36-70	47-91	38-73	31-54
	Night-time (23.00 – 07.00 hours)	30-53	39-80	31-51	28-47

- 3.4. The data presented above are the free-field levels recorded from the sound level meters.

Background sound levels

- 3.5. Background (L_{A90 15min}) sound levels have been analysed to determine representative values, as required by BS 4142:2014. Data has been analysed for the full day and night-time periods.

Figure 1 Histogram of L_{A90} background sound pressure levels, daytime



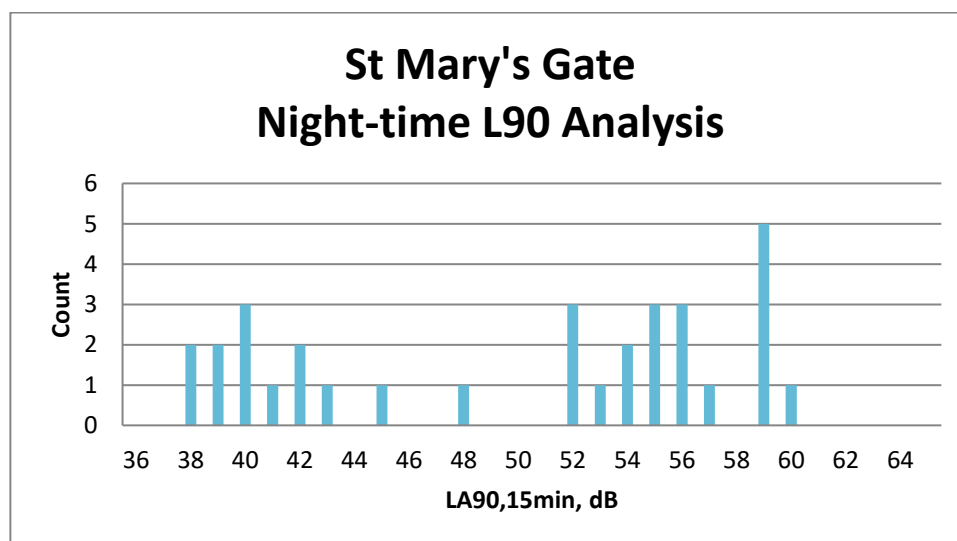
- 3.6. Additional statistical analysis has been undertaken. As shown in Table 2, the mean, median, and modal values have been calculated:

Table 2 Statistical analysis of $L_{A90,15min}$ levels during the daytime

	dB, L_{A90} Daytime - 07.00-23.00 hours
Mean	58
Mode	55
Median	58

- 3.7. From reviewing the above histograms, representative daytime background sound levels are considered to be 55dB.

Figure 2 Histogram of L_{A90} background sound pressure levels, night-time



- 3.8. Additional statistical analysis has been undertaken. As shown in Table 3, the mean, median, and modal values have been calculated:

Table 3 Statistical analysis of $L_{A90,15min}$ levels during the night-time

	dB, L_{A90} Night-time 23.00-07.00 hours
Mean	50
Mode	59
Median	53

- 3.9. From reviewing the above histograms, representative night-time background sound levels are considered to be 40dB.

4.0 Noise policy and Acoustic Standards and Guidance

Noise Policy Statement for England

- 4.1. The Noise Policy Statement for England (NPSE¹), published in March 2010, sets out the long-term vision of Government noise policy. The Noise Policy aims, as presented in this document, are: *"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*
- *avoid significant adverse effects on health and quality of life;*
 - *mitigate and minimise adverse effects on health and quality of life; and*
 - *where possible, contribute to the improvement of health and quality of life."*
- 4.2. The NPSE makes reference to the concepts of NOEL (No Observed Effect Level) and LOAEL (Lowest Observed Adverse Effect Level) as used in toxicology but applied to noise impacts. It also introduces the concept of SOAEL (Significant Observed Adverse Effect Level) which is described as the level above which significant adverse effects on health and quality of life occur.
- 4.3. The first aim of the NPSE is to avoid significant adverse effects, taking into account the guiding principles of sustainable development (as referenced in Section 1.8 of the NPSE). The second aim seeks to provide guidance on the situation that exists when the potential noise impact falls between the LOAEL and the SOAEL, in which case: *"...all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development."*

¹ Noise Policy Statement for England, Defra, March 2010

- 4.4. Importantly, the NPSE goes on to state that: "This does not mean that such adverse effects cannot occur."
- 4.5. The NPSE does not provide a noise-based measure to define SOAEL, acknowledging that the SOAEL is likely to vary depending on the noise source, the receptor and the time in question. NPSE advises that: *"Not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."*
- 4.6. It is therefore likely that other guidance will need to be referenced when applying objective standards for the assessment of noise, particularly in reference to the SOAEL, whilst also taking into account the specific circumstances of a proposed development.

National Planning Policy Framework

- 4.7. A new edition of NPPF was published in September 2023 and came into effect immediately. The original National Planning Policy Framework (NPPF²) was published in March 2012, with a revision in July 2018 and February 2019 - this document replaced the existing Planning Policy Guidance Note 24 (PPG 24) "Planning and Noise." The 2023 revised edition contains no new directions or guidance with respect to noise, and hence, all previous references remain extant. The paragraph references quoted below relate to the September 2023 edition.
- 4.8. Paragraph 174 of the NPPF states that the planning system should contribute to and enhance the natural and local environment by, (amongst others) *"preventing new and existing development from contributing, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, water or noise pollution or land stability."*
- 4.9. The NPPF goes on to state in Paragraph 185:
- "planning policies and decisions should ...*
- a) 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 quality of life;*
 - b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason ...*
- 4.10. The NPPF document does not refer to any other documents or British Standards regarding noise other than the Noise Policy Statement for England (NPSE³).

² National Planning Policy Framework, DCLG, March 2012

³ Noise Policy Statement for England, DEFRA, March 2010

- 4.11. Paragraph 2 of the NPPF states that *"planning law requires that applications for planning permission must be determined in accordance with the development plan unless material considerations indicate otherwise."*
- 4.12. Paragraph 12 of the NPPF states that *"The presumption in favour of sustainable development does not change the statutory status of the development plan as the starting point for decision making. Where a planning application conflicts with an up-to-date development plan (including any neighbourhood plans that form part of the development plan), permission should not usually be granted. Local planning authorities may take decisions that depart from an up-to-date development plan, but only if material considerations in a particular case indicate that the plan should not be followed"*.
- 4.13. Paragraph 119 states that *"Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or 'brownfield' land"*.

Planning Practice Guidance – Noise

- 4.14. An updated Planning Practice Guidance (PPG⁴) for noise was published on 22 July 2019 and provides additional guidance and elaboration on the NPPF. It advises that when plan-making and decision-taking, 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; and
 - Whether or not a good standard of amenity can be achieved.
- 4.15. This guidance introduced the concepts of NOAEL (No Observed Adverse Effect Level), and UAEL (Unacceptable Adverse Effect Level). NOAEL differs from NOEL in that it represents a situation where the acoustic character of an area can be slightly affected (but not such that there is a perceived change in the quality of life). UAEL represents a situation where noise is 'very disruptive' and should be 'prevented' (as opposed to SOAEL, which represents a situation where noise is 'disruptive', and should be 'avoided').

⁴ Planning Practice Guidance – Noise, <https://www.gov.uk/guidance/noise--2>, 22 July 2019

- 4.16. As exposure increases above the LOAEL, the noise begins to have an adverse effect and consideration needs to be given to mitigating and minimising those effects, taking account of the economic and social benefits being derived from the activity causing the noise. As the noise exposure increases, it will then at some point cross the SOAEL boundary.
- 4.17. The LOAEL is described in PPG⁵ as the level above which *"noise starts to cause small changes in behaviour and attitude, for example, having to turn up the volume on the television or needing to speak more loudly to be heard"*.
- 4.18. PPG identifies the SOAEL as the level above which *"noise causes a material change in behaviour such as keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present."*
- 4.19. In line with the Explanatory Note of the NPSE, the PPG goes on to reference 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 PPG⁶ 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."*
- 4.20. The relevant guidance in the PPG in relation to the adverse effect levels is summarized below:

Table 4 PPG Noise effects table

Response	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not Present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not Intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. 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

⁵ Paragraph: 005 Reference ID: 30-005-20190722

⁶ Paragraph: 006 Reference ID: 30-006-20190722

Response	Examples of Outcomes	Increasing Effect Level	Action
Lowest Observed Adverse Effect Level			
Present and Intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, 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 small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and Disruptive	The noise causes a material change in behaviour, attitude or other physiological response, 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
Present and very Disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

4.21. The Planning Practice Guidance⁷ states the following in relation to mitigation measures:

"For noise sensitive developments, mitigation measures can include avoiding noisy locations in the first place; designing the development to reduce the impact of noise from adjoining activities or the local environment; incorporating noise barriers; and optimising the sound insulation provided by the building envelope."

4.22. In addition, the Guide notes that it may also be relevant to consider⁸:

"... whether any adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time (and the effect this may have on living

⁷ Paragraph: 010 Reference ID: 30-010-20190722

⁸ Paragraph: 006 Reference ID: 30-006-20190722

conditions). In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations".

Rochdale Metropolitan Borough Council

4.23. The Rochdale Core Strategy was adopted in January 2016 and is still current.

4.24. Policy DM1 – *General Development Requirements* states:

All development proposals, including changes of use of land and buildings, extensions and alterations, will be expected to demonstrate that they:

- a) Are of high quality design and take the opportunity to enhance the quality of the area;*
- b) Are compatible with surrounding land uses, both in terms of its impact upon those uses and the impact of the surrounding land uses upon the amenities of future residents / users;*
- c) Do not adversely affect the amenity of residents or users through visual intrusion, overbearing impact, overshadowing or loss of privacy;*
- d) Mitigate against any impacts due to noise, air, dust, light and odour pollution, traffic generation or inadequate access, where such mitigation is identified as being necessary;*
- e) Provide satisfactory vehicular access with adequate parking, manoeuvring, and servicing arrangements taking into account of the proposed use and location;*
- f) Do not have an adverse impact on health, through its impact or the effect of existing problems e.g. land contamination, or poor air quality;*
- g) Provide, or demonstrate the availability of, the service and community infrastructure necessary to meet local needs e.g. local shops, community, leisure and sport facilities and provision of open space;*
- h) Minimise opportunities for crime against people or property;*
- i) Take account of ground conditions including unstable or contaminated land - where a potential risk exists, a survey should be carried out and any necessary remedial measures identified and carried out;*
- j) Incorporate, where appropriate, high quality landscape schemes;*
- k) Have assessed whether the development may be affected by ground instability;*

l) Have considered the availability of water and wastewater infrastructure, and any need for additional capacity; and

m) Do not lead to impacts detrimental to the conservation interests of European Protected Sites.

4.25. The Rochdale Borough Unitary Development Plan was adopted in June 2006 and is still current.

4.26. Policy EC/5 *Employment Developments and Extensions Outside Allocated Areas* states:

Proposals for industrial, business or warehouse development (Use Classes B1, B2 and B8), including changes of use and extensions to existing premises, will be permitted outside the allocated employment areas provided that the following criteria are satisfied:

a) In the case of new development within or adjoining primarily residential areas the development is within Use Class B1 and will, therefore, by definition have no unacceptable impact on the environment or amenity of surrounding land uses by reason of visual appearance, noise, vibration, odour, atmospheric pollution or other nuisance;

b) In the case of extensions to existing premises in Use Class B2 or B8 within or adjoining primarily residential areas the design will include measures to ensure that the impact of the development is the same as that required for a B1 development;

c) In all cases the scale and form of the development is sympathetic to the character, and protects the amenity, of surrounding land uses;

d) Satisfactory vehicular access can be provided and adequate on - site provision is made for car parking, servicing and manoeuvring;

e) The surrounding highway network is capable either as existing or as proposed to be upgraded (including by the developer as a result of a proposal), of accommodating any additional vehicular traffic generated by the proposal without damage to amenity or road safety; and

f) For new development (excluding extensions) the site is, or is capable of being, adequately served by public transport.

BS 4142:2014 Methods for Rating and Measuring Industrial and Commercial Sound

4.27. British Standard (BS) 4142:2014 describes a method for rating and assessing sound of an industrial or commercial nature, which includes:

- Sound from industrial and manufacturing processes;
 - Sound from fixed installations which comprise mechanical and electrical plant and equipment;
 - Sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
 - Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.
- 4.28. The industrial or commercial sound is assessed outside a dwelling or premises used for residential purposes, upon which sound is incident.
- 4.29. The procedure contained in BS 4142 is to quantify the "specific sound level", which is the measured or predicted level of sound from the source in question over a one hour period for the daytime and a 15-minute period for the night-time. Daytime is defined in the standard as 07:00 to 23:00 hours, and night-time as 23:00 to 07:00 hours.
- 4.30. The specific sound level is converted to a rating level by adding penalties on a sliding scale to account for either potentially tonal or impulsive elements. The standard sets out objective methods for determining the presence of tones or impulsive elements, but notes that it is acceptable to subjectively determine these effects.
- 4.31. The penalty for tonal elements is between 0dB and 6dB, and the standard notes: "Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible."
- 4.32. The penalty for impulsive elements is between 0dB and 9dB, and the standard notes: "Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible."
- 4.33. The background sound level should be established in terms of the LA90 noise index. The standard states that the background sound level should be measured over a period of sufficient length to obtain a representative value. This should not normally be less than 15-minute intervals. The standard states that: "A representative level ought to account for the range of background sound levels and ought not automatically to be assumed to be either the minimum or modal value."

- 4.34. The assessment outcome results from a comparison of the rating level with the background sound level. The standard states:

- a) Typically, the greater this difference, the greater the magnitude of the impact.*
- b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
- d) 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."

The standard goes on to note that: "Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night."

- 4.35. In addition to the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, the 2014 edition places emphasis upon an appreciation of the context, as follows:

"An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context."

- 4.36. BS 4142 requires uncertainties in the assessment to be considered, and where the uncertainty is likely to affect the outcome of the assessment, steps should be taken to reduce the uncertainty.

Noise affecting schools

- 4.37. The applicable noise criteria for new-build and refurbished schools are set out in Building Bulletin 93 *Acoustic design of schools: performance standards* (BB93). This includes guidance on acceptable levels of intrusive noise affecting classrooms and other noise-sensitive spaces, and on acceptable levels of ambient noise in external teaching areas.

- 4.38. For new-build nurseries, the permissible indoor ambient noise level within these spaces is 35dB $L_{Aeq,30min}$ when windows are open. Assuming a 15dB reduction for a tilted or half-open window (*WHO Guidelines for Community Noise: 2018*) this will be achieved when the external ambient noise level does not exceed 50dB $L_{Aeq,30min}$ at the building façade.
- 4.39. No additional plant is proposed as part of this planning application and the impact of any potential future plant that may be required by prospective occupiers will be assessed at a future date as necessary.

BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings.

- 4.40. This Standard provides recommended guideline values for internal noise levels within dwellings which are similar in scope to guideline values contained within the World Health Organisation (WHO) document, Guidelines for Community Noise (1999⁹). These guideline noise levels are shown in Table 5, below:

Table 5 BS 8233:2014 Desirable Internal Ambient Noise Levels for Dwellings

Activity	Location	07:00 to 23:00 hours	23:00 to 07:00 hours
Resting	Living room	35 dB $L_{Aeq,16h}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16h}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16h}$	30 dB $L_{Aeq,8h}$

- 4.41. BS 8233:2014 advises that: *"regular individual noise events...can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$ depending on the character and number of events per night. Sporadic noise events could require separate values."* While the current edition of the standard gives no specific guidance on internal night-time L_{Amax} sound levels, the previous edition¹⁰ recommended that:

For a reasonable standard in bedrooms at night, individual noise events (measured with F time-weighting) should not normally exceed 45 dB L_{Amax} .

⁹ World Health Organisation Guidelines for Community Noise, 1999

¹⁰ BS 8233:1999 Sound insulation and noise reduction for buildings – Code of practice

Proposed plant noise criteria

- 4.42. For the avoidance of doubt, no additional plant is proposed as part of this current application. The noise impacts of any potential plant or equipment that may be required in the future can be assessed and provided in the future and this can be secured by planning condition if considered to be necessary, albeit a detailed assessment of the impacts of future plant and acceptable noise levels can be undertaken in future as required.

5.0 Noise assessment of receipts and despatches

Sound pressure levels of activities associated with receipts and despatches

- 5.1. NSL has previously measured the sound pressure levels associated with lorry movements at a number of sites. The measurements included all aspects of the delivery including, but not limited to, the arrival, unloading and the departure of the lorry. The sound pressure levels were normalised to a distance of 10m from the vehicle and have been converted to Sound Exposure Levels (SEL) for ease of comparison/calculation. Typical L_{Amax} levels were also established.
- 5.2. Table 6 details typical source noise levels, used within the assessment, with the data presented in terms of SEL and maximum individual noise event levels (L_{AFmax}).

Table 6 Reference noise data for receipt and despatch activities (at 10m)

Noise Source	SEL, dB(A)	L_{AFmax} , dB(A)	Applicable BS 4142:2014 acoustic feature
Lorry arrival	69	61	+3 intermittency
Lorry reversing & manoeuvring into loading bay	65	58	+3 intermittency
Door open/close	60	68	+6 impulsivity
Fork-lift operation	72	69	+3 intermittency
Engine starts and lorry departs	74	71	+3 intermittency

Predicted impact

- 5.3. The information contained in Table 6 was used to model a source noise level based on the number of activity events over the required assessment period using the following equation:

$$L_{Aeq,T} = SEL + 10 \cdot \log\left(\frac{1}{T}\right) + 10 \cdot \log(N) \quad (\text{Equation 1})$$

Where:

SEL is the L_{Aeq} over a one second period, and represents the noise energy from an event (e.g.

cage movement) compressed into one second;
T is the reference time period in seconds; and
N is the number of movements in the time period, T.

- 5.4. For the purposes of this assessment there is assumed to be no more than three deliveries to / despatches from the premises in an hour during the daytime, and no more than one delivery/despatch in any fifteen minute period at night.
- 5.5. At night, the worst-case fifteen-minute period needs to be considered. This is assumed to include one vehicle arrival and one departure to/from each Unit.
- 5.6. The noise level at each of the identified receptors due to vehicle movements and related activities has been predicted. Full calculations are shown in [Appendix E](#) and are summarised in Table 7.

Table 7 Predicted noise levels due to vehicle movements

Receptor	Predicted noise levels at nearest noise-sensitive receptors		
	Daytime $L_{Aeq,1hr}$, dB	Night-time $L_{Aeq,15min}$, dB	Range of L_{Amax} (dB)
R1	46	47	55-68
R2	42	44	54-63

BS 4142:2014 delivery noise assessment

- 5.7. Table 8 below presents the initial assessment of the likely noise impact due to deliveries in accordance with the BS 4142:2014 methodology. Rating levels are inclusive of the BS 4142 feature corrections noted in Table 6.

Table 8 Delivery noise impact assessment

Receptor	Period	Predicted rating level at receptor, $L_{Ar,Tr}$ (dB)	Representative background sound level	Excess of rating over background (dB)	Likely impact (BS 4142:2014)
R1	Daytime	50	55	-5	Low impact
	Night-time	n/a – nursery not noise-sensitive at night			
R2	Daytime	46	55	-9	No impact
	Night-time	48	40	+8	Adverse impact

- 5.8. The above assessment indicates that for vehicle movements made during the daytime there is expected to be no worse than a low noise impact at any nearby noise-sensitive receptors.
- 5.9. At residential receptors at night, vehicle movements may result in an adverse noise impact.

6.0 Noise breakout from buildings

- 6.1. Based on the proposed uses, internal noise levels are likely to be relatively low, below 70dB $L_{Aeq, 1hour}$ and below 80 dB $L_{Amax,F}$.
- 6.2. The resulting noise level at the nearest residential receptors may be predicted by applying corrections for the sound insulation of the external building envelope, the distance between the unit's wall and the receptors and any screening between the building element and the receptor.
- 6.3. The external envelope of the existing building comprises a light-weight cladding roof, sectional roller-shutter doors and part-brick, part-cladding walls. The airborne sound insulation of these building elements will depend on the precise constructions and products used, but would typically be around R_w 30dB for the cladding, R_w 45dB for the brickwork and R_w 25 dB for the loading doors, giving a reasonable worst-case area-averaged sound insulation value of around R_w 30dB. These values are at the low-end of the range of likely performance values.
- 6.4. The predicted noise levels at the nearest receptors have been calculated in [Appendix F](#) and are summarised in Table 9.

Table 9 Predicted noise levels – breakout from industrial unit

Receptor	Predicted noise levels at closest receptor		
	Daytime $L_{Aeq,1hr}$, dB	Night-time $L_{Aeq,15min}$, dB	Highest likely L_{Amax} (dB)
R1	33	33	43
R2	28	28	38

- 6.5. Table 10 below presents the initial assessment of the likely noise impact due to noisy operations in accordance with the BS 4142:2014 methodology. Rating levels are inclusive of a 10 dB feature correction for impulsive noise (e.g. bangs and clatters) and tonality (for example of tool operation) that may be perceptible at the receptors.

Table 10 BS 4142:2014 noise impact assessment - commercial unit noise breakout

Receptor	Period	Predicted rating level at receptor, $L_{Ar,Tr}$ (dB)	Representative background sound level, L_{A90} (dB)	Excess of rating over background (dB)	Likely impact (BS 4142:2014)
R1	Daytime	43	55	-12	No impact
	Night-time	n/a – nursery not noise-sensitive at night			
R2	Daytime	38	55	-17	No impact
	Night-time	38	40	-2	Low impact

- 6.6. The above assessment indicates that with the internal noise levels noted in paragraph 6.1 there may be a low impact at the nearest houses during the night-time, but no adverse impact is expected at any receptor during the daytime.

7.0 Discussion of uncertainties

- 7.1. Where possible uncertainty in the above assessments has been minimised by taking the following steps:
- The measurement of the background sound levels was taken over a 24 hour period.
 - The meter and calibrator used have a traceable laboratory calibration and was field calibrated before and after the measurements.
 - Uncertainty in the calculated impacts has been reduced by the use of well-established calculation methods.

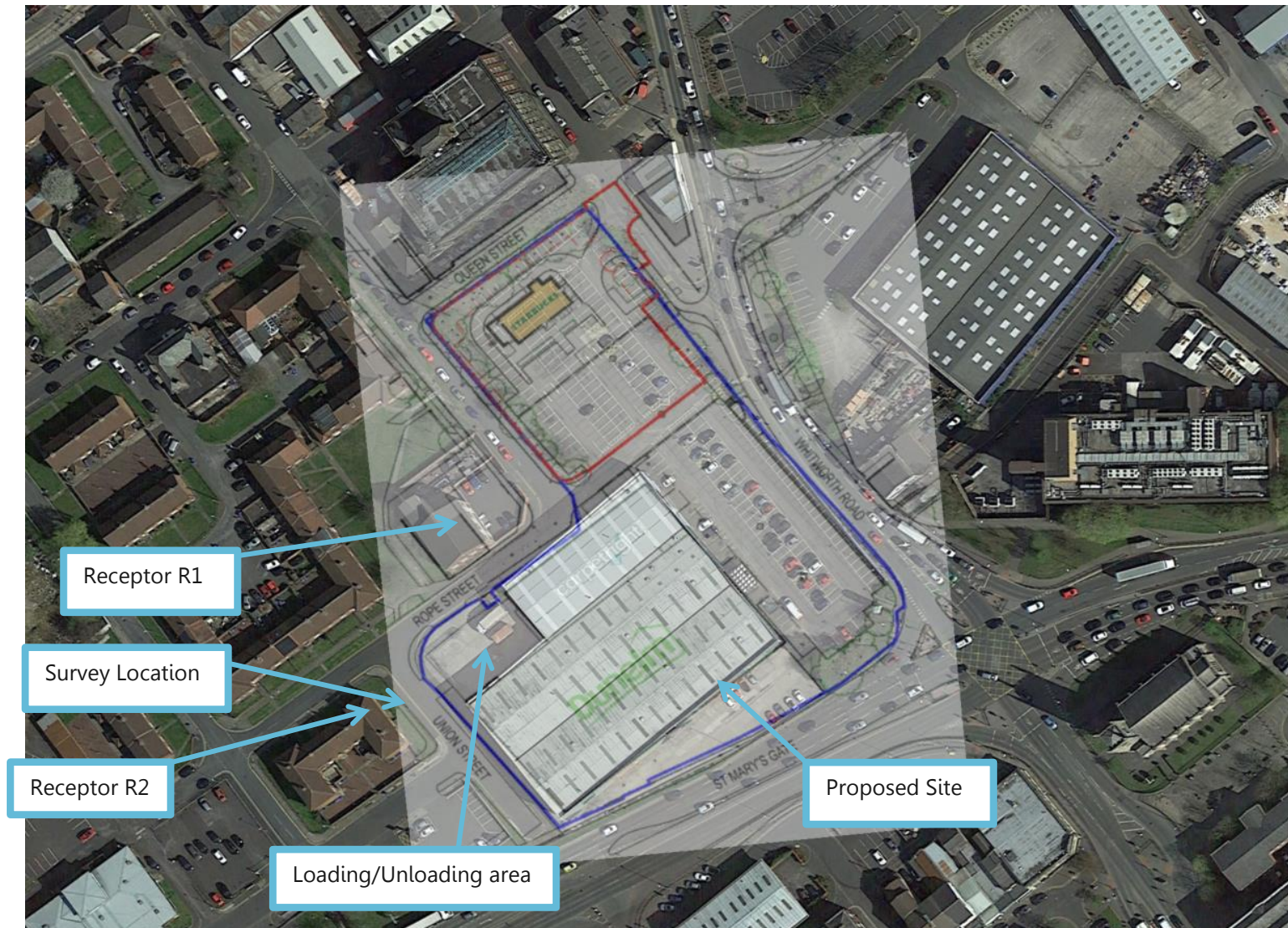
8.0 Summary

- 8.1. Noise Solutions Ltd (NSL) has been commissioned to undertake a planning-stage noise assessment for the proposed commercial unit at St Marys Gate, Rochdale.
- 8.2. The results of the assessments were analysed and reviewed in line with the aims and advice contained within the relevant planning policies and recognised Standards and guidance.
- 8.3. Outline assessments have been made of operational noise at the nearest noise-sensitive premises. Noise from receipts and despatches during the night-time are likely to result in an adverse noise impact on the occupants of the nearest houses. During the daytime, internal and external activities at the site are likely to result in no worse than a low impact, according to the methodology set out in BS 4142:2014+A1:2019.

Appendix A Acoustic terminology

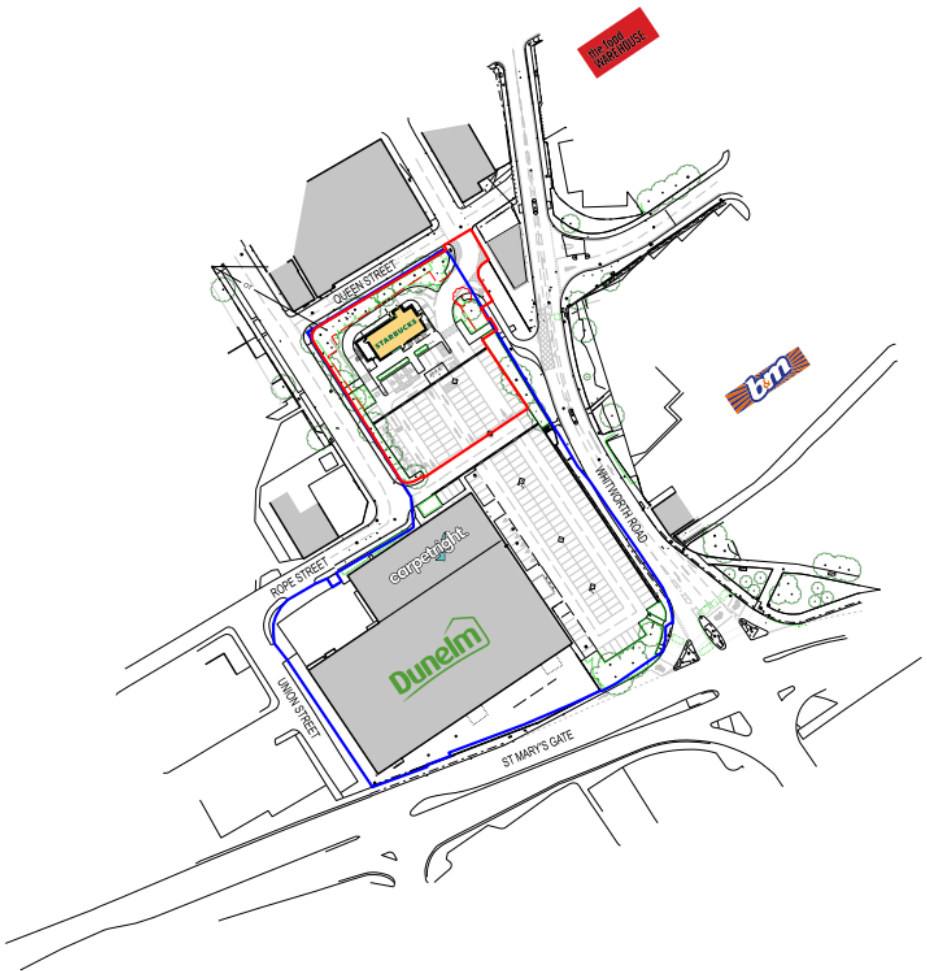
Parameter	Description
Ambient Noise Level	The totally encompassing sound in a given situation at a given time, usually composed of a sound from many sources both distant and near ($L_{Aeq,T}$).
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s_1 and s_2 is given by $20 \log_{10} (s_1/s_2)$. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is $20\mu\text{Pa}$. The threshold of normal hearing is in the region of 0 dB and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.
dB(A), L_{Ax}	Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).
Fast Time Weighting	Setting on sound level meter, denoted by a subscript F, that determines the speed at which the instrument responds to changes in the amplitude of any measured signal. The fast time weighting can lead to higher values than the slow time weighting when rapidly changing signals are measured. The average time constant for the fast response setting is 0.125 (1/8) seconds.
Free-field	Sound pressure level measured outside, far away from reflecting surfaces (except the ground), usually taken to mean at least 3.5 metres
Façade	Sound pressure level measured at a distance of 1 metre in front of a large sound reflecting object such as a building façade.
$L_{Aeq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level recorded during a noise event with a period T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
$L_{10,T}$	A noise level index. The noise level exceeded for 10% of the time over the period T. L_{10} can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise. $L_{A10,18h}$ is the A –weighted arithmetic average of the 18 hourly $L_{A10,1h}$ values from 06:00-24:00.
$L_{90,T}$	A noise level index. The noise level that is exceeded for 90% of the measurement time interval, T. It gives an indication of the lower levels of fluctuating noise. It is often used to describe the background noise level and can be considered to be the "average minimum" noise level and is a term used to describe the level to which non-specific noise falls during quiet spells, when there is lull in passing traffic for example.

Appendix B Aerial photograph of site with overlaid development plan



Appendix C

Development plan



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SITE SPECIFIC HAZARDS

IN ACCORDANCE WITH THE REQUIREMENTS OF THE CON REGULATIONS 2018 THE FOLLOWING HAZARDS HAVE BEEN IDENTIFIED AND MUST BE TAKEN INTO CONSIDERATION BY CONTRACTORS PLANNING TO UNDERTAKE THE WORKS SHOWN ON THIS DRAWING.

SCALE 1:1250

0m 10 20 30 40 50 60 70 80



ORDNANCE SURVEY LICENCE

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NOTES

THIS DRAWING HAS BEEN CREATED USING OS AND TOPOGRAPHICAL INFORMATION.

REV. DATE NOTES INT.

CLIENT / PROJECT

GLENBROOK
ST. MARY'S GATE
ROCHDALE

DRAWING TITLE

PROPOSED LOCATION PLAN

STATUS

FEASIBILITY

DATE 18.07.23 DRAWN AJP SCALE @ A3

PROJECT UNIT COUNTRY TYPE NUMBER REGION

11390 SC07 L01

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Appendix D Environmental sound survey

Details of environmental sound survey

- D.1 Measurements of the sound pressure levels affecting the nearest residential premises were undertaken between 16.30 hours on Monday 18th September and 11.00 hours on Tuesday 19th September 2023.
- D.2 The sound level meters were programmed to record the A-weighted L_{eq} , L_{90} , L_{10} and L_{max} noise indices for consecutive 15-minute sample periods for the duration of the survey.

Measurement position

- D.3 Unattended measurements were made on Union Street shown in [Appendix B](#). The meters were secured to lamp columns with the microphone approximately 3m above the ground.
- D.4 In accordance with BS 7445-2:1991 '*Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use*', the measurements were undertaken under free-field conditions.

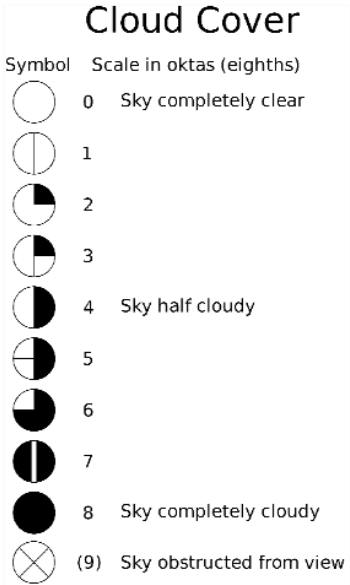
Equipment

- D.5 Details of the equipment used during the survey are provided in the table below. The sound level meter was calibrated before and after the survey; no significant change (+/-0.2 dB) in the calibration level was noted.

Description	Model / serial no.	Calibration date	Calibration certificate no.
Class 1 Sound level meter	Rion NL-52 / 00654035	30/08/2022	TCRT22/1544
Condenser microphone	Rion UC-59 / 14826		
Preamplifier	Rion NH-25 / 87474		
Calibrator	Rion NC-74 /34235932	04/10/2022	1503480-1

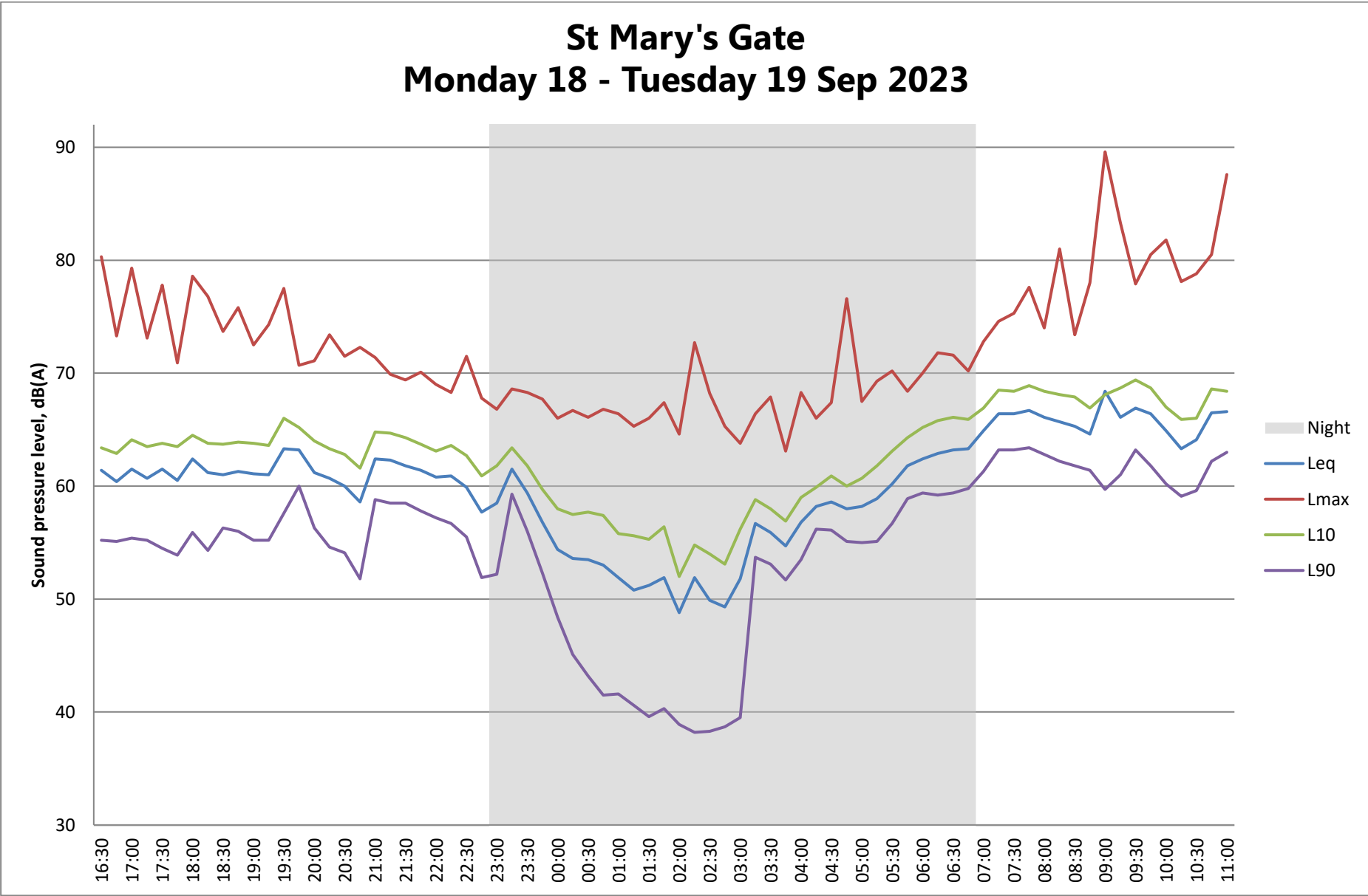
Weather Conditions

- D.6 Weather conditions were determined both at the start and on completion of the survey. It is considered that the meteorological conditions were appropriate for environmental noise measurements. The table below presents the weather conditions recorded on site at the beginning and end of the survey.

Weather Conditions				
Measurement Location	Date/Time	Description	Start of Survey	End of Survey
As indicated on Appendix B	16.30 18 Sep - 11.00 19 Sep 2023	Temperature (°C)	14	15
 Cloud Cover Symbol Scale in oktas (eighths) 0 Sky completely clear 1 2 3 4 Sky half cloudy 5 6 7 8 Sky completely cloudy (9) Sky obstructed from view		Precipitation:	No	Yes
		Cloud cover (oktas - see guide)	6	8
		Presence of fog/snow/ice	No	No
		Presence of damp roads/wet ground	No	Yes
		Wind Speed (m/s)	6	2
		Wind Direction	SE	SE
		Conditions that may cause temperature inversion (i.e. calm nights with no cloud)	No	No

Results and observations

- D.7 The results of the environmental survey are considered to be representative of the background sound pressure levels at the façades of the nearest noise sensitive receptors during the quietest times at which the plant may operate in the future. The noise climate during the survey period was dominated by local road traffic with occasional noise from aircraft, birdsong and wind. There were also significant noise from rain at pick-up. The results of the survey are presented in a time history graph overleaf.
- D.8 The results of the unattended survey are presented in time history graphs overleaf.



	SEL @ 10m	L _{Amax} @ 10m	No. occurrences	Correction (dB)	Receptor R1					
					Dist. (m)	Corr'n (dB)	Screen corr'n (dB)	SEL at rec'r, dB	inc. BS4142 feature	L _{Amax}
Lorry arrival	69	61	3	5	14	-3	0	71	71	58
Lorry reversing & manoeuvring	65	58	3	5	14	-3	0	67	70	55
Door open/close	60	68	9	10	14	-3	0	67	73	65
Fork-lift operation	72	69	9	10	14	-3	0	79	85	66
Engine starts and lorry departs	74	71	3	5	14	-3	0	76	79	68
Combined SEL + feature correction									86	
L _{Ar} 1 hour									50	
Range of L _{Amax}										55 - 68

R2 – Houses to west - daytime

	SEL @ 10m	L _{Amax} @ 10m	No. occurrences	Correction (dB)	Receptor R2					
					Dist. (m)	Corr'n (dB)	Screen corr'n (dB)	SEL at rec'r, dB	inc. BS4142 feature	L _{Amax}
Lorry arrival	69	61	3	5	10	0	0	74	74	61
Lorry reversing & manoeuvring	65	58	3	5	15	-4	0	66	69	54
Door open/close	60	68	9	10	24	-8	0	62	68	60
Fork-lift operation	72	69	9	10	24	-8	0	74	80	61
Engine starts and lorry departs	74	71	3	5	24	-8	0	71	74	63
Combined SEL + feature correction									82	
L _{Ar} 1 hour									46	
Range of L _{Amax}										54 - 63

R2 – Houses to west – night-time – worst-case 15 minutes

	SEL @ 10m	L _{Amax} @ 10m	No. occurrences	Correction (dB)	Receptor R2					
					Dist. (m)	Corr'n (dB)	Screen corr'n (dB)	SEL at rec'r, dB	inc. BS4142 feature	L _{Amax}
Lorry arrival	69	61	1	0	10	0	0	69	69	61
Lorry reversing & manoeuvring	65	58	3	5	15	-4	0	66	69	54
Door open/close	60	68	3	5	24	-8	0	57	63	60
Fork-lift operation	72	69	3	5	24	-8	0	69	75	61
Engine starts and lorry departs	74	71	1	0	24	-8	0	66	69	63
Combined SEL + feature correction									77	
L _{Ar} 1 hour									48	
Range of L _{Amax}										54 - 63

Appendix F Outline assessment of noise break-out through building envelope

		Sound level (dB)	
		L _{Aeq,T}	L _{Amax}
Reverberant sound pressure level within building, dB(A)		70	80
Estimated sound reduction of building envelope, dB R _w (area averaged)		30	
Receptor R1		L _{Aeq,T}	L _{Amax}
Area of radiating building envelope toward receptor	m ²	552	
Area correction	dB	27	
Inside-outside correction	dB	-6	
Sound power level of building envelope	dB(A)	61	71
Distance to receptor	m	10	10
Distance correction	dB	-28	-28
Resultant noise level at Receptor	dB(A)	33	43

		Sound level (dB)	
Receptor R2		L _{Aeq,T}	L _{Amax}
Area of radiating building envelope toward receptor	m ²	552	
Area correction	dB	27	
Inside-outside correction	dB	-6	
Sound power level of building envelope	dB(A)	61	71
Distance to receptor	m	18	18
Distance correction	dB	-33	-33
Resultant noise level at Receptor	dB(A)	28	38