

Commercial units

Thornhill Court
Coolham
RH13 8QN

Planning Noise Assessment

On behalf of



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	Name	Qualifications	Initials	Date
Prepared by:	Alfie Morgan	BSc(Hons), TechIOA	ADM	23 rd October 2025
Reviewed and approved by:	Nigel Chandler	BSc(Hons), MIOA	NAC	3 rd November 2025
For and on behalf of Noise Solutions Ltd				

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Reg no. 3483481 Head office: Unit 5 Oriel Court, Omega Park, Alton, Hampshire, GU34 2YT
Manchester office: 17 King Street, Knutsford, WA16 6DW

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1.0 Introduction

- 1.1. Noise Solutions Ltd (NSL) has been commissioned to undertake a noise assessment for a proposed extension of operating hours at existing commercial units located at Thornhill Court, Coolham. This report outlines the potential impact of the extension of operating hours at nearby residential dwellings.
- 1.2. Noise levels from existing units, where possible, have been measured. Maximum permissible noise levels from each unit have been specified, both for units unable to be measured during visits to the site, and for potential different future tenants at existing units, and have been assessed against relevant standards.
- 1.3. The proposed site plan is shown in [Appendix B](#).
- 1.4. An environmental noise survey was undertaken to establish prevailing noise levels affecting the development site.
- 1.5. To assist with the understanding of this report a glossary of acoustic terms can be found in [Appendix A](#). An in-depth glossary of acoustic terms can be viewed online at <http://www.acoustic-glossary.co.uk>.

2.0 Site layout and development proposals

- 2.1. It is proposed to extend the operating hours for 10 of the existing commercial units at Thornhill Court, Coolham namely; 1A+B, 1C, 3A, 3B, 4A, 4B, 4C, 4D, 4E, and 4F. Table 1 below outlines the unit, current tenant, and how the assessment of the unit will be undertaken within the report.

Table 1 Commercial unit, and assessment methodology

Unit	Tenant	Assessment methodology
1A+B	EasyLunch	▪ Delivery noise, and activity survey undertaken, comparison of existing noise vs background to set maximum operating times, and discussion of how to reduce existing noise levels. ▪ Future proofing of unit by setting maximum permissible levels
1C	Vacant	▪ Maximum permissible level setting
3A	Vitra	▪ Maximum permissible level setting

Unit	Tenant	Assessment methodology
3B	Fusion Aviation	Maximum permissible level setting
4A + 4E	Furniture distributor	Maximum permissible level setting
4B	Joinery workshop	- Activity noise survey undertaken, comparison of existing noise vs background to set maximum operating times, and discussion of how to reduce existing noise levels. - Future proofing of unit by setting maximum permissible levels
4C	Vacant	Maximum permissible level setting
4D	Joinery workshop	- Activity noise survey undertaken, comparison of existing noise vs background to set maximum operating times, and discussion of how to reduce existing noise levels. - Future proofing of unit by setting maximum permissible levels
4F	Vacant	Maximum permissible level setting

2.2. The site location, receptors, and the noise survey position, are shown in [Appendix B](#).

2.3. The existing permitted operating hours are:

- Weekdays – 08:00 – 18:00
- Saturday – 08:00 – 13:00
- Sunday – No hours permitted

2.4. The proposed extended operating hours are as follows:

- Weekdays – 07.00 – 21.00hrs
- Saturday – 07.00 – 21.00hrs
- Sunday – 09.00 – 19.00hrs

3.0 Nearest noise sensitive receptors

- 3.1. The nearest noise-sensitive receptors are dwellings with the same access road as the commercial units, and have the postcode RH13 8QN. These are:
- Receptor R1, Thornhill Farm, approximately 55m from the closest commercial unit;
 - Receptor R2, Thornhill Stables, approximately 53m from the closest commercial unit; and
 - Receptor R3, Thornhill, approximately 75m from the closest commercial unit.
- 3.2. The receptors noted are indicated in the indicative layout shown in [Appendix B](#).

4.0 Policy context

National Planning Policy Framework

- 4.1. A new edition of the NPPF was published in December 2024 and came into effect immediately, with corrections issued in February 2025. The original National Planning Policy Framework (NPPF¹) was published in March 2012, with subsequent revisions made periodically - this document replaced the existing Planning Policy Guidance Note 24 (PPG 24) "Planning and Noise." The December 2024 revised edition contains no new directions or guidance with respect to noise. The paragraph references quoted below relate to the December 2024/February 2025 edition.
- 4.2. Paragraph 187 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 to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability."*
- 4.3. The NPPF goes on to state in Paragraph 198:
- "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 ...*
- 4.4. The NPPF document does not refer to any other documents or British Standards regarding noise other than the Noise Policy Statement for England (NPSE²).

¹ National Planning Policy Framework, DCLG, March 2012

² Noise Policy Statement for England, DEFRA, March 2010

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- 4.5. Paragraph 2 of the NPPF states that *"planning law requires that applications for planning permission be determined in accordance with the development plan unless material considerations indicate otherwise."*
- 4.6. 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"*.
- 4.7. Paragraph 87 of the NPF states:
- "Planning policies and decisions should recognise and address the specific locational requirements of different sectors. This includes making provision for:*
- a) clusters or networks of knowledge and data-driven, creative or high technology industries; and for new, expanded or upgraded facilities and infrastructure that are needed to support the growth of these industries (including data centres and grid connections);*
 - b) storage and distribution operations at a variety of scales and in suitably accessible locations that allow for the efficient and reliable handling of goods, especially where this is needed to support the supply chain, transport innovation and decarbonisation; and*
 - c) the expansion or modernisation of other industries of local, regional or national importance to support economic growth and resilience"*.
- 4.8. Paragraph 124 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"*.

Noise Policy Statement for England

- 4.9. The Noise Policy Statement for England (NPSE⁵), 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."*
- 4.10. 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.
- 4.11. 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."*
- 4.12. Importantly, the NPSE goes on to state that: "This does not mean that such adverse effects cannot occur."
- 4.13. 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."*
- 4.14. 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.

⁵ Noise Policy Statement for England, Defra, March 2010

Planning Practice Guidance – Noise

- 4.15. An updated Planning Practice Guidance (PPG⁶) 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.
- 4.16. 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’).
- 4.17. 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.
- 4.18. The LOAEL is described in PPG⁷ 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”*.
- 4.19. 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.”*

⁶ Planning Practice Guidance – Noise, <https://www.gov.uk/guidance/noise--2>, 22 July 2019

⁷ Paragraph: 005 Reference ID: 30-005-20190722

- 4.20. 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 PPG⁸ 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."*
- 4.21. The relevant guidance in the PPG in relation to the adverse effect levels is summarized below:

Table 2 Table of effects (Planning Policy Guidance)

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
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	Significant Observed Adverse Effect	Avoid

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

Response	Examples of Outcomes	Increasing Effect Level	Action
	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.		
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

4.22. The Planning Practice Guidance⁹ 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."

4.23. In addition, the Guide notes that it may also be relevant to consider¹⁰:

"... 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 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".

5.0 Existing noise climate

Environmental sound levels

5.1. An environmental noise survey was undertaken to establish the typical background sound levels at locations representative of the noise climate at the residential and other noise-sensitive receptors around the site.

5.2. The results of the environmental sound survey are summarised in Table 3. The full set of

⁹ Paragraph: 010 Reference ID: 30-010-20190722

¹⁰ Paragraph: 006 Reference ID: 30-006-20190722

measurement results and details of the survey methodology are presented in [Appendix C](#).

Table 3 Summary of survey results

Day	Measurement period	Range of recorded sound pressure levels (dB)			
		L _{Aeq} (15mins)	L _{Amax} (15mins)	L _{A10} (15mins)	L _{A90} (15mins)
Weekday	Daytime (07.00 – 23.00 hours)	39-59	55-90	42-63	27-52
	Proposed extended hours (07:00 – 21:00)	44-59	58-90	48-63	33-52
Saturday	Daytime (07.00 – 23.00 hours)	42-63	58-86	46-69	32-48
	Proposed extended hours (07:00 – 21:00)	44-63	58-86	47-69	34-48
Sunday	Daytime (07.00 – 23.00 hours)	37-62	53-90	41-56	23-47
	Proposed opening hours (09:00 – 19:00)	46-62	60-90	49-56	35-47

- 5.3. Statistical analysis has been carried out on the data; the mean, modal and median values are shown in Table 4 and Table 5.

Table 4 Statistical analysis of L_{A90,15min} levels during the daytime period

	dB, L _{A90} daytime period		
	Weekdays	Saturdays	Sundays
Mean	40	42	38
Median	41	44	42
Mode	40	43	40
Lowest	27	32	23

Table 5 Statistical analysis of L_{A90,15min} levels during the new proposed operating period

	dB, L _{A90} proposed period		
	Weekdays	Saturdays	Sundays
Mean	41	42	42
Median	41	43	42
Mode	41	43	42
Lowest	33	34	35

- 5.4. In order to assess the impact that changing of operating hours will have on the nearby residential

receptors, it is more important to analyse the lowest background sound level during the proposed operating period. This is a robust way to confirm that noise levels from the commercial units will not be disrupt the amenity of the nearby residential dwellings during any time of the proposed operation.

Table 6 Summary of representative background sound levels

Period	Lowest background sound level, dB L _{A90} 15min
Weekdays (07:00 – 21:00)	33
Saturdays (07:00 – 21:00)	34
Sundays (09:00 – 19:00)	35

6.0 Acoustic standards and guidance

Horsham District Council

- 6.1. It is understood that Horsham District Council has adopted The *Planning Noise Advice Document: Sussex*¹¹.
- 6.2. The *Planning Noise Advice Document: Sussex*, provides the following advice with regard to industrial and commercial sound sources.

The rating level of the industrial or commercial sound source should, where practicable, achieve a level no greater than the representative background sound, when measured in accordance with BS 4142:2014 + A1: 2019. There may be instances, for specific sites, where a rating level below background is deemed appropriate. This can be determined through discussion with the Local Planning Authority (LPA). A rating level below background may be required if there are concerns for potential noise creep, for example in a High Street setting. It is considered that meeting this criterion would avoid adverse noise impacts, in the interests of ensuring a good standard of amenity and protecting human health. Where these criteria are not attainable, the noise report should explain why, and how best practicable means will be implemented to control noise in order to satisfy the LPA that the development is acceptable. At all times the reports shall have regard to the context.

- 6.3. Horsham district council also said the following regarding this development;

"This Assessment should seek to establish existing background noise levels, including any reduced impact from traffic noise into the evening and at weekends, and it would beneficial to test both inside and outside of the buildings to help inform whether any mitigation would

¹¹ Planning Noise Advice Document: Sussex, March 2021

be necessary, such as keeping windows and doors shut (other than for ingress and egress) after a certain hour, or restricting the use of power tools after a certain hour."

BS 4142:2014 + A1:2019 Methods for rating and assessing industrial and commercial sound

- 6.4. BS 4142:2014+A1:2019¹² is intended to be used to assess the likely effects of sound on people residing in nearby dwellings. The scope of BS 4142:2014 includes *"sound from fixed plant installations which comprise mechanical and electrical plant and equipment"* and *"sound from the loading and unloading of goods and materials at industrial and/or commercial premises"*.
- 6.5. The procedure contained in BS 4142:2014 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.
- 6.6. 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.
- 6.7. 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."*
- 6.8. 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."*
- 6.9. The assessment outcome results from a comparison of the rating level with the background sound level. The standard states:
- *Typically, the greater this difference, the greater the magnitude of the impact.*
 - *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;*

¹² For the purposes of brevity, references in this report to "BS 4142:2014" or "BS 4142" should be read as BS 4142:2014 + A1:2019

- *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.*
- 6.10. The standard does state that "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."
- 6.11. 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."
- 6.12. 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."*
- 6.13. BS 4142:2014 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.

Proposed criteria

- 6.14. Based on the local authority's usual requirements the following noise limits apply.

Period	Cumulative maximum operational noise rating level
Entirety of proposed operating period	33

7.0 Assessment of existing commercial units

Unit 1A+B – EasyLunch activity noise

- 7.1. EasyLunch, which currently occupies units 1A and 1B, make lunches for local schools.
- 7.2. Activity noise during the unit's operation include staff talking, pots and pans impacting surfaces as food is prepared, and the loading of delivery vans with crates of food, which includes opening and shutting of doors.

- 7.3. An activity noise survey was undertaken on the morning of 19th September 2025 to establish existing noise levels from the unit. It is noted that the shutter door was half-open for the duration of the survey; if the roller shutter doors were shut breakout sound levels would be approximately 5-10dB lower.
- 7.4. During the survey, the primary noise source was vehicles visiting both nearby residents and other commercial units within Thornhill Court. For the purposes of the assessment of noise break-out these events have been noted and ignored, and are assessed separately in the next section. Table 7 below outlines results from the activity noise survey; full calculations are shown in [Appendix E](#).

Table 7 Results from EasyLunch activity survey

Noise levels at measurement position, dB			Receptor	BS 4142 Feature Correction	Level at receptor, dB		
Ambient	Residual	Specific			Level	Criteria	Excess
44	41	41	R1	+6dB Impulsivity	34	33	+1*
			R2		34	33	+1*
			R3		30	33	-3

**1dB above the lowest background sound level during the proposed extension of operating hours*

Table 8 BS 4142 assessment of EasyLunch activity noise at R2

Results		Relevant Clauses of BS4142:2014	Commentary
Background Sound level	$L_{A90} = 33\text{dB}$	8.1, 8.2	33dB based on the lowest background sound level during proposed extended operating hours
Assessment made during the daytime, so the reference interval is one hour		7.2	
Specific Sound Level	$L_{Aeq,T} = 28\text{dB}$	7.3.6	Calculations presented in Appendix D
Acoustic Feature Correction	+6dB	9.2	
Rating Level	$(28+6) \text{ dB} = 34\text{dB}$		
Excess of Rating Level over background sound level	$(34 - 33) \text{ dB} = +1\text{dB}$		
Assessment of impact: Potential likelihood of adverse impact, depending on context		11	See 7.5 – 7.6

- 7.5. It should be noted that 1dB above the lowest background sound level during the proposed operating hours constitutes EasyLunch only exceeding the background noise level for a single 15

minute day-time period during the week, in the evening – noise levels from this unit would be further reduced if the shutter doors are closed.

- 7.6. Due to the nature of EasyLunch's business, it is unlikely that they would have significant operations within evenings, or at weekends. As such noise generated with shutter doors open within their current operating hours is at a level where it is not disturbing to nearby residential receptors. However, if they were to have operations into the evenings or during the weekend, it is recommended that the shutter door remains closed.

EasyLunch deliveries

- 7.7. EasyLunch receive up to 4 deliveries a day, 3 times a week. Two of the deliveries observed were from standard supermarket delivery vans, namely Tesco and Ocado, with the other deliveries being similarly sized vehicles, Sound pressure levels associated with van deliveries were established by attended measurements at the site while the unit received deliveries.
- 7.8. The measurements included all aspects of the delivery including, but not limited to, the arrival, unloading, and departure of the vans. The sound pressure levels were measured as close to the nearest receptor (R2) as possible to best simulate the noise levels incident at the property.
- 7.9. Four deliveries were measured during the morning of the 19th September 2025 near the property boundary of receptor R2, on the access road, approximately 2m from the closest portion of the delivery vans' route, and 20m from the façade of receptor R2.
- 7.10. Due to the nature of deliveries being manual lifting of boxes from vans, and carried into the commercial unit, the actual loading activity was completely inaudible at the measurement position, as such all the noise generated by delivery activities are from the vehicle arriving, and leaving the site.
- 7.11. Measured sound levels from the entire delivery periods have been converted to Sound Exposure Levels (SEL) for ease of comparison/ calculation, and the example deliveries represents standard operation for the unit.
- 7.12. Table 9 details typical source noise levels used within the assessment, with the data presented in terms of SEL and the applicable BS 4142:2014 feature correction. The sound level meter was approximately 2m from the van during pass-bys.

Table 9 Reference noise data for delivery activities at 2m

Noise Source	Delivery	SEL, dB(A)	L _{Afmax} , dB(A)	BS4142:2014 feature correction, dB
Lorry arrival	Delivery 1	78	72	+3 (intermittency)
	Delivery 2	69	75	+3 (intermittency)
	Delivery 3	68	72	+3 (intermittency)
	Delivery 4	70	71	+3 (intermittency)
Engine starts and lorry departs	Delivery 1	75	72	+3 (intermittency)
	Delivery 2	80	75	+3 (intermittency)
	Delivery 3	80	72	+3 (intermittency)
	Delivery 4	76	71	+3 (intermittency)
Entire delivery	All deliveries	86	75	+3 (intermittency)

- 7.13. The information contained in Table 9 was used to model source noise levels based on the number of activity events over the required assessment period using the following equation:

7.14.
$$L_{Aeq,T} = SEL + 10 \cdot \log\left(\frac{1}{T}\right) + 10 \cdot \log(N) \quad (\text{Equation 1})$$

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.

- 7.15. Table 10 presents the calculated cumulative L_{Aeq} noise levels at the receptor and includes the addition of feature corrections. Full calculations are included within [Appendix D](#).

Table 10 Predicted delivery noise levels at residential façades

Receptor	Period	Predicted noise levels at window of most affected residential dwelling	
		L _{Aeq,T} , dB	L _{Ar,T} , dB
R1	Daytime	16	19
R2	Daytime	30	33
R3	Daytime	21	24

BS 4142:2014 delivery noise assessment

- 7.16. Table 11 presents the assessment of the likely impact at Receptor R2, where predicted sound levels are highest, during the daytime period in accordance with the BS 4142:2014 methodology. Four deliveries were observed, with the first van arriving at 07:50 hours, and the last van leaving at 08:47. As such noise from all deliveries have been assessed during a single 1 hour daytime period, which provided a robust worst-case assessment, as all deliveries may not arrive within a single hour in the future.

Table 11 R2 Assessment of predicted daytime external delivery noise levels using BS 4142:2014

Results		Relevant Clauses of BS4142:2014	Commentary
Background Sound level	$L_{A90} = 33\text{dB}$	8.1, 8.2	33dB based on the lowest background sound level during proposed extended operating hours
Assessment made during the daytime, so the reference interval is one hour		7.2	
Specific Sound Level	$L_{Aeq,T} = 30\text{dB}$	7.3.6	Calculations presented in Appendix D
Acoustic Feature Correction	+3dB	9.2	
Rating Level	$(30+3) \text{ dB} = 33\text{dB}$		
Excess of Rating Level over background sound level	$(33 - 33) \text{ dB} = 0\text{dB}$		
Assessment of impact: Low likelihood of adverse impact, depending on context		11	

- 7.17. As the standard advises, the estimated impact must be considered within the context of the site and the surrounding acoustic environment. The following must, therefore, also be taken into consideration when determining the potential impact that may be experienced:
- The assessments are undertaken at a single residential window. The impact on all other residential windows will be lower due to distance losses and noise screening provided by the building structure.
 - Due to the deliveries being undertaken by small vans, the noise from the arrival and departures of delivery vehicles would not be too dissimilar to a car arriving or leaving the site. Deliveries would likely be considerably more impactful if they were undertaken by lorries, or larger vans.
 - The number of expected deliveries is a maximum of 4 during a single daytime period.

7.18. Where possible uncertainty in this assessment has been minimised by taking the following steps:

- The measurement of the background sound levels was undertaken over a period including the quietest times of the day and night.
- The sound level meter and calibrator used have a traceable laboratory calibration and were field calibrated before and after the measurements.
- Uncertainty in the calculated impact has been reduced by the use of a well-established calculation method.
- Care was taken to ensure that the measurement position was representative of the noise climate outside the nearby residential dwellings and not at a position where higher noise levels are present.

Unit 4B + 4D – Joinery workshops

7.19. Attended measurements of units 4D, and 4B were undertaken, with doors open, to assess a worst-case scenario of noise from the units. Measurements were undertaken 1m from the opening of each unit while they undertook their noisiest activity, using multiple high-powered saws. It should be noted that these were regular 0.9m x 2m doors, and not roller shutter doors. Results are summarised within Table 12 below and shown in more detail in [Appendix E](#). These include noise from the dust extract and filtration system within the building.

Table 12 Breakout noise levels from existing commercial units

Unit	Breakout sound pressure level with door open at 1m, dB	Receptor	BS 4142 Feature Correction	Level at receptor, dB	Background sound pressure level	Excess
4B	61	R1	+3dB Intermittency	10	33	-23
		R2		20		-13
		R3		5		-28
4D	68	R1	+3dB Intermittency	18		-15
		R2		29		-4
		R3		12		-21

7.20. The table above shows that breakout noise levels from existing units are at least 4dB below the lowest background level during the proposed extended operating hours. This is inclusive of having doors open within both units; noise levels could be further reduced by 5-10dB if those doors were closed.

- 7.21. Unit 4B has a ventilation extraction fan, which does not operate continuously. This is not included in the above assessment and is considered separately in Table 13 and in calculations in [Appendix E](#).

Table 13 Noise level assessment of 4B extract fan

Receptor	BS 4142 Feature Correction	Level at receptor, dB	Background sound pressure level	Excess
R1	+4dB Tonality	36	33	+3
R2		22		-11
R3		22		-11

- 7.22. The noise level from this fan when assessed to Receptor R1, is 3dB above the minimum background sound level during the proposed extended operating hours. The following options are proposed to mitigate this noise.

- **Attenuation** – An atmospheric-side attenuator could be placed within the system between the fan and the exhaust point of the duct. As only 3dB of attenuation is required, a 625mm long unpodded circular attenuator, or a 450mm long rectangular attenuator, with a minimum of 50% free area would suffice. However, it is unclear whether this would impact the operation of the fan itself and thus might not be feasible.
- **Operation Hours** – Having slightly decreased operating hours for this extraction fan, so that it is only operating when the prevailing background sound level is above 36dB, would lead to a low likelihood of adverse impact when assessed at the receptor. The applicable hours would be;
 - Weekdays – 07.00 – 19.00hrs
 - Saturday – 09.00 – 19.00hrs
 - Sunday – 10.00 – 18.00hrs

8.0 Maximum permissible levels

- 8.1. Since all units may have different tenants in the future, it is important to establish maximum permissible sound levels to ensure that every unit is taken into account when assessing whether extended operating hours are appropriate.

Noise breakout assessment

- 8.2. Noise levels within the Units, and therefore resulting sound levels at the nearest houses, will depend on the activities within the units. Based on the size of each unit, and therefore the range

of uses that may be likely within it, worst-case internal reverberant sound levels between 75 and 85 dB $L_{Aeq, 1hour}$ have been assumed, depending on the unit. This would be consistent with manufacturing activities and significantly higher than would be expected for office use, warehousing and similar operations.

- 8.3. The units are constructed from lightweight metal cladding, and some units have metal roller-shutter doors. The airborne sound insulation of these building elements will depend on the precise constructions, but would typically be around R_w 35dB for the cladding and R_w 25 dB for a roller shutter / sectional door. These values are at the low-end of the range of likely performance values; higher values would be achievable by internal linings, and the use of double-glazed windows, for example, at this stage it is not anticipated that any additional noise treatment would be necessary.
- 8.4. The table below outlines the approximate sizes of each building element for the commercial units, used to calculate the anticipated noise level at the nearest receptor.

Table 14 Approximate areas of building elements for commercial units

Unit	Door area, m ² 25dB R_w	Wall area, m ² 35dB R_w	Roof area, m ² 35dB R_w
1A+B	20	75	570
1C	20	45	228
3A	4	84	368
3B	4	84	368
4A+E	4	61	180
4B	4	51	234
4C	4	42	234
4D	4	69	450
4F	4	51	234

- 8.5. The predicted noise levels at the nearest receptors have been calculated in [Appendix F](#) and are summarised in Table 16. It should be noted that these are pessimistic values based on all the commercial units producing high noise levels simultaneously. Table 15 outlines methodology used for calculating maximum permissible noise levels.

Table 15 Predicted noise levels from remaining commercial units

Unit	Limiting internal reverberant sound pressure level, dB	BS 4142 Feature correction, dB
1A+B	75	+3dB (Impulsivity); +2dB (Tonality)
1C	75	+3dB (Impulsivity); +2dB (Tonality)
3A	75	+3dB (Impulsivity); +2dB (Tonality)
3B	80	+3dB (Impulsivity); +2dB (Tonality)

Unit	Limiting internal reverberant sound pressure level, dB	BS 4142 Feature correction, dB
4A+E	80	+3dB (Impulsivity); +2dB (Tonality)
4B	80	+3dB (Impulsivity); +2dB (Tonality)
4C	85	+3dB (Impulsivity); +2dB (Tonality)
4D	85	+3dB (Impulsivity); +2dB (Tonality)
4F	85	+3dB (Impulsivity); +2dB (Tonality)

- 8.6. Receptor R2 has been chosen as the worst-case receptor for this assessment, as there is line-of-sight from that receptor to at least one façade of each assessed commercial unit; both R1 and R3 are the same distance or further and benefit from screening to most of the units.

Table 16 Predicted breakout noise levels at R2

Unit	Level at receptor, dB	Criteria, dB	Excess, dB	PPG effect level
1A+B	26	33	-7	Between NOAEL and LOAEL
1C	20	33	-13	NOEL and NOAEL
3A	21	33	-12	NOEL and NOAEL
3B	23	33	-10	NOEL and NOAEL
4A+E	15	33	-18	NOEL and NOAEL
4B	18	33	-15	NOEL and NOAEL
4C	21	33	-12	NOEL and NOAEL
4D	27	33	-6	Between NOAEL and LOAEL
4F	23	33	-10	NOEL and NOAEL
Cumulative		33	0	Between NOAEL and LOAEL

- 8.7. Predicted noise levels from each unit range between NOEL (No Observed Effect Level), and LOAEL (Lowest Observed Adverse Effect Level). Cumulative noise level being equal to the background noise level indicates a level between NOAEL, and LOAEL, but no specific measures are required. The commentary from PPG on this is as follows:

Table 17 PPG Table of effects

Response	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not Present	No Effect	No Observed Effect	No specific measures required

Response	Examples of Outcomes	Increasing Effect Level	Action
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
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

- 8.8. This assessment shows that, assuming a worst-case situation with the noisiest likely noise levels within all the commercial units simultaneously, the BS 4142:2014 rating level at all receptors is no higher than the lowest background sound level during the proposed operating hours and is therefore a low likelihood of adverse impact.

9.0 Conclusions

- 9.1. Noise Solutions Ltd (NSL) has been commissioned to undertake a noise assessment for a proposed extension of operating hours at existing commercial units located at Thornhill Court, Coolham. Potential impacts of the proposed extension have been quantified and assessed against relevant standards and guidance,
- 9.2. Attended surveys were undertaken to establish noise levels from deliveries, and activity noise from commercial units where possible.
- 9.3. The results of the assessments were analysed and reviewed in line with the aims and advice contained within the National Policy Statement for England, the National Planning Policy Framework and the Planning Practice Guidance, as well as BS 4142:2014 + A1 2019.
- 9.4. The proposed extended operating hours are as follows:
- Weekdays – 07.00 – 21.00hrs

-
- Saturday – 07.00 – 21.00hrs
 - Sunday – 09.00 – 19.00hrs

9.5. In order that the rating level from the existing units does not exceed the lowest measured background sound level during these periods:

- The shutter door to Unit 1A+B may only be open between 07.00 and 19.00hrs on weekdays, between 09.00 and 19.00 hrs on Saturdays and between 10.00 and 18.00hrs on Sundays;
- The external ventilation extract at Unit 4B (unless attenuated), may operate only between 07.00 and 19.00hrs on weekdays, between 09.00 and 19.00 hrs on Saturdays and between 10.00 and 18.00hrs on Sundays.

9.6. Based on the findings of this assessment, noise from proposed extended operating hours should not be a reason for refusal of planning permission.

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 exceeded for 90% of the time over the period T. Generally used to describe background noise level.

Appendix B Aerial photograph and plans of site and areas of interest



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Appendix C Environmental sound survey

Details of environmental sound survey

- C.1 Measurements of the existing environmental sound levels were undertaken between 15.15 hours on Thursday 28th August and 12:00 hours on Monday 1st September 2025.
- C.2 The sound level meter was 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 noise survey.

Measurement position

- C.3 Measurements were made with the meter secured to fencing along the access road to Thornhill Court, as indicated on the aerial view in [Appendix B](#). 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

- C.4 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.

Survey Position	Description	Model / serial no.	Calibration date	Calibration certificate no.
1	Class 1 Sound level meter	Svantek 977D / 99472	07/02/2024	Factory conformation certificate
	Condenser microphone	Microtech MK255 / 26247		
	Preamplifier	Svantek SV12L / 144643		
	Calibrator	Svantek SV33B / 148015	10/03/2025	1511553-1

Weather conditions

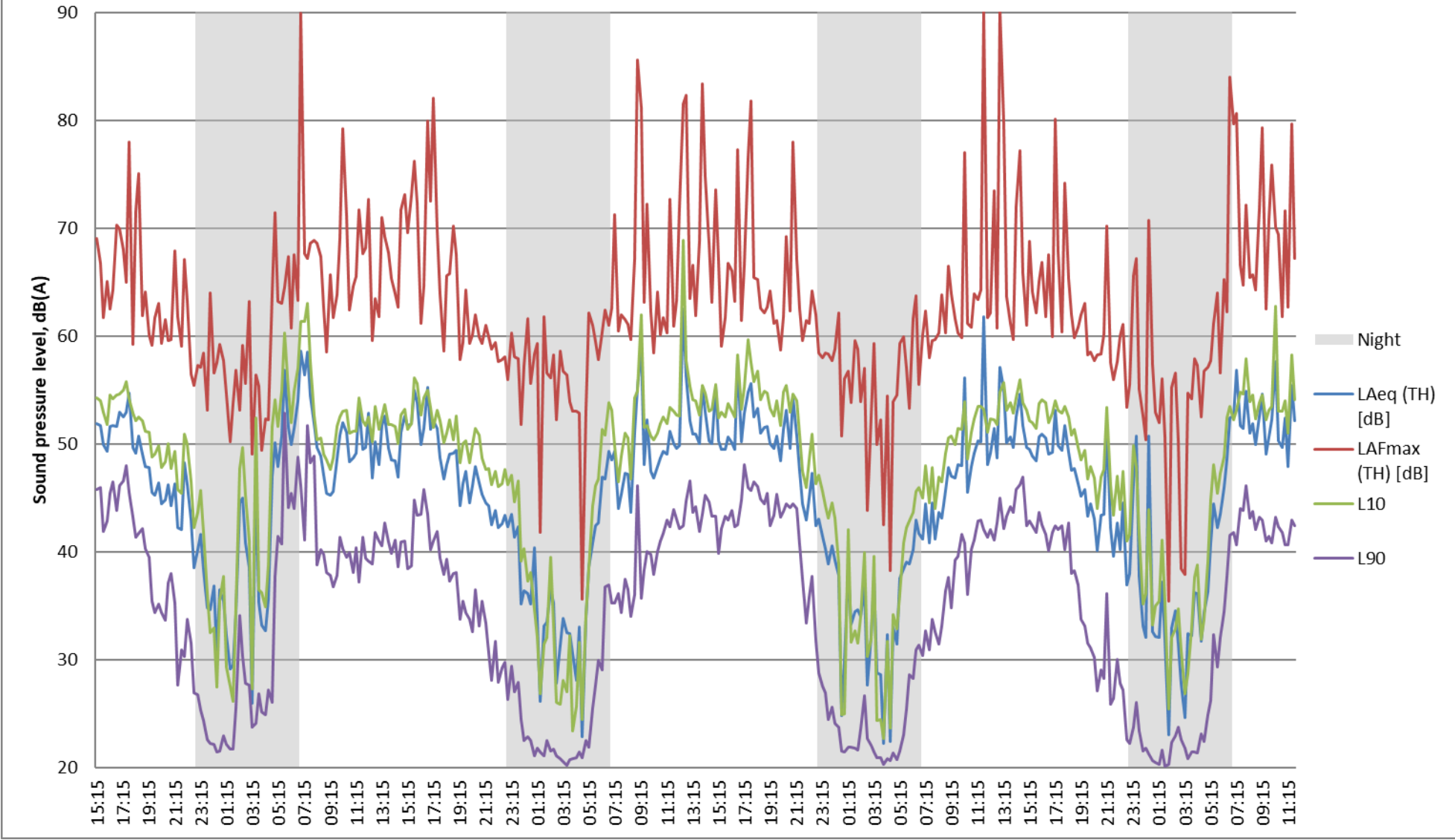
- C.5 Weather conditions were determined both at the start and on completion of the survey. It is considered that the meteorological conditions were appropriate for environmental noise measurements. The table below presents the weather conditions recorded on site at the beginning and end of the survey.

Weather Conditions				
Measurement Location	Date/Time	Description	Beginning of Survey	End of Survey
As indicated on Appendix B	15.15 28/8/25 - 12.00 1/9/25	Temperature (°C)	19	17
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	No
		Cloud cover (oktas - see guide)	5	6
		Presence of fog/snow/ice	No	No
		Presence of damp roads/wet ground	Slight	Wet
		Wind Speed (m/s)	3.2	3.1
		Wind Direction	SW	SW
		Conditions that may cause temperature inversion (i.e. calm nights with no cloud)	No	No

Results

- C.6 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 will operate and deliveries will be made. During the installation and removal of the meter noise levels were predominantly due to distant road traffic.
- C.7 The results of the survey are presented in a time history graph overleaf.

Thornhill Court, Coolham Thursday 28 Aug - Monday 01 Sep 2025



Appendix D Delivery noise calculations

R1 - daytime

Activity	Measured noise levels	Distance correction		Screening correction (dB)	Resultant SEL at receptor (dB)	BS4142 Feature (dB)	SEL + Feature (dB)
	SEL @ 2m	Distance (m)	Correction (dB)				
Delivery 1 Arrival	78	33	-24	-10	44	3	47
Delivery 1 Leaving	75	33	-24	-10	41	3	44
Delivery 2 Arrival	69	33	-24	-10	35	3	38
Delivery 2 Leaving	80	33	-24	-10	46	3	49
Delivery 3 Arrival	68	33	-24	-10	34	3	37
Delivery 3 Leaving	80	33	-24	-10	46	3	49
Delivery 4 Arrival	70	33	-24	-10	36	3	39
Delivery 4 Leaving	76	33	-24	-10	42	3	45
Cumulative SEL					51	3	54
LAeq,1hr					16	3	19

R2 - daytime

Activity	Measured noise levels	Distance correction		Screening correction (dB)	Resultant SEL at receptor (dB)	BS4142 Feature (dB)	SEL + Feature (dB)
	SEL @ 2m	Distance (m)	Correction (dB)				
Delivery 1 Arrival	78	20	-20	0	58	3	61
Delivery 1 Leaving	75	20	-20	0	55	3	58
Delivery 2 Arrival	69	20	-20	0	49	3	52
Delivery 2 Leaving	80	20	-20	0	60	3	63
Delivery 3 Arrival	68	20	-20	0	48	3	51
Delivery 3 Leaving	80	20	-20	0	60	3	63
Delivery 4 Arrival	70	20	-20	0	50	3	53
Delivery 4 Leaving	76	20	-20	0	56	3	59
				Cumulative SEL	66	3	69
				L _{Aeq,1hr}	30	3	33

R3 – daytime

Activity	Measured noise levels	Distance correction		Screening correction (dB)	Resultant SEL at receptor (dB)	BS4142 Feature (dB)	SEL + Feature (dB)
	SEL @ 2m	Distance (m)	Correction (dB)				
Delivery 1 Arrival	78	56	-29	0	49	3	52
Delivery 1 Leaving	75	56	-29	0	46	3	49
Delivery 2 Arrival	69	56	-29	0	40	3	43
Delivery 2 Leaving	80	56	-29	0	51	3	54
Delivery 3 Arrival	68	56	-29	0	39	3	42
Delivery 3 Leaving	80	56	-29	0	51	3	54
Delivery 4 Arrival	70	56	-29	0	41	3	44
Delivery 4 Leaving	76	56	-29	0	47	3	50
				Cumulative SEL	57	3	60
				L _{Aeq,1hr}	21	3	24

Appendix E Existing unit noise calculations

Plant	Source sound pressure level		Distance (m)			Correction (dB)			Screening (dB)			BS4142 Feature (dB)	Level at receptor		
	dBA	at (m)	R1	R2	R3	R1	R2	R3	R1	R2	R3		R1	R2	R3
4B operational	61	1	160	157	166	-44	-44	-44	-10	0	-15	3	10	20	5
4D operational	68	1	146	143	152	-43	-43	-44	-10	0	-15	3	18	28	12
4B Extract fan	78	1	170	152	161	-45	-44	-44	0	-15	-15	3	36	22	22
EasyLunch operational	41	35	54	53	85	-4	-4	-8	-10	-10	-10	6	34	34	30

Appendix F Noise breakout from commercial units

	Unit								
	1A+B	1C	3A	3B	4A+E	4B	4C	4D	4F
Internal reverberant Spl	75	75	75	80	80	80	85	85	85
Noise through doors									
Door area, m ²	20	20	4	4	4	4	4	4	4
Door SRI, dB Rw	25	25	25	25	25	25	25	25	25
Door Spl at 10m, dBA	29	29	22	27	27	27	32	32	32
Distance to receptor, m	53	81	70	100	110	140	180	120	155
Distance correction, dB	-14	-18	-17	-20	-21	-23	-25	-22	-24
Screening, dB	0	0	0	0	-5	0	0	0	0
SPL at Receptor, Doors, dBA	15	11	5	7	1	3	7	10	8
Noise through walls									
Wall area, m ²	75	45	84	84	60	51	42	69	51
Wall SRI, dB Rw	35	35	35	35	35	35	35	35	35
Wall Spl at 10m, dBA	25	23	25	30	29	28	34	34	33
Distance to receptor, m	53	81	70	100	110	140	180	120	155
Distance correction, dB	-14	-18	-17	-20	-21	-23	-25	-22	-24
Screening, dB	0	0	0	0	-5	0	0	0	0
SPL at Receptor, Walls, dBA	11	5	8	10	3	5	9	12	9
Noise through roof									
Roof area, m ²	570	228	368	368	180	234	234	450	234

	Unit								
	1A+B	1C	3A	3B	4A+E	4B	4C	4D	4F
Roof SRI, dB Rw	35	35	35	35	35	35	35	35	35
Roof Spl at 10m, dBA	34	30	32	37	34	35	40	43	40
Distance to receptor, m	53	81	70	100	110	140	180	120	155
Distance correction, dB	-14	-18	-17	-20	-21	-23	-25	-22	-24
Screening, dB	0	0	0	0	-5	0	0	0	0
SPL at Receptor, Roof, dBA	20	12	15	17	8	12	15	21	16
Combined at receptor dBA	21	15	16	18	10	13	16	22	18
Feature correction	5	5	5	5	5	5	5	5	5
Rating level at receptor, dB L _{Ar, Tr}	26	20	21	23	15	18	21	27	23
Cumulative rating level	33								

