

**Unit B4
Prescot Business Park
Cables Way
Prescot
Knowsley
L34 1LT**

Planning Noise Assessment

On behalf of



Project Reference: 94541 | Revision: - | Date: 19th August 2026

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Document Information

Project Name : Unit B4 Prescott Business Park, Cables Way, Knowsley
Project Reference : 94541
Report Title : Planning Noise Assessment Report
Doc Reference : 94541/PNA-B4
Date : 19th August 2026

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Revision	Date	Description	Prepared	Reviewed/Approved

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1.0 Introduction

- 1.1. Noise Solutions Ltd (NSL) has been commissioned to provide operational noise assessments for proposed employment units within Phase 1 of a development at Prescott Business Park, Cables Way, Prescott, Knowsley. This assessment relates to Unit B4.
- 1.2. The report provides an assessment of noise from plant, external receipt and despatch activities and likely internal activities, and the potential for noise impacts on the occupants of the nearest residential properties.
- 1.3. This assessment should be read in conjunction with NSL's environmental noise survey report reference 94541/ENS dated 17th August 2026.
- 1.4. 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 Details of development

- 2.1. Phase 1 of the proposed Prescott Business Park comprises two buildings with a total of seven employment units. This report focuses on Unit B4.
- 2.2. The site is to the north of the junction of Cables Way and Carr Lane.
- 2.3. The nearest noise sensitive properties to the proposed employment units are on South Avenue to the north of the site (Receptor R1), Preston Avenue to the northwest (Receptor R2) and Prescott Park Way to the south (Receptor R3).
- 2.4. The site location and the nearest noise-sensitive receptors are shown in **Appendix B**. The layout and elevations of the employment units is shown in **Appendix C**.

Scope of outline assessments

- 2.5. Occupants of the unit have not been identified at this stage, and plant, external activities and the nature of internal operations are therefore not known.
- 2.6. Outline assessments have been made of potential noise from services plant, noise from loading and unloading activities and noise breakout from the unit. Proposed operational hours are 06.00 to 22.00hrs.

3.0 Planning condition and additional guidance

Knowsley Council

- 3.1. Permission for the overall development of which this is a part has been granted by Knowsley Council.
- 3.2. Condition 21 in Decision Notice 20/00576/HYB states:

Fixed plant and machinery associated with the development shall be designed to a level that is at least 5dB(A) below the existing LA90 background noise level as measured during the relevant time period. Any tonal, impulsive and/or irregular noise would be addressed by imposing a penalty as per the methodology set out in BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound. Noise limits for fixed plant are to apply at the boundary of the closest affected noise sensitive property.

Prior to any fixed plant/machinery being installed, details of the fixed plant/machinery shall be submitted to and approved in writing by the local planning authority. This shall include details of the appearance, siting and any screening. The fixed plant/machinery and any accompanying screening shall then be erected in accordance with the approved details.

Reason: To protect neighbour amenity, mitigate noise impacts and in the interests of visual amenity. This condition is imposed having regard to policies CS2 and CS19 of the Knowsley Local Plan Core Strategy (2016), Saved Policy ENV2 of the Knowsley Replacement Unitary Development Plan and the NPPF.

- 3.3. Condition 22 in Decision Notice 20/00576/HYB states:

Prior to commencement of each B2 and B8 use hereby permitted, a scheme shall be submitted to, and approved in writing, by the local planning authority which specifies the provisions to be made for the control of noise emanating from the site. The scheme shall be based on the results of a noise assessment (the scope of which must be agreed with the local planning authority prior to being carried out), and shall ensure that operations from the B2 / B8 uses do not have a detrimental impact on the amenity of the nearby residents. All works which form part of the scheme shall be implemented in full prior to first use and maintained whilst the use continues.

Reason: To protect neighbour amenity and mitigate noise impacts in accordance with policies CS2 and CS19 of the Knowsley Local Plan Core Strategy (2016), Saved Policy ENV2 of the Knowsley Replacement Unitary Development Plan and the NPPF. This is a pre-

commencement condition to ensure that any new use does not negatively impact on neighbour amenity as early as possible.

- 3.4. In addition, in relation to the scope of Condition 22, the Council's Senior Environmental Protection Officer¹ has advised:

In relation to your query, we would require information on how the noise assessments would be undertaken for the B2 / B8 premises – how many locations will be used for the assessment, what are the closest receptors which may be affected by the noise, for how long will the background noise be monitored, what type of business are to be in operation in the B2 / B8 units, what equipment / vehicles will they be using and what are the [hours] of operation etc. The assessment would need to be undertaken under BS 4142:2014+A1:2019.

4.0 Acoustic Standards and Guidance

BS 4142:2014+A1:2019 Methods for Rating and Measuring Industrial and Commercial Sound

- 4.1. British Standard (BS) 4142:2014+A1:2019² 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.
- 4.2. The industrial or commercial sound is assessed outside a dwelling or premises used for residential purposes, upon which sound is incident.

¹ Email, 27 July 2026

² References to BS 4142 and BS 4142:2019 should be read as BS 4142:2014 + A1:2019

- 4.3. 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.
- 4.4. 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.
- 4.5. 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."
- 4.6. 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."
- 4.7. 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."
- 4.8. 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."

- 4.9. 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."

- 4.10. 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.

5.0 Environmental sound levels

Environmental sound survey

- 5.1. Details of the environmental survey undertaken to inform this assessment are provided in NSL report reference 94541/ENS dated 17th August 2026.
- 5.2. Relevant representative background sound levels are shown in Table 1.

Table 1 Summary of survey results

Assessment period	Representative background sound level, dB L _{A90}
Daytime, 07.00 – 23.00 hrs, daily	41
Night-time, 23.00 – 07.00hrs, daily	35
Early morning, 06.00 – 07.00hrs	40
Daytime operating hours, 07.00 – 22.00hrs	38

6.0 Plant noise

- 6.1. Plant selections and locations are to be finalised.

- 6.2. Air handling, ventilation and air conditioning plant serving employment units of this type is not anticipated to exhibit any tonal or impulsive characteristics provided it is well maintained. Plant will typically be inverter driven and, therefore, will gently ramp up and down depending on the demands on the various systems. However, a penalty of 3dB as described in BS 4142:2014 has been applied for the possible presence of "...characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment...".
- 6.3. Based on the representative background sound levels noted previously, and the criteria set out in Condition 21, the proposed plant noise criteria are as shown in Table 2. These values include the potential for cumulative noise effects from the other six Employment Units.

Table 2 Proposed plant noise emissions level limits at noise sensitive residential receptors

Period	Combined plant rating level, dB(A)
Daytime (07.00 – 23.00 hours)	36
Night-time (23.00 – 07.00 hours)	30
Early morning, 06.00 – 07.00hrs	35
Daytime operational hours, 07.00 – 22.00hrs	33

Plant noise guidance

- 6.4. For this initial review it is assumed that external plant and any louvres or flues serving internal plant, may be located on any external elevation of the unit served.
- 6.5. Taking account of the distance between the plant and the nearest receptors, noise levels from any proposed plant should not exceed the limits in Table 3.

Table 3 Guidance on indicative maximum plant noise emission levels

Plant	Period	Maximum plant noise emission level (L _{Aeq})
Services plant (assumes worst-case location for each receptor)	Daytime (07.00 – 23.00 hours)	40 at 10m
	Night-time (23.00 – 07.00 hours)	34 at 10m
	06.00 – 07.00hrs	39 at 10m
	07.00 – 22.00hrs	37 at 10m

- 6.6. It should be noted that the above are a worst-case illustration based on similar plant being installed at all elevations of all units and are subject to update when plant proposals have been developed.

- 6.7. The above limits are likely to be achievable with plant typical of that used for offices, warehouses and light industrial premises; in the event that noisier plant is used, practical attenuation could be provided to reduce noise levels to the indicative limits shown.
- 6.8. Application of the above limits would result in the following noise rating levels at the nearest noise sensitive receptors as calculated in **Appendix D** and shown in Table 4.

Table 4 Summary of resulting plant noise levels at receptors

Receptor	Period	Predicted rating level at receptor, $L_{A,r,Tr}$ (dB)	Proposed design criterion (dB)	Difference from proposed criterion (dB)
R1	Daytime (07.00 – 23.00 hours)	29	36	-7
	Night-time (23.00 – 07.00 hours)	23	30	-7
	07.00 – 22.00hrs	28	35	-7
	06.00 – 07.00hrs	26	33	-7
R2	Daytime (07.00 – 23.00 hours)	36	36	0
	Night-time (23.00 – 07.00 hours)	30	30	0
	07.00 – 22.00hrs	35	35	0
	06.00 – 07.00hrs	33	33	0
R3	Daytime (07.00 – 23.00 hours)	25	36	-11
	Night-time (23.00 – 07.00 hours)	19	30	-11
	07.00 – 22.00hrs	24	35	-11
	06.00 – 07.00hrs	22	33	-11

- 6.9. The outline assessment above shows that noise from plant serving Unit B4, when appropriately selected/attenuated, and in conjunction with appropriately selected and attenuated plant serving the other Units, will comply with the requirements set out in Condition 21.

7.0 Noise assessment of receipts and despatches

Sound pressure levels of activities associated with receipts and despatches

- 7.1. NSL has previously measured the sound pressure levels associated with HGV 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 vehicle. 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.

- 7.2. Table 5 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 5 Reference noise data for receipt and despatch activities (at 10m)

Noise Source	SEL, dB(A)	Applicable BS4142:2014 acoustic feature
Arrival	66	+3 intermittency
Reversing & manoeuvring to loading bay	65	+3 intermittency
Door open/close	60	+6 impulsivity
Materials handling	51	+6 impulsivity
Engine starts and departs	66	+3 intermittency

- 7.3. The information contained in Table 5 was used to create a mathematical model of source noise levels 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.

- 7.4. It is assumed that there will be no more than one delivery to/despatch from any Unit in any one hour, with each comprising the arrival of a vehicle, unloading/unloading and departure. Any receipt or despatch by HGV would typically take 30-45 minutes.

Predicted noise impact

- 7.5. 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 6. It should be noted that the predictions exclude any potential acoustic screening by boundary fences between the proposed development and the nearest houses and therefore err on the side of caution.

Table 6 Predicted noise levels due to vehicle movements

Receptor	Predicted rating levels at nearest noise-sensitive receptors	
	Proposed early morning operating hours 06.00-07.00 $L_{Ar,15min}$, dB	Proposed daytime operating hours 07.00-22.00 $L_{Ar,1hr}$, dB
R1	19	17
R2	13	11
R3	14	12

- 7.6. Table 7 below presents the initial assessment of the likely noise impact due to receipts and despatches, in accordance with the BS 4142:2014 methodology. Rating levels are inclusive of the BS 4142 feature corrections noted in Table 5.

Table 7 Receipt and despatch noise impact assessment

Receptor	Period	Predicted rating level at receptor, $L_{Ar,Tr}$ (dB)	Representative background sound level (dB L_{A90})	Excess of rating over background (dB)	Likely impact (BS 4142:2014 + A1:2019)
R1	06.00-07.00	19	38	-19	None
	07.00-22.00	17	40	-23	None
R2	06.00-07.00	13	38	-25	None
	07.00-22.00	11	40	-29	None
R3	06.00-07.00	14	38	-24	None
	07.00-22.00	12	40	-28	None

- 7.7. Full assessments for the worst-case combinations of assessment period and receptor are shown in Table 8 and Table 9.

Table 8 Receipt and despatch assessment, daytime, Receptor R1

Results		Relevant Clauses of BS4142:2014	Commentary
Background Sound level	$L_{A90} = 40\text{dB}$	8.1, 8.2	Representative typical background sound level determined from a range of measurements
Assessment made during the daytime, so the reference interval is one hour		7.2	
Specific Sound Level	$L_{Aeq,T} = 14\text{dB}$	7.3.6	Calculations presented in Appendix E
Acoustic Feature Correction	+3dB	9.2	
Rating Level	(14+3) dB = 17dB		
Excess of Rating Level over background sound level	(17-40) dB = -23dB		
Assessment of impact: No impact		11	

Table 9 Receipt and despatch assessment, 06.00 - 07.00hrs, Receptor R1

Results		Relevant Clauses of BS4142:2014	Commentary
Background Sound level	$L_{A90} = 38\text{dB}$	8.1, 8.2	Lowest measured level used to give robust assessment
Assessment made during the night-time, so the reference interval is 15 minutes		7.2	
Specific Sound Level	$L_{Aeq,T} = 15\text{dB}$	7.3.6	Calculations presented in Appendix E
Acoustic Feature Correction	+4dB	9.2	
Rating Level	$(15+4) \text{ dB} = 19\text{dB}$		
Excess of Rating Level over background sound level	$(19-38) \text{ dB} = -19\text{dB}$		
Assessment of impact: No impact		11	

- 7.8. The above assessment indicates that there is unlikely to be an adverse noise impact at the existing nearby houses.
- 7.9. Specific sound levels due to receipts and despatches are low, with the worst-case sound level being 14dB $L_{Aeq, 1hr}$ and 15dB $L_{Aeq, 15min}$ at the façades and in the gardens of houses in Receptor area R1.

8.0 Noise breakout

- 8.1. Noise levels within the Units, and therefore resulting sound levels at the nearest houses, will depend on the activities within the units. As a worst-case it is assumed that noise levels may be up to 75 dB $L_{Aeq, 1hour}$. This would be consistent with typical light manufacturing activities and significantly higher than would be expected for office use, warehousing and similar operations.
- 8.2. The resulting noise level at the residential receptors may be predicted by applying corrections for the sound insulation of the external building envelope, the distance between the Unit's walls and roof and the receptor and any screening between the building element and the receptor.
- 8.3. The proposed construction of each building is lightweight cladding. The airborne sound insulation will depend on the precise constructions and products used, but would typically be around R_w 35dB for the cladding and windows and R_w 25 dB for the roller shutter / sectional doors. These values are at the low-end of the range of likely performance values; higher values would be achievable by internal linings and installation of high-performance doors, for example.

Noise assessment

- 8.4. The predicted noise levels based on the above have been calculated in [Appendix F](#) and are summarised in Table 10.

Table 10 Predicted noise levels – breakout from industrial units

Receptor	Predicted noise levels at receptors
	Proposed operating hours $L_{Aeq,1hr}$ and $L_{Aeq,15min}$, dB
R1	29
R2	35
R3	19

- 8.5. Table 11 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 3dB feature correction for possible impulsivity audible at the receptor and a 3dB feature correction for intermittency.
- 8.6. A conservative 8dB correction factor has been included for the potential for noise breakout from all seven units contributing to the sound environment at each receptor.

Table 11 BS 4142:2014 noise impact assessment – employment unit noise breakout

Receptor	Period	Predicted rating level at receptor, $L_{Ar,Tr}$ (dB)	Representative background sound level (dB L_{A90})	Excess of rating over background (dB)	Likely impact (BS 4142:2014 + A1:2019)
R1	06.00-07.00	29	38	-9	Negligible
	07.00-22.00	29	40	-11	None
R2	06.00-07.00	35	38	-3	No worse than low
	07.00-22.00	35	40	-5	No worse than low
R3	06.00-07.00	19	38	-19	None
	07.00-22.00	19	40	-21	None

Full assessments for the worst-case combinations of assessment period and receptor are shown in Table 12 and Table 13.

Table 12 Noise breakout assessment, daytime, Receptor R2

Results		Relevant Clauses of BS4142:2014	Commentary
Background Sound level	$L_{A90} = 40\text{dB}$	8.1, 8.2	Representative typical background sound level determined from a range of measurements
Assessment made during the daytime, so the reference interval is one hour		7.2	
Specific Sound Level	$L_{Aeq,T} = 29\text{dB}$	7.3.6	See calculations in Appendix F
Acoustic Feature Correction	+6dB	9.2	See paragraph 8.5
Rating Level	$(29+6) \text{ dB} = 35\text{dB}$		
Excess of Rating Level over background sound level	$(35-40) \text{ dB} = -5\text{dB}$		
Assessment of impact: No worse than low impact (depending on context – see below)		11	

Table 13 Noise breakout assessment, 06.00 - 07.00hrs, Receptor R2

Results		Relevant Clauses of BS4142:2014	Commentary
Background Sound level	$L_{A90} = 38\text{dB}$	8.1, 8.2	Lowest measured level used to give robust assessment
Assessment made during the night-time, so the reference interval is 15 minutes		7.2	
Specific Sound Level	$L_{Aeq,T} = 29\text{dB}$	7.3.6	See calculations in Appendix F
Acoustic Feature Correction	+6dB	9.2	See paragraph 8.5
Rating Level	$(29+6) \text{ dB} = 35\text{dB}$		
Excess of Rating Level over background sound level	$(35-38) \text{ dB} = -3\text{dB}$		
Assessment of impact: No worse than low impact (depending on context – see below)		11	

- 8.7. The above assessment indicates that with the highest anticipated internal noise levels noted in paragraph 8.1 there is expected to be no adverse noise impact at any nearby noise-sensitive receptors due to noise breakout from the proposed Units. During the majority of the time noise levels are expected to be at least 5dB(A) lower and the resultant impact would therefore be lower than stated in Table 11. Similarly, the predictions assume that the operational sound levels are continuously as noted, in every Unit.

- 8.8. Specific sound levels due to noise breakout are relatively low, with the worst-case sound level being 29dB $L_{Aeq\ 1hr}$ and 29dB $L_{Aeq\ 15min}$ at the façades and gardens of houses in Receptor area R2.

Summary

- 8.9. The outline assessment demonstrates that noise resulting from noisy activities within the Units will not lead to an adverse noise effect at the nearest residential properties, even with relatively modest levels of airborne sound insulation. The use of building envelope constructions with higher sound reduction than noted in paragraph 8.3 would result in lower resultant noise levels at the nearest receptors.

9.0 Discussion of uncertainties

- 9.1. 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 weekend period, when ambient and background sound levels are likely to be lowest;
 - The meter and calibrator used have a traceable laboratory calibration and the meter was field calibrated before and after the measurements;
 - Uncertainty in the calculated impacts has been reduced by the use of well-established calculation methods.

10.0 Summary

- 10.1. Noise Solutions Limited has been commissioned to operational noise assessments for proposed employment units within Phase 1 of a development at Prescott Business Park, Cables Way, Prescott, Knowsley. This assessment relates to Unit B4.
- 10.2. 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.
- 10.3. Outline assessments have been made of operational noise at the nearest noise-sensitive premises. The assessments show that there are unlikely to be any adverse noise impacts as a result of the proposed uses of the site. Based on the findings of this assessment, noise should not be grounds for refusal of planning permission for the proposed development.

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.
$L_{90,T}$	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.
SEL	Sound Exposure Level. The constant sound level having the same energy in one second as the original noise event. It is commonly used to predict time-averaged sound levels from a combination of a number of events.

Appendix B Aerial photograph of site and surroundings





[illegible]

Appendix D Outline plant noise calculations

Daytime (07.00 to 23.00 hrs)

Receptor	Plant noise limit		Distance correction		Screening, dB	Cumulative effects, plant serving other units, dB*	BS 4142:2014 feature correction	Resulting Rating level at receptor
	SPL, dB(A)	at, m	Distance, m	Correction, dB				
R1	40	10	90	-19	0	5	3	29
R2	40	10	40	-12	0	5	3	36
R3	40	10	250	-28	0	10	3	25

**calculated based on same limits applied to plant serving the other Employment units*

Night-time (23.00 to 07.00hrs)

Receptor	Plant noise limit		Distance correction		Screening, dB	Cumulative effects, plant serving other units, dB*	BS 4142:2014 feature correction	Resulting Rating level at receptor
	SPL, dB(A)	at, m	Distance, m	Correction, dB				
R1	34	10	90	-19	0	5	3	23
R2	34	10	40	-12	0	5	3	30
R3	34	10	250	-28	0	10	3	19

Proposed daytime operating hours (07.00 to 22.00hrs)

Receptor	Plant noise limit		Distance correction		Screening, dB	Cumulative effects, plant serving other units, dB*	BS 4142:2014 feature correction	Resulting Rating level at receptor
	SPL, dB(A)	at, m	Distance, m	Correction, dB				
R1	39	10	90	-19	0	5	3	28
R2	39	10	40	-12	0	5	3	35
R3	39	10	250	-28	0	10	3	24

Proposed early morning operating hours (06.00 to 07.00hrs)

Receptor	Plant noise limit		Distance correction		Screening, dB	Cumulative effects, plant serving other units, dB*	BS 4142:2014 feature correction	Resulting Rating level at receptor
	SPL, dB(A)	at, m	Distance, m	Correction, dB				
R1	37	10	90	-19	0	5	3	26
R2	37	10	40	-12	0	5	3	33
R3	37	10	250	-28	0	10	3	22

Appendix E Receipt and despatch noise calculations

Receptor R1 – daytime hour

	SEL @ 10m	No. occurrences	Corr'n (dB)	Distance, m	Distance correction, dB	Screening correction, dB	SEL, dB	BS4142 feature corr'n, dB	SEL + feature, dB
Lorry Arrives and turns, all forwards	66	1	0	130	-22	0	44	3	47
Lorry reverses and manoeuvres into loading bay	65	1	0	130	-22	0	43	3	46
Door open close	60	2	3	130	-22	0	41	6	47
Materials handling	51	10	10	130	-22	0	39	6	45
Engine starts and lorry leaves	66	1	0	130	-22	0	44	3	47
Combined							50		53
L_{Aeq} 1 hour							14	L_{Ar} 1 hour	17

Receptor R1 – 06.00 to 07.00hrs, worst-case 15 minutes

	SEL @ 10m	No. occurrences	Corr'n (dB)	Distance, m	Distance correction, dB	Screening correction, dB	SEL, dB	BS4142 feature corr'n, dB	SEL + feature, dB
Materials handling	51	2	3	130	-22	0	32	6	38
Door close	60	1	0	130	-22	0	38	6	44
Engine starts and lorry leaves	66	1	0	130	-22	0	44	3	47
Combined							45		49
L_{Aeq} 15 min							15	L_{Ar}, 15 min	19

Receptor R2 – daytime hour

	SEL @ 10m	No. occurrences	Corr'n (dB)	Distance, m	Distance correction, dB	Screening correction, dB	SEL, dB	BS4142 feature corr'n, dB	SEL + feature, dB
Lorry Arrives and turns, all forwards	66	1	0	75	-18	-10	38	3	41
Lorry reverses and manoeuvres into loading bay	65	1	0	75	-18	-10	37	3	40
Door open close	60	2	3	75	-18	-10	35	6	41
Materials handling	51	10	10	75	-18	-10	33	6	39
Engine starts and lorry leaves	66	1	0	75	-18	-10	38	3	41
Combined							44		47
L_{Aeq} 1 hour							8	L_{Ar} 1 hour	11

Receptor R2 – 06.00 to 07.00hrs, worst-case 15 minutes

	SEL @ 10m	No. occurrences	Corr'n (dB)	Distance, m	Distance correction, dB	Screening correction, dB	SEL, dB	BS4142 feature corr'n, dB	SEL + feature, dB
Materials handling	51	2	3	75	-18	-10	26	6	32
Door close	60	1	0	75	-18	-10	32	6	38
Engine starts and lorry leaves	66	1	0	75	-18	-10	38	3	41
Combined							39		43
L_{Aeq} 15 min							9	L_{Ar}, 15 min	13

Receptor R3 – daytime hour

	SEL @ 10m	No. occurrences	Corr'n (dB)	Distance, m	Distance correction, dB	Screening correction, dB	SEL, dB	BS4142 feature corr'n, dB	SEL + feature, dB
Lorry Arrives and turns, all forwards	66	1	0	200	-26	0	40	3	43
Lorry reverses and manoeuvres into loading bay	65	1	0	250	-28	0	37	3	40
Door open close	60	2	3	260	-28	0	35	6	41
Materials handling	51	10	10	250	-28	0	33	6	39
Engine starts and lorry leaves	66	1	0	200	-26	0	40	3	43
Combined							45		48
L_{Aeq} 1 hour							9	L_{Ar} 1 hour	12

Receptor R3 – 06.00 to 07.00hrs, worst-case 15 minutes

	SEL @ 10m	No. occurrences	Corr'n (dB)	Distance, m	Distance correction, dB	Screening correction, dB	SEL, dB	BS4142 feature corr'n, dB	SEL + feature, dB
Materials handling	51	2	3	250	-28	0	26	6	32
Door close	60	1	0	260	-28	0	32	6	38
Engine starts and lorry leaves	66	1	0	200	-26	0	40	3	43
Combined							41		44
L_{Aeq} 15 min							11	L_{Ar}, 15 min	14

Appendix F Outline assessment of noise break-out

	Receptor		
	R1	R2	R3
Internal Reverberant SPL, dBA	75	75	75
Noise through loading door			
Door area, m ²	9	9	12.5
Door SRI, dB R _w	25	25	25
Door sound pressure level at 10m, dBA	26	26	27
Distance to receptor, m	110	40	260
Distance correction, dB	-21	-12	-28
Screening, dB	0	0	0
SPL at Receptor, dBA	5	14	-1
Cumulative effects for doors to other Units, dB*	8	8	8
SPL at Receptor, doors, dBA	13	22	7
Noise through walls			
Wall area, m ²	350	350	160
Wall SRI, dB R _w	35	35	35
Wall sound pressure level at 10m, dBA	31	31	28
Distance to receptor, m	90	45	260
Distance correction, dB	-19	-13	-28
Screening, dB	0	0	0
SPL at Receptor, wall, dBA	12	18	0
Cumulative effects for walls to other Units, dB*	8	8	8
SPL at Receptor, walls, dBA	20	26	8
Noise through roof			
Roof area, m ²	480	480	480
Roof SRI, dB R _w	35	35	35
Roof sound pressure level at 10m, dBA	33	33	33
Distance to receptor, m	100	50	270
Distance correction, dB	-20	-14	-29
Directivity correction, dB	-3	-3	-3
Screening, dB	0	0	0
SPL at Receptor, roof, dBA	10	16	1
Cumulative effects for other roofs to other units, dB	8	8	8
SPL at Receptor, roofs, dBA	18	24	9

	Receptor		
	R1	R2	R3
Combined at Receptor, dBA	23	29	13
Feature correction	6	6	6
Rating level at receptor, dB L_{A,r,Tr}	29	35	19

**worst-case assumption with all seven Employment Units emitting the same sound level*