

Acoustic South East



Noise Assessment: Extension of Hours

Client:	EBISS UK Ltd
Site Address:	21 Victoria Gardens, Burgess Hill, RH15 9NB
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	Issue 2
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Issue No.	Date	Comments
1	30/04/2026	Initial Issue
2	07/05/2026	Revision to Section 2.2 and Section 6 regarding reversing alarms.

1 Introduction and Executive Summary

Acoustic South East have been appointed to undertake a noise impact assessment relating to the proposed extension of hours for EBISS UK Ltd. The current permitted hours of operation are 07:00 – 19:00hrs (Monday to Saturday, excluding bank holidays). The proposed hours of operation are 04:00 – 22:00hrs, 7 – days a week.

The reason for needing the extension in the morning is for drivers to be able to leave the secure yard between the time period of 04:00hrs – 07:00hrs in order to be able to arrive on exhibition hall sites in London etc on time but with the knowledge that the freight can be pre-loaded on vehicles the day before and remain secure in their yard overnight allowing the driver to just start the engine and drive out of the yard.

The same reasons are for extending into the evening from 19:00 – 22:00hrs: It allows drivers to arrive back to the yard with the freight in the vehicle, knowing that it is in a secure compound overnight until staff arrive in the morning to unload after 07:00hrs.

All loading and unloading of vehicles will remain in the existing 07:00 – 19:00hrs time window.

Standards and guidance referenced for this assessment include:

- BS4142:2014-A1:2019 - Methods for rating and assessing industrial and commercial sound
- BS8233:2014 – Guidance on sound insulation and noise reduction for buildings
- Planning Noise Advice Document Sussex – November 2023

The purpose of this assessment is to predict any adverse impact a potential extension of hours may have on the existing residential noise sensitive receptors (NSRs) that are nearby.

Assessment of existing L90 Background Sound Levels have been carried out for the proposed new hours of operation against which the specific sound levels (rated in accordance with BS4142 requirements) can be assessed. This shows that for the time period of 04:00 – 07:00, the representative L90 Background Sound Level is 36dBA. For the time period of 19:00 – 22:00, the representative L90 Background Sound Level is 32dBA.

BS4142:2014-A1:2019 states that if the Rating Level is at Parity with the L90 Background Sound Level, then Adverse Impact is unlikely. It also states that the lower the Rating Level is in comparison to the Background Sound Level, the likelihood of impact decreases further.

The results of the survey and assessment show that in all cases during the time frame of 04:00 – 07:00hrs, the worst-case scenario Rating Level for a vehicle departing the yard is below the L90 Background Sound Level.

The results also show that for vehicles arriving back to the yard during the time period of 19:00 – 22:00hrs, the worst-case scenario Rating Level is only 1dB above the L90 Background Sound Level. However, this is not a typical situation: a typical situation is more likely to be below background for any of the vehicles arriving back.

Based on the above and the context around the situation, it is recommended that Planning Consent for the hours-of-operation extension is not refused on noise grounds, albeit with the understanding that a condition stating that no loading or unloading occurs during these extra hours.

2 Context and Noise Criteria

2.1 Site Description

The application site is the existing address of EBISS UK Ltd, located along Victoria Gardens, part of the Victoria industrial estate in Burgess Hill. To the East, South and West are other industrial units, some of which have significant numbers of HGV vehicle movements. The yard of EBISS UK Ltd has its Northern boundary with residential dwellings. The site is outlined in red in the figure below.



Figure 1. Site Location

2.2 Proposal

EBISS UK Ltd has expressed a desire to extend its operational hours to allow vehicles to depart its secure site between the hours of 04:00hrs and 07:00 and to be able to return to the secure yard between the hours of 19:00 – 22:00hrs. This is due to the exhibition sites often being London-based or further north such as Birmingham but needing to leave the pre-loaded vehicles on-site, secure, overnight. It is understood that all loading and unloading will not take place during these extended hours – this shall remain a task during the current approved operating hours of 07:00 – 19:00hrs.

Information from Ebiss UK Ltd shows the number of vehicles of each type that would depart from and arrive back to the yard in any individual week:

The vehicles which exist are:

- 1x 7.5t HGV
- 3x 3.5t LCVs
- 1x 2.4t Van

For reference, LCV stands for “Light Commercial Vehicle” and HGV stands for Heavy Goods Vehicle.

The below list (a proposal of what is to happen) is across the whole fleet: E.g. it is not 2x p/w per van, it is 2x p/w across 3x 3.5T Vehicles.

15 Minute Window, Leaving / Returning to EBISS per week AVERAGE				
	04:00 - 07:00 Typical	04:00 - 07:00 Worst Case	19:00 - 22:00 Typical	19:00 - 22:00 Worst Case
7.5t HGV	0 p/w	1 p/w	0 p/w	1 p/w
3.5t LCVs	2 p/w	4 p/w	2 p/w	5 p/w
2.4t Van	1 p/w	2 p/w	1 p/w	2 p/w

Figure 2: Vehicle Movement Forecast

Reversing Alarms exist on the 7.5T HGV and two of the 3.5T LCVs. It is understood that switches are to be installed so that reversing alarms can be disabled whilst in the yard.

2.3 Nearest Residential Receptors (NSRs)

The nearest residential NSRs are to the north of the site along Victoria Close. It is interesting to note that the NSRs are the only residential dwellings in the area and they are situated in-between two sections of a large industrial estate.

2.4 Soundscape

The soundscape on site is a mixture of existing commercial/industrial operations, with a lot of vehicular access to and from Covers builders’ merchants, which is close by, along with commercial air traffic overhead (Gatwick Airport is close-by). It is not known what the typical sound scape is during the proposed extended hours periods.

2.5 National Planning Policy

2.5.1 National Planning Policy Framework (Dec 2024)

The National Planning Policy Framework (Dec 2024) defines the Government’s planning policies for England and how these are expected to be applied. It sets out the Government’s requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so.

The following paragraphs are relevant within NPPF Section 15 (Conserving and enhancing the natural environment) states the following:

Paragraph 187(e) - 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, and

Paragraph 198 - Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects)

of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the 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; and

Paragraph 200– Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.

2.6 Local Planning Guidance – Planning Noise Advice Document Sussex, Nov 2023

Several Local Planning Authority (‘LPA’) departments have collaborated to create the Planning Noise Advice Document Sussex which Wealden District Council is signatory to. The document details relevant standards that should be referred to when completing a noise impact assessment.

Based upon the local guidance noise levels for the day and the night time period have been assessed in terms of and following the guidelines of the documents listed below:

- BS4142 (2014) Method for rating industrial noise affecting mixed residential and industrial areas

2.7 BS4142(2014+A1:2019): Method for rating and assessing industrial and commercial sound

This document provides a means of assessing the impact of industrial or commercial sound upon nearby noise-sensitive receptors, including residential properties.

It does this by comparing the Rating Level of the noise from the industrial or commercial source with the pre-existent L_{90} background noise level affecting the same noise-sensitive premises. The Standard provides guidance that:

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

this is an indication of the specific sound source having a low impact, depending on the context.

2.8 BS8233:2014 - Guidance on sound insulation and noise reduction for buildings

Table 4 of BS8233:2014 provides the following guideline values:

Activity	Location	Time period of day	
		07:00-23:00	23:00-07:00
Resting	Living Rooms	35dB $L_{Aeq,16hour}$	-
Dining	Dining Room/Area	40dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35dB $L_{Aeq,16hour}$	30dB $L_{Aeq,8hour}$

Table 1. BS8233:2014 Criteria

It is relevant to note that Table 4 criteria in BS8233:2014 relates to continuous and anonymous sound.

Where the sound is not anonymous, it is advisable that an enhanced criteria is set, such as reducing the acceptable sound levels by 5dB. (ie. Daytime resting becomes 30dBA and night-time sleeping becomes 25dBA).

3 Sound Survey Baseline Conditions & Results

A survey was carried out between Tuesday 20th March 2026 to Tuesday 27th March 2026 to measure the existing A-Weighted L90 area Background Sound Levels affecting the nearby receptors to the site. Weather was also monitored to ascertain any weather periods which might impact the dataset (i.e. high wind speeds).

3.1 Unattended Sound Survey Details

The figure below shows the survey location used for the long-term measurement.



Figure 3. Long Term Background Sound Survey

Survey(s) carried out by	Simon Barrett BSc(Hons) MSc MIOA MInstSCVE
Equipment Used	Svantek 971 Class 1 Sound Level Meter, Serial: C111658
Equipment Used	Norsonic Acoustic Calibrator – Serial No. 31083
Location	2m from ground but within 3m distance from a wall thus considered façade-level. W3W: ///clockwork.frightens.puff
Duration	20 March 2026 – 27 March 2026
Weather	Variable temperatures, mix of dry and rain. Windspeeds less than 5m/s

Noise levels in this report were measured in façade-level conditions but will be converted to free-field by the subtraction of 3dB. They are fast time weighted and A-weighted levels.

3.2 Unattended Sound Survey Results Summary

3.2.1 L90 Background Sound Levels

The survey data has been used to calculate the most commonly occurring (modal) background sound pressure levels ($L_{A90,15min}$) for the Daytime period (19:00hrs – 22:00hrs) and the night-time period (04:00hrs – 07:00hrs) as these are the hours of interest for this particular assessment.

The table below shows the representative A-Weighted L90 Background Sound Levels (as calculated using the modal average discussed above). They have been shown as measured (façade level) and also as converted to freefield.

Survey Location	04:00 – 07:00hrs L90 (dBA)	19:00 – 22:00hrs L90 (dBA)
As measured (façade level)	39	35
Converted to Freefield	36	32

Table 2: Representative L90 Background Sound Levels

The freefield background sound levels (in bold in the table above) will be those used for the purpose of this assessment.

4 Specific Sound Sources

As previously stated, the only relevant sound sources for this assessment for the extended hours will be the departure and arrival of vehicles. These are small vans and 7.5T box-trucks with tail lifts. All loading and unloading will be irrelevant to the extended hours, as this will be carried out during the existing operating hours.

4.1 Vehicle Departure

4.1.1 Small Van

Measurements of the small van (Citroen Berlingo) leaving the site have been carried out. The process of the van leaving site was as follows:

Driver unlocks vehicle -> enters -> closes door -> starts engine -> drives away from loading doors and out toward the yard gate.

The measurement was carried out at a distance of 1m from the loading bay door where the vehicle was started from and the duration was 17 seconds. It follows that this measurement was in "façade level" conditions.

The SPL at the measurement location was $Leq, 17 \text{ secs} = 51.9\text{dBA}$ (façade level). This equates to the location of the van just over half way through the measurement process, which is the centre of the yard, some 16m from the measurement location.

4.1.2 3.5T Panel Van

Measurements of one of the 3.5T panel vans (Citroen Relay) leaving the site have been carried out. Please note that during the measurement process there were extraneous sounds which were outside of the control of Acoustic South East and so for the purpose of this assessment, the L99 value was used in place of the Leq value. The process of the van leaving site was as follows:

Driver unlocks vehicle -> enters -> closes door -> starts engine -> drives away from parking space, turning toward exit -> reversing back to centre of yard (reversing tone present) -> drives out toward the yard gate and out of the premises.

Due to many staff vehicles being present, the 3.5T van did not have enough space to simply drive out without using reverse as the presence of the staff vehicles meant an inadequate turning circle was available. However, in reality, at the times when the vehicles would leave and/or return there would not be staff present and the site would be closed.

The measurement was carried out at a distance of 15.5m from the parking bay where the vehicle is typically parked (at the front of the site) and the duration was 45 seconds. This measurement was in “free-field” conditions.

The SPL at the measurement location was $L_{99,45 \text{ secs}} = 47.3\text{dBA}$. This equates to the location of the van at $2/3^{\text{rd}}$ of the way through the measurement process, which is the centre of the yard, some 10m from the measurement location.

4.1.3 7.5T Box Truck

Measurements of the 7.5T box truck leaving the site have been carried out. Please note that during the measurement process there were extraneous sounds which were out of the control of Acoustic South East and so for the purpose of this assessment, the L_{99} value was used in place of the L_{eq} value. The process of the vehicle leaving site during the measurement was as follows:

Driver unlocks vehicle -> enters -> closes door -> starts engine -> drives away from parking space, turning toward exit and drives out toward the yard gate and out of the premises.

The measurement was carried out at a distance of 12.5m from the parking bay where the vehicle was parked (at the front of the site) and the duration was 50 seconds. This measurement was in “free-field” conditions.

The SPL at the measurement location was $L_{99,50 \text{ secs}} = 51.0\text{dBA}$. This equates to the location of the van at $1/3^{\text{rd}}$ of the way through the measurement process, which is the centre of the yard, some 10m from the measurement location.

4.1.4 Drawing of Departure Route

The following drawing shows where the vehicles park and how they drive out of the yard

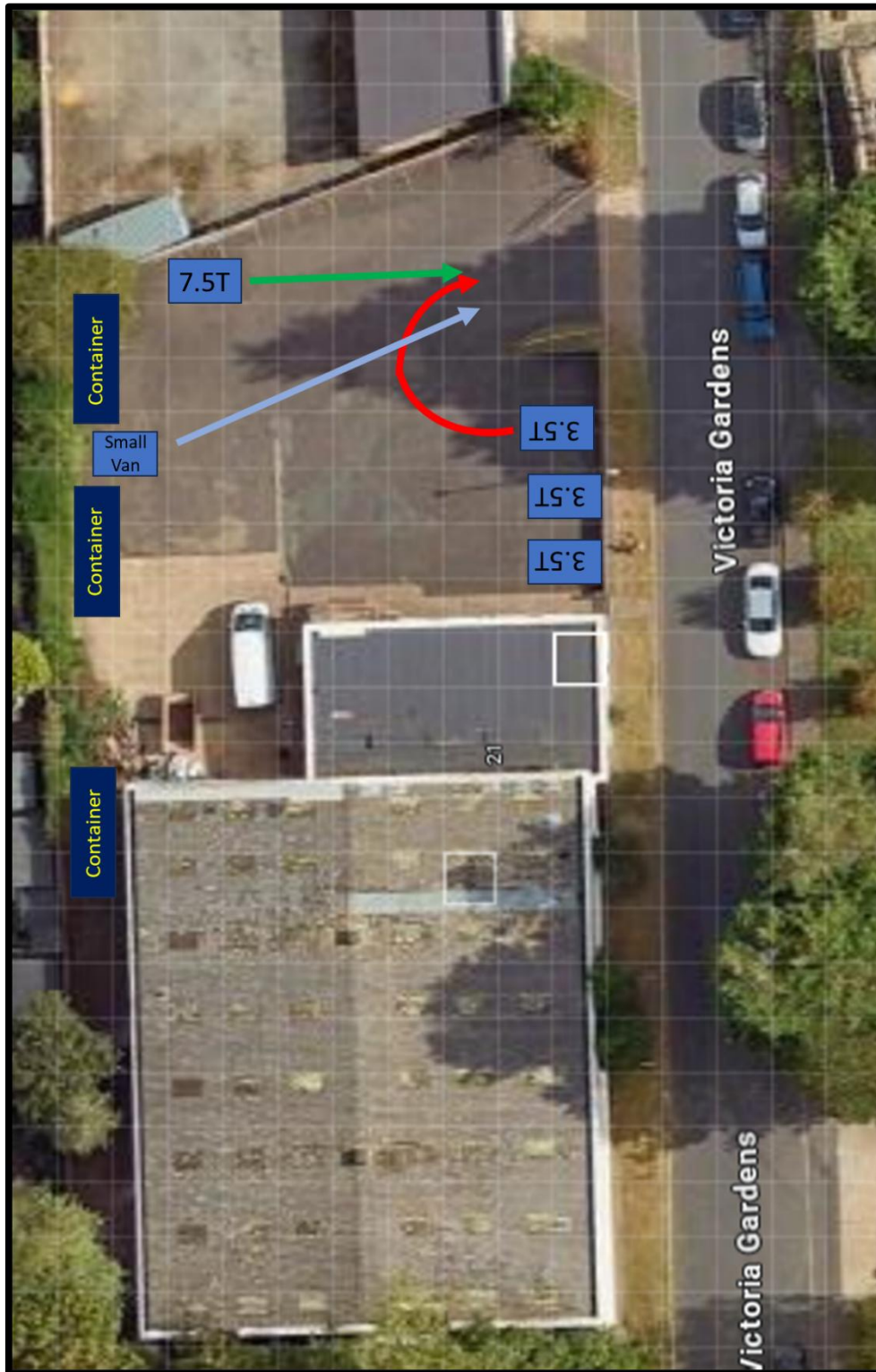


Figure 4: Van Departure Route

4.2 Vehicle Arrival

4.2.1 Small Van

The process of the van arrival was the reverse of the description in section 4.1.1

The measurement was carried out in the same location as in 4.1.1 and the duration was 26 seconds. This equates to the location of the van just *under* half way through the measurement process, which is the centre of the yard.

The SPL at the measurement location was $L_{eq,26 \text{ secs}} = 54\text{dBA}$.

4.2.2 3.5T Panel Van

The process of the panel van arrival was the reverse of the description in section 4.1.2.

Please note that during the measurement process there were extraneous sounds which were out of the control of Acoustic South East and so for the purpose of this assessment, the L99 value was used in place of the Leq value.

The measurement was carried out in the same location as in 4.1.2 and the duration was also 45 seconds.

The SPL at the measurement location was also $L_{99,45 \text{ secs}} = 48.2\text{dBA}$ – the same as the departure. This equates to the location of the van at 1/3rd of the way through the measurement process, which is the centre of the yard, some 10m from the measurement location.

4.2.3 7.5T Box Truck

Measurements of the 7.5T box truck leaving the site have been carried out. The process of the vehicle arriving back to site during the measurement was the reverse of the description in 4.1.3. Please note that during the measurement process there were extraneous sounds which were out of the control of Acoustic South East and so for the purpose of this assessment, the L99 value was used in place of the Leq value.

The measurement was carried out in the same location as in 4.1.3 and the duration was 90 seconds.

The SPL at the measurement location was $L_{99,90 \text{ secs}} = 53.3\text{dBA}$. This equates to the location of the van at half way through the measurement process, which is the centre of the yard, some 10m from the measurement location.

4.2.4 Van Arrival Route

The figure below shows the typical vehicle arrival routes, with the dotted lines being the reversing procedure for each vehicle.

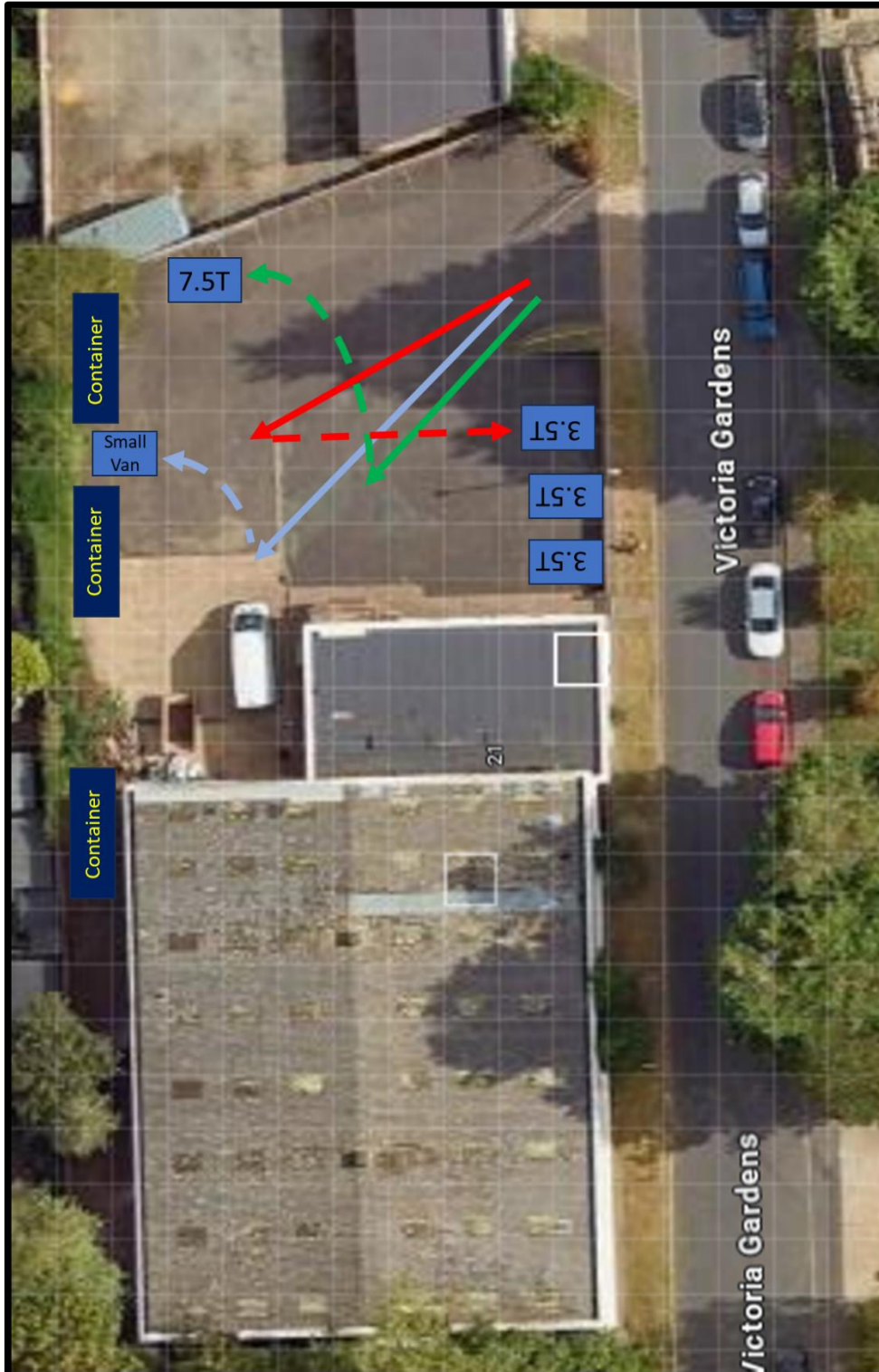


Figure 5: Vehicle Arrival Routes

4.3 Rating Levels

The measurements in section 4.2, need to be “Rated” in accordance with Section 9 of BS4142 in order to be properly assessed. This means applying any relevant character penalties such as tonality, impulsivity and intermittency. It also means applying “On-Time” corrections (i.e. the daytime reference period is 60-minutes and the night-time reference period is 15-minutes, so a sound is assessed in terms of how long it’s present for in any reference period).

It is also important to apply any distance attenuation if relevant.

4.3.1 Small Van Departure

It is important to re-iterate that the microphone was in “façade level” conditions also, meaning that a 3dB reduction can also be applied to convert it to “free-field” conditions for the purposes of assessment against the L909 Background Sound Level later in this report.

As outlined in 4.2.1, overall Leq,T at the measurement location for the duration of the departure event (17 seconds) was equivalent to the instantaneous SPL at the point where the van was 16m away from the microphone. This distance will be used for the purposes of a distance attenuation calculation comparing the 16m distance to the microphone with the 36m distance from the same location to the nearest NSR’s façade (19 Victoria Close).

The following formula is used for this distance attenuation calculation (of a point source):

$$20 * \log(r^2/r_1)$$

Where:

r1 = original measurement distance (in this case, 16m)

r2 = new measurement distance (in this case, 36m)

Distance attenuation to apply due to the above is 7dB.

In terms of On-Time, there will not be many vehicles leaving during the 04:00 – 07:00hrs period. However, an on-time assessment relates to any individual 15-minute period during this time window. There are not many vehicles which would be required to leave during this period and in any 15-minute period, it is considered that up-to 3 small-vans may leave, but this is very-much worst-case.

Rounding up the departure to a 20-second operation, 3x 20 seconds becomes 1-minute.

It is then possible to consider an on-time correction of 1 minute out of 15 being noise-producing from small vans leaving the yard. The following formula is used:

$$10 * \log(1/15)$$

On-time correction attenuation to apply = 11.8dB.

In terms of character penalties there is no tonality to apply.

Impulsivity is applied for door slams, although as this is assessed at 1m from the NSR façade, which is sufficiently further away from the measurement location. Therefore, it only has a small amount of perceptibility resulting in a penalty of +3dB to be applied.

There is no intermittency to apply as the sound signature does not operate in a turn on-off-on-off nature etc.

The table below provides a summary of all rating level items.

Item	Item Value
Specific Sound Level (Façade Level)	51.9dBA
Specific Sound Level (Converted to Free-field)	-3dB
Distance Attenuation	-7dB
On-Time Correction	-11.8dB
Tonality Penalty	0dB
Impulsivity Penalty	+3dB
Intermittency Penalty	0dB
Rating Level (rounded to nearest whole number)	33dBA

Table 3: Rating Level for the Small Van leaving site.

4.3.2 3.5T Panel Van Departure

As outlined in 4.2.2, overall SPL at the measurement location for the duration of the departure event (45 seconds) was equivalent to the instantaneous SPL at the point where the van was 10m away from the microphone. This distance will be used for the purposes of a distance attenuation calculation comparing the 10m distance to the microphone with a 31m distance from the same location to the nearest NSR's façade (15/15A Victoria Close).

The following formula is used for this distance attenuation calculation (of a point source):

$$20 * \log(r^2/r_1)$$

Where:

r1 = original measurement distance (in this case, 10m)

r2 = new measurement distance (in this case, 31m)

Distance attenuation to apply due to the above is 9.8dB.

In terms of On-Time, there will not be many vehicles leaving during the 04:00 – 07:00hrs period. However, an on-time assessment relates to any individual 15-minute period during this time window. There are not many vehicles which would be required to leave during this period and in any 15-minute period, it is considered that only 1 panel-van may leave.

It is then relevant to consider an on-time correction of 45 seconds out of 15 minutes (900 seconds) being noise-producing from panel vans leaving the yard. The following formula is used:

$$10 * \log(45/900)$$

On-time correction attenuation to apply = 13dB.

In terms of character penalties there is a small tonality correction to apply as the reversing alarm is slow and not very prevalent: This will be +2dB for being slightly perceptible at the NSR.

Impulsivity is applied for door slams, although as this is assessed at 1m from the NSR façade, which is sufficiently further away from the measurement location. Therefore, it only has a small amount of perceptibility resulting in a penalty of +3dB to be applied.

There is no intermittency to apply as the sound signature does not operate in a turn on-off-on-off nature etc.

The table overleaf provides a summary of all rating level items.

Item	Item Value
Specific Sound Level (Freefield Level)	47.3dBA
Distance Attenuation	-9.8dB
On-Time Correction	-13dB
Tonality Penalty	+2dB
Impulsivity Penalty	+3dB
Intermittency Penalty	0dB
Rating Level (rounded to nearest whole number)	30dBA

Table 4: Rating Level for a 3.5T Panel Van leaving site.

4.3.3 7.5T Box Truck Departure

As outlined in 4.2.3, overall SPL at the measurement location for the duration of the departure event (50 seconds) was equivalent to the instantaneous SPL at the point where the van was 10m away from the microphone. This distance will be used for the purposes of a distance attenuation calculation comparing the 10m distance to the microphone with a 31m distance from the same location to the nearest NSR's façade (15/15A Victoria Close).

It is, however, important to note the following:

The 7.5T box truck is normally parked in a different location (the North East corner of the site – confirmed by multiple staff at Ebiss UK Ltd). This means its departure would be a swift 20 seconds in the form of entering the vehicle, closing the door and driving straight out of the gate with no manoeuvring required. The distance from the usual parking location to the nearest NSR is 20m.

The following formula is used for this distance attenuation calculation (of a point source):

$$20 * \log(r^2/r_1)$$

Where:

r1 = original measurement distance (in this case, 12.5m)

r2 = new measurement distance (in this case, 20m)

Distance attenuation to apply due to the above is 4.1dB.

In terms of On-Time, there will not be many vehicles leaving during the 04:00 – 07:00hrs period. However, an on-time assessment relates to any individual 15-minute period during

this time window. There is only a single 7.5T box truck which may be required to leave during this period and in any 15-minute period, there is only a 20-second activity.

It is therefore relevant to consider an on-time correction of 20 seconds out of 15 minutes (900 seconds) being noise-producing from a 7.5T box truck leaving the yard. The following formula is used:

$$10 * \log(20/900)$$

On-time correction attenuation to apply = 16.5dB.

In terms of character penalties there is no tonality correction to apply no reversing occurs during departure.

Impulsivity is applied for a single door slam, although as this is assessed at 1m from the NSR façade, which is sufficiently further away from the measurement location. Therefore, it only has a small amount of perceptibility resulting in a penalty of +3dB to be applied.

There is no intermittency to apply as the sound signature does not operate in a turn on-off-on-off nature etc.

The table below provides a summary of all rating level items:

Item	Item Value
Specific Sound Level (Freefield Level)	51dBA
Distance Attenuation	-4.1dB
On-Time Correction	-16.5dB
Tonality Penalty	0dB
Impulsivity Penalty	+3dB
Intermittency Penalty	0dB
Rating Level (rounded to nearest whole number)	33dBA

Table 5: Rating Level for a 7.5T Box Truck leaving site.

4.3.4 Small Van Arrival

It is important to re-iterate that the microphone was in “façade level” conditions also, meaning that a 3dB reduction can also be applied to convert it to “free-field” conditions for the purposes of assessment against the L90 Background Sound Level later in this report.

As outlined in 4.2.4, overall SPL at the measurement location for the duration of the departure event (26 seconds) was equivalent to the instantaneous SPL at the point where the van was 16m away from the microphone. This distance will be used for the purposes of a distance attenuation calculation comparing the 16m distance to the microphone with the 36m distance from the same location to the nearest NSR’s façade (19 Victoria Close).

The following formula is used for this distance attenuation calculation (of a point source):

$$20 * \log(r^2/r_1)$$

Where:

r1 = original measurement distance (in this case, 16m)

r2 = new measurement distance (in this case, 36m)

Distance attenuation to apply due to the above is 7dB.

In terms of On-Time, there will only 1 small van arriving during the 19:00 – 22:00hrs period. An on-time assessment relates to any individual 60-minute period during this time window.

It is then possible to consider an on-time correction of 26 seconds out of 1-hour (3600 seconds) being noise-producing from small vans arriving back to the yard. The following formula is used:

$$10 * \log(26/3600)$$

On-time correction attenuation to apply = 21.4dB.

In terms of character penalties there is no tonality to apply.

Impulsivity is applied for door slams, although as this is assessed at 1m from the NSR façade, which is sufficiently further away from the measurement location. Therefore, it only has a small amount of perceptibility resulting in a penalty of +3dB to be applied.

There is no intermittency to apply as the sound signature does not operate in a turn on-off-on-off nature etc.

The table below provides a summary of all rating level items.

Item	Item Value
Specific Sound Level (Façade Level)	54dBA
Specific Sound Level (Converted to Free-field)	-3dB
Distance Attenuation	-7dB
On-Time Correction	-21.4dB
Tonality Penalty	0dB
Impulsivity Penalty	+3dB
Intermittency Penalty	0dB
Rating Level (rounded to nearest whole number)	26dBA

Table 6: Rating Level for the Small Van arriving back to site.

4.3.5 3.5T Panel Van Arrival

As outlined in 4.2.5, overall SPL at the measurement location for the duration of the arrival event (45 seconds) was equivalent to the instantaneous SPL at the point where the van was 10m away from the microphone. This distance will be used for the purposes of a distance attenuation calculation comparing the 10m distance to the microphone with the 31m distance from the same location to the nearest NSR's façade (15/15A Victoria Close).

The following formula is used for this distance attenuation calculation (of a point source):

$$20 * \log(r^2/r_1)$$

Where:

r1 = original measurement distance (in this case, 10m)

r2 = new measurement distance (in this case, 31m)

Distance attenuation to apply due to the above is 9.8dB.

In terms of On-Time, there could be 2 panel vans arriving during the 19:00 – 22:00hrs period. This is worst case (typical would be 1 or 0). An on-time assessment relates to any individual 60-minute period during this time window.

It is then possible to consider an on-time correction of 90 seconds out of 1-hour (3600 seconds) being noise-producing from 2 3.5T panel vans arriving back to the yard (worst-case). The following formula is used:

$$10 * \log(90/3600)$$

On-time correction attenuation to apply = 16dB.

In terms of character penalties there is a small tonality correction to apply as the reversing alarm is slow and not very prevalent: This will be +2dB for being slightly perceptible at the NSR.

Impulsivity is applied for door slams, although as this is assessed at 1m from the NSR façade, which is sufficiently further away from the measurement location. Therefore, it only has a small amount of perceptibility resulting in a penalty of +3dB to be applied.

There is no intermittency to apply as the sound signature does not operate in a turn on-off-on-off nature etc.

The table below provides a summary of all rating level items.

Item	Item Value
Specific Sound Level (Free-field Level)	53.3dBA
Distance Attenuation	-9.8dB
On-Time Correction	-16dB
Tonality Penalty	+2dB
Impulsivity Penalty	+3dB
Intermittency Penalty	0dB
Rating Level (rounded to nearest whole number)	33dBA

Table 7: Rating Level for two 3.5T Panel Vans arriving back to site.

N.B. if there is only 1 arriving back to the yard in an hour then this would be 3dB lower (thus 30dBA).

4.3.6 7.5T Box Truck Arrival

As outlined in 4.2.5, overall SPL at the measurement location for the duration of the arrival event (48 seconds) was equivalent to the instantaneous SPL at the point where the van was 10m away from the microphone. This distance will be used for the purposes of a distance attenuation calculation comparing the 10m distance to the microphone with the 31m distance from the same location to the nearest NSR's façade (15/15A Victoria Close).

The following formula is used for this distance attenuation calculation (of a point source):

$$20 * \log(r^2/r_1)$$

Where:

r1 = original measurement distance (in this case, 10m)

r2 = new measurement distance (in this case, 31m)

Distance attenuation to apply due to the above is 9.8dB.

In terms of On-Time, there could be 2 panel vans arriving during the 19:00 – 22:00hrs period. This is worst case (typical would be 1 or 0). An on-time assessment relates to any individual 60-minute period during this time window.

It is then possible to consider an on-time correction of 90 seconds out of 1-hour (3600 seconds) being noise-producing from 2 3.5T panel vans arriving back to the yard (worst-case). The following formula is used:

$$10 * \log(90/3600)$$

On-time correction attenuation to apply = 16dB.

In terms of character penalties there is a small tonality correction to apply as the reversing alarm is slow and not very prevalent: This will be +2dB for being slightly perceptible at the NSR.

Impulsivity is applied for door slams, although as this is assessed at 1m from the NSR façade, which is sufficiently further away from the measurement location. Therefore, it only has a small amount of perceptibility resulting in a penalty of +3dB to be applied.

There is no intermittency to apply as the sound signature does not operate in a turn on-off-on-off nature etc.

The table below provides a summary of all rating level items.

Item	Item Value
Specific Sound Level (Free-field Level)	53.3dBA
Distance Attenuation	-9.8dB
On-Time Correction	-16dB
Tonality Penalty	+2dB
Impulsivity Penalty	+3dB
Intermittency Penalty	0dB
Rating Level (rounded to nearest whole number)	33dBA

Table 8: Rating Level for two 3.5T Panel Vans arriving back to site.

N.B. if there is only 1 arriving back to the yard in an hour then this would be 3dB lower (thus 30dBA).

4.4 Rating Level vs Background

The Rating Levels from the previous sections have been compared with the L90 Background Sound Levels and placed in the following table to show the difference. Please note these are worst-cases and not typical cases.

Description	L _{A,Tr} Rating Level (dBA)	L90 Background Sound Level (dBA)	Difference (dB)
Small Van Depart	33	36	-3
3.5T Van Depart	30	36	-6
7.5T Truck Depart	33	36	-3
Small Van Arrival	26	32	-6
3.5T Van Arrival (x2)	33*	32	+1
7.5T Truck Arrival	33**	32	+1

Table 9: Rating Level vs Background

In the majority of cases, the Rating Level is below the Background Sound Level and BS4142:2014+A1:2019 considers that adverse impact would be unlikely.

In the two cases where the Rating Level is above, this is only by 1dB and is actually the worst-case scenario for its situation. See below:

* Based on information provided by the client and shown in Figure 2 of this document, the likelihood of two 3.5T vans arriving back to the yard during the same hour in a day is very low and is more likely to be just the one. This would mean that the Rating Level would reduce from 33dBA to 30dBA and thus be below the existing Background Sound Level.

** Additionally, the 7.5T box truck is rarely used in a week as it is sparsely used and so the Rating Level here is more likely to be 0dB.

5 Uncertainty and Context

5.1 Uncertainty

The data regarding the proposed variants in this assessment is based upon measured data on this exact application site with the vehicles actually used. Albeit there were some extraneous disturbances during some of the measurements which meant having to utilise an L99 value instead of an Leq value for some of the vehicles. L99 is just the sound which is exceeded for 99% of the time, which more accurately represents the events of vehicles departing from and arriving to the yard.

In terms of measurements, Class 1 sound level meters have been used for the Background Sound Survey and attended surveys. Sound Level Meters were calibrated before and after measurements at 114dB without any drift observed.

All L90 Background Sound Levels considered have only included the proposed time extensions as this is what the reference will be.

With calculations, rounding was not carried out until the end of the sum in order to prevent double-handling.

The lower of the L90 values from the modal analysis have been used, which is best practice.

5.2 Context

It is important to note that the site is part of an active industrial estate. The NSRs along Victoria Close are the only residential dwellings in the area and they are situated between two portions of the Victoria Industrial Estate.

The main point of context here is that all loading and unloading of vehicles will already have been carried out during the currently licensed operating hours of 07:00 – 19:00hrs. The extended hours are ONLY for being able to depart the yard during a time which would allow drivers and the business to be significantly more efficient whilst also ensuring all freight remains in a secured compound. The same goes for the arrival back to the yard: The driver will simply drive into the yard, park the vehicle and then leave, ensuring the vehicle and its freight is in a secure location so that it can be unloaded during current daytime operating hours.

The times that vehicles will be operating on site is a small fraction of the reference time. Often less than 1-minute and it will not be every day.

It is also useful to note that the sound pressure levels reaching the nearest NSR are very low (the highest Rating Level being 33dBA). The sound pressure level inside the NSR would be lower still: even assuming an open window (which is widely accepted to provide a broadband sound reduction of 13dB) this means that the internal SPL would become 20dBA. This is significantly below any criteria set out in BS8233:2014 (see Section 2.8 of this report) even with enhanced criteria.

6 Mitigation Measures

No particular mitigation measures are considered necessary as the difference between Rating Level and Background Sound Level is at worse +1dB, but the majority of times it is less than Background, with adverse impact being unlikely.

Additionally, it is understood that switches are to be installed so that reversing alarms can be disabled in the LCVs and HGV whilst in the yard, which will reduce the Rating Level for the vehicle arrivals.

7 Conclusion (see intro)

Assessment of existing L90 Background Sound Levels have been carried out for the proposed new hours of operation against which the specific sound levels (rated in accordance with BS4142 requirements) can be assessed. This shows that for the time period of 04:00 – 07:00, the representative L90 Background Sound Level is 36dBA. For the time period of 19:00 – 22:00, the representative L90 Background Sound Level is 32dBA.

BS4142:2014-A1:2019 states that if the Rating Level is at Parity with the L90 Background Sound Level, then Adverse Impact is unlikely. It also states that the lower the Rating Level is in comparison to the Background Sound Level, the likelihood of impact decreases further.

The results of the survey and assessment show that in all cases during the time frame of 04:00 – 07:00hrs, the worst-case scenario Rating Level for a vehicle departing the yard is below the L90 Background Sound Level.

The results also show that for vehicles arriving back to the yard during the time period of 19:00 – 22:00hrs, the worst-case scenario Rating Level is only 1dB above the L90 Background Sound Level. However, this is not a typical situation: a typical situation is more likely to be below background for any of the vehicles arriving back.

Based on the above and the context around the situation, it is recommended that Planning Consent for the hours-of-operation extension is not refused on noise grounds, albeit with the understanding that a condition stating that no loading or unloading occurs during these extra hours.

Appendix A – L90 Background Sound Level Statistical Analysis

Please note, measurements are “Façade Level”

