

Ref **5395 v3**

For **GRS**
c/o MJCA
Baddesley Colliery Offices
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CV9 2LE

GRS Roadstone Luton Railhead
Application for a variation to Standard Rules Permit to allow for the
Importation, Blending and Export of IBAA
BS 4142 Noise Assessment

Date 05 March 2026

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The Author

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WBM

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1 Introduction

GRS applied for (and obtained in October 2023) a Standard Rules Permit (SRP) for their railhead site at Luton. Under the SRP GRS are authorised to receive up to 75,000 tonnes per annum (tpa) of a range of inert and excavation wastes and are authorised to process these wastes by crushing, screening and blending of waste including the blending of IBAA. GRS are submitting a further application to the Environment Agency (EA) for a variation to the permit for a bespoke permit to allow for an increase in the maximum quantity of waste to be accepted at the site from 75,000 tpa to 100,000 tpa. The currently permitted activities including the importation, blending and export of IBAA material and the processing of inert and excavation waste by crushing and screening and blending remain unchanged by the variation application (Application Number EPR/WE2918AC/V002).

A WBM noise assessment report dated 21 March 2024 was prepared to accompany the application and set out the calculated noise levels arising from the blending of IBAA and train unloading, for use in a BS 4142:2014+A1:2019 assessment at the nearest dwellings to the site.

The calculated noise levels were compared with representative background sound levels at the nearest dwellings to the site. These were determined from attended noise surveys undertaken by WBM in August 2023 with measurements at the nearest dwellings when the normal intermittent operations on the site were not taking place.

This comparison of the calculated noise levels arising from the site operations including the blending of IBAA with the background sound levels established in August 2023 formed the basis for the BS 4142:2014+A1:2019 assessment method for the nearest dwellings to the site.

Following consideration of the application by the Environment Agency, the agency issued a notice for a request for more information dated 05 January 2026 which related to Saturday morning baseline sound levels and also for calculations at height for the assessment locations at which the dwellings are on multiple levels.

The assessment has also been amended to take into account additional comments/assurances and information provided by the operator following the EA requirements, including consideration of the already permitted crushing and screening of waste, and the updated noise modelling.

To aid comprehension, a glossary of acoustic terms is presented in Appendix A .

Site plans showing the site layout and the location of the recycling operations are presented in Appendix B.

The survey locations used by WBM for the attended sample measurements in August 2023 and also for the additional measurements in February 2026 are shown on a site plan in Appendix C.

The details of the noise surveys conducted by WBM in August 2023 and February 2026 are provided in Appendix D with the full results in Appendix E.

The assumptions included in the creation of the SoundPLAN noise model for the calculations are detailed in Appendix F.

SoundPLAN noise calculation plots showing the calculated noise levels from the site including the blending operations, additional HGV movements and either the crushing/screening operations or the train unloading are presented in Appendix G.

The full breakdown of the BS 4142 assessment is included as Appendix H.

2 Environment Agency Permit and Requirements

GRS are submitting an application to the Environment Agency (EA) for a variation to the permit for their site at Luton railhead to a bespoke permit to allow for an increase in the maximum quantity of waste to be accepted at the site from 75,000 tpa to 100,000 tpa including the importation, blending and export of IBAA material in two new storage bays at the site. The activity comprising the processing of inert and excavation waste by crushing and screening remains unchanged by the variation application.

For this application the Environment Agency require a noise impact assessment (NIA) to be conducted in line with the requirements of BS4142: 2014 + A1:2019.

The information that must be submitted to the Environment Agency in a noise impact assessment that uses computer modelling or spreadsheet calculations is provided in GOV.UK Guidance "*Noise impact assessments involving calculations or modelling*" and "*Guidance – Noise and vibration management: environmental permits*". The information

requested in the document *“Noise impact assessments involving calculations or modelling”* is summarised in Appendix F.

The Environment Agency generally require the overall site noise and BS 4142:2014+A1:2019 Rating Level to be no more than 5 dB above the representative background sound level, although this is dependent on context. Additional guidance on the use of BS 4142:2014+A1:2019 when applying for a permit is provided in the Environment Agency *“Method implementation document (MID) for BS 4142”* dated 27 March 2023.

The methods outlined in BS 4142:2014+A1:2019 are appropriate for the noise assessment of the blending operations including HGV movements within the site (and either crushing/screening or train unloading). The assessment does not cover noise from HGV movements outside the application/site boundary, which is also outside of the scope of BS 4142:2014+A1:2019.

The Environment Agency issued a *“Notice of request for more information”* dated 05 January 2026 which requested the following information:

“Sensitive Receptors

- *The Noise Impact Assessment suggests that noise impacts have only been assessed at ground floor height (1.5m) at nearby noise sensitive receptors. However, the nearest residential receptors on Crescent Road include 3 storey houses and up to 5 storey flats.*
 - *Include an assessment of upper storey receptor heights in addition to ground floor heights in an updated Noise Impact Assessment. This applies to all relevant nearby noise sensitive residences including both houses and flats.”*

“Operational Scenarios

- *The site is stated to operate between 08:00 – 13:00 on Saturdays in addition to the weekday operations between 08:00 – 16:00, however it is unclear whether noise generating operations onsite during Saturday hours will be equivalent to those during the week.*
 - o *Clarify whether the noise generating operations onsite will be the same during Saturday operating hours as during the week.*
 - o *Otherwise, detail exactly which noise generating operation will occur on Saturdays if different to those that occur during the week.*

- *Within the Noise Impact Assessment, it is stated that train unloading does not occur every day onsite, although an indication of the frequency of train deliveries is not provided.*
 - *Detail the number of typical train deliveries expected during a typical week."*

"Modelling

- *Provide the latest SoundPLAN noise modelling files used for the calculation of specific sound levels within the Noise Impact Assessment in the original file format." And*

"Background Sound levels

- *The background sound levels used within the Noise Impact Assessment are based upon measurements carried out during weekday periods only. The site's operating hours include Saturdays, when background and residual sound levels may be lower than during the week with likely lessened commuter/commercial road traffic and lower contributions from surrounding commercial operations.*
 - o *If noise generating operations will occur onsite during Saturday operating hours, carry out further survey measurements during periods representative of these hours without contributions from any existing site sound. Or otherwise justify why this wouldn't be necessary.*
 - o *Provide the raw data from any further survey measurements including the time, date, LA90, LAeq and LMax for each individual measurement.*
 - o *Unless justified otherwise, conduct a separate BS 4142 assessment of proposed Saturday operations."*

To summarise the updates to the assessment to address these points:

- The updated SoundPLAN noise model calculated site sound levels at 1.5 metres for all the assessment locations and also at 4 metres, 6.5 metres, 9 metres and 11.5 metres at the assessment location for 100 Crescent Road and at 4 metres, 6.5 metres and 9 metres at the assessment location for The Martindales to represent the higher floors at the latter two locations;
- The updated assessment includes the crushing and screening operations which is not yet taking place, but will be on the eastern side of the site as

included on the current permit for the site (therefore it is considered part of the existing permitted operations);

- The operator has stated that the crushing and screening operations will not take place whilst the occasional train unloading operations are happening;
- The building to the north of the site is included in the model to a height of 6 metres above local ground level;
- It is assumed in this assessment that the operations on a Saturday morning do not differ from those during the week;
- There are normally around an average of 1.5 to 2 train deliveries during a 7 day period depending on the month (this is based on January and February 2026);
- The updated SoundPLAN noise model has been undertaken using ISO 9613-2: 2024, which was not published at the time of the original assessment which used ISO 9613-2: 1996. The SoundPLAN model will be packed and sent separately;
- A Saturday morning survey was undertaken in February 2026 and the full data and observations from this survey are presented in this updated assessment, as requested. The survey in February 2026 showed higher residual and background sound levels than measured during the week and therefore it is considered that a separate noise assessment for Saturdays is not required as the weekday assessment represents a worst case scenario.

3 British Standard 4142: 2014+A1:2019

British Standard (BS) 4142:2014+A1:2019 “*Methods for rating and assessing industrial and commercial sound*” describes methods for assessing the likely effects of sound of an industrial and/or commercial nature on residential properties. It includes the assessment of nsound from industrial and manufacturing processes, M&E plant and equipment, loading and unloading of goods and materials, and mobile plant/vehicles on the site. It can be used to assess sound from proposed, new, modified or additional industrial / commercial sources, at existing or new premises used for residential purposes.

The standard describes methods to measure and determine ambient, background and residual sound levels, and the rating levels of industrial / commercial sound.

BS 4142:2014+A1:2019 is not intended to be used for the derivation or assessment of internal sound levels, or for the assessment of non-industrial / commercial sources such as recreational activities, motorsport, music and entertainment, shooting grounds, construction and demolition, domestic animals, people, and public address systems for speech.

Ambient sound is defined in BS 4142: 2014+A1:2019 as “*totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far*”. It comprises the residual sound and the specific sound when present.

Residual sound is defined in BS 4142: 2014+A1:2019 as “*ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound*”.

The background sound level is the $L_{A90, T}$ of the residual sound level, and is the underlying level of sound. Measurements of background sound level should be undertaken at the assessment location where possible or at a comparable location.

The measurement time interval should be sufficient to obtain a representative value (normally not less than 15 minutes) and the monitoring duration should reflect the range of background sound levels across the assessment period. The background sound level used for the assessment should be representative of the period being assessed.

The specific sound level is the L_{Aeq,T_r} of the sound source being assessed over the reference time interval, T_r . BS 4142:2014+A1:2019 advises that T_r should be 1 hour during the day and 15 minutes at night.

The rating level is the specific sound level plus any adjustment for the characteristics of the sound (tone, impulse, intermittent or other acoustic feature).

The standard describes subjective and objective methods to establish the appropriate adjustment. The adjustments for the different features and assessment methods are summarised in Table 3.1 below.

Table 3.1 – BS4142 Acoustic Feature Adjustments

Acoustic Feature	Adjustment for Acoustic Feature		
	Subjective Methods	Objective Methods	
Tonality	+2 dB if just perceptible	Third Octave Analysis	Narrow Band Analysis
	+4 dB if clearly perceptible +6 dB if highly perceptible	+6 dB if tones identified	Sliding scale of 0 to +6 dB depending on audibility of tone
Impulsivity	+3 dB if just perceptible +6 dB if clearly perceptible +9 dB if highly perceptible	Sliding scale of 0 to +9 dB depending on prominence of impulsive sound	
Intermittency	+ 3 dB if intermittency is readily distinctive	n/a	
Other	+ 3 dB if neither tonal nor impulsive, but otherwise readily distinctive	n/a	

Where tonal and impulsive characteristics are present in the specific sound within the same reference period then these two corrections can both be taken into account. If one feature is dominant, it might be appropriate to apply a single correction. The rating level is equal to the specific sound level if there are no features present.

The level of impact is assessed by comparing the rating level of the specific sound source with the background sound level. Other factors that may require consideration include the absolute level of sound, the character and level of the residual sound compared to the specific sound, and the sensitivity of the receptor and scope for mitigation.

When the rating level is above the background sound level, a difference of around +5 dB is likely to indicate an adverse impact and a difference of around +10 dB or more is likely to indicate a significant adverse impact, depending on the context.

The lower the rating level with respect to the background sound level, the less likely it is that the specific sound source will have an 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.

4 Description of Site and Noise Climate

The site is located to the south-west of Crescent Road in Luton north-east of the rail line that runs north-east to south-west. The site currently includes the unloading area for the railhead and stockpiles with items of mobile plant such as a loading shovel and an excavator as well as a weighbridge.

Current operations on site involve the unloading of material from trains (not every day) and stockpiling of the material for export via road going HGVs.

There are commercial/industrial premises to south-east, south-west (over the rail lines) and the north-west of the site with the nearest residential dwellings are located to the north-east on the opposite side of Crescent Road.

Access to the site is to be gained from the existing entry point off Crescent Road with egress via the same route, but the working area allows sufficient space for one way HGV movements on the site.

This BS 4142:2014+A1:2019 assessment concentrates on the nearest residential properties to the site described above, but the SoundPLAN noise maps include a visual representation of the calculated site noise levels across the wider area in the vicinity of the site.

The proposed site layout showing the permit application area for the blending and crushing/screening operations on site as well as a wider plan showing the locations of the nearest dwellings are shown on the plans in Appendices B and C.

The residential locations selected for site noise calculations in the BS 4142:2014+A1:2019 assessment are:

Table 4.1 – BS4142 Assessment Locations

BS4142 Assessment Position	Location Description	Baseline Survey Location Reference	OS Grid Reference
A	13-16 Crescent Road	1	E: 509708, N: 221576
B	100 Crescent Road (flats)	2	E: 509802, N: 222521
C	The Martindales, Crescent Road	3	E: 509893, N: 221479

These locations were chosen for the purposes of this assessment as they are the closest residential properties to the site and were representative of where baseline noise measurements were undertaken by WBM in August 2023 and February 2026.

The survey locations used by WBM in August 2023 and February 2026 are shown on the site plan in Appendix C.

Based on the noted observations made during the baseline noise surveys, the daytime noise levels in the area are generally controlled by local and distant road traffic, frequent trains, aircraft movements, local activity including commercial premises, birdsong and breeze in trees.

The proposed operating hours of the site are as follows:

- Mondays - Fridays 07.00–16.00; and
- 08:00 to 13:00 Saturdays.

For this reason with regard to BS 4142:2014+A1:2019, the assessment period is therefore 1 hour for daytime (07:00 to 23:00 hours) with no requirement for a night-time assessment.

5 Summary of Baseline Sound Level Data

WBM Noise Surveys (August 2023 & February 2026):

In August 2023, manned environmental noise measurements were taken at:

- Location 1: 13-16 Crescent Road;
- Location 2: 100 Crescent Road (flats); and
- Location 3: The Martindales, Crescent Road.

During the noise survey periods, there were no operations taking place on site as they only occur on days when train deliveries are being made and therefore the baseline noise survey data presented in this assessment does not include any noise from site operations.

Baseline noise surveys were undertaken during the daytime on Thursday 03 August 2023 and Monday 07 August 2023.

The additional baseline noise survey covering the Saturday morning period was undertaken on Saturday 14 February 2026. For comparison, simultaneous measurements were taken at a height of 4 metres on a mast to consider any change in ambient and background sound levels at higher floors of the flats/residences.

The details of these surveys are presented in Appendix D with the full results in Appendix E.

During the manned daytime noise surveys in August 2023 and February 2026, the noise climate was affected by local and distant road traffic, frequent trains, aircraft movements, local activity including commercial premises, birdsong and breeze in trees.

As the baseline survey data did not include any noise from site operations, for the purposes of the BS 4142:2014+A1:2019 assessment the ambient and residual sound levels are the same. A summary of the average background $L_{A90,15 \text{ minute}}$ and ambient / residual $L_{Aeq, 15 \text{ minute}}$ levels at each position, are presented in the following tables.

Table 5.1 – Summary of Weekday Baseline Noise Survey (August 2023)

August 2023:

Weekday Daytime (08:00 – 16:00)	Average Background Level dB $L_{A90,15 \text{ minutes}}$	Average Ambient / Residual Level dB $L_{Aeq, 15 \text{ minutes}}$
Position		
1. 13-16 Crescent Road	53	69
2. 100 Crescent Road (flats)	54	67
3. The Martindales, Crescent Road	53	69

Table 5.2 – Summary of Saturday Baseline Noise Survey (February 2026)

February 2026:

Saturday Daytime (08:00 – 13:00)	Average Background Level dB $L_{A90,15 \text{ minutes}}$	Average Ambient / Residual Level dB $L_{Aeq, 15 \text{ minutes}}$
Position		
1. 13-16 Crescent Road	58 (58)	72 (71)
2. 100 Crescent Road (flats)	57 (56)	70 (70)
3. The Martindales, Crescent Road	57 (57)	72 (71)

Note: The data from the measurements at a height of 4 metres are presented in brackets.

6 Calculation of Site Noise Levels

Noise calculations of the site operations were undertaken using SoundPLAN noise mapping software. A digital ground model (DGM) was created using local ground heights to cover the area including both the site and the nearest residential properties to the north of the site.

The following scenarios were modelled in this updated assessment:

- All site operations including blending operations, HGV movements and crushing/screening (07:00 to 16:00 hours); and
- All site operations including blending operations, HGV movements and train unloading (07:00 to 16:00 hours).

Following the request from the Environment Agency, calculations were made at a height of 4 metres, 6.5 metres and 9 metres for the flats at 100 Crescent Road and the Martindales as well as the calculations at a height of 1.5 metres as presented in the original assessment. An additional calculation at a height of 11.5 metres was undertaken for 100 Crescent Road to represent the upper floor of those flats.

The calculations were undertaken as a worst case scenario with the operation of the loading shovel as taking place for 67% of the assessment period with the tipping (10%) and blending (10%) of material taking place for 20% of the assessment period.

The permitted crushing and screening operations in the tipping and blending area are included in the calculations with both plant items included as operating for 100% of the assessment period. Note that this was not included in the previous assessment, but the operator has indicated that these operations would be required to take place in a similar part of the site on the hard standing area, when necessary.

The crushing/screening operations will not take place while the occasional train unloading is happening.

It is expected that there would normally be no more than 4 HGVs visiting the site in a single hour during the daytime for delivery of raw material and export of processed material, so HGV movements have been included as 4 one-way movements per hour in addition to the current HGV movements on site (6 one-way movements per hour), i.e. a total of 10 one-way movements per hour.

The ongoing existing operations on site (train unloading and loading of HGVs for export) has been included in the site noise calculations for when those operations are taking place assuming that the material handler unloading the train is operating for 67% of the assessment period. The loading shovel used for the blending operations is the same one that would assist the material handler in loading the rail imported material into HGVs for export. As such, for the site noise calculations of site operations including train unloading, the loading shovel is split between the bays and the train (33% at each) with two movements in between those locations.

HGV movements associated with the existing plant are included as 6 one-way movements per hour, based on current figures, therefore with the additional HGV movements associated with the blending operations, this has results in a total number of one-way HGV movements in the noise model of 10 per hour.

The calculations assume that the calculation area is 100% hard ground.

The calculations also include the existing building off site to the north of the tipping/blending and crushing/screening area which provides some barrier attenuation, with the included to a height of 6 metres above local ground level.

Details of sound power level data and assumptions used for the SoundPLAN noise model are presented in Appendix F.

The SoundPLAN daytime noise contour plots for the site operations (two scenarios with either crushing/screening operations or with train unloading included) covering the assessment area are presented in Appendix G.

7 Comparison of Calculated Site Noise with Existing Noise Levels

For the BS 4142:2014+A1:2019 assessment, the three receiver locations representative of the nearest residential properties to the site have been used for site noise calculations.

A plan showing the site layout/location which includes the nearest residential properties/areas is presented in Appendix B. The residential locations used for the noise surveys and assessment are also shown in Appendix C.

A comparison of the calculated weekday daytime noise levels at the three selected residential assessment locations closest to the site with the representative daytime background and residual sound levels for weekdays and Saturday mornings at those locations are as follows.

Table 7.1 – Comparison of Calculated Sound Levels with Ambient & Background Sound Levels

Receiver Location Weekday Daytime (07:00-16:00)	Calculated Site Noise Level dB L _{Aeq,1 hour}		Representative Background Sound Level dB L _{A90,15 min}	Average Residual Sound Level dB L _{Aeq,15 min}
	With Crushing/ Screening	With Train Unloading		
1. 13-16 Crescent Road	59	57	53	69
2. 100 Crescent Road (flats)	48	56	54	67
4m	52	56		
6.5m	52	56		
9m	53	56		
11.5m	54	56		
3. The Martindales, Crescent Road	55	47	53	69
4m	56	49		
6.5m	56	51		
9m	56	52		

Table 7.2 – Comparison of Calculated Sound Levels with Ambient & Background Sound Levels

Receiver Location Saturday Daytime (08:00-13:00)	Calculated Site Noise Level dB L _{Aeq,1 hour}		Representative Background Sound Level dB L _{A90,15 min}	Average Residual Sound Level dB L _{Aeq,15 min}
	With Crushing/ Screening	With Train Unloading		
1. 13-16 Crescent Road	59	57	58	72
2. 100 Crescent Road (flats)	48	56	57	70
4m	52	56		
6.5m	52	56		
9m	53	56		
11.5m	54	56		
3. The Martindales, Crescent Road	55	47	57	72
4m	56	49		
6.5m	56	51		
9m	56	52		

An assessment has been undertaken in accordance with BS 4142:2014+A1:2019 “*Methods for rating and assessing industrial and commercial sound*” for the nearest dwellings to the blending, HGV movements and either the crushing/screening operations or train unloading on the site as presented above.

Due to the lower ambient and background sound levels during the week and the operations being the same, the BS4142 assessment concentrates on the worst case scenario using the data presented in Table 7.1.

8 BS 4142: 2014+A1:2019 Assessment

The information to be reported, as specified in Section 12 of BS 4142:2014+A1:2019, is set out in full in Appendix H (where relevant) and the findings are summarised on the following pages.

For the BS4142 assessment, when the rating level is above the background sound level, a difference of around +5 dB is likely to indicate an adverse impact and a difference of around +10 dB or more is likely to indicate a significant adverse impact, depending on the context.

The lower the rating level with respect to the background sound level, the less likely it is that the specific sound source will have an 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.

Considering the nature of the operations particularly in the context of the existing ambient and background sound environment in the area during the daytime and the level of the calculated site noise levels at the dwellings, one would not expect any acoustic features of the noise from the blending or crushing/screening operations to be readily distinguishable at the dwellings and an acoustic feature correction would not be appropriate. The main noise sources related to the blending or crushing/screening operations will be engine noise, vehicle movements and the tipping of material and therefore are unlikely to stand out from the current industrial and transportation noises in the area.

However, the train unloading operation that currently takes place on site and is included in the site noise calculations that include train unloading (but not crushing/screening) may well include impact noises that would warrant an inclusion of +3dB for impulsive character or intermittency.

Note that when considering the tipping and blending operations with the crushing and screening operations already covered by the permit in isolation, the rating level would be the same as the calculated specific sound level as there would be no acoustic feature correction for those operations.

The calculations and assessment have been based on a “*maximum load setting*”. The model allows for a worst case scenario to provide a more robust assessment, but such a scenario is unlikely to occur as modelled in practice. For the majority of the time, the scenario as modelled will not occur because there will be some variability in the site operations and all mobile plant and machinery may not operate simultaneously for the proportion of the time used in the model. Uncertainty in the data and associated calculations is therefore not considered to change the outcome of the assessment.

Normal Daytime (07:00-16:00) Operations:

The following table compares the daytime rating levels for all the site operations including either the crushing/screening operations or the occasional train unloading operations (with the addition of a +3dB penalty for the acoustic features of the occasional train unloading operation) which does not occur every day with the lower weekday background sound levels. Rating levels are presented at a height of 1.5 metres for all three assessment locations as well as at heights of 4 metres, 6.5 metres and 9 metres for the assessment locations for the flats at 100 Crescent Road and at The Martindales and at a height of 11.5 metres for the upper flats at 100 Crescent Road.

Table 8.1 – Comparison of Rating Levels with Background Sound Levels

Receiver Location Weekday Daytime (07:00-16:00)			Rating Level dB L _{Ar, Tr}		Representative Background Sound Level dB L _{A90,15 min}	Difference dB(A) including Crushing/ Screening	Difference dB(A) including Train Unloading
			With Crushing/ Screening	With Train Unloading			
1	13-16 Crescent Road	1.5m	59	60	53	+6	+7
2	100 Crescent Road	1.5m	48	59	54	-6	+5
		4m	52	59		-2	+5
		6.5m	52	59		-1	+5
		9m	53	59		-1	+5
		11.5m	54	59		0	+5
3	The Martindales	1.5m	55	50	53	+2	-3
		4m	56	52		+3	-1
		6.5m	56	54		+3	+1
		9m	56	55		+3	+2

The site rating levels are no more than 7 dB(A) above the representative weekday daytime background sound levels at the nearest dwellings to the site when the occasional train unloading operations are taking place and no more than 6 dB(A) above the representative weekday daytime background sound levels at the nearest dwellings to the site when the crushing/screening operations are taking place.

The site rating levels at the nearest dwellings are at least 9 dB(A) below the representative weekday daytime residual sound levels at the dwellings when the occasional train unloading operations are taking place and at least 10 dB(A) below the representative weekday daytime residual sound levels at the dwellings when the crushing/screening operations are taking place.

Due to the higher residual and background sound levels measured on a Saturday morning in February 2026, these differences are less when considering Saturday morning operations and therefore this assessment concentrates on the worst case scenario relating to weekday operations.

Considering the blending and crushing/screening operations without the occasional (and current) train unloading, i.e. the normal operations that might be expected to take place on site, the site rating levels are no more than 3 dB(A) above the representative weekday daytime background sound levels at the dwellings at 100 Crescent Road and The Martindales (i.e. below the level indicating an adverse impact).

However, at 13-16 Crescent Road the rating levels are 6 dB(A) above the representative weekday daytime background sound levels, i.e. above the level indicating an adverse impact, but not a significant adverse impact before context is taken into account.

To provide some context, the rating levels from the normal everyday tipping and blending operations, HGV movements and crushing/screening operations are at least 10 dB(A) below the representative weekday daytime residual sound levels at the dwellings.

When considering times when the occasional train unloading operations are taking place (normally one to two times a week for a few hours), the difference between the rating levels and the representative weekday background sound levels at 13-16 Crescent Road (+7 dB(A)) and 100 Crescent Road (+5 dB(A)) are above or at the level indicating an adverse impact, but not a significant adverse impact before context is taken into account.

To provide some context, the rating levels from the normal everyday tipping and blending operations, HGV movements and train unloading operations are at least 9 dB(A) below the representative weekday daytime residual sound levels at the dwellings.

The average baseline weekday daytime residual levels at these locations were between 67 and 69 dB $L_{Aeq,T}$ in August 2023, with the average daytime residual levels on a Saturday morning at these locations being between 70 and 72 dB $L_{Aeq,T}$ in February 2026.

The daytime noise climate at these dwellings will continue to be controlled by distant and local road traffic, local activity, other industrial/commercial noise, birdsong and frequent air and rail traffic with some site activity likely to be audible at times.

The tipping and blending operations and the crushing/screening operations are expected to be generally inaudible at the nearest dwellings.

Context

In context, the operation will be taking place on an existing site in an area that has a significant amount of existing industrial activity and transportation noise. The noise from the daytime operations is unlikely to be readily distinctive from the existing industrial/commercial noise in the area.

Whilst the difference (when the occasional train unloading operations are taking place) is above the level indicating an adverse impact, but below that indicating a significant adverse impact at two locations (it is below that indicating an adverse impact at the third location), this is dependent on the context which must consider that the occasional train unloading operation is taking place on a site in an industrial area where this type of noise may be more acceptable as well as noting that the train unloading is an existing permitted activity which is already happening and one would expect that the residents are used to in terms of the character of the noise.

The crushing and screening operation is not currently taking place, but is also permitted under the current site permit and will not change from that permitted. The crushing/screening operations will not take place whilst train unloading is happening on site.

The blending and crushing/screening operations do not change the character of the area or introduce noise that is a new or novel character and are likely to be generally inaudible at the dwellings in the vicinity of the site and when considered without the train unloading operations (which will not take place during crushing and screening) do not indicate an adverse impact at the nearest dwellings.

As the train unloading operation does not occur every day only occurring for a few hours a week and for the vast majority of the time, one should consider the tipping/blending operations and those of the crushing/screening plant as normal operations on the site.

The daytime soundscape for the nearest dwellings to the site will continue to be affected by distant and local road traffic noise, birdsong, other industrial/commercial activity, local activity and frequent rail and air traffic with some site activity likely to be audible at times.

The tipping/blending and crushing/screening operations are likely to be generally inaudible at the nearest dwellings.

It is expected that, at worst, the site operations will be audible at times, but is unlikely to be readily identifiable/distinguishable at this location most of the time during the daytime at the nearest dwellings.

The assessment has been conducted including the train unloading operations that currently take place on site. This activity does not take place every day and may only occur a couple of times in a normal week.

The existing residual and background sound levels measured on a Saturday morning in February 2026 were above those measured on two weekdays in August 2023 and therefore the weekday assessment is considered a worst case scenario.

There is not a substantial difference between the calculated site noise levels at increasing height at the assessment locations where the residences are on multiple floors. In those cases, the worst case difference is considered in the assessment.

The context has been considered in more detail and it is considered that the outcome of the assessment is that the operations on site do not represent an adverse impact at the nearest dwellings as presented in Appendix H, Section q.

9 Cumulative Impact of Proposals

The site is located in an area that is predominantly commercial/industrial with residential areas to the north-east over Crescent Road, The nearest other noise generating industrial/commercial premises are those immediately adjacent to the site to the north-west and south-east as well as to the south-west and south over the railway line.

During the baseline daytime noise surveys in August 2023 and February 2026, the activities on the neighbouring sites were audible and based on the calculated site noise levels, the operations on the site are unlikely to have a noticeable impact on the cumulative noise levels from other existing premises in the area.

The nature and character of the site operations is similar to the other existing commercial and industrial premises operating in the area and the current site activities. As such there is unlikely to be any change in the character of the area caused by the proposals and therefore no concern for cumulative noise impact in terms of additional noise character introduced by the site operations.

10 Summary and Conclusions

GRS applied for (and obtained in October 2023) a Standard Rules Permit (SRP) for their railhead site at Luton. Under the SRP GRS are authorised to receive up to 75,000 tonnes per annum (tpa) of a range of inert and excavation wastes and are authorised to process these wastes by crushing, screening and blending of waste including the blending of IBAA. GRS submitted a further application to the Environment Agency (EA) for a variation to the permit for a bespoke permit to allow for the an increase in the maximum quantity of waste to be accepted at the site from 75,000 tpa to 100,000 tpa. The currently permitted activities including the importation, blending and export of IBAA material and the processing of inert and excavation waste by crushing and screening and blending remain unchanged by the variation application

A WBM noise assessment report dated 21 March 2024 set out the calculated noise levels arising from the site including the operations on site including the blending operations, HGV movements and train unloading operations, for use in a BS 4142:2014+A1:2019 assessment at the nearest dwellings to the site.

The calculated noise levels were compared with representative background sound levels at the nearest dwellings to the site. These were determined from attended noise surveys undertaken by WBM in August 2023 when the existing site operations were not taking place.

This comparison of the calculated noise levels arising from the site with the background sound levels established in August 2023 formed the basis for the BS 4142:2014+A1:2019 assessment method for the nearest dwellings to the site.

Following consideration of the application by the Environment Agency, further information was requested relating to calculated site noise levels at height for the assessment locations where the dwellings are on multiple stories and also relating to the baseline sound levels on a Saturday morning.

The assessment has also been amended to take into account additional comments/assurances and information provided by the operator following the EA requirements, including consideration of the already permitted crushing and screening of waste and the updated noise modelling.

This updated noise assessment details baseline noise survey data obtained on a Saturday morning in February 2026 as well as calculated site noise levels at heights of 1.5 metres, 4 metres, 6.5 metres and 9 metres to represent multiple storey dwellings.

As the existing residual and background sound levels measured in February 2026 were higher than those during the week in August 2023, the updated assessment concentrates on weekday operations.

The calculations demonstrate daytime rating levels for the site including the existing train unloading operations with a +3dB acoustic feature correction for that activity, but not the permitted crushing and screening operations of 50 to 60 dB $L_{Ar, Tr}$ at the nearest dwellings to the site which is 3 dB(A) below to 7 dB(A) above the representative daytime background sound levels of 53 to 54 dB $L_{A90, T}$ in the area. The representative weekday daytime residual sound level at the dwellings is 67 to 69 dB $L_{Aeq, T}$ (the representative background and residual sound levels on a Saturday morning have been shown to be higher than during the week).

The calculations demonstrate daytime rating levels for the normal day to day operations on site (i.e. the tipping/blending, HGV movements and crushing/screening operations) of 48 to 59 dB $L_{Ar, Tr}$ at the nearest dwellings to the site which is 6 dB(A) below to 6 dB(A) above the representative weekday daytime background sound levels of 53 to 54 dB $L_{A90, T}$ in the area. The representative weekday daytime residual sound level at the dwellings is 67 to 69 dB $L_{Aeq, T}$.

The conclusion of the assessment for the nearest dwellings to the site is that the site operations (including either the crushing and screening operations or the train unloading operations and once context has been taken into account) have been demonstrated to be of no adverse impact at that location during the normal daytime operating hours of the site.

The higher residual and background sound levels on a Saturday morning indicate that there is a lesser impact on Saturdays than during the week.

The calculations at height for the assessment locations where the dwellings are on multiple stories have been considered and do not vary significantly in the context of the assessment. However, the worst case scenarios for those locations has been used in the assessment.

It is expected that the site operations may be just audible at worst or mainly inaudible at all the receiver locations during the normal daytime operating hours of the site with the tipping

and blending operations and the crushing/screening operations expected to be generally inaudible at the nearest dwellings. The daytime soundscape for the three receiver locations considered will continue to be affected by distant and local road traffic noise, frequent rail traffic, local activity including other industrial/commercial premises, birdsong, breeze in trees and frequent air traffic with some site activity possibly just audible at times.

The comparison of the calculated noise levels arising from the site operations has been compared to existing background and residual sound levels in the area and it is concluded that there will be no adverse impact arising from the proposals at the nearest residential receptors.

The calculations are based on a worst case scenario and provide a robust assessment, uncertainty in the data and associated calculations is therefore not considered to change the outcome of the assessment.

The context has been considered and found to support the outcome of the assessment.

Robert Storey

BEng PhD MIOA

Senior Consultant

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Appendix A – Glossary of Acoustic Terms

General Noise and Acoustics

The following section describes some of the parameters that are used to quantify noise.

Decibels dB

Noise levels are measured in decibels. The decibel is the logarithmic ratio of the sound pressure to a reference pressure (2×10^{-5} Pascals). The decibel scale gives a reasonable approximation to the human perception of relative loudness. In terms of human hearing, audible sounds range from the threshold of hearing (0 dB) to the threshold of pain (140 dB).

A-weighted Decibels dB(A)

The 'A'-weighting filter emulates human hearing response for low levels of sound. The filter network is incorporated electronically into sound level meters. Sound pressure levels measured using an 'A'-weighting filter have units of dB(A) which is a single figure value to represent the overall noise level for the entire frequency range.

A change of 3 dB(A) is the smallest change in noise level that is perceptible under normal listening conditions. A change of 10 dB(A) corresponds to a doubling or halving of loudness of the sound. The background noise level in a quiet bedroom may be around 20–30 dB(A); normal speech conversation around 60 dB(A) at 1 m; noise from a very busy road around 70–80 dB(A) at 10m; the level near a pneumatic drill around 100 dB(A).

Façade Noise Level

Façade noise measurements are those undertaken near to reflective surfaces such as walls, usually at a distance of 1m from the surface. Façade noise levels at 1m from a reflective surface are normally around 3 dB greater than those obtained under freefield conditions.

Freefield Noise Level

Freefield noise measurements are those undertaken away from any reflective surfaces other than the ground.

Frequency Hz

The frequency of a noise is the number of pressure variations per second, and relates to the “pitch” of the sound. Hertz (Hz) is the unit of frequency and is the same as cycles per second. Normal, healthy human hearing can detect sounds from around 20 Hz to 20 kHz.

Octave and Third-Octave Bands

Two frequencies are said to be an octave apart if the frequency of one is twice the frequency of the other. The octave bandwidth increases as the centre frequency increases. Each bandwidth is 70% of the band centre frequency.

Two frequencies are said to be a third-octave apart if the frequency of one is 1.26 times the other. The third octave bandwidth is 23% of the band centre frequency.

There are recognised octave band and third octave band centre frequencies. The octave or third-octave band sound pressure level is determined from the energy of the sound which falls within the boundaries of that particular octave or third octave band.

Appendix A (continued)

Equivalent Continuous Sound Pressure Level $L_{Aeq,T}$

The 'A'-weighted equivalent continuous sound pressure level $L_{Aeq,T}$, is a notional steady level which has the same acoustic energy as the actual fluctuating noise over the same time period T . The $L_{Aeq,T}$ unit is dominated by higher noise levels, for example, the $L_{Aeq,T}$ average of two equal time periods at, for example, 70 dB(A) and 50 dB(A) is not 60 dB(A) but 67 dB(A).

The L_{Aeq} is the chosen unit of BS 7445-1:2003 "Description and Measurement of Environmental noise".

Maximum Sound Pressure Level L_{Amax}

The L_{Amax} value describes the overall maximum 'A'-weighted sound pressure level over the measurement interval. Maximum levels are measured with either a fast or slow time weighted, denoted as $L_{Amax,f}$ or $L_{Amax,s}$ respectively.

Rating Level (BS 4142) $L_{Ar,T}$

With regard to BS 4142, the rating level is the specific sound plus any adjustment for the characteristics of the sound.

Residual Sound (BS 4142)

With regard to BS 4142, the residual sound is the ambient sound remaining at the assessment location when the specific source is suppressed to such a degree that it does not contribute to the ambient sound.

Specific Sound Level (BS 4142) $L_{Aeq,T}$

With regard to BS 4142, the specific sound level is the sound pressure level (in terms of $L_{Aeq,T}$) produced by the specific sound source at the assessment location.

Statistical Parameters L_N

In order to cover the time variability aspects, noise can be analysed into various statistical parameters, i.e. the sound level which is exceeded for $N\%$ of the time. The most commonly used are the $L_{A01,T}$, $L_{A10,T}$ and the $L_{A90,T}$.

$L_{A01,T}$ is the 'A'-weighted level exceeded for 1% of the time interval T and is often used to give an indication of the upper maximum level of a fluctuating noise signal.

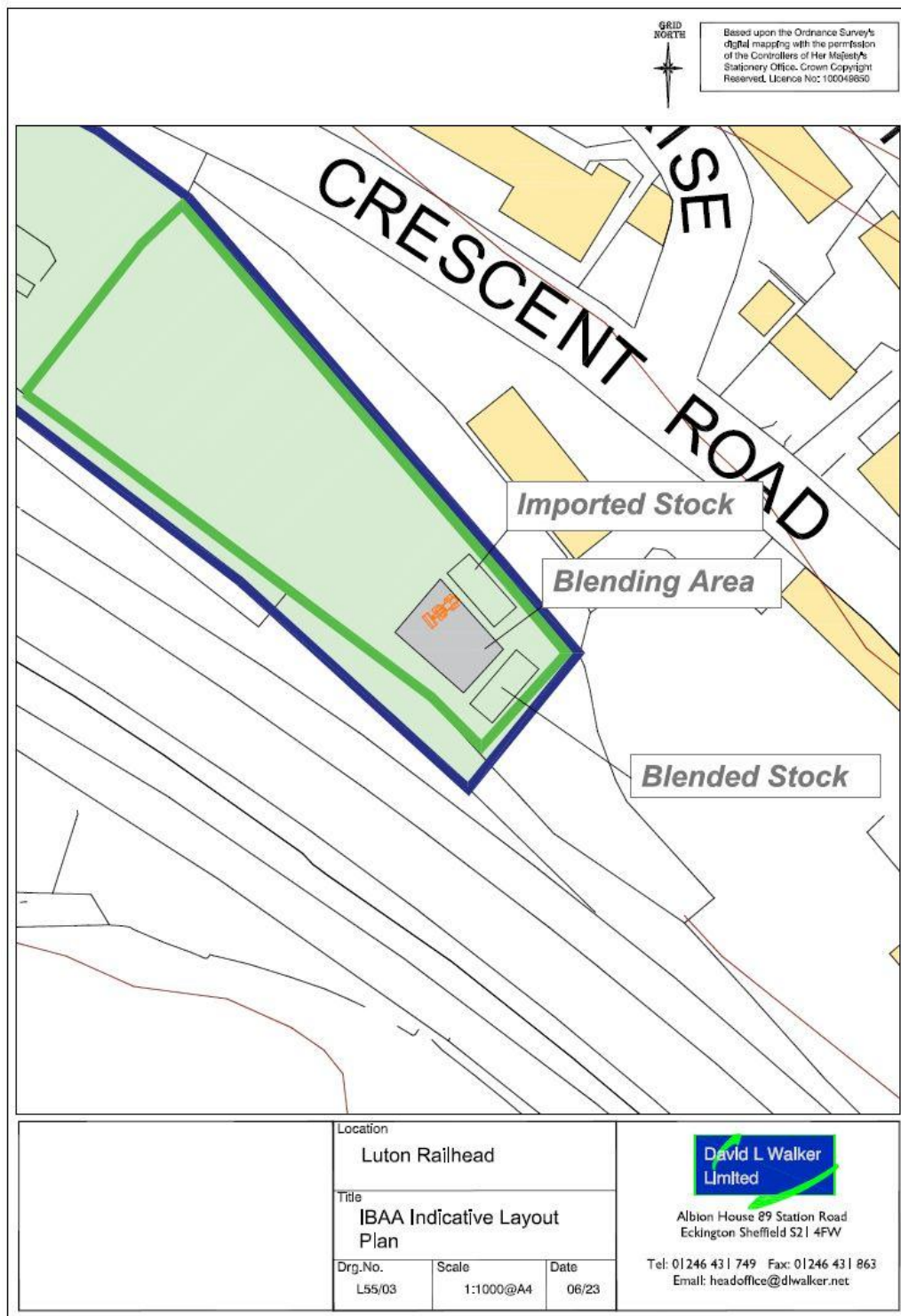
$L_{A10,T}$ is the 'A'-weighted level exceeded for 10% of the time interval T and is often used to describe road traffic noise. It gives an indication of the upper level of a fluctuating noise signal. For high volumes of continuous traffic, the $L_{A10,T}$ unit is typically 2–3 dB(A) above the $L_{Aeq,T}$ value over the same period.

$L_{A90,T}$ is the 'A'-weighted level exceeded for 90% of the time interval T , and is often used to describe the underlying background noise level.

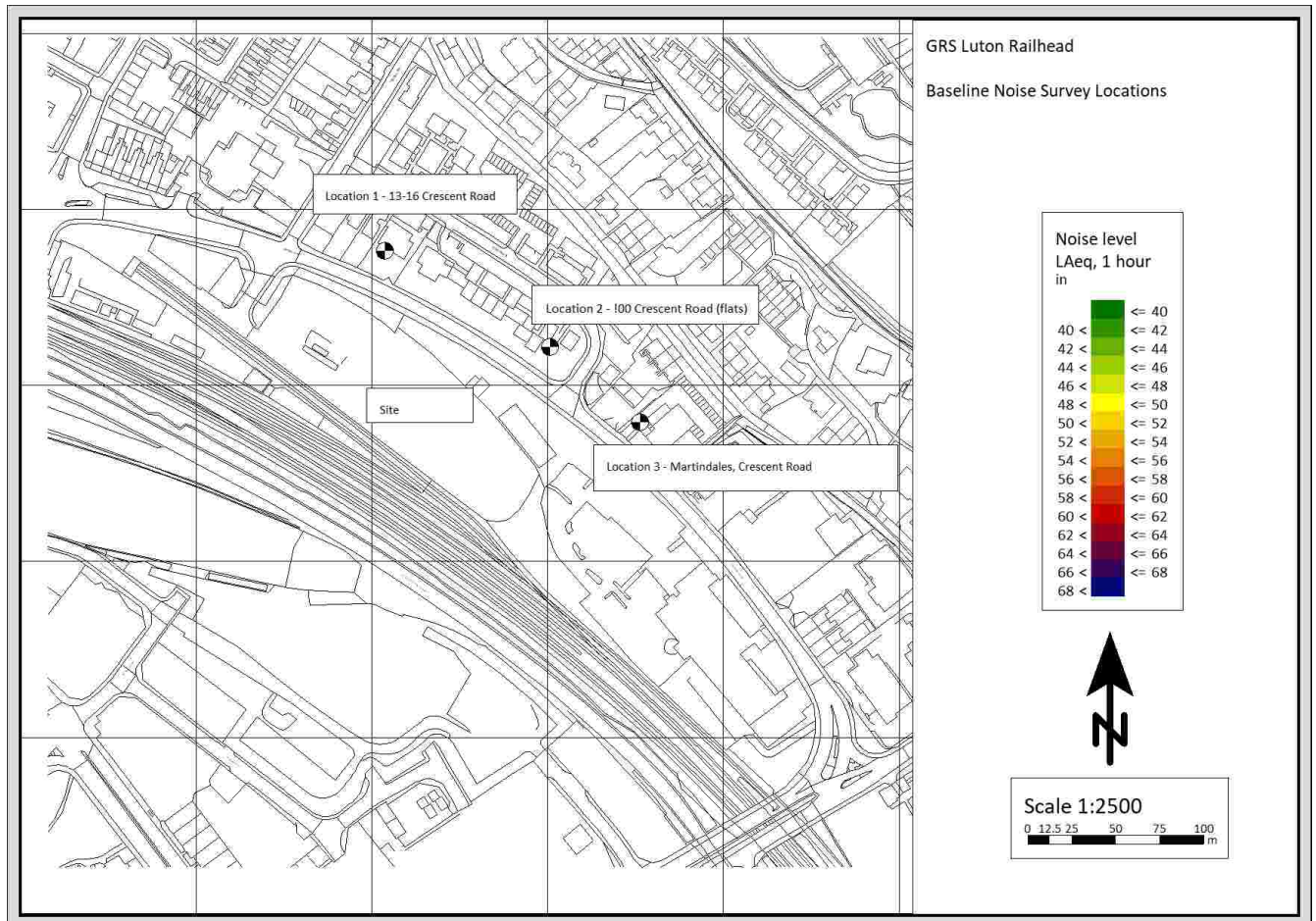
With regard to BS 4142, the $L_{A90,T}$ of the residual sound is used to describe the background sound level.

Appendix B – Plans Showing Proposed Site Layout

Site Layout Including Location of Proposed Operations:



Appendix C – WBM Noise Survey Locations



Location	Location	Description (free field positions)
1	13-16 Crescent Road	Roadside at end of residence driveway
2	100 Crescent Road (flats)	On raised grassed area adjacent to Moulton Rise junction
3	The Martindales, Crescent Road	Roadside at end of residence driveway

Appendix D – Survey Details (August 2023)

Date and Locations of Survey

Thursday 3rd and Monday 7th August 2023

Luton Railhead, Crescent Road.

Survey carried out by

Jayan Mistry

Weather Conditions

Thursday 3rd August 2023: Dry, Sunny, 17°C, 5 Oktas, NW wind 1-2 m/s.

Monday 7th August 2023: Dry, Sunny, 19°C, 5 Oktas, W wind 0-1 m/s.

Instrumentation and Calibration

The instrumentation used (including serial number in brackets) is tabulated below. The sensitivity of the meter was verified on site immediately before and after the survey using the field calibrator. The measured calibration levels were as follows:

Instrumentation	Survey Date	Start Cal	End Cal
Norsonic 140 Sound Level Meter (1404819)	03 August 2023	113.8 dB(A)	113.8 dB(A)
Norsonic 1251 Calibrator (33321)			
Norsonic 140 Sound Level Meter (1403137)	07 August 2023	113.7 dB(A)	113.7 dB(A)
Norsonic 1251 Calibrator (31993)			

The meters and calibrators are tested monthly against Norsonic Calibrators, type 1253 (serial number 22906) and type 1256 (serial number 125626100) both with UKAS approved laboratory certificates of calibration. In addition, the meters and calibrators undergo traceable calibration at an external laboratory every two years.

Survey Details

Attended sample measurements of 15-minute duration were taken at Locations 1, 2 and 3 along Crescent Road. The microphone was at a height of between 1.2 and 1.5 metres above local ground level, with a windshield used throughout.

Appendix D (Continued) – Survey Details (February 2026)

Date and Locations of Survey

Saturday 14th February 2026

Luton Railhead, Crescent Road.

Survey carried out by

Jayan Mistry

Weather Conditions

Dry, Sunny, 2-3°C, 0-1 Oktas, Clear skies, N gentle breeze, 0-1 m/s.

Instrumentation and Calibration

The instrumentation used (including serial number in brackets) is tabulated below. The sensitivity of the meter was verified on site immediately before and after the survey using the field calibrator. The measured calibration levels were as follows:

Instrumentation	Survey Date	Start Cal	End Cal
Norsonic 140 Sound Level Meter (1403138)	14 February 2026	114.0 dB(A)	113.9 dB(A)
Norsonic 1251 Calibrator (33991)			
Norsonic 140 Sound Level Meter (1402998)		113.8 dB(A)	113.7 dB(A)
Norsonic 1251 Calibrator (32466)			

The meters and calibrators are tested monthly against Norsonic Calibrators, type 1253 (serial number 22906) and type 1256 (serial number 125626100) both with UKAS approved laboratory certificates of calibration. In addition, the meters and calibrators undergo traceable calibration at an external laboratory every two years.

Survey Details

Attended sample measurements of 15-minute duration were taken at Locations 1, 2 and 3 along Crescent Road. The microphone was at a height of between 1.2 and 1.5 metres above local ground level, with a windshield used throughout.

Appendix E – Sample Survey Results

Thursday 3rd August 2023 – 10:45 to 12:55

Position	Start Time	Results dB (T = 15 minutes)				Comments / Observations
		L _{Aeq,T}	L _{Amax,f}	L _{A10,T}	L _{A90,T}	
3	10:47	67	81	72	49	Birdsong. Wind in trees. Frequent road traffic noise on Crescent Road. Frequent trains. Car horns. Aircraft movements. Occasional clanging from dwellings. Occasional metal clanging and drilling from 'Fensomes'. Pedestrians walking past meter.
2	11:09	67	80	71	55	Birdsong. Wind in trees. Frequent road traffic noise on Crescent Road. Frequent trains. Car horns. Occasional reversing beepers at industrial sites. Aircraft movements. Occasional clanging from dwellings. Mid-level music, occasional metal clanging and drilling from 'Fensomes'. Battery failure at 13:28 into measurement.
2	11:26	67	80	71	54	Birdsong. Wind in trees. Frequent road traffic noise on Crescent Road. Frequent trains. Car horns. Aircraft movements. Occasional clanging from dwellings. Jet wash, mid-level music and occasional metal clanging and drilling from 'Fensomes'. Pedestrians walking past meter. Occasional reversing beepers on industrial sites. Distant voices from dwellings.
1	11:43	69	85	74	53	Birdsong. Wind in trees. Frequent road traffic noise on Crescent Road. Frequent trains. Car horns. Aircraft movements. Occasional clanging from dwellings. Occasional metal clanging and drilling from 'Fensomes'. Pedestrians walking past meter. Occasional reverse beepers and metal clanging at industrial sites. Distant voices from dwellings.
3	12:01	69	86	73	54	Wind in trees. Frequent road traffic noise on Crescent Road. Frequent trains. Car horns. Aircraft movements. Voices from dwellings. Drilling from 'Fensomes'. Pedestrians walking past meter. Brief metal clanging and dull thuds to south.
2	12:18	67	86	71	57	Wind in trees. Frequent road traffic noise on Crescent Road. Frequent trains. Car horns. Aircraft movements. Occasional clanging from dwellings. Jet wash and voices from 'Fensomes'. Pedestrians walking past meter.
1	12:36	68	83	72	52	Wind in trees. Frequent road traffic noise on Crescent Road. Frequent trains. Car horns. Aircraft movements. Occasional vehicle movements on industrial site. Door slam from dwellings. Occasional metal clanging and drilling from 'Fensomes'. Pedestrians walking past meter. Distant car alarm.

Appendix E (continued)

Monday 7th August 2023 – 12:45 to 14:30

Position	Start Time	Results dB (T = 15 minutes)				Comments / Observations
		L _{Aeq,T}	L _{Amax,f}	L _{A10,T}	L _{A90,T}	
3	12:45	69	85	74	54	Frequent road traffic noise on Crescent Road. Frequent train passes. Wind in trees. Voices of pedestrians. Car horns. Occasional distant metal clanging at industrial premises.
2	13:02	67	81	71	53	Frequent road traffic noise on Crescent Road. Frequent train passes. Wind in trees. Voices of pedestrians. Car horns. Aircraft movements. Voices from dwellings. Car horns. Distant reversing beepers on industrial premises.
1	13:20	69	88	73	54	Frequent road traffic noise on Crescent Road. Frequent train passes. Wind in trees. Voices of pedestrians. Aircraft movements. Occasional HGV movements on site.
3	13:37	69	84	73	53	Frequent road traffic noise on Crescent Road. Frequent train passes. Wind in trees. Voices of pedestrians. Distant ambulance siren. Aircraft movements. Occasional drilling noise from 'Fensomes'. Distant reverse beepers to SW.
2	13:54	66	81	70	52	Frequent road traffic noise on Crescent Road. Frequent train passes. Wind in trees. Voices of pedestrians. Aircraft movements. Car horns. Occasional vehicle movements and reversing beepers on industrial sites. Brief buzzing of tyre inflator.
1	14:12	69	82	74	53	Frequent road traffic noise on Crescent Road. Frequent train passes. Wind in trees. Voices of pedestrians. Car horns. Occasional vehicle movements on industrial sites. Aircraft movements.

Appendix E (continued)

Saturday 14th February 2026 – 10:00 to 12:05

Position	Start Time	Results dB (T = 15 minutes)				Comments / Observations
		L _{Aeq,T}	L _{Amax,f}	L _{A10,T}	L _{A90,T}	
1	10:01	73 (71)	88 (85)	77 (75)	59 (60)	Frequent road traffic noise on Crescent Road. Birdsong. Aircraft movements. Train movements.
2	10:26	70 (70)	81 (81)	74 (74)	56 (56)	Frequent road traffic noise on Crescent Road. Birdsong. Light aircraft movement. Train movements. High frequency hissing noise and reverse beepers from lorry maneuvering on Moulton Rise. Voices from dwellings.
3	10:46	72 (71)	89 (86)	77 (75)	56 (56)	Frequent road traffic noise on Crescent Road. Birdsong. Train movements. Ambulance siren.
2	11:05	71 (70)	88 (86)	75 (74)	57 (57)	Frequent road traffic noise on Crescent Road. Birdsong. Aircraft movement overhead. Train movements.
3	11:24	72 (71)	86 (82)	76 (75)	58 (58)	Frequent road traffic noise on Crescent Road. Birdsong. Aircraft movements. Train movements.
1	11:47	72 (70)	91 (91)	76 (74)	57 (57)	Frequent road traffic noise on Crescent Road. Birdsong. Aircraft movements. Train movements.

Note: The data from the simultaneous measurements on the mast at 4 metres are presented in brackets.

Appendix F – SoundPLAN Noise Mapping Assumptions

Calculations were undertaken using SoundPLAN 9.1 (updated 19 February 2026).

The calculation methodology used was that in ISO 9613-2: 2024 (note that the previous assessment/model was completed before this version of the standard was published and was therefore conducted using ISO 9613-2: 1996).

Noise calculations were made on a 1 metre grid at a calculation height of 1.5 metres above local ground level to represent ground floor level. Additional calculations were made for the assessment locations at positions 2 and 3 (the flats at 100 Crescent Road and The Martindales) at heights of 4 metres, 6.5 metres and 9 metres (as well as at a height of 11.5 metres at 100 Crescent Road).

The calculations assume 100% hard ground across the calculation area.

Barrier attenuation is included in the calculations due to that afforded by the existing building to the north of the tipping/blending and crushing/screening area which has been included to a height of 6 metres above local ground level.

The crushing/screening operations will not take place at the same time as the train unloading.

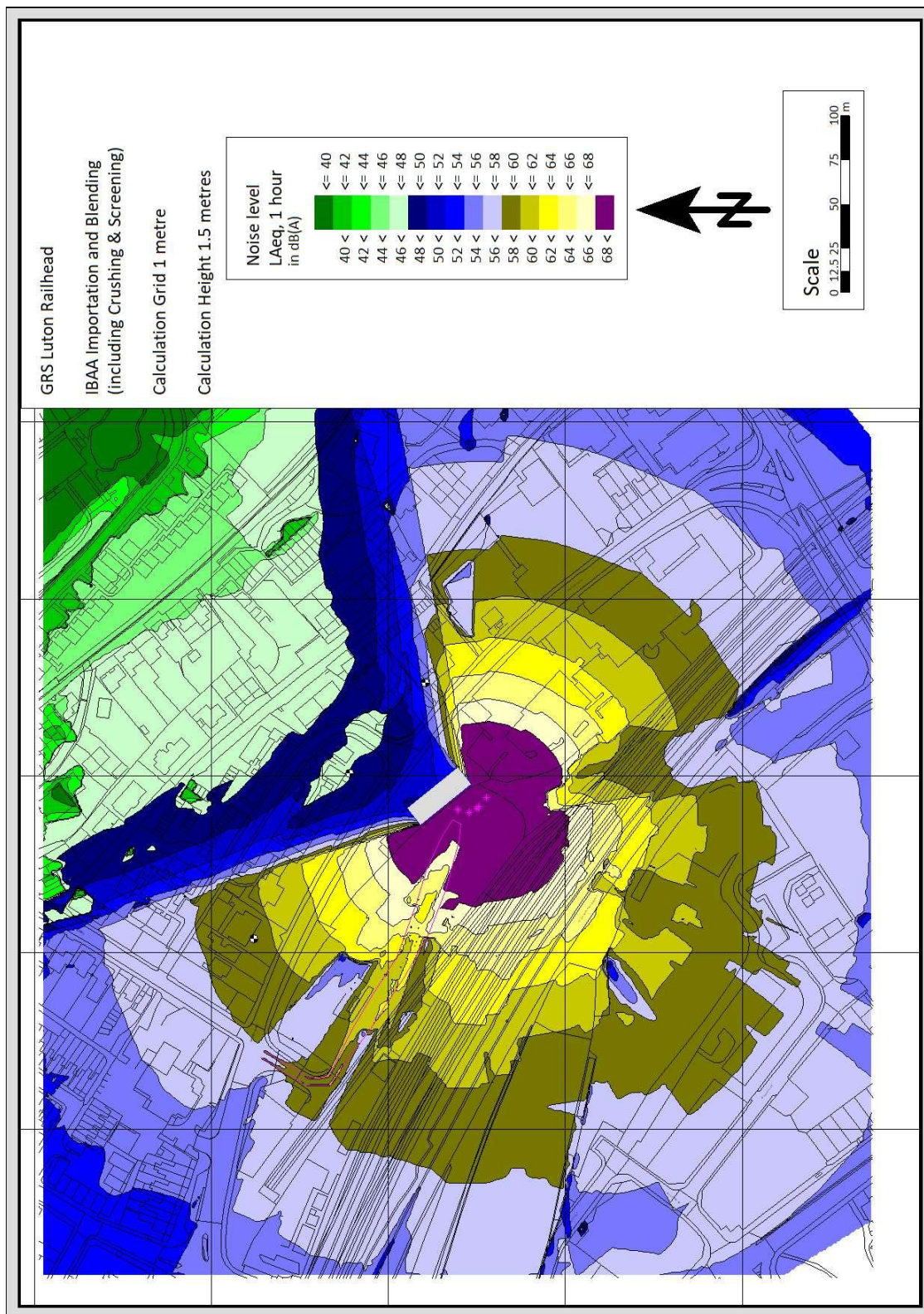
Sound Power Level data has been included based on details/data provided by the operator and data contained within the WBM plant noise database of previous measurements of similar plant items/activities to those to be on site.

A summary of the data input into the SoundPLAN calculations is presented in the following table.

Plant Item	Sound Power Level dB L _{WA}	Source Height (m)	On time	OS Grid Reference
Tipping/Blending Operations				
Volvo L150 Loading Shovel	105	2	67%	E: 509779 N: 221454
Tipping of Material in Bays	107	0.5	10%	E: 509781 N: 221461
Tipping/Blending of Product in Bays	107	0.5	10%	E: 509788 N: 221445
Additional HGVs within site	93 (15 kph)	2	4 per hour	N/A
Crushing/Screening Operations				
Crusher	108	3.5	100%	E: 509781 N: 221450
Screen	105	3.5	100%	E: 509783 N: 221449
Train Unloading Operations				
Fuchs MHL 360 Materials Handler at train	104	2	67%	E: 509727 N: 221458
Volvo L150 Loading Shovel at Train	105	2	33%	E: 509715 N: 221470
Volvo L150 Loading Shovel Movement	105 (10 kph)	2	2 per hour	N/A
HGVs within site (Existing)	93 (15 kph)	2	6 per hour (daytime)	N/A

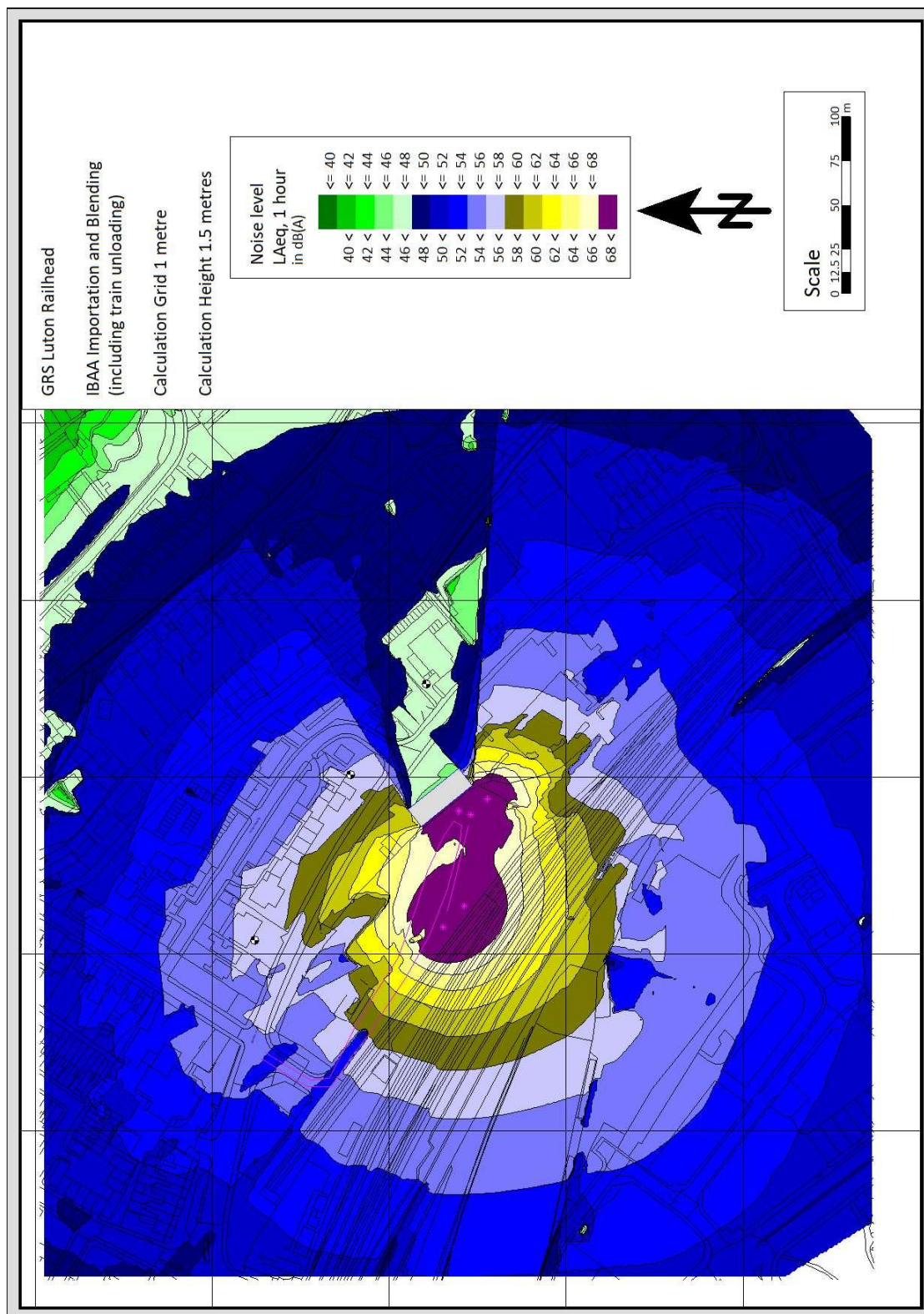
Appendix G – SoundPLAN Noise Plots

Site Operations including Crushing/Screening (07:00-16:00):



Appendix G (continued)

Site Operations including Train Unloading (07:00-16:00):



Appendix H – BS4142 : 2014 + A1: 2019 Assessment

(a) Statement of Qualifications

See details about The Author on page 2 of this report.

(b) Source Being Assessed

1) Description of the main sound sources and of the specific sound

The sources under investigation are the importation/crushing/screening/storage/export of construction, demolition and excavation waste as well as HGV movements around the site. There is ongoing train unloading on the site, but the crushing/screening operations will not take place at the same time as the train unloading. The main noise sources are listed in Appendix G and would give rise to the specific sound levels at the off-site receiver locations.

2) Hours of operation

The normal hours of operation are Mondays – Fridays 07.00–16.00; and 08:00 to 13:00 Saturdays.

3) Mode of operation (e.g. continuous, twice a day, only in hot weather)

The operations will only take place during the hours stipulated above.

4) Statement of operational rates of the main sound sources (e.g. maximum load setting, 50% max rate, low load setting)

The measurements and assessment have been based on a “*maximum load setting*” i.e. with the loading shovel operating simultaneously for the 67% of the assessment period of one hour.

The depositing of material in the bays being input as taking place for 10% of the time with the depositing/blending of the material also taking place for 10% of the time.

For the site noise modelling including a train delivery, the use of the loading shovel is evenly split (33% each) between the bays and the train with 2 movements per hour between the two locations.

The materials handler unloading the train is included as operating at full capacity for 67% of the assessment period of one hour.

The crusher and screen are included as operating for 100% of the assessment period.

HGV movements are input as being 4 one-way movements per hour associated with the proposed additional importation of material and 6 one-way movements per hour for the ongoing operations (i.e. 10 one-way HGV movements per hour for the whole site).

The calculated site noise levels are therefore likely to be an overestimate.

5) Description of premises in which the main sound sources are situated (if applicable).

The area in which the tipping/blending operations will be taking place are in the north-east corner of the site in the bays for depositing of imported material as shown on the site layout plan in Appendix B. The crushing/screening operations will be on the hard standing near that area.

Plans showing the site layout including the proposed operations are provided in Appendix B.

Appendix H (continued)

(c) Subjective Impressions

1) Dominance or audibility of the specific sound

The specific source as described in the application (i.e. the additional HGV movements and the crushing/screening operations) is not yet in place, but it is expected that the specific sound could be just audible at some of the nearest dwellings to the site during the normal daytime operating hours, but is not likely to be distinguishable from the existing commercial/industrial/transport noise sources in the area.

2) Main sources contributing to the residual sound.

The daytime noise climate in the area during the surveys undertaken by WBM in August 2023 was affected by road traffic noise, railway noise, other industrial/commercial activity, frequent air traffic and local activity. This was also the case during the survey undertaken on a Saturday morning in February 2026 when the residual and ambient sound levels were higher than in August 2023. This BS4142 assessment therefore uses the data from August 2023.

(d) The Existing Context and Sensitivity of Receptor

The noise climate during the daytime at the chosen assessment locations is characterised by road traffic noise, frequent rail traffic, breeze in trees, birdsong, other industrial/commercial activity, local activity and frequent air traffic. With regard to sensitivity, the receptor locations are residential properties and are therefore considered to be of “High” sensitivity.

(e) Measurement Locations and Justification

Measurement locations, their distance from the specific sound source, the topography of the intervening ground and any reflecting surface other than the ground, including a photograph, or a dimensioned sketch with a north marker. A justification for the choice of measurement locations should also be included.

The measurement locations used for the consideration of the baseline noise data were near to existing residential properties to the north-east of the site. The data were used to determine the acoustic environment and to measure residual (ambient) and background sound levels in the vicinity of the dwellings.

The receptor locations selected for this assessment are representative of the closest residential areas to the site.

(f) Sound Measuring Systems, Including Calibrator / Pistonphone

1) Type

See Appendix D

2) Manufacturer

See Appendix D

3) Serial number

See Appendix D

4) Details of the latest verification test including dates

See Appendix D

Appendix H (continued)

(g) Operational Test

- 1) *Reference level(s) of calibrator, multi-function calibrator or pistonphone;*
See Appendix D
- 2) *Meter reading(s) before and after measurements with calibrator, multi-function calibrator or pistonphone applied.*
See Appendix D

(h) Weather Conditions

- 1) *Wind speed(s) and direction(s)*
See Appendix D.
- 2) *Presence of conditions likely to lead to temperature inversion (e.g. calm nights with little cloud cover)* None.
- 3) *Precipitation* None
- 4) *Fog* None.
- 5) *Wet ground* None.
- 6) *Frozen ground or snow coverage* None.
- 7) *Temperature:* See Appendix D.
- 8) *Cloud Cover*

Date	Cloud Cover (estimated)
Thursday 03 August 2023	5 oktas
Monday 07 August 2023	5 oktas

(i) Date(s) and Time(s) of Measurements

See Appendix D

(j) Measurement Time Intervals

15 minutes

(k) Reference Time Interval(s)

The reference time interval is 1 hour for the daytime assessment between 07:00 and 23:00 hours.

Appendix H (continued)

(I) Specific Sound Level

1) *Measured sound level(s)*

The specific sound level for the additional HGV movements and other operations could not be measured but has been determined from calculation based on sound level data provided by the manufacturers and data contained within the WBM plant noise database.

2) *Residual sound level(s) and method of determination*

The representative residual sound levels (daytime) were determined from the attended noise surveys at Locations 1 (A), 2 (B) and 3 (C). The measurements were undertaken in August 2023.

The representative daytime residual noise levels were as follows:

A. 13-16 Crescent Road:	69 dB $L_{Aeq, 15 \text{ min, free field}}$
B. 100 Crescent Road (flats):	67 dB $L_{Aeq, 15 \text{ min, free field}}$
C. The Martindales, Crescent Road:	69 dB $L_{Aeq, 15 \text{ min, free field}}$

3) *Ambient sound level(s) and method of determination*

As the proposed development site is not yet operational, the ambient sound level is the same as the residual sound level. The representative residual and ambient sound levels were determined from the attended noise surveys at Locations 1 (A), 2 (B) and 3 (C). The measurements were undertaken in August 2023

The representative daytime ambient noise levels were as follows:

A. 13-16 Crescent Road:	69 dB $L_{Aeq, 15 \text{ min, free field}}$
B. 100 Crescent Road (flats):	67 dB $L_{Aeq, 15 \text{ min, free field}}$
C. The Martindales, Crescent Road:	69 dB $L_{Aeq, 15 \text{ min, free field}}$

For the daytime sample measurements at the attended survey locations the following "Comments" were made:

A, B & C. Crescent Road:	Distant and local road traffic, frequent rail traffic, birdsong, local activity including commercial/industrial noise, frequent aircraft.
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Appendix H (continued)

4) *Specific sound level(s) and method of determination*

The specific sound levels (including train unloading, but not crushing/screening) for the three assessment locations have been determined from calculation (see Sections 6 and 7 of this report) as follows (Note that the worst case calculated sound levels for 100 Crescent Road and The Martindales have been used, i.e. those at height):

Daytime (07:00 to 16:00):

57 dB $L_{Aeq,1 \text{ hour, free field}}$ for 13-16 Crescent Road;

56 dB $L_{Aeq,1 \text{ hour, free field}}$ for 100 Crescent Road (flats); and

52 dB $L_{Aeq,1 \text{ hour, free field}}$ for The Martindales, Crescent Road.

The specific sound levels (including crushing/screening, but not train unloading) for the three assessment locations have been determined from calculation (see Sections 6 and 7 of this report) as follows (Note that the worst case calculated sound levels for 100 Crescent Road and The Martindales have been used, i.e. those at height):

Daytime (07:00 to 16:00):

59 dB $L_{Aeq,1 \text{ hour, free field}}$ for 13-16 Crescent Road;

54 dB $L_{Aeq,1 \text{ hour, free field}}$ for 100 Crescent Road (flats); and

56 dB $L_{Aeq,1 \text{ hour, free field}}$ for The Martindales, Crescent Road.

5) *Justification of methods*

Calculation was used as the proposed additional HGV movements and the crushing/screening plant is not yet in place and therefore cannot be measured at the nearest dwellings.

6) *Details of any corrections applied*

See the Potential Impact of Uncertainty section (q) at the end of this appendix.

(m) **Background Sound Level(s)**

Background sound level(s) and measurement time interval(s) and, in the case of measurements taken at an equivalent location, the reasons for presuming it to be equivalent.

The 15-minute attended sample measurements undertaken in August 2023 at the residential survey locations gave a range of daytime background sound levels of:

A. 13-16 Crescent Road:	52 to 54 dB $L_{A90,15 \text{ min, free field}}$;
B. 100 Crescent Road (flats):	52 to 57 dB $L_{A90,15 \text{ min, free field}}$;
C. The Martindales, Crescent Road:	49 to 54 dB $L_{A90,15 \text{ min, free field}}$.

The 15-minute attended sample measurements undertaken in August 2023 at the residential survey locations gave representative daytime background sound levels of:

A. 13-16 Crescent Road:	53 dB $L_{A90,15 \text{ min, free field}}$;
B. 100 Crescent Road (flats):	54 dB $L_{A90,15 \text{ min, free field}}$;
C. The Martindales, Crescent Road:	53 dB $L_{A90,15 \text{ min, free field}}$.

Appendix H (continued)

(n) Rating Level(s)

1) *Specific sound level(s)*

The specific sound level(s) (including train unloading) stated earlier are:

Daytime (07:00 to 16:00):

57 dB $L_{Aeq,1 \text{ hour, free field}}$ for 13-16 Crescent Road;

56 dB $L_{Aeq,1 \text{ hour, free field}}$ for 100 Crescent Road (flats); and

52 dB $L_{Aeq,1 \text{ hour, free field}}$ for The Martindales, Crescent Road.

The specific sound level(s) (including crushing/screening) stated earlier are:

Daytime (07:00 to 16:00):

59 dB $L_{Aeq,1 \text{ hour, free field}}$ for 13-16 Crescent Road;

54 dB $L_{Aeq,1 \text{ hour, free field}}$ for 100 Crescent Road (flats); and

56 dB $L_{Aeq,1 \text{ hour, free field}}$ for The Martindales, Crescent Road.

2) *Any acoustic features of the specific sound*

The potential adjustments for the different features and assessment methods are summarised in the table in Section 3 of this report.

Considering the nature of the operations particularly in the context of the existing ambient and background sound environment in the area during the daytime and the low calculated noise levels at the receptors due to the proposed site operations, one would not expect any acoustic features of the noise from the tipping/blending and crushing/screening operations to be readily distinguishable at the dwellings and an acoustic feature correction would not be appropriate.

However, the train unloading operation that currently takes place on site and is included in the site noise calculations for when train unloading is taking place may well include impact noises that would warrant an inclusion of +3dB for impulsive character or intermittency for the train unloading operation alone.

In this assessment the Rating Level used for the site operations including train unloading is therefore 3dB above the Specific Sound Level. The Rating Level used for the everyday scenario that includes the tipping/blending and crushing/screening operations with no train unloading is the same as the Specific Sound Level for those operations.

3) *Rating level(s)*

The rating levels for daytime (including train unloading) are therefore 3 dB above the specific noise levels stated above resulting in the following rating levels determined in accordance with BS 4142:2014+A1:2019:

Daytime with Train Unloading (07:00-16:00):

60dB $L_{Ar, Tr}$ for 13-16 Crescent Road;

59 dB $L_{Ar, Tr}$ for 100 Crescent Road (flats); and

55 dB $L_{Ar, Tr}$ for The Martindales, Crescent Road.

Appendix H (continued)

The rating levels for normal daytime (including crushing/screening) are therefore 0 dB above the specific noise levels stated above resulting in the following rating levels determined in accordance with BS 4142:2014+A1:2019:

Daytime with Crushing/Screening (07:00-16:00):

59 dB $L_{Ar, Tr}$ for 13-16 Crescent Road;

54 dB $L_{Ar, Tr}$ for 100 Crescent Road (flats); and

56 dB $L_{Ar, Tr}$ for The Martindales, Crescent Road.

(o) Excess of the level(s) over background sound level(s)

Excess of the rating level(s) over the measured background sound level(s) and the initial estimate of the impacts

The worst case rating levels, the background sound levels and the excess of the rating levels over the representative background sound levels for the operating hours of the site are presented in the following table:

Receiver Location Daytime (07:00-16:00)	Rating Level dB $L_{Ar, Tr}$		Representative Background Sound Level dB $L_{A90, 15 \text{ min}}$	Excess of Rating Level over Background Sound Level	
	With Train Unloading	With Crushing/ Screening		With Train Unloading	With Crushing/ Screening
A. 13-16 Crescent Road	60	59	53	+7	+6
B. 100 Crescent Road (flats)	59	54	54	+5	0
C. The Martindales, Crescent Road	55	56	53	+2	+3

When the rating level is above the background sound level, a difference of around +5 dB is likely to indicate an adverse impact and a difference of around +10 dB or more is likely to indicate a significant adverse impact, depending on the context.

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.

Appendix H (continued)

(p) Conclusions of the assessment after taking context into account

The calculations including the tipping/blending operations, HGV movement and the occasional train unloading operations demonstrate a daytime rating level of 50 to 60 dB $L_{Ar, Tr}$ at the nearest dwellings to the site which is 3 dB(A) below to 7 dB(A) above the representative weekday daytime background sound levels of 53 to 54 dB $L_{A90, T}$ at the dwellings. The representative weekday daytime residual sound levels at the dwellings were 67 to 69 dB $L_{Aeq, T}$. The train unloading operation already occurs in the site and only takes place for a few hours on one or two occasions a week. It is therefore not representative of normal everyday operations on the site.

The calculations relating to normal everyday operations on the site (i.e. including the tipping/blending operations, HGV movements and the permitted crushing/screening operations) demonstrate a daytime rating level of 48 to 59 dB $L_{Ar, Tr}$ at the nearest dwellings to the site which is 6 dB(A) below to 6 dB(A) above the representative weekday daytime background sound levels of 53 to 54 dB $L_{A90, T}$ at the dwellings. The representative weekday daytime residual sound levels at the dwellings were 67 to 69 dB $L_{Aeq, T}$.

The rating levels due to normal day to day operations on site including the tipping/blending operations and the already permitted crushing and screening operations are no more than 6 dB(A) above the representative background sound level at 13-15 Crescent Road (indicating an adverse impact, but not a significant adverse impact before the consideration of context) and are no more than 3 dB(A) above the representative background sound levels at the other two locations (i.e. below the level indicating an adverse impact).

In context, the operations will be taking place on an existing site in an area that has a significant amount of existing industrial activity and the noise from the normal daytime operations on site is unlikely to be readily distinctive from the existing industrial/commercial noise in the area.

The daytime soundscape for the nearest dwellings to the site will continue to be affected by distant and local road traffic noise, birdsong, other industrial/commercial activity, local activity and frequent rail and air traffic with some site activity likely to be audible at times, but the normal day to day tipping/blending and crushing/screening operations are likely to be generally inaudible at the nearest dwellings to the site.

It is expected that the existing and permitted site operations including the tipping and blending operation, additional HGV movements and crushing and screening operations could be just audible at times, but is unlikely to be readily identifiable/distinguishable at this location most of the time during the daytime.

When train unloading is taking place (and the crushing/screening operations have ceased), the rating levels are no more than 7 dB(A) above the representative background sound level at 13-15 Crescent Road and no more than 5 dB(A) above the representative background sound level at the flats at 100 Crescent Road (indicating an adverse impact, but not a significant adverse impact before the consideration of context). The rating level is no more than 2 dB(A) above the representative background sound levels at the other location at The Martindales (i.e. below the level indicating an adverse impact).

In context, the train unloading operation is already taking place on site and as stated above, the operations will be taking place on an existing site in an area that has a significant amount of existing industrial activity and the noise from the normal daytime operations on site is unlikely to be readily distinctive from the existing industrial/commercial noise in the area.

Appendix H (continued)

It is expected that the existing and permitted site operations including the tipping and blending operation, additional HGV movements and train unloading operations could be just audible at times at one or two of the assessment locations, but is unlikely to be readily identifiable/distinguishable at this location most of the time during the daytime.

The conclusion is that the assessment indicates no adverse impact at the nearest dwellings to the site during the normal daytime operating hours.

(q) The potential impact of uncertainty

Section 10 of BS 4142:2014+A1:2019 states: *“Consider the level of uncertainty in the data and associated calculations. Where the level of uncertainty could affect the conclusion, take reasonably practicable steps to reduce the level of uncertainty. Report the level and potential effects of uncertainty.”*

One of the largest levels of uncertainty is whether the proposed activity gives rise to the calculated noise level at the receiver locations considered.

The measurements and assessment have been based on a realistic worst case scenarios during the proposed daytime operations.

The calculations and assessment have been based on a *“maximum load setting”* i.e. with the loading shovel and the materials handler (the latter only included in the model with train unloading) each operating for 67% of the assessment period and is therefore likely to be an overestimate.

The tipping of material has been included as taking place for 10% of the assessment period with the blending by depositing of the material taking place for a further 10% of the time, but the actual duration of the noise from the tipping of material from 4 HGVs in one hour (is likely to be an overestimate).

The crushing and screening operations are included in the model (that does not include train unloading) with both the crusher and screen operating for 100% of the assessment period.

For the site noise calculations including train unloading, the use of the loading shovel is evenly split (33% each) between the bays and the train.

The modelled scenario is therefore very much a worst case for when all plant is operating.

The model allows for a worst case scenario to provide a more robust assessment, but such as scenario is unlikely to occur as modelled in practice.

HGV movements have been included as being 10 per hour (daytime) to account for the normal expected rate of HGVs entering and leaving the working area (6 per hour) with an additional 4 HGVs entering/leaving the site as part of the proposals. The Sound Power Level used for HGV movements within the site is based on measured levels of HGV movements within a site.

As stated above, for the majority of the time, the scenario as modelled will not occur because there will be some variability in the site operations and all mobile plant and machinery may not operate simultaneously for the proportion of the time used in the model.

The potential for the inclusion of an acoustic feature correction for the nearest dwellings to the site when considering normal day to day site operations was considered.

Appendix H (continued)

As some noise from the industrial estate was audible during the baseline noise surveys and the processes are either continuous or well below the existing ambient/residual sound levels, it would not be related to tonality or impulsivity and would mostly appropriately be considered as intermittency or 'other acoustic features', but based on the likely inaudibility of those operations at the dwellings, such an acoustic feature correction should not be applied.

Whether the acoustic feature correction used in the assessment for the train unloading operation is warranted is open to debate as the train unloading operations (to which the correction for intermittency is applied) may not be readily audible at the dwellings, particularly at 13-16 Crescent Road.

Appendix H (continued)

Whilst the difference is above the level indicating an adverse impact, this is dependent on the context which must consider that the train unloading operation is taking place in an industrial area where this type of noise may be more acceptable as well as noting that the train unloading is an existing permitted activity which one would expect that the residents are already used in terms of the character of the noise.

The proposed new operations do not change the character of the area or introduce noise that is a new or novel character.

As the train unloading operation does not occur every day only occurring for a few hours a week and for the vast majority of the time, one could consider the proposed tipping/blending and crushing/screening operations in isolation.

If one was to consider the proposed new operation in isolation (as would be the case for the majority of the time), even the addition of a +3dB acoustic feature correction (which should not be warranted for the proposed operation unless for intermittency) would still result in the indication of the assessment being no adverse impact at the nearest dwellings to the site.

In the context of the existing sound environment and industrial/commercial noise in the area, it is considered that there would be no adverse impact at the closest dwellings to the site