



Noise Assessment

**Proposed Aggregate
Recycling Operations,
Bayston Hill Quarry,
Shropshire**



TARMAC TRADING LIMITED

**R25.12181/1/AP
Date of Report: 07 January 2025**

REPORT DETAILS

Client	Tarmac Trading Limited
Report Title	Noise Assessment – Proposed Aggregate Recycling Operations
Site Address	Bayston Hill Quarry, Sharpstones Lane, Bayston Hill, Shrewsbury, SY3 0AW
Report Ref.	R25.12181/1/AP
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QUALITY ASSURANCE

Issue No.	Issue Date	Author	Technical Review
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COMPETENCY AND EXPERTISE

The Company

Vibroch Ltd is an established independent environmental consultancy who has been providing noise, dust and vibration consultancy services to industry since 1991. Vibrock Ltd is a member of the Association of Noise Consultants (ANC) and its Consultants are Associate or Corporate Members of the Institute of Acoustics (IOA).

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NON-TECHNICAL SUMMARY

1. Tarmac Trading Limited (Tarmac) are seeking an Environmental Permit for a new bespoke waste operation comprising an inert and excavation waste transfer station with treatment to be operated at Bayston Hill Quarry near Shrewsbury in Shropshire. Vibrock Ltd are commissioned to undertake a noise impact assessment of the proposals.
2. As part of the assessment, background noise levels have been measured at locations chosen to represent noise-sensitive premises in the vicinity of the application site. This information has been used to characterise the existing acoustic environment.
3. Predicted noise levels from the site have been calculated at nearby noise-sensitive premises and the proposals has been assessed with reference to BS 4142 '*Methods for rating and assessing industrial and commercial sound*' in line with Environment Agency stipulations.
4. The outcome of the assessment demonstrates that the proposed permit operations are not likely to result in adverse impacts in accordance with BS 4142. It is therefore considered that there will be no significant or unacceptable adverse impacts at noise-sensitive premises in the vicinity of the site.

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1.0 INTRODUCTION

1.1 Overview

- 1.1.1 Vibrock Limited are commissioned to undertake a noise impact assessment in relation to an Environmental Permit application (ref. EPR/QP3427SE) for a new bespoke waste operation comprising an inert and excavation waste transfer station with treatment to be operated at Bayston Hill Quarry near Shrewsbury in Shropshire.
- 1.1.2 An assessment of the potential noise impact of the proposals at identified noise-sensitive premises in the vicinity of the site has been made with reference to the guidance presented within BS 4142 as required by the Environment Agency.
- 1.1.3 Explanation of the terminology used within this report is provided in Appendix 1.

1.2 Proposals

- 1.2.1 The site will comprise a facility for the receipt, storage and processing of road planings and returned asphalt. A site location plan is provided in Figure 1 which shows the permit application site and the wider quarry.
- 1.2.2 Waste imported to the site would be subjected to a limited series of treatment activities involving crushing and screening. The incoming waste will be stored in stockpiles prior to processing.
- 1.2.3 Crushing will be undertaken at the site on a campaign basis (likely to be 2 – 3 times per year) when a sufficient quantity of material is present. Crushed materials will either be deposited in the processed material storage area or will be transferred to the screening plant for size separation.
- 1.2.4 The proposed operating hours of these activities are Monday to Friday 0700 – 1700 and Saturday 0700 – 1300. The output material produced from the processed waste will be exported from the permitted site for recovery at a suitably authorised facility such as a roadstone coating plant with RAP facilities.

2.0 GUIDANCE

2.1 Environment Agency Guidance: Noise and vibration management: environmental permits

2.1.1 Operators (or permit applicants) must consider the potential noise impact of their site. They may need to carry out noise impact assessments:

- at the permit application stage
- when applying to vary a permit
- to comply with specific permit conditions

2.1.2 Where noise is possibly causing an impact, the operator must carry out an assessment to determine:

- the level of impact
- how much work needs to be done to prevent or minimise noise pollution

2.1.3 For assessment purposes, '*BS 4142: Methods for rating and assessing industrial and commercial sound*' must be used to quantify the level of environmental noise impact from industrial processes.

2.1.4 Noise impact assessments should be carried out to an appropriate standard and by competent personnel, for example, holders of either an Institute of Acoustics:

- Diploma in Acoustics and Noise Control
- Certificate of Competence in Environmental Noise Measurement, with relevant experience

2.1.5 Operators must prevent significant pollution and also comply with the requirements to use 'appropriate measures' (Waste Framework Directive 2018/851) or 'best available techniques' (BAT) to prevent or minimise noise pollution.

2.1.6 For any particular case, the environment agencies have to decide whether or not you are causing (or are likely to cause) unacceptable noise pollution, even if appropriate measures are used. It is the responsibility of the operator to avoid significant pollution and to demonstrate the use of BAT or appropriate measures to prevent, or where that is not practicable, to minimise noise impact.

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

2.2.1 This British Standard was amended in June 2019. BS 4142:2014+A1:2019 supersedes BS 4142:2014, which is withdrawn.

2.2.2 This British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature, which includes:

- 1) sound from industrial and manufacturing processes;
- 2) sound from fixed installations which comprise mechanical and electrical plant and equipment;
- 3) sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
- 4) sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

2.2.3 The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

2.2.4 This standard is intended to be used for the purposes of:

- a) investigating complaints;
- b) assessing sound from existing, proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and
- c) assessing sound at proposed new dwellings or premises used for residential purposes.

2.2.5 This standard is not intended to be applied for the following purposes:

- The determination of noise amounting to a nuisance;
- The assessment of indoor sound levels;
- The assessment of low-frequency noise;
- The assessment of sound from the passage of vehicles on public roads and railway systems;
- The assessment of sound from recreational activities, including all forms of motorsport;

- music and other entertainment;
- shooting grounds;
- construction and demolition;
- domestic animals;
- people;
- public address systems for speech;
- The assessment of sound from other sources falling within the scopes of other standards or guidance.

2.2.6 The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. When making assessments and arriving at decisions it is essential to place the sound in context.

2.2.7 The sound level from a source when determined as a discrete entity, distinct and free of other influences contributing to the ambient sound, is referred to as the 'specific sound level'. The specific sound level is evaluated, at an identified assessment location, over the appropriate reference time interval which is as follows:

- 1 hour during the daytime (07:00 – 23:00); and
- 15 minutes during the night-time (23:00 – 07:00).

NB. The shorter reference time interval at night means that short duration sounds with an on time of less than 1 hour can lead to a greater specific sound level when determined over the reference time interval during the night than when determined during the day.

2.2.8 The specific noise may be subject to an acoustic character correction if the noise level at the assessment location is subjectively considered to exhibit certain acoustic features that could increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. Where such features are present at the assessment location, add a character correction to the specific sound level to obtain the rating level.

2.2.9 This standard requires the assessor to consider the subjective prominence of the character of the specific sound at the noise-sensitive locations and the extent to which such acoustically distinguishing characteristics will attract attention. Such features are taken into account by applying the following corrections to the specific sound level to obtain the rating level as summarised in Table 1.

Table 1: Summary of BS 4142 Acoustic Feature Corrections

Subjective Prominence	Tonality	Impulsivity	Intermittency	Other Sound Characteristic (neither tonal, nor impulsive, nor intermittent)
Just Perceptible	+2 dB	+3 dB	-	-
Clearly Perceptible	+4 dB	+6 dB	-	-
Highly Perceptible	+6 dB	+9 dB	-	-
Readily Distinctive Against Residual Environment	-	-	3 dB	3 dB

2.2.10 If characteristics likely to affect perception and response are present in the specific sound, within the same reference period, then the applicable corrections ought normally to be added arithmetically. However, if any single feature is dominant to the exclusion of the others then it might be appropriate to apply a reduced or even zero correction for the minor characteristics. The rating level is equal to the specific sound level if there are no such features present or expected to be present.

2.2.11 An initial estimate of the impact of the specific sound is obtained by subtracting the measured background sound level from the rating level, and consider the following.

- a) Typically, the greater this difference, the greater the magnitude of the impact.
- b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- c) A difference of around +5 dB or more is likely to be an indication of an adverse impact, depending on the context.
- d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

2.2.12 Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the following.

- 1) The absolute level of sound.
- 2) The character and level of the residual sound compared to the character and level of the specific sound.
- 3) The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions.
 - i) façade insulation treatment;
 - ii) ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and
 - iii) acoustic screening.

2.2.13 Response to sound can be subjective and is affected by many factors both acoustic and non-acoustic. The significance of its impact, for example, can depend on such factors as the margin by which a sound exceeds the background sound level, its absolute level, time of day and change in the acoustic environment, as well as local attitudes to the source of the sound and the character of the neighbourhood. This edition of the standard recognises the importance of the context in which a sound occurs.

2.3 Other Relevant Guidance

BS 8233:2014 Guidance on sound insulation and noise reduction for buildings

2.3.1 This Standard provides guidance for the control of noise in and around buildings and is applicable to the design of new buildings, or refurbished buildings undergoing a change of use, but does not provide guidance on assessing the effects of changes in the external noise levels to occupants of an existing building.

2.3.2 For dwellings, the main considerations are:

- a) for bedrooms, the acoustic effect on sleep; and
- b) for other rooms, the acoustic effect on resting, listening and communicating.

2.3.3 It is desirable that the internal ambient noise level does not exceed the guideline values detailed in Table 2 below.

Table 2: Indoor ambient noise levels for dwellings (From Table 4 of BS 8233)

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

2.3.4 For traditional external areas that are used for amenity space, such as gardens, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$.

World Health Organisation (WHO)

2.3.5 The World Health Organisation ‘Guidelines for Community Noise’ 1999 aims to provide environmental health authorities and professionals with guidance on the adverse health effects of community noise on people.

2.3.6 This document presents a summary of research and opinions on the impacts of noise and recommends guideline values for avoidance of particular effects e.g. annoyance and sleep disturbance. It is the primary reference point for other guidance value based documents, such as BS 8233.

2.3.7 The following guideline values have been derived according to specific environments. The values relevant to residential development are shown in Table 3 below.

Table 3: Guideline values for community noise in specific environments. (From Table 4.1 of WHO Guidelines)

Specific Environment	Critical Health Effect(s)	L_{Aeq} (dB)	Time base (hrs)	$L_{Amax,f}$ (dB)
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate annoyance, daytime and evening	50	16	-
Dwelling, indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	16	
Inside bedrooms	Sleep disturbance, night-time	30	8	45

3.0 BACKGROUND NOISE SURVEY

3.1 Survey Methodology

3.1.1 Sound levels were measured over a 3 day period from the 18 – 20th December 2024 at locations selected to represent the closest noise-sensitive premises to the application site. A location plan is provided in Figure 2.

3.1.2 Measurements were undertaken with reference to the guidance presented within BS 7445 and BS 4142.

3.2 Instrumentation

3.2.1 Monitoring was undertaken using the equipment detailed in Table 4.

Table 4: Noise Monitoring Equipment

Manufacturer	Type	Serial No.	Date of last calibration
Cirrus	Class 1 Integrating Sound Level Meter CR:1710	G304465	01/06/23
Cirrus	Class 1 Integrating Sound Level Meter CR:1710	G305950	11/09/24
Cirrus	Class 1 Integrating Sound Level Meter CR:1710	G305926	11/09/24
Cirrus	Acoustic Calibrator CR:515	74765	12/06/24

3.2.2 During all measurements the microphones were protected with outdoor windshields and mounted on a tripod. The monitoring positions were 'free field' (no vertical reflective surfaces within 3.5 metres of the microphone) and at a height of between 1.2 – 1.5 metres above ground level.

3.2.3 The following set-up parameters were used:

- Time Weighting: Fast
- Frequency Weighting: A
- Averaging-Integrating Period: 15 min
- Data Logging: Repeat (contiguous)
- Resolution: 1 second

3.2.4 With the equipment set up in the configuration used during measurement, field calibration checks were performed on site immediately before and after the survey period using a sound calibrator. No significant drift (i.e. no greater than ± 0.5 dB) in the calibration value of 93.7 dB was observed between the initial and final checks. Further details are provided in Table 5.

Table 5: Field Calibration Check Details

Location	Serial No.	Calibration Level	Offset
L1	G305926	93.7	-0.29
L2	G304465	93.7	-0.47
L3	G305950	93.7	-0.42

3.3 Observations

- 3.3.1 The acoustic environment in the vicinity of the site predominantly comprises noise from road and rail traffic along with noise from the existing quarry site (when operational). The dominant sound sources in the local area is the A5. During the survey there were no extraction, processing and haulage operations taking place at the site
- 3.3.2 Weather conditions during the survey were measured using a portable Davis Vantage Vue Precision Weather Station located near to the main visitors car park at Bayston Hill Quarry. The data obtained is shown in Figure 3. Conditions were mostly dry and settled with average wind speeds of approximately 2 ms^{-1} and predominantly from the west. Relative humidity varied between 78 – 91% and temperatures ranged from 4 – 12°C.
- 3.3.3 The weather during the survey was considered suitable for environmental noise monitoring and it is not considered necessary to exclude any of the measured background noise level data due to potential interference from the prevailing meteorological conditions. Whilst there was a period of rainfall on the 18th December, this occurred outside of the period of interest for this assessment.

3.4 Results

- 3.4.1 The measurement data collected during the survey is presented in Figures 4.1 – 4.3 and summarised in Table 6 below for the time periods relevant to this assessment. This is daytime 0700 – 1700 during which it is proposed that aggregate recycling operations would take place.

Table 6: Summary of Measured Sound Levels

Ref	Location	Time Period (T)	Ambient Sound Level Average $L_{Aeq,T}$ dB	Background Sound Level Average $L_{A90,T}$ dB
L1	Sharpstones Lane / Berries Lane	18/12/24 0700 – 1700	56.7	48.5
		19/12/24 0700 – 1700	60.0	53.5
		20/12/24 0700 – 1700	56.4	48.9
		Average	58	50

Ref	Location	Time Period (T)	Ambient Sound Level Average $L_{Aeq,T}$ dB	Background Sound Level Average $L_{A90,T}$ dB
L2	Bomere Farm / Betton Alkmere	18/12/24 0700 – 1700	46.2	39.9
		19/12/24 0700 – 1700	51.6	46.7
		20/12/24 0700 – 1700	48.0	43.9
		Average	49	44
L3	Dymock Drive / The Hawthorns	18/12/24 0700 – 1700	49.1	46.3
		19/12/24 0700 – 1700	60.5	55.8
		20/12/24 0700 – 1700	55.2	53.2
		Average	57	52

3.4.2 Statistical analysis in line with the example approach presented in Section 8 (Fig. 4) of BS 4142 was performed to provide further information on the background sound level at each assessment location. This analysis is presented in Figure 5.

3.4.3 After reviewing the noise data collected during the survey, the background sound levels, for the purposes of this assessment, are considered to be as follows.

Table 7: Representative Background Sound Levels

Noise-Sensitive Premises	Representative Background Sound Level $L_{A90,T}$ (free-field) dB
Sharpstones Lane	50
Berries Lane	50
Bomere Farm	44
Betton Alkmere	44
Dymock Drive	52
The Hawthorns	52

4.0 POTENTIAL NOISE EMISSIONS

4.1 Introduction

4.1.1 The level of noise in the local environs that arises from a site will depend on a number of factors. The more significant of which are:

- (a) the sound level output of the plant or equipment used on site;
- (b) the periods of operation of the plant on site;
- (c) the distance between the source noise and the receiving position;
- (d) the presence of screening due to barriers;
- (e) the reflection of sound;
- (f) soft ground attenuation.

4.1.2 Noise levels from site operations have been calculated at the identified assessment locations based on the following methodologies and assumptions.

4.2 Calculation Methodology

4.2.1 In order to assist in the calculation of predicted noise levels from the site, CadnaA noise modelling software has been used. The noise prediction software has been configured to undertake the noise calculations in accordance with ISO 9613 'Acoustics - Attenuation of sound during propagation outdoors'. Noise model configuration details are outlined in Table 8 below.

Table 8: Noise Model Configuration Details

Parameter	Input
Software	DataKustik GmbH CadnaA v.2025 (build: 209.5501)
Calculation Standards/Guidelines	ISO 9613-2:2024
Model of Terrain	Triangulation
Max. Order of Reflection	2
Ground Attenuation	Spectral
Frequency Band Calculation	Octave Bands (63Hz – 8kHz)
Temperature / Relative Humidity	10°C / 70%
Topographic data	3D contour data – 1.0m DTM EA LiDAR
Ground Absorption	0.9 (Res 1.0m)
Receiver Heights	1.5m above ground level

- 4.2.2 Within the model, HGVs and mobile plant movements have been modelled as line sources. Point sources have been used to represent stationary or quasi-stationary activities such as fixed plant and activities undertaken in a defined area such as the unloading/loading of materials.
- 4.2.3 For all noise prediction calculations, the ground absorption coefficient has been estimated according to the combination of soft and hard ground conditions present between the source and receiver position. 'Soft' ground is taken to refer to surfaces which are absorbent to sound, e.g. grassland, cultivated land or plantations as opposed to 'hard' ground surfaces which reflect sound such as paving, asphalt and surface water.
- 4.2.4 The modelling software predictions assume conditions favouring sound propagation from source to receiver. The ISO 9613 calculation methodology assumes wind direction with $\pm 45^\circ$ of the direction connecting the centre of the dominant sound sources and the centre of the specified receptor region, together with wind speeds of between $1 - 5 \text{ ms}^{-1}$. It should therefore be noted that in practice the eventual longer-term measured levels are invariably lower than predicted levels due to the temporal variation in meteorological conditions.
- 4.2.5 The predictions made by the modelling software are for 'free-field' sound levels to allow for an appropriate comparison with the free-field background sound levels measured during the survey.
- 4.2.6 The convention applied within BS 4142, and this report, is that all measured or calculated numbers are rounded to the nearest whole number with 0.5 being rounded up.

4.3 Noise Source Details

- 4.3.1 Information regarding potential operations at the site has been based on discussions with the applicant and proposed development plans.
- 4.3.2 A list of noise generating plant and activities, from which the noise predictions have been made, is presented in Appendix 3 along with a number of assumptions regarding typical operating times and vehicle movements.
- 4.3.3 The sound levels used within this assessment are based on recent observations and sound pressure level measurements at the existing site. Where necessary these have been supplemented by noise emission data from similar mineral and waste sites across the UK.

4.4 Calculation Results

4.4.1 Table 9 summarise the results of the noise level predictions at the identified assessment locations.

Table 9: Calculation Results

Assessment Location	Calculated Specific Sound Level <i>L</i> _{Aeq,Tr} (free-field) dB	
	Proposed Waste Recycling Operations	Quarry Operations
Sharpstones Lane	33.6	50.0
Berries Lane	27.3	40.6
Bomere Farm	27.5	41.1
Betton Alkmere	34.1	40.4
Dymock Drive	33.4	38.1
The Hawthorns	31.7	38.8

5.0 ASSESSMENT

5.1 This assessment has been undertaken with reference to the guidance provided within BS 4142.

5.2 This standard requires the following levels to be established:

- The Background Sound Level
- The Specific Sound Level
- The Rating Level

Background Sound Level

5.3 BS 4142 requires the quantification of typical background sound levels at locations representing the noise-sensitive receptors. The results of the survey are presented in Section 3 of this report.

Specific Sound Level

5.4 The specific sound level has been determined by calculation following the guidance within Section 7 of BS 4142. The method of calculation is explained in Section 4 of this report.

Rating Level

5.5 In determining the Rating Level it is recognised that certain acoustic features can increase the significance of noise impact over that expected from a basic comparison between the specific sound level and the background sound level.

5.6 Noise emissions associated with operations at the site are not considered to contain any significant tonal or intermittent features that would be readily distinguishable, however, it is considered that the sound from activities associated with the Permit application such as waste processing and the unloading of waste materials, could on occasions contain impulsive features that may be audible at receptors to the south of the site which are situated in a quieter acoustic environment relatively distant from the A5.

5.7 In accordance with BS 4142 it is considered appropriate to apply a correction of +3 dB to the calculated specific sound levels to account for the presence of these characteristics which could at times be 'just' perceptible at Betton Alkmere and Bomere Farm.

Initial Estimate of Impact

5.8 Table 10 presents an ‘initial estimate’ of the potential impact of the proposed waste recycling operations in accordance with BS 4142.

Table 10: Initial Estimate of Impact (BS 4142) – Proposed Waste Operations

Assessment Location	Background Sound Level $L_{A90,T}$ dB	Specific Sound Level $L_{Aeq,Tr}$ dB	Acoustic Feature Correction dB	Rating Level $L_{Ar,Tr}$ dB	Initial Estimate Excess of rating over background sound level (dB)
Sharpstones Lane	50	34	0	34	-16
Berries Lane	50	27	0	27	-23
Bomere Farm	44	28	+3	31	-13
Betton Alkmere	44	34	+3	37	-7
Dymock Drive	52	33	0	33	-19
The Hawthorns	52	32	0	32	-20

5.9 The above assessment is supplemented by Table 11 which consider the other non-waste related site activities and the potential cumulative noise impacts of these existing operations that will continue during the proposed waste operations the subject of the Environmental Permit application.

Table 11: Initial Estimate of Impact (BS 4142) – Quarry Operations + Proposed Waste Operations

Assessment Location	Background Sound Level $L_{A90,T}$ dB	Specific Sound Level $L_{Aeq,Tr}$ dB	Acoustic Feature Correction dB	Rating Level $L_{Ar,Tr}$ dB	Initial Estimate Excess of rating over background sound level (dB)
Sharpstones Lane	50	50	0	50	0
Berries Lane	50	41	0	41	-9
Bomere Farm	44	41	+3	44	0
Betton Alkmere	44	41	+3	44	0
Dymock Drive	52	39	0	39	-13
The Hawthorns	52	40	0	40	-12

- 5.10 Typically, the greater the difference between the rating level and the background sound level, the greater the magnitude of the impact.
- 5.11 BS 4142 states that where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact. A difference of around +5 dB is likely to be an indication of an adverse impact. A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- 5.12 The initial estimates presented in Tables 10 and 11 provide an indication that the proposed waste recycling activities are likely to have a low impact in accordance with BS 4142.
- 5.13 It should be noted that the initial estimates are not to be considered in isolation and due regard to the following sections on context and uncertainty should also be made.

Context

- 5.14 In addition to the initial estimate of noise impact which has determined the excess of rating level over background sound level, the following should also be considered as part of the impact assessment process:
- *Operational Period* – The noise sources under assessment, i.e. the operations associated with waste recycling would operate during daytime hours only when there is a lower likelihood of adverse impact compared to operations which take place during less sensitive periods such as the evening and night-time.
 - *Character of the Sound* – As part of the assessment the potential character of the sound has been assessed and an acoustic feature correction applied accordingly in accordance with BS 4142. The existing acoustic environment around the site is influenced predominantly by road and rail traffic but also comprises a range of other industrial and commercial sound sources. Overall, the character of the sound from the proposed waste operations is not considered incongruous with the residual acoustic environment and it is not expected that the waste activities will exacerbate the prominence of any acoustic features or introduce any new acoustic features at the site.
 - *Absolute Level of Sound* – In some circumstances, absolute noise levels can be as, or more, relevant than the margin by which the rating level exceeds the background. With reference to the guide values recommended by BS 8233 and WHO, worst-case external noise levels from the site are expected to be in the region of 34 dB and noise emissions from the site are therefore considered likely to have a low impact on residents using private external amenity areas during the daytime.

- *Comparison to the Residual Sound* – Noise emissions from the site are expected to be lower than the residual sound levels at the nearest noise-sensitive premises to the site which are in the region of 45 – 60 dB.
- *Setting* – The activities associated with the Permit application would sit as part of the wider Bayston Hill Quarry which is a well established mineral site with a range of ancillary operations.

Uncertainty

5.15 Uncertainty can occur throughout all aspects of the noise measurement and assessment process, the approach undertaken at all stages has been adopted with the aim of reducing uncertainty via the implementation of good practice. During this process reference has been made to BS 4142 Annex B '*Consideration of uncertainty and good practice for reducing uncertainty*'.

5.16 The following list details the key steps taken to reduce uncertainty:

- Background sound level measurements were made in close proximity to the assessment locations and over a long duration to ensure that the acoustic environment was accurately characterised;
- Measurement procedures were in accordance with Section 6 of BS 4142 including precautions against interference such as unsuitable weather conditions;
- Monitoring carried out by experienced and qualified acousticians holding full membership of the Institute of Acoustics (MIOA);
- Site noise levels were determined by calculation with reference to Section 7 of BS 4142 and utilising the methodology outlined within ISO 9613 which is a widely accepted standard for the calculation of outdoor sound propagation;
- Operations during the sample measurements at the existing site and other similar sites were considered to be representative of typical operating conditions and the measurement durations were considered to be representative of any longer term fluctuations in the specific sound. The influence of sound from other sources was minimised by measuring at times when the residual sound had subsided to a relatively low level;
- The instrumentation used was in accordance with Section 5 of BS 4142. Use of digital transfer methods and equipment whose conformity and calibration have been checked periodically.

6.0 SUMMARY

- 6.1 An assessment of potential noise impact associated with the permit application has been made following the guidance presented within BS 4142 and the guidance set out by the Environment Agency.
- 6.2 Following an initial estimate of noise impact, along with consideration of the context and any potential effects of uncertainty, the proposed waste recycling operations are likely to have a low impact. It is therefore considered that there will be no significant or unacceptable adverse impacts at existing noise-sensitive premises in the vicinity of the site.

7.0 REFERENCES

1. ANC Guidelines: *Environmental Sound Measurement Guide*. ANC. May 2021.
2. BS 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound*, British Standards Institution 2019.
3. BS 7445-1:2003 *Description and measurement of environmental noise – Part 1 Guide to quantities and procedures*. British Standards Institution 2003.
4. *Guidance: Method implementation document (MID) for BS 4142*. Environment Agency. December 2023.
5. *Guidance: Noise impact assessments involving calculations or modelling*. Environment Agency. August 2022.
6. *Guidance: Noise and vibration management: environmental permits*. Environment Agency. January 2022.
7. *Guidance: Risk assessments for your environmental permit*. Environment Agency and Department for Environment, Food and Rural Affairs. January 2025.
8. *Guidelines for Environmental Noise Impact Assessment*, v1.2. Institute of Environmental Management & Assessment. November 2014.
9. ISO 9613-2:2024 *Acoustics - Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors*. Edition 2, 2024.

FIGURE 1
Site Plan

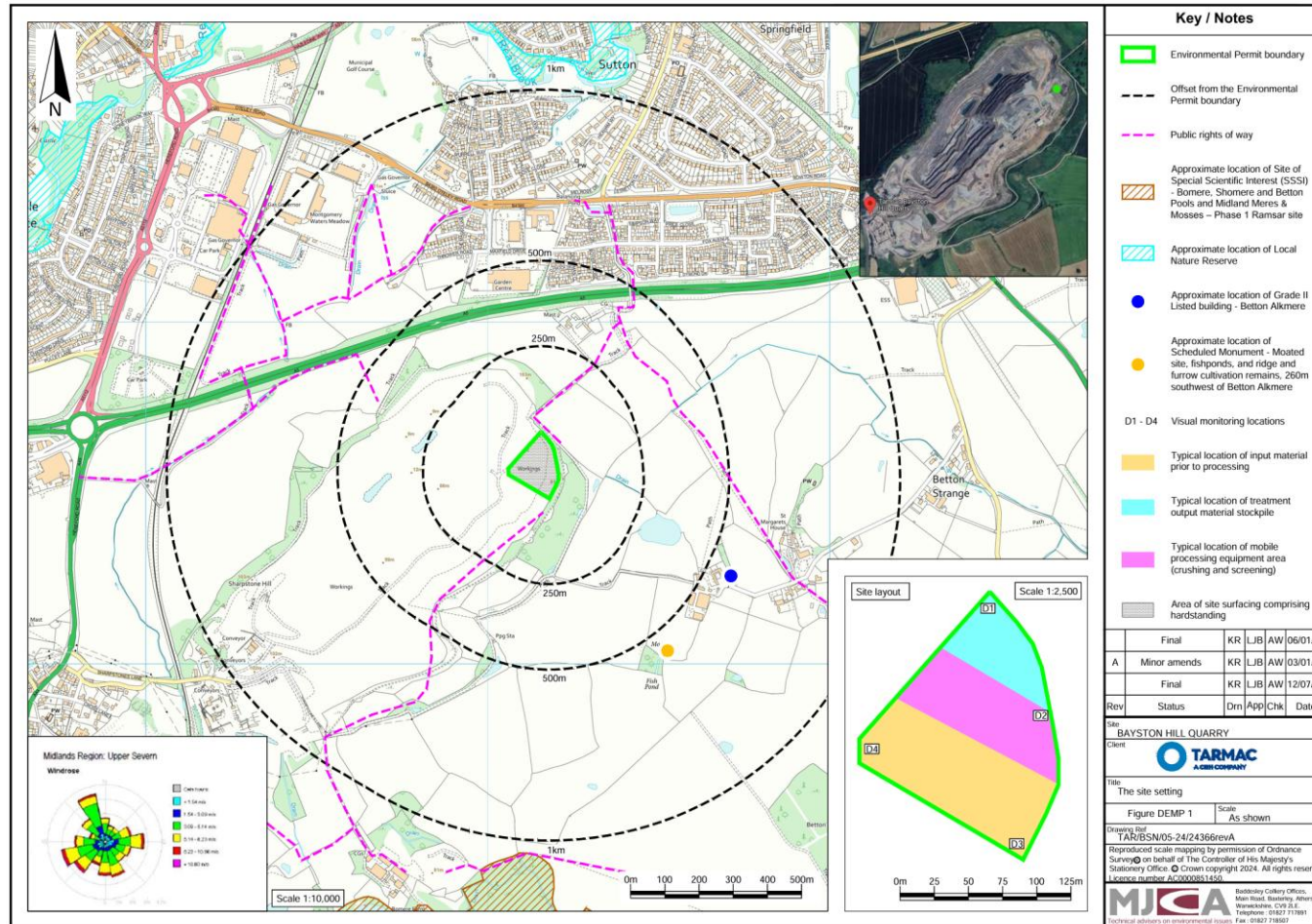


FIGURE 2

Monitoring and Receptor Locations



Receptors	Type	Floor	Coordinates (m)		
			X	Y	Z
Sharpstones Lane	Residential	Ground	348947	308915	89
Berries Lane	Residential	Ground	348973	308641	91
Bomere Farm	Residential	Ground	349721	308335	84
Betton Alkmere	Residential	Ground	350689	309255	87
Dymock Drive	Residential	Ground	350187	310107	82
The Hawthorns	Residential	Ground	349728	310106	73

Monitoring Locations	Coordinates (m)		
	X	Y	Z
Location 1	348837	308979	87
Location 2	349955	309149	81
Location 3	350414	309967	85

FIGURE 3

Weather Conditions

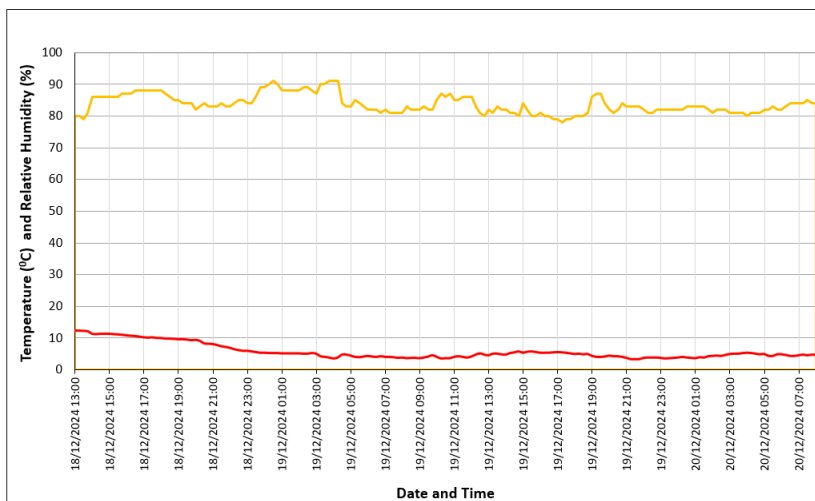
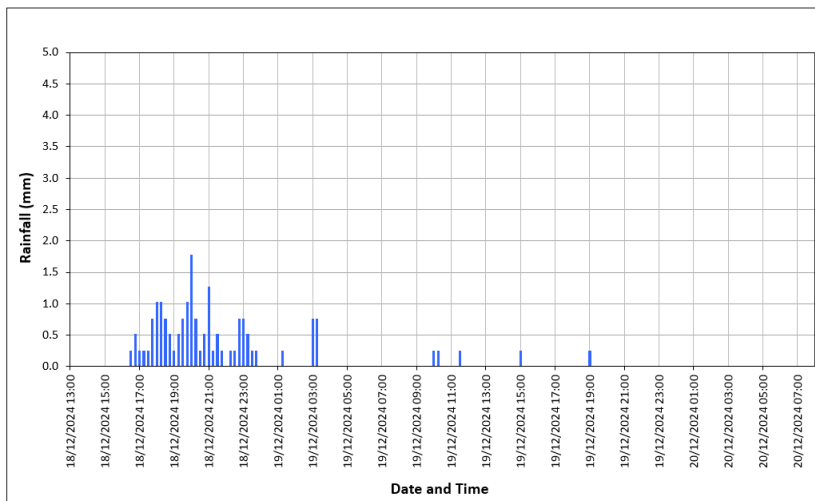
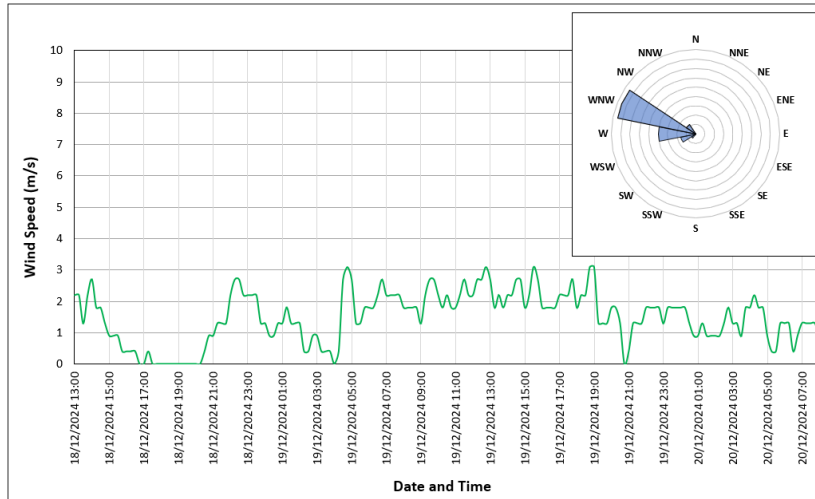


FIGURE 4.1

Measured Sound Levels

Location 1

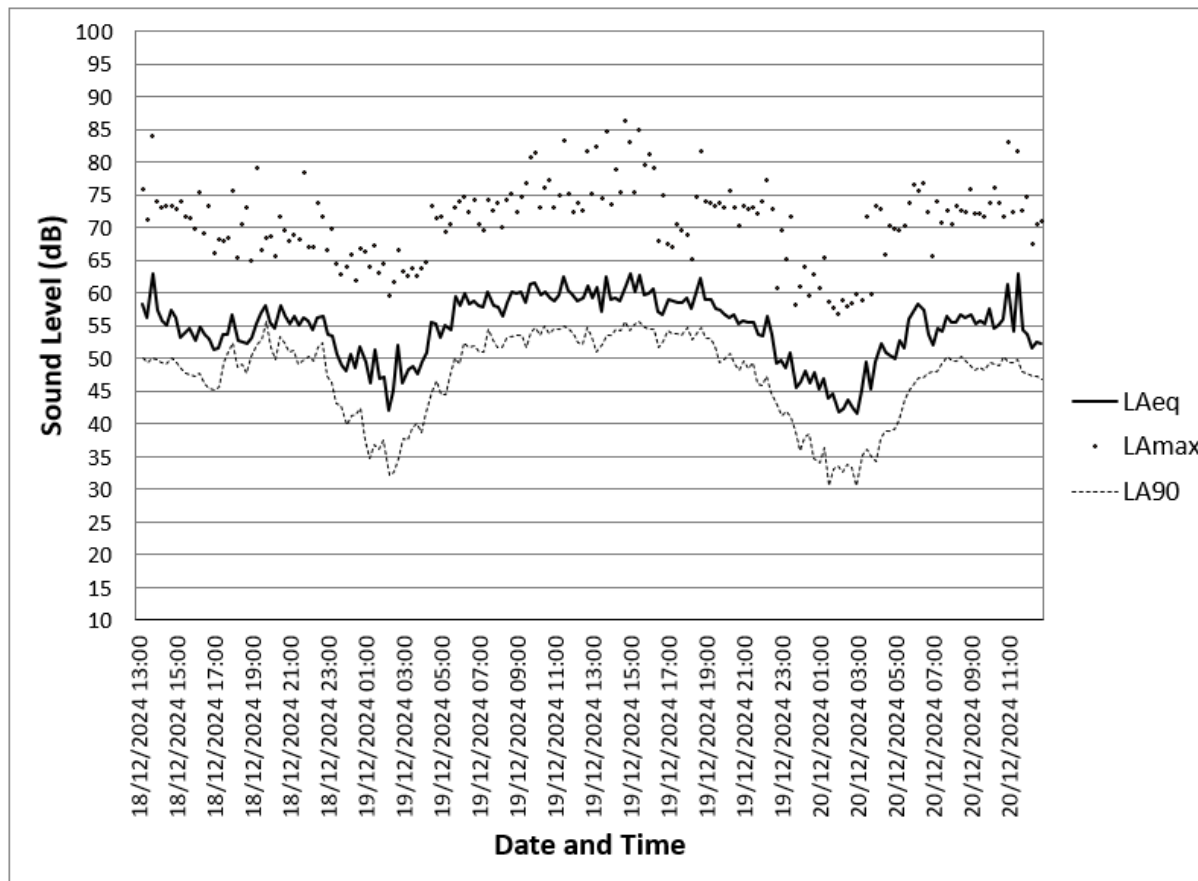


FIGURE 4.2

Measured Sound Levels

Location 2

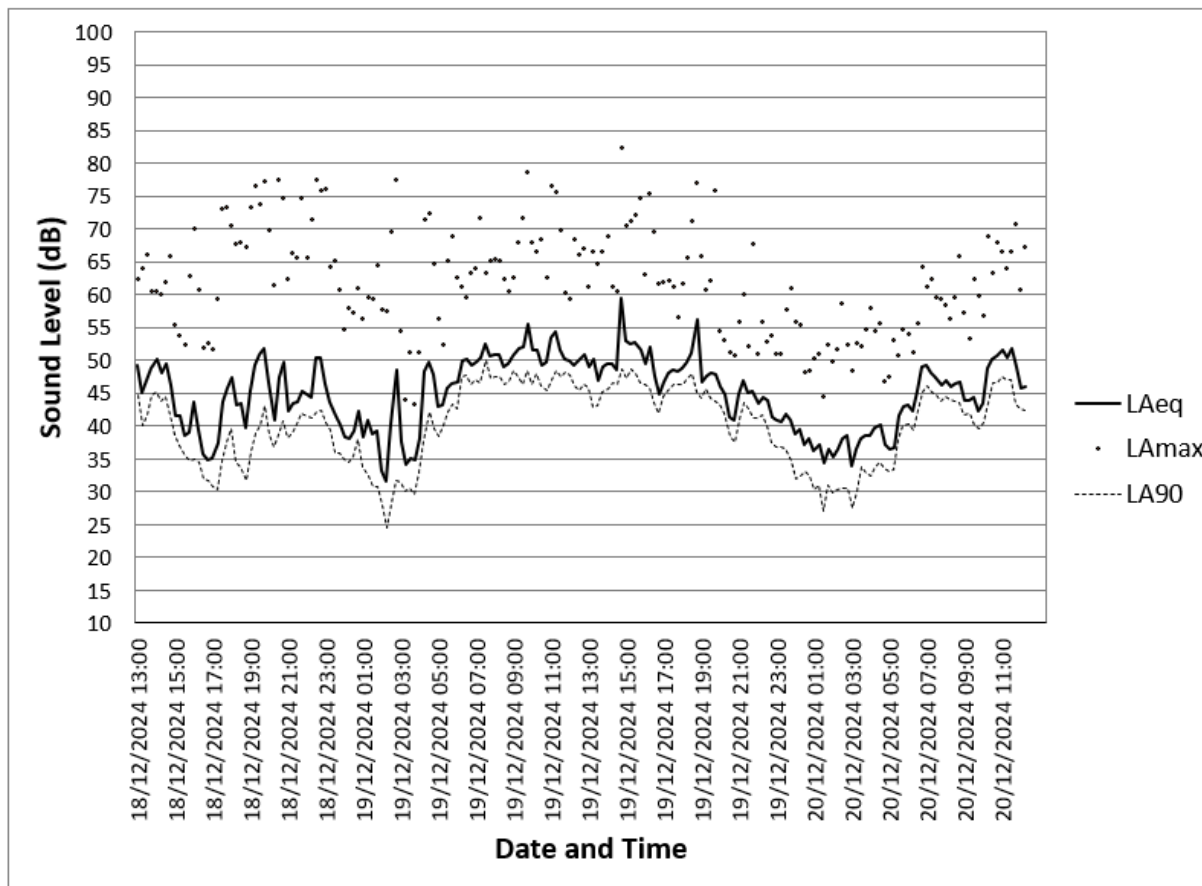


FIGURE 4.3

Measured Sound Levels

Location 3

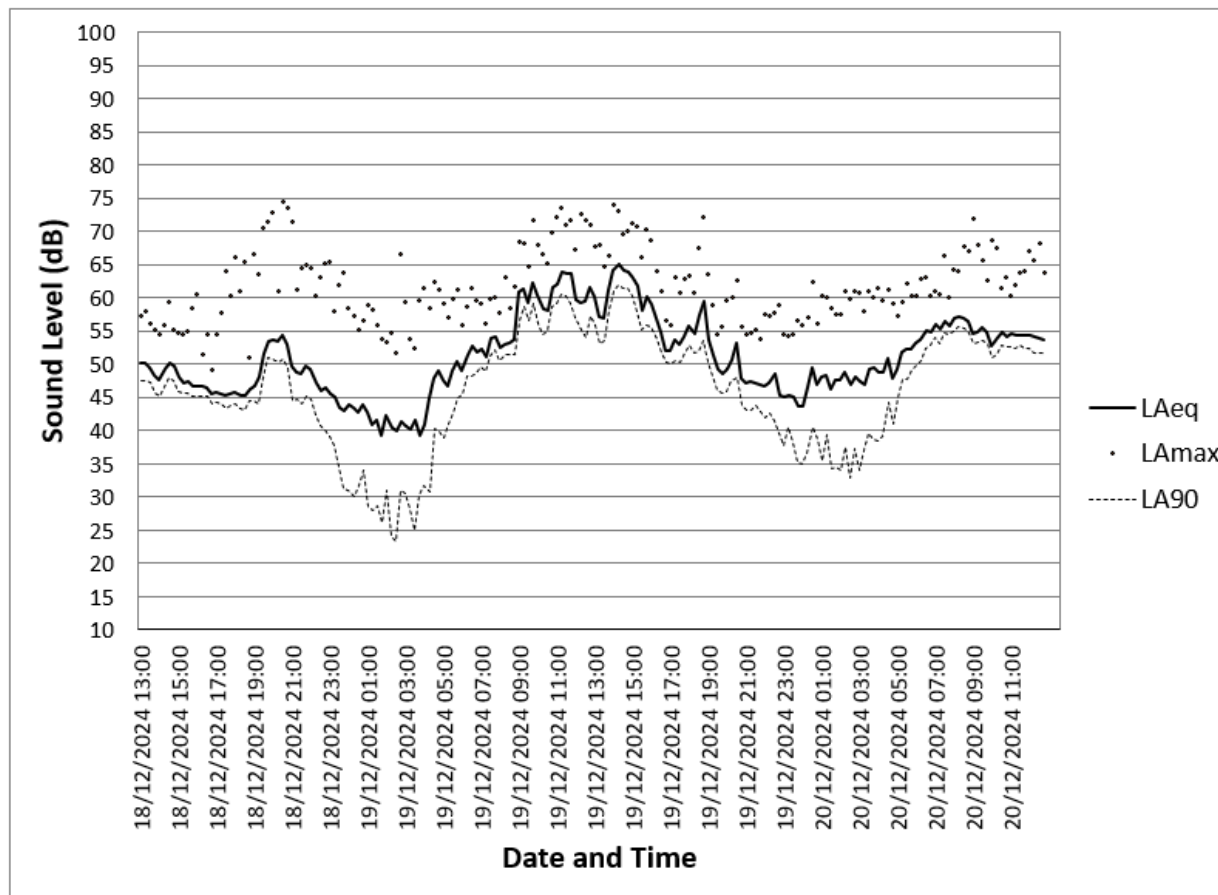
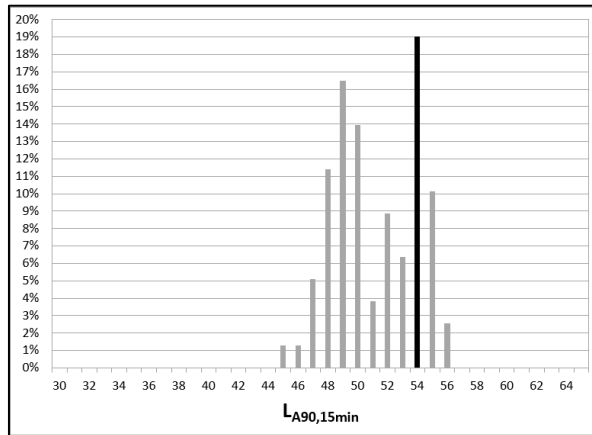


FIGURE 5

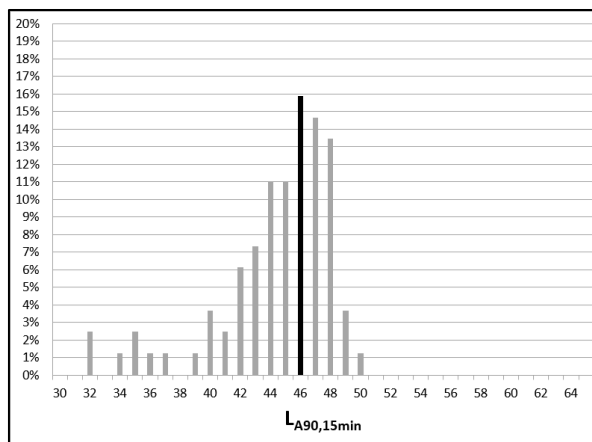
Statistical Analysis to Determine the Background Sound Level

Daytime Operating Hours (0700 – 1700)

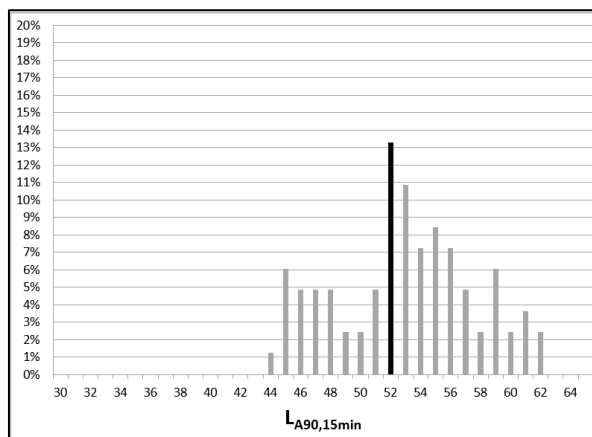
Location 1



Location 2



Location 3



APPENDIX 1

Terminology and Definitions

Acoustic Environment

Sound from all sound sources as modified by the environment.

Ambient Sound Level $L_{Aeq,T}$

Totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far.

A-weighting

The human ear is most sensitive to frequencies in the range 1 kHz to 5 kHz. On each side of this range the sensitivity falls off. A-weighting is used in sound level meters to replicate this sensitivity and respond in the same way as the human ear.

Background Sound Level $L_{A90,T}$

The A-weighted sound pressure level of the residual sound at the assessment position that is exceeded for 90% of a given time interval, T , measured using time weighting F.

Break-out

Noise transmission from inside a structure to the outside.

Equivalent continuous A-weighted sound pressure level $L_{Aeq,T}$

Value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval T , has the same mean square sound pressure as a sound under consideration whose level varies with time.

Free-field Level

The sound pressure level away from reflecting surfaces.

NOTE Measurements made 1.2 - 1.5 metres above the ground and at least 3.5 metres away from other reflecting surfaces are usually regarded as free-field.

Measurement time interval, T_m

Total time over which measurements are taken.

Octave band

Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit.

Rating Level $L_{Ar,Tr}$

The specific sound level plus any adjustment for the characteristic features of the sound.

Reference Time Interval, T_r

The specified interval over which the specific sound level is determined.

NOTE This is 1hr during the day (07:00-23:00) and a shorter period of 15 min at night (23:00-07:00).

Residual Sound Level $L_{Aeq,T}$

Ambient sound remaining at a given position in a given situation when the specific sound source is suppressed to a degree such that it does not contribute to the ambient sound.

Sound Power Level, L_{WA}

The total amount of sound energy per unit of time generated by a particular sound source independent of the acoustic environment that it is in. It is a logarithmic measure of the sound power in comparison to a specified reference level.

Specific Sound Level (also referred to as 'site noise') $L_{Aeq,Tr}$

Sound in the neighbourhood of a site that originates from the site i.e. the sound being assessed. The equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment position over a given reference time interval.

Specific sound source

Sound source being assessed.

Weighted sound reduction index R_w

Single-number quantity which characterizes the airborne sound insulating properties of a material or building element over a range of frequencies.

APPENDIX 2

Noise Monitoring Data

Date and Time	L1		L2		L3	
	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{Aeq,T} (dB)	L _{A90,T} (dB)
18/12/2024 12:00	-	-	47.6	43.6	-	-
18/12/2024 12:15	-	-	48.2	44.2	54.1	49.0
18/12/2024 12:30	-	-	46.8	43.4	49.7	47.1
18/12/2024 12:45	-	-	45.3	41.3	50.0	47.2
18/12/2024 13:00	-	-	49.2	44.7	50.2	47.6
18/12/2024 13:15	58.4	50.1	45.0	40.2	50.2	47.6
18/12/2024 13:30	56.3	49.3	46.9	41.7	49.4	47.3
18/12/2024 13:45	63.1	50.0	48.8	44.7	48.4	45.7
18/12/2024 14:00	57.3	49.9	50.2	45.1	47.7	45.3
18/12/2024 14:15	55.7	49.3	48.0	43.9	49.2	46.7
18/12/2024 14:30	55.1	49.1	49.6	44.6	50.3	47.9
18/12/2024 14:45	57.4	50.0	46.3	41.6	49.7	47.5
18/12/2024 15:00	56.2	49.3	41.7	38.6	48.0	45.8
18/12/2024 15:15	53.3	48.5	41.6	37.1	47.1	45.6
18/12/2024 15:30	53.9	47.8	38.5	35.5	47.3	45.7
18/12/2024 15:45	54.6	47.6	39.1	34.8	46.6	45.1
18/12/2024 16:00	52.7	47.2	43.8	34.9	46.8	45.3
18/12/2024 16:15	54.8	47.8	39.5	34.4	46.6	45.1
18/12/2024 16:30	53.7	46.4	35.8	32.0	46.5	45.1
18/12/2024 16:45	53.0	45.4	34.9	31.6	45.5	44.0
18/12/2024 17:00	51.3	45.3	35.2	30.7	45.7	44.3
18/12/2024 17:15	51.6	45.7	37.5	30.4	45.6	44.1
18/12/2024 17:30	53.8	49.3	43.7	34.8	45.3	43.3
18/12/2024 17:45	53.8	51.0	45.8	37.5	45.5	43.7
18/12/2024 18:00	56.7	52.3	47.3	39.6	45.8	44.0
18/12/2024 18:15	52.7	48.6	43.2	34.4	45.4	43.3
18/12/2024 18:30	52.5	49.1	43.5	33.9	45.4	43.1
18/12/2024 18:45	52.2	47.7	39.8	31.8	46.2	44.4
18/12/2024 19:00	53.2	50.2	45.4	36.2	46.6	44.5
18/12/2024 19:15	55.3	52.1	49.3	39.0	48.0	44.1
18/12/2024 19:30	56.9	52.8	50.8	40.1	51.7	48.0
18/12/2024 19:45	58.2	55.6	51.9	43.1	53.5	50.9
18/12/2024 20:00	55.6	51.6	46.6	38.6	53.6	50.7
18/12/2024 20:15	54.5	49.9	40.9	36.9	53.4	50.2
18/12/2024 20:30	58.2	53.3	47.5	38.6	54.3	50.8
18/12/2024 20:45	56.4	52.5	49.8	40.8	53.0	49.5

Date and Time	L1		L2		L3	
	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{Aeq,T} (dB)	L _{A90,T} (dB)
18/12/2024 21:00	55.4	50.9	42.3	38.3	49.7	44.6
18/12/2024 21:15	56.4	51.3	43.4	38.9	48.8	44.8
18/12/2024 21:30	55.0	49.2	43.8	40.3	48.5	44.1
18/12/2024 21:45	56.3	49.8	45.4	41.9	49.7	45.1
18/12/2024 22:00	55.8	50.2	44.8	41.4	49.2	44.8
18/12/2024 22:15	54.4	49.7	44.3	41.2	47.1	42.5
18/12/2024 22:30	56.2	51.8	50.5	42.1	46.0	40.7
18/12/2024 22:45	56.5	52.5	50.4	42.4	46.4	40.0
18/12/2024 23:00	53.8	47.4	46.4	40.5	45.5	39.1
18/12/2024 23:15	53.5	46.3	43.7	39.3	45.0	37.7
18/12/2024 23:30	50.7	43.2	41.7	35.9	43.5	34.6
18/12/2024 23:45	49.0	42.9	40.2	35.9	43.0	31.2
19/12/2024 00:00	48.2	39.8	38.3	34.9	43.9	31.1
19/12/2024 00:15	50.6	41.2	38.2	34.6	43.4	30.0
19/12/2024 00:30	48.5	41.5	39.2	35.4	42.8	31.6
19/12/2024 00:45	51.8	42.3	42.4	37.9	44.0	34.0
19/12/2024 01:00	49.5	37.6	38.3	33.9	42.7	28.4
19/12/2024 01:15	46.3	34.8	40.8	32.3	41.0	27.9
19/12/2024 01:30	51.4	36.8	38.7	30.9	41.6	28.6
19/12/2024 01:45	47.0	36.1	39.3	30.8	39.2	26.2
19/12/2024 02:00	47.1	37.5	33.3	27.9	42.2	31.1
19/12/2024 02:15	42.1	32.1	31.7	24.4	40.4	24.1
19/12/2024 02:30	45.0	32.7	40.1	28.3	40.0	23.3
19/12/2024 02:45	52.1	34.8	48.5	31.8	41.3	31.1
19/12/2024 03:00	46.2	37.8	37.6	31.4	40.7	30.5
19/12/2024 03:15	48.3	37.5	34.2	30.2	40.3	28.2
19/12/2024 03:30	48.9	39.3	35.1	30.5	41.6	24.9
19/12/2024 03:45	47.6	40.0	34.9	29.6	39.2	30.3
19/12/2024 04:00	49.4	38.6	38.2	32.9	40.9	31.7
19/12/2024 04:15	51.0	41.7	48.3	37.7	44.9	30.8
19/12/2024 04:30	55.5	44.9	49.8	42.1	47.8	40.4
19/12/2024 04:45	55.3	46.6	47.8	39.7	49.0	39.9
19/12/2024 05:00	53.2	44.5	43.1	38.5	47.6	38.9
19/12/2024 05:15	55.1	44.4	43.2	40.1	46.7	41.1
19/12/2024 05:30	54.3	47.6	45.8	42.1	49.0	42.7
19/12/2024 05:45	59.6	50.1	46.5	43.4	50.5	45.0
19/12/2024 06:00	58.0	49.2	46.6	42.6	49.1	45.4
19/12/2024 06:15	60.0	52.5	50.0	47.6	51.3	48.3
19/12/2024 06:30	58.3	51.7	50.2	47.8	52.7	48.2
19/12/2024 06:45	58.7	51.9	49.2	46.4	51.8	48.6

Date and Time	L1		L2		L3	
	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{Aeq,T} (dB)	L _{A90,T} (dB)
19/12/2024 07:00	58.1	51.0	49.8	47.0	52.4	49.6
19/12/2024 07:15	57.8	51.0	50.5	46.5	51.1	48.9
19/12/2024 07:30	60.1	54.4	52.5	50.1	54.0	51.2
19/12/2024 07:45	58.0	52.9	50.7	47.4	54.1	52.2
19/12/2024 08:00	57.9	51.7	51.0	47.6	52.5	50.6
19/12/2024 08:15	56.4	51.7	51.0	47.6	53.1	51.5
19/12/2024 08:30	58.5	53.0	49.1	46.3	53.3	51.4
19/12/2024 08:45	60.2	53.3	49.4	46.9	53.8	51.5
19/12/2024 09:00	60.0	53.6	50.7	48.4	60.8	56.7
19/12/2024 09:15	60.2	53.6	51.8	47.6	61.4	58.8
19/12/2024 09:30	58.6	51.6	52.0	46.4	59.3	56.7
19/12/2024 09:45	61.4	54.0	55.6	48.4	62.3	59.2
19/12/2024 10:00	61.7	54.7	51.5	46.4	60.4	56.2
19/12/2024 10:15	59.8	53.5	51.5	47.9	58.4	54.5
19/12/2024 10:30	60.3	54.9	49.3	46.1	58.2	55.0
19/12/2024 10:45	59.2	53.8	49.7	45.5	61.6	58.7
19/12/2024 11:00	58.8	54.4	53.4	47.0	62.0	59.1
19/12/2024 11:15	59.7	54.6	54.3	48.5	64.0	60.6
19/12/2024 11:30	62.6	54.9	51.7	47.6	63.8	60.3
19/12/2024 11:45	60.5	54.4	50.3	48.3	63.7	59.1
19/12/2024 12:00	59.7	53.9	49.9	47.8	59.8	57.0
19/12/2024 12:15	58.8	52.4	49.2	46.2	59.2	55.3
19/12/2024 12:30	59.2	52.1	50.3	45.4	59.6	54.0
19/12/2024 12:45	61.2	54.8	50.8	46.4	61.5	57.2
19/12/2024 13:00	59.3	53.4	49.0	45.8	60.2	56.0
19/12/2024 13:15	61.0	51.1	50.1	42.8	57.1	53.0
19/12/2024 13:30	57.2	52.2	46.9	43.0	56.9	53.6
19/12/2024 13:45	62.6	53.6	49.0	45.1	61.2	58.2
19/12/2024 14:00	59.1	53.5	49.4	45.7	64.1	61.1
19/12/2024 14:15	59.2	54.4	49.6	46.7	65.1	61.9
19/12/2024 14:30	58.9	54.2	48.6	46.4	64.1	61.5
19/12/2024 14:45	61.1	55.6	59.5	48.7	64.0	61.4
19/12/2024 15:00	63.0	54.2	53.1	47.2	63.1	60.3
19/12/2024 15:15	60.3	55.3	52.5	48.8	61.9	58.1
19/12/2024 15:30	62.7	55.7	52.8	48.1	58.2	55.1
19/12/2024 15:45	59.8	54.8	51.7	46.7	60.2	55.9
19/12/2024 16:00	60.0	54.5	49.4	46.4	59.1	55.7
19/12/2024 16:15	60.6	54.4	52.0	45.9	56.9	53.9
19/12/2024 16:30	57.2	51.8	47.7	43.6	54.9	51.8
19/12/2024 16:45	56.8	52.7	44.9	41.9	52.0	50.2

Date and Time	L1		L2		L3	
	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{Aeq,T} (dB)	L _{A90,T} (dB)
19/12/2024 17:00	59.1	54.2	46.8	44.5	52.0	50.1
19/12/2024 17:15	58.7	53.9	48.1	45.6	53.7	50.6
19/12/2024 17:30	58.5	53.8	48.6	46.4	52.9	50.3
19/12/2024 17:45	58.5	53.6	48.3	46.3	54.2	51.8
19/12/2024 18:00	59.2	54.7	48.7	46.3	55.8	52.9
19/12/2024 18:15	57.7	52.8	49.8	47.4	54.6	51.7
19/12/2024 18:30	59.9	53.7	51.2	48.0	57.3	51.9
19/12/2024 18:45	62.2	54.7	56.3	45.1	59.5	53.6
19/12/2024 19:00	59.0	53.2	46.6	44.3	53.6	50.4
19/12/2024 19:15	59.1	53.1	47.7	45.6	51.3	48.2
19/12/2024 19:30	57.7	51.9	48.0	44.3	49.2	46.2
19/12/2024 19:45	57.4	49.4	47.8	43.7	48.6	45.7
19/12/2024 20:00	56.6	49.8	46.1	43.4	49.3	45.9
19/12/2024 20:15	56.3	50.7	44.9	42.0	50.7	47.5
19/12/2024 20:30	56.7	49.1	41.3	38.4	53.3	48.0
19/12/2024 20:45	55.4	48.2	40.8	37.5	47.9	43.8
19/12/2024 21:00	55.7	49.7	44.9	41.0	47.2	43.0
19/12/2024 21:15	55.6	48.5	46.9	43.5	47.4	43.2
19/12/2024 21:30	55.6	49.3	45.0	42.6	47.2	43.9
19/12/2024 21:45	53.8	46.1	45.3	41.2	46.9	42.8
19/12/2024 22:00	53.5	45.9	43.4	41.2	46.6	42.0
19/12/2024 22:15	56.5	47.3	44.4	41.8	47.2	42.6
19/12/2024 22:30	53.8	44.8	43.9	40.0	48.6	41.5
19/12/2024 22:45	49.3	42.9	41.3	37.5	45.3	39.7
19/12/2024 23:00	49.8	41.2	40.8	36.8	45.1	37.7
19/12/2024 23:15	48.6	42.0	40.7	36.8	45.3	40.5
19/12/2024 23:30	50.9	41.0	41.8	36.7	45.1	38.3
19/12/2024 23:45	45.6	38.9	41.0	34.8	43.7	35.1
20/12/2024 00:00	46.4	36.0	38.7	32.0	43.8	35.0
20/12/2024 00:15	48.0	38.0	39.6	32.5	46.5	36.6
20/12/2024 00:30	46.2	38.4	37.1	33.2	49.4	40.6
20/12/2024 00:45	47.8	34.8	38.2	32.3	46.9	38.8
20/12/2024 01:00	45.4	34.1	36.2	30.4	48.0	35.4
20/12/2024 01:15	47.0	36.4	37.1	31.1	48.4	39.5
20/12/2024 01:30	43.9	30.5	34.4	27.1	46.2	34.2
20/12/2024 01:45	44.7	33.2	36.5	31.0	47.7	34.6
20/12/2024 02:00	41.8	33.5	35.4	29.9	47.6	34.1
20/12/2024 02:15	42.4	32.6	36.5	30.4	48.7	37.6
20/12/2024 02:30	43.8	33.7	38.2	30.6	47.0	32.8
20/12/2024 02:45	42.6	33.3	38.5	30.6	48.0	37.2

Date and Time	L1		L2		L3	
	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{Aeq,T} (dB)	L _{A90,T} (dB)	L _{Aeq,T} (dB)	L _{A90,T} (dB)
20/12/2024 03:00	41.5	30.6	33.9	27.5	47.4	34.1
20/12/2024 03:15	45.1	35.1	36.5	30.2	46.9	37.0
20/12/2024 03:30	49.6	36.2	38.1	33.9	49.3	39.6
20/12/2024 03:45	45.3	34.9	38.5	32.8	49.5	38.7
20/12/2024 04:00	49.5	34.2	38.6	32.4	48.7	38.4
20/12/2024 04:15	52.2	37.8	39.8	33.8	48.8	39.1
20/12/2024 04:30	50.8	39.0	40.2	34.6	51.0	44.2
20/12/2024 04:45	50.4	39.0	37.1	33.6	47.9	40.9
20/12/2024 05:00	49.9	39.1	36.4	33.0	49.3	44.9
20/12/2024 05:15	52.7	40.6	36.8	33.3	51.8	47.7
20/12/2024 05:30	51.7	43.7	41.7	38.1	52.3	47.8
20/12/2024 05:45	56.1	45.1	43.0	40.0	52.4	49.2
20/12/2024 06:00	57.2	46.1	43.3	40.3	53.2	49.8
20/12/2024 06:15	58.3	47.0	42.3	39.5	53.6	50.6
20/12/2024 06:30	57.3	47.0	45.2	42.5	55.1	52.5
20/12/2024 06:45	53.7	47.8	49.0	45.3	54.8	52.8
20/12/2024 07:00	52.0	48.0	49.2	46.2	56.1	54.0
20/12/2024 07:15	54.6	48.0	48.1	45.1	55.2	53.1
20/12/2024 07:30	54.2	49.1	47.5	44.8	56.5	54.7
20/12/2024 07:45	56.4	50.4	46.2	43.7	55.8	54.4
20/12/2024 08:00	55.6	49.7	47.0	44.5	56.9	55.0
20/12/2024 08:15	55.6	49.7	46.1	44.1	57.1	55.6
20/12/2024 08:30	56.7	50.2	46.4	43.9	57.0	55.5
20/12/2024 08:45	56.2	49.7	46.6	43.5	56.5	54.7
20/12/2024 09:00	56.7	49.0	43.9	41.7	54.7	53.0
20/12/2024 09:15	55.3	48.3	44.0	42.0	54.8	53.3
20/12/2024 09:30	55.7	48.6	44.5	40.2	55.6	53.6
20/12/2024 09:45	55.3	48.3	42.2	39.6	54.9	53.0
20/12/2024 10:00	57.6	49.4	43.4	40.5	52.8	51.0
20/12/2024 10:15	54.6	49.2	48.8	43.6	53.8	51.5
20/12/2024 10:30	55.0	49.0	50.1	46.6	54.8	52.9
20/12/2024 10:45	56.0	50.3	50.7	46.7	54.2	52.6
20/12/2024 11:00	61.4	49.4	51.6	47.5	54.6	52.7
20/12/2024 11:15	54.1	49.3	50.5	47.0	54.3	52.4
20/12/2024 11:30	63.0	49.9	51.8	47.0	54.4	52.8
20/12/2024 11:45	54.3	48.1	49.0	43.4	54.3	52.4
20/12/2024 12:00	53.8	47.7	45.7	42.7	54.4	52.4
20/12/2024 12:15	51.5	47.2	46.1	42.5	54.2	51.8
20/12/2024 12:30	52.6	47.2	-	-	53.9	51.8
20/12/2024 12:45	52.2	46.9	-	-	53.7	51.6

APPENDIX 3

Noise Source Model Inputs

Plant/ Activity	Octave band sound power levels (dB)								Sound Power Level dB(A)	Source Height relative to ground (m)	Co-ordinates (m)			On-time Assumptions (relative to reference time interval)
	63	125	250	500	1k	2k	4k	8k			X	Y	Z	
WASTE RECYCLING OPERATIONS														
Mobile Crushing and Screening Plant	117.1	116.2	107.6	102.4	97.6	95.1	91.2	85.7	106	2.5	350132	309607	83	100%
HGV Tipping into Stockpile	107.2	107.2	98.1	95.0	94.2	92.3	86.4	81.0	100	1.5	350128	309557	83	25%
Loading Shovel (Unprocessed)	105.3	104.6	99.2	96.7	96.5	95.0	93.4	83.1	102	2.0	350140	309582	83	50%
Loading Shovel (Processed)	105.3	104.6	99.2	96.7	96.5	95.0	93.4	83.1	102	2.0	350143	309642	86	25%
HGV Movements	103.1	98.9	96.1	94.1	94.5	92.2	87.7	79.8	99	1.5	Line source		10 movements per hr Speed 10 mph	
NON-WASTE OPERATIONS														
Drill Rig	108.3	110.2	108.3	105.0	104.8	102.3	99.9	91.2	110	2.0	349838	309469	78	50%
Mobile Processing	82.9	92.6	97.8	104.3	107.3	104.9	100.0	91.1	111	2.5	349844	309463	78	100%
Shovel Loading Dump truck	108.7	109.5	101.3	102.0	102.9	100.4	94.8	86.3	107	2.0	349837	309462	78	50%

Plant/ Activity	Octave band sound power levels (dB)								Sound Power Level dB(A)	Source Height relative to ground (m)	Co-ordinates (m)			On-time Assumptions (relative to reference time interval)
	63	125	250	500	1k	2k	4k	8k			X	Y	Z	
Water Pump	101.5	93.1	86.8	84.2	85.0	86.1	83.6	79.9	92	1.5	349638	309511	-2	100%
Wash Plant	99.4	96.1	94.5	94.0	93.8	93.3	93.0	89.2	100	6.0	350076	309471	80	100%
Wash Plant Shovel	105.3	104.6	99.2	96.7	96.5	95.0	93.4	83.1	102	2.0	350106	309499	81	50%
Primary Crusher	115.4	118.9	109.2	105.7	102.3	99.3	92.5	85.3	109	3.0	349277	309097	78	100%
Primary Screen	102.0	102.7	100.0	100.7	101.2	100.5	95.9	87.3	106	8.0	349315	309088	82	100%
No.1 Allis	102.1	103.3	103.1	100.5	98.9	94.2	87.3	77.8	103	8.0	349213	308979	95	100%
No.2 Allis	102.1	103.3	103.1	100.5	98.9	94.2	87.3	77.8	103	8.0	349184	308953	89	100%
Tertiary Plant	103.4	104.5	104.4	101.1	96.3	93.8	89.8	82.6	103	12.0	349157	308912	90	100%
Screenhouse	102.0	102.7	100.0	100.7	101.2	100.5	95.9	87.3	106	12.0	349185	308834	90	100%
Asphalt Plant	103.5	112.1	101.8	103.6	98.3	94.9	92.1	87.1	105	10.0	349197	308895	88	100%
New Primary Crusher	115.4	118.9	109.2	105.7	102.3	99.3	92.5	85.3	109	3.0	349884	309373	76	100%

Plant/ Activity	Octave band sound power levels (dB)								Sound Power Level dB(A)	Source Height relative to ground (m)	Co-ordinates (m)			On-time Assumptions (relative to reference time interval)
	63	125	250	500	1k	2k	4k	8k			X	Y	Z	
New Scalpings Screen	102.0	102.7	100.0	100.7	101.2	100.5	95.9	87.3	106	8.0	349975	309463	82	100%
New Primary Stockpile	101.4	99.0	94.9	93.4	90.4	93.1	85.9	83.2	98	12.0	350028	309421	86	100%
New Stockpile Screen	102.0	102.7	100.0	100.7	101.2	100.5	95.9	87.3	106	8.0	349963	309377	81	100%
New Selector Screen	107.5	10.7	102.8	101.6	103.0	99.5	96.1	87.9	107	10.0	349909	309340	83	100%
New Loading Shed	98.0	97.9	94.8	94.4	99.2	96.1	92.7	92.5	103	12.0	349839	309292	85	50%
New Asphalt Plant	103.5	112.1	101.8	103.6	98.3	94.9	92.1	87.1	105	10.0	349773	309177	83	100%
Dump truck Movements	106.3	105.1	102.6	99.2	101.1	99.8	97.3	93.5	106	2.5	Line source			12 movements per hr Speed 15 mph
HGV movements	103.1	98.9	96.1	94.1	94.5	92.2	87.7	79.8	99	1.5	Line source			16 movements per hr Speed 10 mph

APPENDIX 4

Noise Management Plan

NOISE MANAGEMENT PLAN

ENVIRONMENTAL PERMIT APPLICATION

REF. EPR/QP3427SE

IMPORTATION AND PROCESSING OF ROAD PLANINGS AND RETURNED ASPHALT

BAYSTON HILL QUARRY

TARMAC TRADING LIMITED

DOCUMENT CONTROL

Version	Date	Document Author	Description
1	07/01/25	A Pickford Vibroch Limited	For submission to the EA in support of Environmental Permit Application

Revision	Date	Authorised By	Comments
001			
002			

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6.0	Control Measures (BAT)
7.0	Monitoring
8.0	Community Engagement and Complaints
9.0	Incident Management
10.0	Management, Training and Responsibility
11.0	Plan Review

1. Introduction

1.1 The Noise Management Plan (NMP) outlines the methods by which Tarmac will systematically assess and minimise the potential impacts of noise generated by the proposed waste recycling operations at development at Bayston Hill Quarry.

1.2 The aims of the NMP are:

- to prevent pollution and minimise disturbance and annoyance to residents;
- to develop a control strategy which can be implemented during site operations;
- to ensure that noise impacts are considered as part of routine inspections;
- to demonstrate good practice and that all appropriate measures are taken to prevent or, where that is not practicable, to reduce emissions from the operations;
- to consolidate any noise issues on the site to assist Tarmac in complying with Planning and Permit conditions;
- to assist the Environment Agency in enforcement and complaint responses.

1.3 The NMP will be stored in the main site offices.

2. Site Details

2.1 Bayston Hill Quarry supplies high quality aggregates to customers in the Shrewsbury area

2.2 The site address is as follows:

Bayston Hill Quarry
Sharpstones Lane
Bayston Hill
Shrewsbury
SY3 0AW

2.3 Operating hours: 06:00 – 22:00

3. Environmental Permit

3.1 Environmental Permit application (ref. EPR/QP3427SE) is for a new bespoke waste operation comprising an comprising a facility for the receipt, storage and processing of road planings and returned asphalt.

4. Noise Sources

- 4.1 Waste imported to the site would be subjected to a limited series of treatment activities involving crushing and screening. The incoming waste will be stored in stockpiles prior to processing.
- 4.2 Crushing will be undertaken at the site on a campaign basis (likely to be 2 – 3 times per year) when a sufficient quantity of material is present. Crushed materials will either be deposited in the processed material storage area or will be transferred to the screening plant for size separation.
- 4.3 The proposed operating hours of these activities are Monday to Friday 0700 – 1700 and Saturday 0700 – 1300. The output material produced from the processed waste will be exported from the permitted site for recovery at a suitably authorised facility such as a roadstone coating plant with RAP facilities.
- 4.4 These activities will take place in combination with ongoing mineral extraction and processing operations across the site including asphalt plant and wash plant.

5. Sensitive Receptors

- 5.1 The nearest noise sensitive premises are shown below along with the boundary of the site the subject of the Environmental Permit application.



6. Control Measures (BAT)

6.1 The following noise control measures will be adhered to during site operations. These measures demonstrate best practice and minimise any potential noise impacts:

- The permitted operating hours of the permitted operations will be strictly adhered to and effectively communicated to all site staff and subcontractors;
- Plant and machinery will be maintained in good working order and used in accordance with the manufacturer's instructions. Any defective items will not be used. Regular inspections of plant will be undertaken to identify any faults or wear and tear that may be resulting in excessive noise;
- Vehicle routes through the site will be kept maintained and free from defects such as pot-holes. The use of speed humps and steep gradients will be avoided where possible;
- Unnecessary horn usage, excessive revving of engines, rapid acceleration and sharp braking will be avoided. Equipment will be switched off or throttled down to a minimum when not required. Any covers, panels or enclosure doors to engines will be kept closed when the equipment is in use;
- The drop height of materials will be minimised where possible;
- Plant and vehicles will be started up sequentially rather than all together. Any period of idling required to warm up mobile plant at the start of the working day will be undertaken in locations away from residential premises;
- In the event of any emergency or unforeseen circumstances arising that cause safety to be put at risk, every effort be made to ensure that the work in question is completed as quickly and as quietly as possible and with the minimum of disturbance to people living or working nearby;
- Operatives will be trained to employ appropriate techniques to keep site noise to a minimum, and will be effectively supervised to ensure that best working practice in respect of noise minimisation is followed.

7. Monitoring

7.1 Routine noise monitoring is undertaken in accordance with a Noise Monitoring Scheme approved by the Mineral Planning Authority (Shropshire Council) to determine compliance with noise limits stipulated within the site's extant planning permission.

7.2 Additional monitoring will be undertaken at the request of the Environment Agency.

8. Community Engagement and Complaints

- 8.1 It is the duty of all members of staff to receive and record complaints, which will be processed by the Site Manager. Tarmac shall ensure that all neighbours know how to contact the site if they consider noise to be a problem.
- 8.2 The Operator will maintain a record of all complaints received. Any complaints will be responded to and recorded in accordance with the Complaints Procedure which forms part of the site Environmental Management System. The complaints log will be made available for inspection upon request.
- 8.3 All complaints will be investigated to identify the likely source of the noise. If it is established that the operator could be the source then further investigation will be undertaken to determine the scale of impact.
- 8.4 Should clear impacts from site operations be identified then, if practicable, the operator will implement suitable control measures in consultation with the Environment Agency.
- 8.5 Action will be taken promptly and during any investigation and subsequent remedial works, the complainant will be kept updated of progress.

9. Incident Management

- 9.1 The risk of incidents will be minimised by effective maintenance of equipment and good housekeeping. Where standby equipment for critical plant is unavailable, the site will maintain stock levels of required spares to ensure that critical plant can be repaired quickly.
- 9.2 In the event of an incident causing significant noise pollution, the Site Manager will take immediate action and the plant/activity will be reduced or stopped until effective controls are in place.

10. Management, Training and Responsibility

- 10.1 The Site Manager will have responsibility for ensuring that nuisances and hazards arising from the operations due to noise are minimised, and that the measures outlined in this NMP are implemented, documented and subject to ongoing evaluation and review.
- 10.2 Employees training requirements are identified and suitable resources provided to ensure they have the required competency and expertise to carry out their duties. This includes their roles and responsibilities in complying the Operator's management systems and all relevant legislation. This is achieved through induction, training for new employees, awareness training for all and specific training as required.

- 10.3 Contractors and all persons performing tasks on behalf of Tarmac will also be made aware of the policy and relevant management system requirements and will be competent in the roles undertaken.
- 10.4 Operatives will be trained to employ appropriate techniques to keep site noise to a minimum and will be effectively supervised by the Site Manager to implement best working practice. All operational staff and contractors will be responsible for reporting any problems relating to noise directly to the Site Manager.
- 10.5 All staff at the site will be made fully aware of the need to be constantly vigilant about the control and management procedures in place. To minimise the risk of noise emissions, emphasis will be given to:
- Awareness of their responsibilities for avoiding noise nuisance;
 - The timely reporting of noise issues directly to the Site Manager; and
 - Actions to minimise noise emissions during abnormal operating scenarios that could give rise to noise issues.

11. Plan Review

- 11.1 The Noise Management Plan will be reviewed and updated, as appropriate, in consultation with the Environment Agency.
- 11.2 In particular, the scheme should be reviewed:
- following the receipt of complaints relating to noise from permitted operations;
 - following the addition of new plant or modification to existing plant; or
 - when a new noise-sensitive receptor is introduced in the vicinity of the site.
- 11.3 During the review, particular reference should be made to the following:
- The results of previous compliance monitoring;
 - Noise monitoring locations and survey frequency;
 - Noise complaint record; and
 - Operational changes or plant modifications.