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Burleigh Oaks Farm Waste Transfer and Recycling Centre

An environmental noise impact assessment

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Appendices

1.0 Introduction

1.1 Sharps Acoustics LLP (SAL) have been instructed by Burleigh Oaks Farm Waste Transfer and Recycling Centre to undertake a noise assessment in support of a planning application for the erection of a replacement building for the repair, maintenance and storage of vehicles, plant and equipment. It is understood that the building would house and maintain vehicles and equipment associated with the waste transfer and recycling centre.

1.2 It is understood that planning permission was granted for a building for the repair, maintenance and storage of vehicles, plant and equipment for the original building on the same footprint on the 13th January 1989 and that the application proposes to introduce no new noise sources to the waste transfer and recycling centre.

1.3 The normal operating hours of the proposed building is understood to be 07:00 hours to 18:00 hours Monday to Friday and 07:00 hours to 13:00 hours on Saturdays.

1.4 Details of the assessment methodology employed, together with the results of the baseline survey, assessment and conclusions are presented within this report.

Site Description

1.5 The site is located towards the southern end of the Burleigh Oaks Farm Waste Transfer and Recycling Centre. The immediately surrounding area to the waste transfer and recycling centre comprises predominantly rural land with isolated properties. The residential areas of Crawley Down and Turners Hill are approximately 1km to the north and southwest respectively. The M23 is approximately 4km to the west.

1.6 The site and surrounding area including the closest noise-sensitive receptors are shown in Figure A1 in Appendix A.

2.0 Assessment Methodology and Criteria

National Planning Policy Framework (NPPF) (2021)

2.1 Government planning policy in relation to noise is contained in the National Planning Policy Framework (NPPF). The relevant paragraph from this (paragraph 185) states:

> *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*
>
> *a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason …"

2.2 The requirement to avoid significant impacts and to mitigate and reduce other adverse effects to a minimum was originally recommended in the Noise Policy Statement for England (NPSE).

Noise Policy Statement for England (NPSE)

2.3 The 2010 DEFRA publication *'Noise Policy Statement for England'* (NPSE) sets out policy advice applicable to the assessment and management of noise, including environmental noise. The NPSE states three policy aims, which are:

- *"avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life."*

2.4 All three of these aims are to be considered in the context of Government policy on sustainable development.

2.5 The first two aims require that no significant adverse impact should occur and, where noise falls between the lowest observable adverse effect level (LOAEL) and the significant observed adverse effect level (SOAEL), then according to the NPSE:

"… all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur."

2.6 The NPSE notes that, "It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times".

2.7 The NPSE describes the Government's "guiding principles of sustainable development", listing the following as underpinning their sustainable development strategy:

- ensuring a strong, healthy and just society;
- using sound science responsibly;
- living within environmental limits;
- achieving a sustainable economy; and
- promoting good governance.

2.8 Thus, noise should not be considered in isolation; the economic and social benefit of a proposed development should be considered alongside the potential adverse effects from noise.

Planning Practice Guidance on Noise (PPG: Noise)

2.9 The Government first published their Planning Practice Guidance on noise (PPG) in March 2014, with the most recent version issued in July 2019. The PPG provides guidance on the interpretation and implementation of planning policy, as contained in the NPPF and the NPSE.

2.10 The use of the lowest observed adverse effect level (LOAEL) and significant observed adverse effect level (SOAEL) for the assessment of noise impacts is reinforced in the PPG, which seeks to define human perception at these effect levels.

2.11 The PPG describes the LOAEL as the level at which *"noise can be heard and causes small changes in behaviour, attitude or other physiological response"* and it is *"present and intrusive"*. Below this level, the PPG describes the NOAEL, or No Observed Adverse Effect Level, which it notes *"can be heard but does not cause any change in behaviour, attitude or other physiological response"* as the noise is *"present but not intrusive"*. The NOAEL is not included in the NPSE and is introduced in the PPG. Below the NOAEL, the PPG describes the NOEL, or No Observed Effect Level, where noise is *"not present"* and has *"no effect"*.

2.12 The PPG describes the LOAEL as the:

> *"… boundary above which the noise starts to cause small changes in behaviour and attitude, for example, having to turn up the volume on the television or needing to speak more loudly to be heard. The noise therefore starts to have an adverse effect and consideration needs to be given to mitigating and minimising those effects (taking account of the economic and social benefits being derived from the activity causing the noise)."*

2.13 Significant observable adverse effects, i.e. those occurring at or above the SOAEL, are described as *"present and disruptive"* and the PPG states that above the SOAEL:

> *"… the noise causes a material change in behaviour such as keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present. If the exposure is predicted to be above this level the planning process should be used to avoid this effect occurring, for example through the choice of sites at the plan-making stage, or by use of appropriate mitigation such as by altering the design and layout. While such decisions must be made taking account of the economic and social benefit of the activity causing or affected by the noise, it is undesirable for such exposure to be caused."*

Derivation of suitable assessment methodology and criteria

2.14 It is possible to apply objective standards to the assessment of noise and the effect produced by the introduction of a certain noise source may be determined by several methods, as follows:

i) The effect may be determined by reference to guideline noise values. British Standard (BS) 8233:2014 and several other sources such as the World Health Organisation's (WHO) *"Guidelines for Community Noise"* contain such guidelines.

ii) Alternatively, the impact may be determined by considering the change in noise level that would result from the proposal, in an appropriate noise index for the characteristic of the noise in question. There are various criteria linking change in noise level to effect. This is the method that is suited to, for example, the assessment of noise from road traffic because it can predict impact to all properties adjacent to a road link irrespective of their distance from the road.

iii) Another method is described within British Standard BS 4142, the current version of which is BS 4142: 2014+A1: 2019, 'Methods for rating and assessing industrial and commercial sound', to determine the significance of sound impact from sources of industrial and/or commercial in nature.

2.15 In order to assess noise from the proposed development, the approach set out in BS4142 is most appropriate, as the noise sources present would fall within the scope of that standard, paragraphs 2.16 to 2.22 below explain the key features of BS4142 in more detail.

British Standard BS 4142: 2014 + A1:2019

2.16 British Standard (BS) 4142: 2014+A1: 2019 *'Methods for rating and assessing industrial and commercial sound'* (BS4142) describes a method for rating and assessing sound of an industrial or commercial nature, which includes, in Section 1.1 of the standard:

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

2.17 The industrial or commercial sound is assessed outside an existing or proposed dwelling or premises used for residential purposes. BS4142 does not consider internal spaces in terms of its numerical assessment.

2.18 The procedure contained in BS4142 begins by quantifying the "specific sound level", which is the measured or predicted level of sound from the source in question over a one-hour period for the daytime or a 15-minute period for the nighttime. Daytime and nighttime are not defined in BS4142, but the standard notes that they are typically taken to be 0700 to 2300 hours for daytime, and 2300 to 0700 hours for nighttime.

2.19 BS4142 sets out a number of methods of determining the specific sound level including, for situations where the specific sound source does not yet exist, the ability to estimate it, stating, at Section 7.3.6:

"Determine the specific sound level by calculation alone if measurement is not practicable, for example if the source is not yet in operation. In such cases, report the method of calculation in detail and give the reason for using it."

2.20 The specific sound level is converted to a rating level by adding penalties on a sliding scale to account for potentially tonal, impulsive or intermittent elements. The standard sets out subjective and objective methods for determining the presence of tones or impulsive elements but notes that the objective methods should be used where the subjective method is not sufficient. For situations where the specific sound source does not yet exist, the objective methods cannot be used.

2.21 The assessment outcome results from a comparison of the rating level with the background sound level (which is determined by the assessment of typical background noise levels by survey). The standard states, in Section 11:

"a) Typically, the greater this difference, the greater the magnitude of the impact.

b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

NOTE 2 Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."

2.22 Finally, BS4142 requires that the level difference is considered in the context in which it is found. Contextual considerations include:

- Absolute level of sound. If the existing level is particularly high or low, then this can affect the significance of a particular difference (assessed as described in 2.26 above).
- The character and level of the residual sound compared to the character and level of the specific sound.
- Sensitivity of 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 such as:
    i. facade 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.

Planning Noise Advice Document: Sussex (September 2021)

2.23 The Sussex Planning Noise Advice Document provides advice for developers and consultants to assist in making planning applications in East and West Sussex with regard to noise. The document provides guidance on a number of development types.

2.24 For industrial and commercial sound sources the guidance document states that noise assessments should be conducted in line with BS4142:2014+A1:2019.

Selected Noise Assessment Methodology

2.25 Noise levels generated by the site have been predicted to the closest noise-sensitive receptors.

2.26 The predicted noise levels emanating from the site have been used to assess the potential impact at the closest noise-sensitive receptors during the proposed hours of operation in accordance with the guidance contained in British Standard 4142:2014+A1:2019 'Method for rating and assessing industrial and commercial sound' (BS4142).

2.27 The assessment is based upon the results of a baseline noise survey undertaken at locations representative of the closest noise-sensitive receptors, and measurements of existing activities at the waste transfer and recycling centre.

2.28 The above assessment methodology is therefore in line with the Sussex Planning Noise Advice document.

3.0 Noise Survey

3.1 An unattended environmental noise survey has been undertaken between approximately 0700 hours on Thursday 5 January 2023 and 1800 hours the following day to determine the existing noise levels representative of the closest noise-sensitive receptors.

3.2 The monitoring locations used for the survey are detailed in Table 3.1, and shown in the aerial view in Figure A2 in Appendix A. The noise measurements were taken at a height of approximately 1.7m above ground level in free field conditions. The microphone was mounted on a pole and fitted with an integrated wet-weather kit and wind shield.

Table 3.1: Noise Monitoring Location

Location	Receptor	Approximate Distance from Site (m)	Reflecting Surfaces between Source and Receptor(1)	Topography of Intervening Ground	Justification for Choice of Measurement Location
MP1	Totters Cottage	35	Single storey buildings	No significant topographical change	Measurement location representative of noise levels at NSR1
MP2	Burleigh Oaks House	190	none	Slight rise in ground level from site to measurement position	Measurement location representative of noise levels at NSR2

Note (1) – Reflecting surfaces other than the ground

3.3 The noise monitoring equipment used during the survey is shown in Table 3.2, and was set to record a number of parameters, including the $L_{Aeq,T}$, L_{A90}, L_{A10} and L_{AFmax}.

Table 3.2: Survey Equipment

Location	Equipment Description	Serial Number	Calibration Date Prior to Survey	Calibrator Reference Level
MP1	Norsonic 140 sound level meter	1402899	09/07/2021	-
	Norsonic 1225 microphone	91754	09/07/2021	-
	Norsonic 1251 calibrator	29149	01/07/2022	114dB
MP2	Norsonic 140 sound level meter	1404138	19/07/2021	-
	Norsonic 1225 microphone	118549	19/07/2021	-
	Norsonic 1251 calibrator	34485	04/08/2022	114 dB

3.4 Continuous measurements were taken over 15-minute periods throughout the survey.

3.5 The sound level meters were field checked for calibration before and after the measurements. A drift in calibration of no more than 0.2dB was observed. All sound level meters and calibrators are factory calibrated bi-annually and annually, respectively.

Weather

3.6 The weather conditions during the survey are detailed in Table 3.3 below.

Table 3.3: Weather

Period	Period	Precipitation	Cloud Cover	Wind Speed (mph)	Wind Direction	Temperature
Thursday 5 January	Daytime	None	Broken clouds	9 - 14	W SW	10 - 13°C
	Nighttime	None	Overcast	14 – 12	SW WSW	6 - 11°C
Friday 6 January	Daytime	None	Broken clouds	8 - 13	SW SSW	6 - 13°C

Note: Information taken from www.timeanddate.com

Survey Results

3.7 The average daytime and nighttime L_{Aeq}, L_{A90} and L_{AFmax} results are summarised in Table 3.4. The 15-minute L_{Aeq}, L_{A90} and L_{AFmax} results are shown graphically in Figure B1 and Figure B2 in Appendix B for positions MP1 and MP2, respectively.

Table 3.4: Summary of noise survey results

Position	Period	Measured Level dB		
		$L_{Aeq,T}$	L_{AFmax}(1)	Typical $L_{A90,T}$
MP1	Day (0700 to 2300 hours)	48	80	50
	Night (2300 to 0700 hours)	43	69	35
MP2	Day (0700 to 2300 hours)	46	71	45
	Night (2300 to 0700 hours)	47	74	36

Note (1) – Data not averaged

3.8 For information purposes it can be noted:

- Measurements of sound level were all made with the A-weighting, which is a filter applied to the sound level meter to simulate the frequency response of the human ear, which is more sensitive to high frequency sound than low.
- L_{Aeq} is the equivalent continuous noise level which is a method of averaging the varying noise level over the measurement period into a single figure value. The L_{Aeq} has the same sound energy as the fluctuating level over that period. The L_{Aeq} is also known as the "ambient level" and in BS4142 the L_{Aeq} in the absence of the proposed development sound is known as the "residual level".
- L_{Amax} is the highest level within the measurement period.
- L_{A90} is the noise level exceeded for 90% of the time and is referred to as the background noise level.

Description of Noise Climate

3.9 As the survey was mostly unattended it is not possible to comment on the noise climate throughout the entire survey period. However, during the attended aspects of the survey at position MP1 the noise

climate was predominantly controlled by noise from the waste transfer and recycling centre. At position MP2 the noise climate was controlled by noise from the waste transfer and recycling centre and distant road traffic.

Measurements of Processes at Burleigh Oaks Farm Waste Transfer and Recycling Centre

3.10 It is understood that noise levels within the proposed building would comprise the movement and maintenance of vehicles, plant and equipment.

3.11 To ascertain noise levels which would emanate from the proposed building, noise measurements at the existing Burleigh Oaks Farm Waste Transfer and Recycling Centre have been conducted, as follows:

- Internal reverberant noise levels inside the existing vehicle and plant maintenance building, including radio
- Manoeuvre of CAT 966M wheeled loader, including reverse alarm
- Manoeuvre of Liebherr LH22 material handling machine
- Manoeuvre of flatbed van
- Manoeuvre of Mercedes Waste Lorry, including reverse alarm
- Manoeuvre of skip lorry, including reverse alarm

3.12 The post-processed $L_{Aeq,T}$ noise levels of the above measurements are presented in Table 3.5 below.

Table 3.5: Noise Levels associated with the proposed development

Noise Source	Parameter	Octave band sound levels L_{eq} dB							
		63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Internal reverberant noise level inside exiting vehicle and plant maintenance building, including radio	$L_{eq,T}$	62	60	60	60	58	56	54	49
Manoeuvre of CAT 966M wheeled loader, including reverse alarm	SEL @10m	84	83	81	78	76	75	71	66
Manoeuvre of Liebherr LH22 material handling machine	SEL @10m	84	83	88	84	80	76	70	64
Manoeuvre of flatbed van	SEL @10m	78	74	67	64	65	64	67	75
Manoeuvre of Mercedes Waste Lorry, including reverse alarm	SEL @10m	74	72	67	67	69	69	64	55
Manoeuvre of skip lorry, including reverse alarm	SEL @10m	84	83	81	78	76	75	71	66

4.0 Assessment

4.1 This section of the report outlines the prediction and assessment of noise generated by the proposed development. The assessment is based on measured noise levels from the existing waste transfer and recycling site.

4.2 The noise survey and assessment has been undertaken by Ed Barnett BSc MIOA who has over 8 years' professional experience.

Operating Conditions

4.3 The building is proposed to operate during the daytime period only, therefore the noise assessment considers the worst-case 1-hour assessment period which includes the manoeuvre of a Liebherr LH22 material handling machine within the building and noise from the repair and maintenance of vehicles, including a radio.

Proposed Building Details

4.4 The proposed building construction is presented in Table 4.1 below, along with the associated Sound Reduction Indices (SRI).

Table 4.1: Building Construction

Building element	Construction	Octave band SRI dB							
		63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
External walls up to 2m in height	150mm Precast concrete panel	30	37	36	45	52	59	62	62
External walls above 2m in height and roof	Uninsulated powder coated sheeting	16	18	20	21	21	25	25	25

Noise Emissions

4.5 The worst-case internal reverberant noise levels are presented in Table 4.2 and have been calculated based on the operating conditions in Section 4.3, the dimensions and internal finishes of the proposed building from the architectural drawings and the measured noise levels in Table 3.5.

Table 4.2: Calculated Internal Noise Levels

Noise Source	Internal reverberant octave band 1-hour sound levels $L_{eq,1hr}$ dB							
	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Vehicle and plant maintenance, including radio and manoeuvre of Liebherr LH22 Material Handling Machine	63	61	63	61	59	56	54	49

Noise Prediction

4.6 Noise generated by the proposed development has been calculated to the closest noise-sensitive receptors using proprietary noise modelling software SoundPlan Version 8.2 using the calculation methodology ISO9613.

4.7 The noise model was constructed using Google Earth geo-referenced 1:1 scaled aerial photography and the internal noise source data detailed in Table 4.2 along with the building acoustic performance presented in Table 4.1. Topographical information is based on 1m Lidar data. Ground absorption has been set to 0.2 across the waste transfer and recycling centre and 0.8 across the remainder of the model.

Specific Sound Level

4.8 Table 4.3 presents the worst-case 1-hour results from the computer model at the closest noise-sensitive receptors.

Table 4.3: Predicted Specific Sound Levels

Location	Period	Specific Sound Level $L_{Aeq,1hr}$ dB
NSR1 (Totters Cottage)	Daytime	19
NSR2 (Burleigh Oaks House)		12

Sound Rating Level

4.9 In accordance with the guidance contained in BS4142 the specific sound level has been corrected for tonal, impulsive, intermittent or other acoustic characteristics, which may be present at the receptor, to determine the sound rating level.

4.10 During observations of the existing processes on site, some vehicles which would be housed or maintained in the proposed building were noted to operate tonal reverse alarms, however, any manoeuvres which involve tonal reverse alarms would be short in duration, and would be

indistinguishable against other vehicle movements at the waste transfer and recycling centre. On this basis no penalty for tonality has been applied.

4.11 During observations on site, noise emanating from the existing vehicle maintenance building was continuous and did not emit any intermittent characteristics. Therefore, no penalty for intermittency has been applied.

4.12 Noise emanating from the existing vehicle maintenance building was occasionally impulsive, depending on the process taking place, therefore a penalty of +3dB for impulsivity which is just perceptible at the receptors has been applied.

4.13 Noise emanating from the proposed development would not contain any other sound characteristics that are either tonal nor impulsive, though otherwise readily distinctive against the residual noise climate. On this basis, no further corrections have been applied.

4.14 The daytime sound rating level of the proposed development are therefore presented in Table 4.4.

Table 4.4: Sound Rating Levels

Location	Period	Specific Sound Level $L_{Aeq,1hr}$ dB	Penalties Applied dB	Sound Rating Level $L_{Ar,1hr}$
NSR1 (Totters Cottage)	Daytime	19	+3	22
NSR2 (Burleigh Oaks House)		12	+3	15

BS4142 Background Sound Levels

4.15 The BS4142 background sound levels are presented in Table 4.5 and have been derived following the guidance of Figure 4 of the Standard.

Table 4.5: BS4142 Background Levels

Location	Period	BS4142 Background Sound Level $L_{A90,1hr}$ dB
NSR1 (Totters Cottage)	Daytime	50
NSR2 (Burleigh Oaks House)		45

BS4142 Initial Estimate of Impact

4.16 The predicted daytime sound rating levels at the closest noise-sensitive receptors during the proposed operational periods have been compared to the BS4142 background level and are presented in Table 4.6 below.

Table 4.6: Initial Estimate of Impact

Location	Period	Sound Rating Level ($L_{Ar,T}$)	BS4142 Background Level ($L_{A90,T}$)	Level Exceeding Background (dB)
NSR1 (Totters Cottage)	Daytime	22	50	-28
NSR2 (Burleigh Oaks House)		15	45	-30

4.17 Table 4.6 shows that during the proposed operational daytime periods the cumulative sound rating level of the proposed development is predicted to be well below the BS4142 background level at both of the closest noise-sensitive receptors. The Standard states that where the rating level does not exceed the background level, this is an indication of the specific sound source having a low impact, depending on the context.

Context

4.18 BS4142 states that where the initial estimate of impact needs to be modified due to the context, all pertinent factors should be taken into consideration, including the following.

The Absolute Level of Sound

4.19 The specific sound level during the worst-case assessment is predicted to be well below the otherwise prevailing average ambient noise levels presented in Table 3.4.

The Character and Level of the Residual Sound

4.20 The assessment has shown that the character of sound emanating from the proposed development would be indistinguishable against the residual noise climate. Furthermore, the level of sound is predicted to be well below the otherwise prevailing ambient and background levels.

The Sensitivity of the Receptor

4.21 The closest noise-sensitive receptors are residential and believed to be ventilated via openable windows. Therefore, the receptors are considered sensitive to noise during the proposed operational daytime periods. On this basis, all operations associated with the proposed development are proposed to take place indoors to reduce noise emanating from the site.

Summary of the Context

4.22 Based on the above, the context should not affect the initial estimate of impact. Therefore, noise emanating from the proposed development should have a low impact when assessed in accordance with BS4142 during proposed operating periods.

4.23 On this basis, no further noise attenuation measures would be required for the proposed development.

4.24 Based on the results of the assessment the proposed development would result in no adverse effects and no noise pollution at the closest noise-sensitive receptors.

5.0 Conclusions

5.1 Sharps Acoustics LLP (SAL) have been instructed by Burleigh Oaks Farm Waste Transfer and Recycling Centre to undertake a noise assessment in support of a planning application for the erection of a replacement building for the repair, maintenance and storage of vehicles, plant and equipment. It is understood that the building shall only house and maintain vehicles and equipment associated with the waste transfer and recycling centre.

5.2 The BS4142 assessment has shown that when accounting for context, noise emanating from the proposed development would have a low impact when assessed in accordance with BS4142:2014 during the proposed operating periods. On this basis, no further noise attenuation measures would be required.

5.3 Based on the results of the assessment the proposed development should result in no adverse effects and no noise pollution at the closest noise-sensitive receptors.

Appendix A: Figures showing proposed layout and location

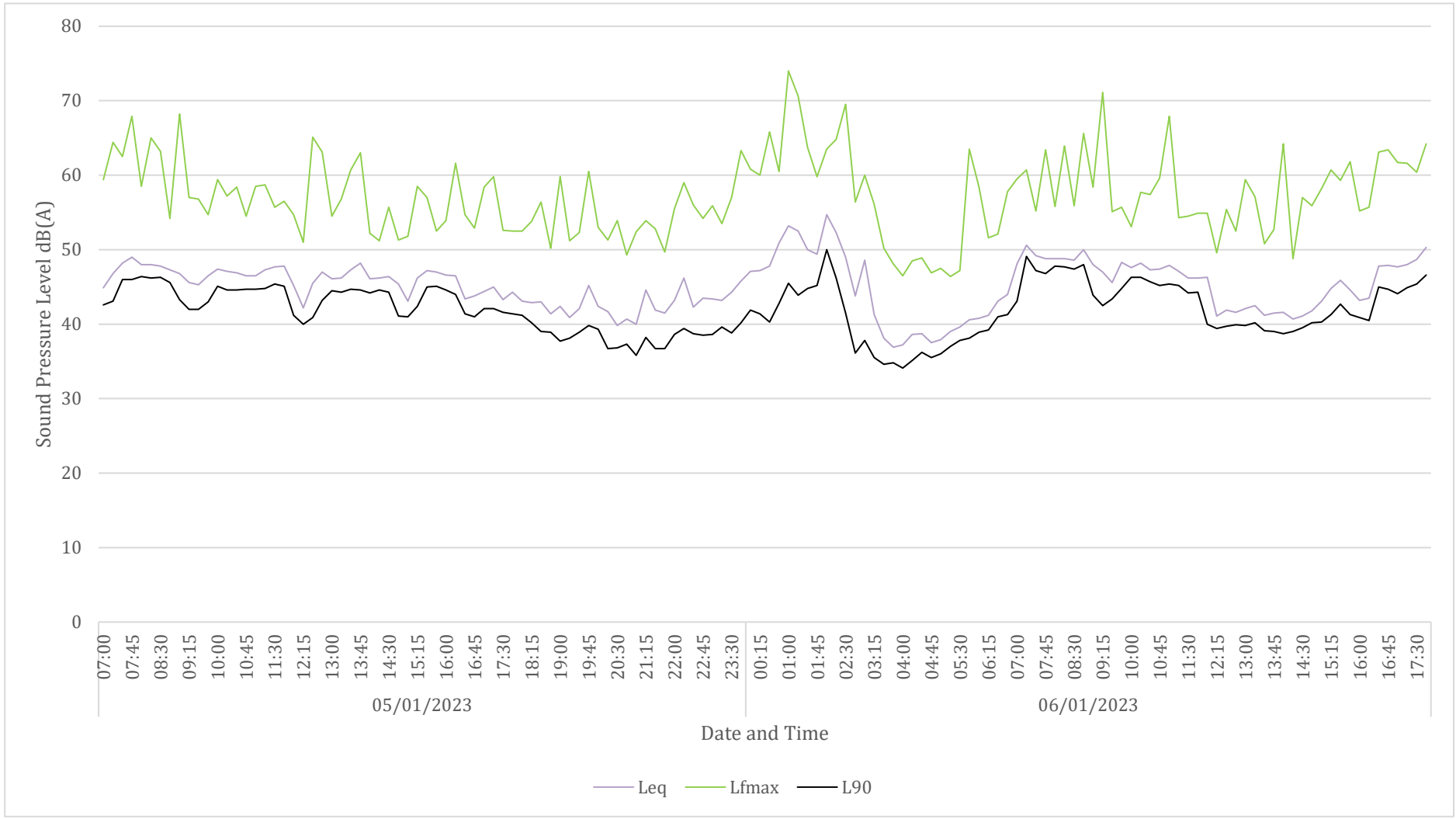
Figure A1: Site, surrounding area and closest-noise sensitive receptors

Figure A2: Aerial view of site showing noise survey locations

Appendix B: Noise survey results

Figure B1: Graph of MP1 survey results

Figure B2: Graph of MP2 survey results



Appendix C: Statement of Uncertainty

Table C1: BS4142 statement of uncertainty

Uncertainty	Reasoning
The complexity of the sound source and the level of variability in sound emission from the source	Noise emanating from the existing vehicle repair building reasonably static.
The complexity and level of variability of the residual acoustic environment	Residual acoustic environment detailed in report and affected by a limited number of sources
The level of residual sound in the presence of the specific sound at the measurement location	Measurements controlled by specific sound where applicable
The location(s) selected for taking measurements	The location(s) selected considered representative of the closest noise-sensitive receptor(s)
The distance between sources of sound and the measurement location and intervening ground conditions	The location(s) selected considered representative of the closest noise-sensitive receptor(s) therefore the distance between the sources of sound and the measurement location and intervening ground conditions should not adversely impact the uncertainty
The number of measurements taken	Continuous measurements conducted over approximately 2 days
The measurement time intervals	Measurements taken over 15-minute periods and in line with the BS4142 assessment period
The range of times when the measurements have been taken	Continuous measurements conducted over approximately 2 days
The range of suitable weather condition during which measurements have been taken	Weather conditions considered suitable for noise measurements
The measurement method and variability between different practitioners in the way the method is applied	Measurement and assessment conducted in line with BS4142:2014
The level of rounding of each measurement recorded	Measurements rounded to 1dB
The instrumentation used	All instrumentation used Class 1