TRAFFORD PARK ENVIRONMENTAL PERMIT VARIATION: WET SEPARATION PROCESS

Noise Impact Assessment

Prepared for: S. Norton & Co Limited

SLR Ref: 416.V64371.00002
Version No: 1
September 2023

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1.0 Introduction

S. Norton & Co Limited (S Norton) has appointed SLR Consulting Limited to undertake a noise impact assessment as part of an Environmental Permit (EP) variation application for the Metal Recycling Facility located at Tenax Road, Trafford Park, Manchester, M17 1JT ('the Site').

This document has been prepared to demonstrate that the proposed change in operations, due to the provision of the new additional plant and equipment listed below, does not constitute a significant increase in noise impact over the existing operations at any sensitive receptors as requested by the Environmental Agency (EA).

1.1 Additional New Plant/Equipment

This Noise Impact Assessment takes into account the following proposed changes to operations at the Site:

- Addition of a wet separation treatment process and water treatment unit;
- Increase in annual waste throughput to 750,000 tpa;

Refer to the Environmental Risk Assessment (SLR ref. 416.V64371.00002) for a summary of the risk of noise impact from all the proposed changes in the permit.

The increase in annual waste throughput from 300,000 tpa to 750,000 tpa will be managed by the replacement of the existing pre-shredder plant and main shredder plant with a new, more efficient pre-shredder plant and main shredder plant. Therefore, this NIA will take into account the potential noise impact from operation of the new plant.

Furthermore, it is proposed to add the installation of a wet separation process in the exiting Shredder Waste Advanced Processing Plant (SWAPP) that will consist of a new vibratory screen, wet separator and water treatment plant within the SWAPP2 area of the SWAPP (as shown on Drawing 02). This new process will integrate with the existing separation process and it will be used to treat the two separate waste streams: residues from Small Mixed WEEE as well as Automotive Shredder Residue (ASR). The wet separation process has been installed at the Site for commissioning purposes.

1.2 Assessment

This report has been prepared to inform the EA regarding noise impacts from proposals outlined above as well as existing impacts.

The site is located in the principal industrial area of Trafford. The surrounding uses are predominantly of Industrial, Manufacturing and Logistics related businesses. These are noise generating as opposed to noise sensitive.

The nearby noise sensitive receptors potentially impacted by the development proposals has been noted to be hotels and residential dwellings, all of which are a significant distance from the site boundary.

Whilst reasonable effort has been made to ensure that this report is easy to understand, it is technical in nature. To assist the reader, a glossary of terminology has been included in **Appendix 01**.

As requested by the EA a Noise Management Plan is also appended within **Appendix 05.**

2.0 Site Description

2.1 Existing Site

The existing site comprises a waste management and recycling facility on Tenax Road, Trafford. The site is located within the principally industrial, manufacturing, and logistics district area of Trafford.

The site operates between 06:00-17:00 daily. However, some processes operate 24 hours a day and therefore both the day and night-time period (07:00-23:00) and 23:00-07:00) respectively, have been considered in full.

2.2 Noise Sensitive Receptors

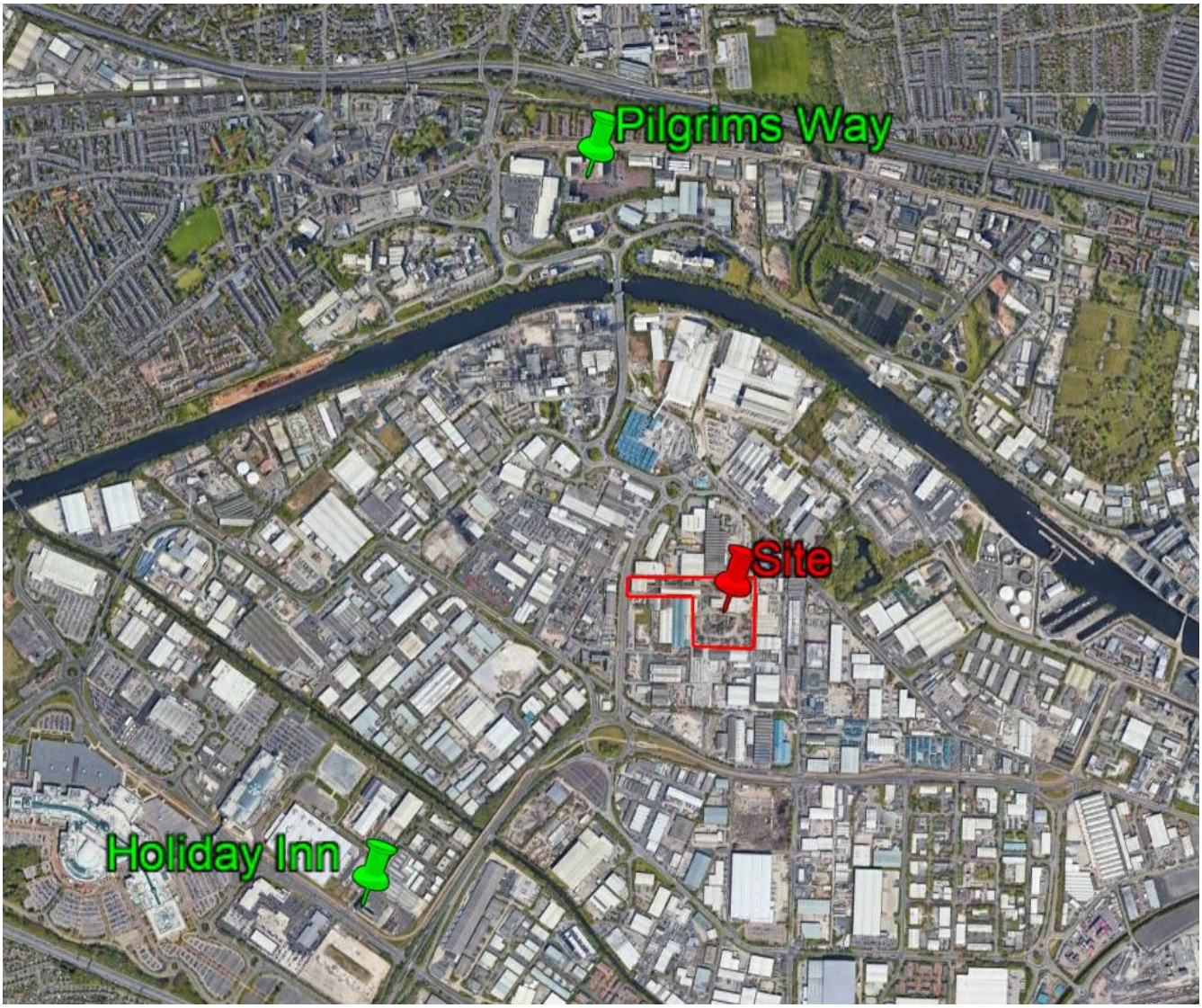
The nearest noise sensitive receptors (NSR) have been identified as residential dwellings, known as:

- Receptor 1 - Ladywell Apartments approximately 1,220m to the north-west.
- Receptor 2 - Holiday Inn, Trafford City 1,230 metres distant to the south-west.

Other sensitive receptors are at a further distance and further screened from the site. Thus, any noise impacts found are expected to be lower in magnitude and significance and therefore no further assessment locations are proposed.

The location of the Receptors listed above relative to the Site are shown in Figure 2-1.

Figure 2-1
NSR and Site Locations



3.0 Planning And Noise Impact Assessment History

3.1 2010 Assessment

In 2010 NVC (Noise & Vibration Consultants) Ltd undertook a Noise Impact Assessment for a proposed Extension to Operating Hours & Operation of Shredder Waste Advanced Processing Plant.

The assessment was originally commissioned to assess the noise impact of the proposed extension to operating hours and the proposed construction and operation of a Shredder Waste Advanced Processing Plant ("SWAPP") Facility at the site.

Refer to report R09.1657/DRK and R09.1657/Add1/DRK for further information on the proposed development.

Subsequently as detailed in report ref: Report ref: 09.1657/Add2/DRK. , S. Norton & Co Ltd has amended the layout of the plant and NVC re-assessed the site to confirm the resultant noise levels at the nearest sensitive receptors did not result in significant new impact.

The receptors assessed were further distant than those SLR has identified, however no significant impacts were found at the time of the assessment at the identified receptors.

3.2 2020 Assessment

In 2020 technical note ref: R20.1202/DRK summarised a Noise Impact Assessment in relation to the proposed replacement pre shredder, shredder plant, relocated substation and associated infrastructure.

The results of the noise predictions associated with this assessment and analysis demonstrated the following:

a) Noise levels from the existing Shredder are typically between 95 dB to 104 dB L_{Aeq} at 10m to 20m distance.
b) Noise levels from the proposed Pre-Shredder are typically between 74 dB to 80 dB L_{Aeq} at 10m to 20m distance.
c) The addition of the Pre-Shredder is such that it will not have any cumulative issues in terms of noise as the levels compared with the Shredder are considerably lower.
d) Noise levels from the proposed Shredder are typically between 91 dB to 97 dB L_{Aeq} at 10m to 20m distance.
e) The noise levels from the proposed Shredder are therefore shown to be between 4 dB and 7 dB L_{Aeq} quieter than the existing plant.

In summary, the results show that the impact of the introduction of the proposed Pre Shredder and Shredder would be lower and the measured data provided demonstrated that the proposed development would not have a greater noise impact on neighbouring uses than the existing operations.

There was, therefore, no reason found to refuse the proposal at the time of the assessment on the grounds of noise.

4.0 Scope and Guidance

A summary of the requirements outlined in the EA Guidance document, and the assessment methodology outlined in BS4142:2014+A1:2019 are provided below.

4.1 Noise and vibration management: environmental permits

The Environment Agency (EA) released the guidance document *Noise and vibration management: environmental permits* (NVM) in July 2021, replacing the previous guidance presented in *Horizontal Guidance for Noise (H3) parts 1 and 2*. The NVM details when a noise assessment is required, the competency required to undertake an assessment and how to carry out a noise impact assessment.

The NVM references BS4142:2014+A1:2019 as the appropriate assessment methodology.

The NVM outlines how context should be taken into account in the assessment and notes that *"Whilst context allows you to interpret impact thresholds (to a degree), there are practical limits to the extent of the interpretation. It is unlikely you could adjust the assessment outcome beyond the next band (for example, modifying a BS 4142 outcome of more than 10dB to be less than an 'adverse impact')."*

Determining the outcome of the assessment the following should be considered:

- weekdays rather than weekends.
- what the sound 'means' – meaningful sound is one that conveys an unpleasant meaning beyond its mere acoustic content, for example noise from an abattoir.
- time of day.
- the absolute sound level.
- where the sound occurs.
- new industry or new residences.
- intrinsic links between the source and receptor, for example the source is the resident's place of work.
- local attitudes.
- the residual acoustic environment.
- the land use at the receptor (for example, gardens rather than yards).
- the exceedance (traditional BS 4142).
- whatever else might be particular to that individual situation.

Based on the results of the BS4142:2014+A1:2019 assessment the NVM has three distinct requirements as detailed in Table 3-1.

Table 3-1
NVM Assessment

NVM Result	BS4142 Descriptor	Next Stage
Unacceptable level of audible or detectable noise	The closest corresponding BS 4142 descriptor is 'significant adverse impact'	You must take further action or you may have to reduce or stop operations. The environment agencies will not issue a permit if you are likely to be operating at this level.
Audible or detectable noise	The closest corresponding BS 4142 descriptor is 'adverse impact'	Your duty is to use appropriate measures to prevent or, where that is not practicable, minimise noise. You are not in breach if you are using appropriate measures. But you will need to rigorously demonstrate that you are using appropriate measures.
No noise, or barely audible or detectable noise	The closest corresponding BS 4142 descriptor is 'low impact or no impact'	Low impact does not mean there is no pollution. However, if you have correctly assessed it as low impact under BS 4142, the environment agencies may decide that taking action to minimise noise is a low priority.

4.2 British Standard 4142:2014+A1:2019

British Standard 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* is intended to be used to assess the potential adverse impact of sound, of an industrial and/or commercial nature, at nearby noise-sensitive receptor locations within the context of the existing sound environment.

Where the specific sound contains tonality, impulsivity and/or other sound characteristics, penalties should be applied depending on the perceptibility. For tonality, a correction of either 0, 2, 4 or 6dB should be added and for impulsivity, a correction of either 0, 3, 6 or 9dB should be added. If the sound contains specific sound features which are neither tonal nor impulsive, a penalty of 3dB should be added.

In addition, if the sound contains identifiable operational and non-operational periods, that are readily distinguishable against the existing sound environment, a further penalty of 3dB may be applied.

The assessment of impact contained in BS4142:2014+A1:2019 is undertaken by comparing the sound rating level, i.e. the specific sound level of the source plus any penalties, to the measured representative background sound level immediately outside the noise-sensitive receptor location. Consideration is then given to the context of the existing sound environment at the noise-sensitive receptor location to assess the potential impact.

Once an initial estimate of the impact is determined, by subtracting the measured background sound level from the rating sound level, BS4142:2014+A1:2019 states that the following should be considered:

- typically, the greater the difference, the greater the magnitude of the impact;
- a difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- a difference of around +5dB is likely to be an indication of an adverse impact, depending on the context; and

- 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 level, this is an indication that the specific sound source will have a low impact, depending on the context.

BS4142:2014+A1:2019 notes that:

"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."

BS4142:2014+A1:2019 outlines guidance for the consideration of the context of the potential impact including consideration of the existing residual sound levels, location and/or absolute sound levels.

To account for the acoustic character of proposed sound sources, BS4142:2014+A1:2019 provides the following with respect to the application of penalties to account for *"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".*

- **Tonality** – *"For sound ranging from not tonal to predominantly tonal the Joint Nordic Method gives a correction of between 0dB and +6dB for tonality. Subjectively, this can be converted to a penalty of 2dB for a tone which is just perceptible at the noise receptor, 4dB where it is clearly perceptible and 6dB where it is highly perceptible;*
- **Impulsivity** – *A correction of up to +9dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6dB where it is clearly perceptible, and 9dB where it is highly perceptible;*
- **Intermittency** – *When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied; and*
- **Other Sound Characteristics** – *Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied."*

Finally, BS4142:2014+A1:2019 outlines guidance for the consideration of the context of the potential impact, including consideration of the existing residual sound levels, location and/or absolute sound levels.

4.3 ISO 9613-2:1996

The levels of sound generated by the operation of the proposed Plant has been predicted in accordance with the prediction framework within ISO 9613-2:1996 *Acoustics – Attenuation of Sound during Propagation Outdoors– Part 2: General Method of Calculation*. This method of calculation takes into account the distance between the sound sources and the closest receptors, and the amount of attenuation due to atmospheric absorption. The methodology also assumes downwind propagation, i.e. a wind direction that assists the propagation of sound from the source to the receiver.

5.0 Baseline Environmental Sound Survey

As part of the Variation, it is necessary to determine the baseline background sound level at the NSR locations shown in Figure 2-1.

At the Holiday Inn the survey was completed between the 16th and 19th December 2022. At Ladywell Apartments it was not possible to leave a long-term noise logger due to security concerns, so a short-term survey was completed.

Weather during the survey period was comprised of clear and generally sunny weather conditions, with low wind speeds averaging < 2 ms^{-1} and an absence of rain, as suitable for sound surveying works.

5.1 Equipment and Measurements

Sound pressure level measurements were carried out using the following equipment listed in Table 5-1, confirming to Class 1 acoustic accuracy for sound level meters and matched calibrators.

Table 5-1
Monitoring Equipment

Location	Equipment	Serial Number
Holiday Inn, Trafford City.	Cirrus SLM	G061094
	Cirrus Calibrator	72210
Ladywell Apartments	Cirrus SLM	G061094
	Cirrus Calibrator	72210

The sound level meters were calibrated before the measurements using the handheld acoustic calibrator and the calibration was checked upon completion of the survey. No significant drift was observed with calibration offsets of ≤ 0.5 dB. The calibration chain of equipment has been maintained as traceable, no greater than one year for sound calibrators and two years for sound level meters.

Calibration certificates can be provided for all equipment utilised on request.

The following noise level indices were recorded at 15-minute intervals:

- $L_{Aeq,\,T}$ – The A-weighted equivalent continuous noise level over the measurement period.
- $L_{A90,\,T}$ – The A-weighted noise level exceeded for 90% of the measurement period.
- $L_{A10,\,T}$ – The A-weighted noise level exceeded for 10% of the measurement period.
- $L_{Amax(F)}$ – The maximum A-weighted noise level during the measurement period.

The measurement locations and receptors are identified **Error! Reference source not found.** and **Error! Reference source not found.** below.

Figure 5-1
Holiday Inn, Express, Trafford City

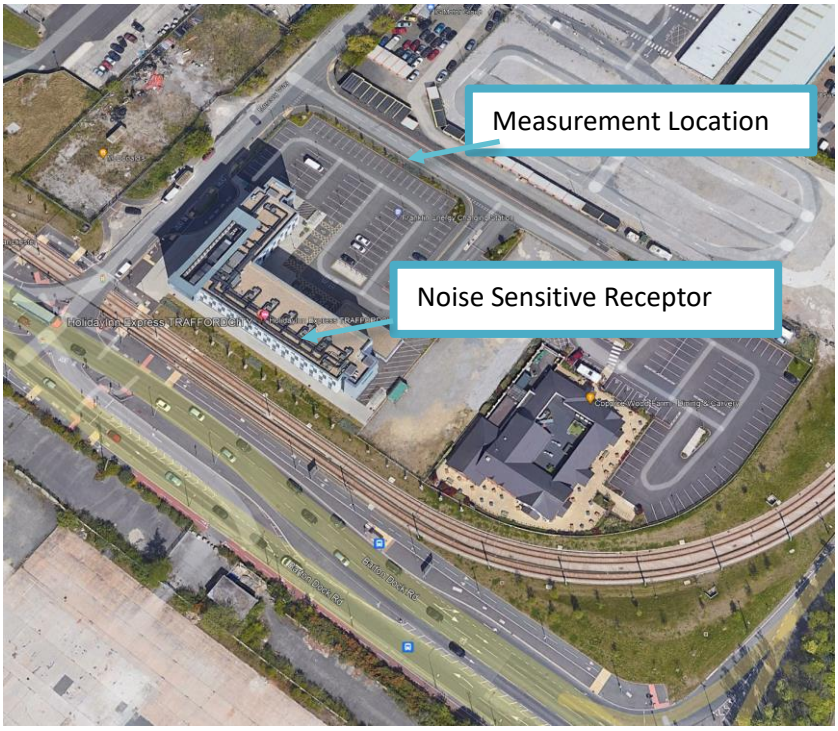
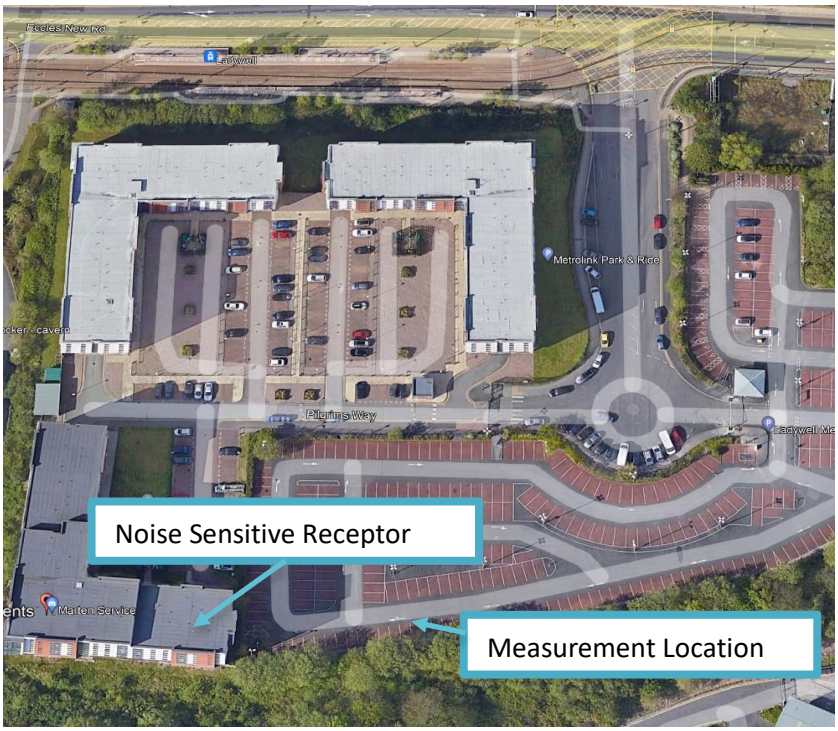


Figure 5-2
Ladywell Apartments, Pilgrims Way, Salford



5.2 Sound Climate

The sound climate at the Holiday Inn Express was dominated by traffic from the east on the Park Way flyover, as well as contributions from Barton Dock Road. Noise from the Site was not audible.

The sound climate at Ladywell Apartments was dominated by Centenary Way to the South, as well as commercial operations associated with Allied Mills, Essity , Punters Food and Cargill. Noise from the Site was not audible.

Data captured has been provided for information within **Appendix 02** of this document.

5.3 Background Sound Levels

The 'typical' background sound levels have been reported in this section in accordance with BS 4142 as established from histograms of the recorded $L_{A90,\ 15min}$ data summarised in **Appendix 02**.

The measurement locations have been used to describe the underlying sound climate at the boundary of the nearest noise sensitive location during proposed operating periods.

In line with Section 8.1.4 of BS 4142, the monitoring duration should represent the range of background noise levels for the period assessed. In practice, there is no single level for background sound as this is a fluctuating parameter, although a representative value of the period should be used.

Note this is not either the lowest or mean average value of $L_{A90,\ 15min}$, the modal average has been used as this is considered representative of the most commonly occurring background sound level experienced in any 15-minute assessment period during the assessment interval.

Table 5-2
Summary of Background Sound Levels - Holiday Inn Express

Date Range	Period, *T*	Measured Background Sound Levels During Period, $L_{A90,15min}$	Modal Average, $L_{A90,\ 15\ min}$
16th December 2022 to 19th December 2022	07:00-23:00	54-62	58
	23:00-07:00	51-62	53

Table 5-3
Summary of Background Sound Levels - Ladywell Apartments, Pilgrims Way, Salford

Date Range	Period, *T*	Measured Background Sound Levels During Period, $L_{A90,15min}$	Modal Average, $L_{A90,\ 15\ min}$
16th December 2022 to 19th December 2022	07:00-17:00	60-61	60

The analysis presented in Table 5-2 and Table 5-3 demonstrate that the background sound levels are consistent during the daytime at both receptors, albeit with slightly more variation over the daytime period at the Holiday Inn Express. The analysis also indicates that Pilgrims Way is less sensitive than Receptor 1 during the daytime period by a margin of 2 dB(A).

However, to present a robust assessment it is proposed to use the night-time measured background sound levels from the Holiday Inn to represent those at Pilgrims Way for the same period, without making further adjustments to artificially raise them.

This is considered robust and in reality, slightly higher night-time background sound levels might be expected at Receptor 2 on the basis of the daytime data captured.

6.0 Operational Noise Survey

In addition to the baseline noise survey an operational noise survey was completed between the 16th and 19th December 2023 at the site boundary to provide an indication of operational noise levels from the full range of activities on site at S. Norton, Trafford.

Weather during the survey period was comprised of clear and generally sunny weather conditions, with low wind speeds averaging < 2 ms^{-1} and an absence of rain, as suitable for sound surveying works.

6.1 Equipment and Measurements

Sound pressure level measurements were carried out using the following equipment listed in Table 5-1, confirming to Class 1 acoustic accuracy for sound level meters and matched calibrators.

Table 6-1
Monitoring Equipment

Location	Equipment	Serial Number
Location S Norton & Co	Cirrus SLM	G068726
	Cirrus Calibrator	60608

The sound level meters were calibrated before the measurements using the handheld acoustic calibrator and the calibration was checked upon completion of the survey. No significant drift was observed with calibration offsets of ≤ 0.5 dB. The calibration chain of equipment has been maintained as traceable, no greater than one year for sound calibrators and two years for sound level meters.

Calibration certificates can be provided for all equipment utilised on request.

The monitoring protocol consisted of initially attended and then extended unattended readings over the survey period. The following noise level indices were recorded at 15-minute intervals:

- $L_{Aeq,\,T}$ – The A-weighted equivalent continuous noise level over the measurement period.
- $L_{A90,\,T}$ – The A-weighted noise level exceeded for 90% of the measurement period.
- $L_{A10,\,T}$ – The A-weighted noise level exceeded for 10% of the measurement period.
- $L_{Amax(F)}$ – The maximum A-weighted noise level during the measurement period.

The measurement is identified in Figure 6-1.

Figure 6-1
Site (Red) and Source Measurement Location

6.2 Sound Climate

The sound climate was noted to be representative of the activity at site on the boundary as associated with operations by S. Norton and Co, and was notably dominated by industrial activity from S Norton & Co.

Occasional passing LGV, HGV and domestic traffic was also noted along Mellors Road to the east of the site boundary but is not considered to have contributed significantly due to the presence of existing screening barriers at site.

6.3 Site Sound Levels

The site operates between 06:00-17:00 daily. However, some processes operate 24 hours a day. For the assessment purposes the sound level during the following periods have therefore been presented:

- 06:00 – 17:00
- 23:00 – 06:00

The results are presented in Table 6-2.

Table 6-2
Measured Noise Levels at the Site dB(A)

Date	Period	$L_{Aeq,T}$		
		Log Average	Highest 1 hour	LAmax
16th to 17th December	12:30 – 17:00	69	73[1]	98
	23:00 – 06:00	55	61	92
17th to 18th December	12:30 – 17:00	61	65	96
	23:00 – 06:00	50	54	78
18th to 19th December	12:30 – 17:00	57	60	91
	23:00 – 06:00	47	49	74
19th December	06:00 – 15:00	65	71	104

[1] Excluding first hour as influenced by meter set up.

7.0 Noise Impact Assessment of Existing Operations

This section of the Report presents the noise impact of the existing operations at the Site.

7.1 Noise Model Assumptions

The sound predictions in this assessment have been undertaken using a proprietary software-based noise model, CadnaA, which implements the full range of UK noise-based calculation methods. The calculation algorithms set out in ISO 9613-2:1996 *Acoustics – Attenuation of sound during propagation outdoors – Part 2 General method of calculation* have been used and the model assumes:

- A ground absorption factor of 0.
- Contour Data to include OS terrain data.
- A reflection factor of 3.
- A receptor height of 4m.

7.2 Noise Model Inputs

The assessment has been derived based on the highest measured 1-hour activity noise levels in terms of dB $L_{Aeq, T}$ captured during the measurement period at the Site. This represents a robust assessment of activity noise on site due to all operations.

Activity specific sound levels are summarised below based on the captured noise data as shown in Table 7-1.

Table 7-1
Activity Specific Sound Level from S Norton & Co at site boundary

	Daytime 1 Hour $L_{Aeq, 1\ hour}$	Night-Time dB $L_{Aeq, 15\ min}$
Modelled Free Field Specific Sound Level at Boundary	73	61

An area source has been modelled across the site calibrated to produce these activity noise levels at the site boundary. The model includes and considers the effect of the existing barrier fencing at the site boundary.

The noise modelling figures are included in **Appendix 03** to this document.

7.3 Sound Character Corrections

The character of noise sources from the Site and the sound correction that will be applied in the BS4142:2014+A1:2019 assessment are detailed below:

- Tonality: At the Receptor locations it is is not expected that any tonal sound from the Site would be audible above the residual sound level.
- Impulsivity: At the Receptor locations it is is not expected that any impulsive sound from the Site would be audible above the residual sound level.
- Other sound characteristics: At the Receptor locations during the attended meter set up sound from the Sie was not part of the soundscape, therefore a correction for other sound characteristics is not required.

- Intermittency: At the Receptor locations during the attended meter set up sound from the Sie was not part of the soundscape, therefore a correction for intermittency is not required.

7.4 Results

Based on the above, a 0dB character correction is applicable to the calculated specific sound level at the nearest noise-sensitive receptors to derive the corresponding rating levels. The baseline background sound levels used in the assessment are presented in Tables 5-2 and 5-3.

Table 7-2
Existing BS4142 Assessment

Receptor	Assessment Period	Predicted Existing Specific Sound Level, $L_{Aeq,T}$	Rating Level	Background Sound Level $L_{A90,T}$	Difference
Holiday Inn	Daytime	47	47	59	-12
	Night-Time	36	36	53	-17
Pilgrims Way	Daytime	47	47	60	-13
	Night-Time	35	35	53	-18

BS 4142 states:

"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. It is an indication that the specific sound source has a low impact, depending on the context."

It is evident from Table 7-2 that operations at the existing Site do not have a noise impact at the nearest NSRs to the Site.

It has been acknowledged assessment in needs to be considered in context, following the requirements of BS 4142. The concept of "context" has been notably emphasised in Section 11 of BS 4142 when considering numerical impacts established from applying the standard.

In context the identified receptors are surrounded by existing commercial enterprises and key road network links and therefore background sound levels are not low, as such receptors are not particularly sensitive.

In addition, given the intervening distances, and screening attenuation to receptor from source is substantial.

The assessment is robust in that not all intervening buildings haven been modelled only those in closer proximity to the source rending this a worst-case assessment.

8.0 Noise Impact Assessment Including New Plant

As explained, as part of the permit variation the existing pre-shredder and main shredder plant is to be replaced with a new, more efficient pre-shredder and main shredder plant.

Furthermore, it is proposed to add a new wet separation process in the exiting SWAPP that will consist of a new vibratory screen, wet separator and water treatment plant within the SWAPP2 processing area of the SWAPP. As mentioned, the wet separation process has already been installed at the Site for commissioning purposes. It is understood that the new wet separation process and associated additional plant was operational during the Surveys presented in Sections 5 and 6. As the new plant associated with the proposed new wet separation process was included in the Existing BS4142 Assessment and as there was no impact identified in Section 7, this is not considered to be an issue.

The new replacement pre-shredder and main shredder plant however does need to be added into this BS4142 assessment for the variation:

- New pre-shredder and main shredder plant. From the Report at Appendix 5 it is understood that the noise level from the new plant would be as follows:
    - 10m = 97
    - 18m = 92
    - 23m = 90
    - 37m = 86

Based on the above a worst sound power level of 128dB(A) is attributable to the new shredders[2]. This value has been added as a point source at a height of 4m at the centre of the Site.

8.1 Results

As with the Existing BS4142 Assessment a 0dB character correction is applicable to the calculated specific sound level at the nearest noise-sensitive receptors to derive the corresponding rating levels. The baseline background sound levels used in the assessment are presented in Tables 5-2 and 5-3. The noise modelling figure is included in **Appendix 03** to this document. Please note it is expected that the shredders will not operate at night, therefore only the daytime assessment has been updated to include the new shredders.

[2] Using equation: sound pressure level + (20*LOG10(distance from source)+11-3).

Table 8-1
Existing BS4142 Assessment

Receptor	Assessment Period	Predicted Cumulative/Variation Specific Sound Level, $L_{Aeq,T}$	Rating Level	Background Sound Level $L_{A90,T}$	Difference
Holiday Inn	Daytime	52	52	59	-7
	Night-Time	34	34	53	-19
Pilgrims Way	Daytime	52	52	60	-8
	Night-Time	34	34	53	-19

BS 4142 states:

"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. It is an indication that the specific sound source has a low impact, depending on the context."

It is evident from Table 8-1 that the cumulative operations associated with the existing Site and the plant to be included in the permit variation will not have a noise impact at the nearest NSRs to the Site.

9.0 Uncertainty

Uncertainty inevitably limits the accuracy associated with all steps of any noise assessment, including measurement, calculation, or prediction. Factors include, but are not limited to:

- The inherent accuracy limitation of methodology in Standards and guidance.
- Variability in meteorological conditions.
- The accuracy of sound source input data of a calculation.

It is imperative to minimise the uncertainty to a level commensurate with the intention of the assessment objective. Measures taken in this assessment to minimise uncertainty are:

- Measurements were rounded to the nearest one decimal place before the final calculations.
- The calculations have been conservative as not to under-predict the resulting impacts.
- Noise model assumptions have been conservative so as not to under-predict the resultant levels, including unfavourable wind vector.

The measures have been considered to reduce uncertainty to a level considered not to have any significance to the outcome of this assessment.

10.0 Conclusions

The Noise Impact Assessment is presented in this Report. This assessment has found:

- During the daytime the cumulative impact of the proposed Development will have no noise impact at the Receptors assessed.
- At night the cumulative impact of the proposed Development will have no noise impact at the Receptors assessed.

SLR consider that all appropriate measures to reduce noise have been included in the Site design.

The Noise Management Plan, as requested by the EA during pre-application, is presented in Appendix 5.

APPENDIX 01

Glossary of Terminology

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table 01-01
Sound Levels Commonly Found in the Environment

Sound Level	Location
0 dB(A)	Threshold of hearing
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a car
60 to 70 dB(A)	Typical high street
70 to 90 dB(A)	Inside factory
100 to 110 dB(A)	Burglar alarm at 1m away
110 to 130 dB(A)	Jet aircraft on take off
140 dB(A)	Threshold of Pain

Acoustic Terminology

dB (decibel) — The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (of 20 µPa).

dB(A) — A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

$L_{Aeq, T}$ — $L_{Aeq, T}$ is defined as the notional steady sound level which, over a stated period T, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.

$L_{A10, T}$ & L_{A90} — If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the L_{10} index to describe traffic noise.

$L_{Amax(F)}$ — $L_{Amax(F)}$ is the maximum A-weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.

APPENDIX 02

Survey Results

Table A2-1-Measurement at Norton & Co-Noise Time History Results, dB

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
16/12/2022 12:30	77.9	58.9	75	97.5
16/12/2022 12:45	75.3	56.7	70.6	97.7
16/12/2022 13:00	75.1	54	67.2	94
16/12/2022 13:15	69.6	52.9	59.8	94.2
16/12/2022 13:30	66.6	53.7	69.1	86.3
16/12/2022 13:45	60.8	54.4	64.4	76.5
16/12/2022 14:00	65.9	53.8	64.8	90.1
16/12/2022 14:15	58.7	52.8	59.2	75.5
16/12/2022 14:30	62.6	51.9	63.5	76.4
16/12/2022 14:45	54.9	51.8	57.1	66.1
16/12/2022 15:00	64.6	53.8	67	86
16/12/2022 15:15	62.2	54.4	63.8	78
16/12/2022 15:30	64.8	53.7	67.6	79.9
16/12/2022 15:45	53.2	50.5	54.7	69.4
16/12/2022 16:00	51.9	50.3	52.7	69.1
16/12/2022 16:15	55.8	50.6	58.2	73.4
16/12/2022 16:30	52.4	50.4	54	70.5
16/12/2022 16:45	50.8	49.5	51.5	60.9
16/12/2022 17:00	51	50.1	51.7	55.1
16/12/2022 17:15	50.5	49.7	51.2	53.1
16/12/2022 17:30	50.3	49.5	50.9	52.5
16/12/2022 17:45	54.4	49.8	55.8	70.7
16/12/2022 18:00	50.6	49.9	51.2	55.6
16/12/2022 18:15	50.8	49.8	51.4	61.4
16/12/2022 18:30	52.4	50.8	53.2	58.5
16/12/2022 18:45	52.4	51.1	53.3	57.8
16/12/2022 19:00	51.5	50.3	52.2	66
16/12/2022 19:15	57.2	52	57.9	77.6
16/12/2022 19:30	65.1	51.9	58.5	89.7
16/12/2022 19:45	63.9	51.6	58.1	91.5

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
16/12/2022 20:00	53.5	51.8	54.2	68.3
16/12/2022 20:15	53.6	51.9	54.2	66
16/12/2022 20:30	52.7	51.4	53.4	64.3
16/12/2022 20:45	52.8	51.4	53.6	66
16/12/2022 21:00	54	51.7	54.8	67
16/12/2022 21:15	53.7	51.6	54.3	67.3
16/12/2022 21:30	53.5	51.6	54.2	65.3
16/12/2022 21:45	52.4	50.3	53.3	65.6
16/12/2022 22:00	50.8	49.8	51.3	57.5
16/12/2022 22:15	51	49.5	51.8	61.8
16/12/2022 22:30	52.3	49.7	53	68.1
16/12/2022 22:45	53.8	51.5	54.5	67
16/12/2022 23:00	52.5	51.3	53	65.1
16/12/2022 23:15	53.2	50.8	53.7	68.5
16/12/2022 23:30	52	50.3	52.7	67
16/12/2022 23:45	52.2	50.1	52.4	74.2
17/12/2022 00:00	51.9	50.2	52.7	67.1
17/12/2022 00:15	52.7	50.2	54.3	66
17/12/2022 00:30	53.3	50.7	54.6	67.7
17/12/2022 00:45	51.4	49.8	52.3	64
17/12/2022 01:00	52.7	50.1	54.1	64.6
17/12/2022 01:15	50.8	49.8	51.5	59.4
17/12/2022 01:30	52.4	49.7	53.6	64.9
17/12/2022 01:45	53.1	49.5	54.5	73.2
17/12/2022 02:00	50.7	49	51.5	64.3
17/12/2022 02:15	52.4	49.4	53.6	66.4
17/12/2022 02:30	64.5	49.1	56.2	90.8
17/12/2022 02:45	63.6	46.3	54.4	91.5
17/12/2022 03:00	47	45.8	47.9	50.3
17/12/2022 03:15	46.9	45.8	47.7	50.5

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
17/12/2022 03:30	49.4	46.2	49.8	66.6
17/12/2022 03:45	50.4	49.2	51.2	62
17/12/2022 04:00	56.9	49.4	55.1	80.9
17/12/2022 04:15	51.9	49.7	52.8	66
17/12/2022 04:30	52.5	50.2	53.2	66.3
17/12/2022 04:45	53.1	50.6	54.5	65.2
17/12/2022 05:00	50.9	48.7	52	65.5
17/12/2022 05:15	49.9	48.4	51.1	59.3
17/12/2022 05:30	50.1	48.9	51	59.3
17/12/2022 05:45	49.7	48.5	50.6	56.1
17/12/2022 06:00	50.7	49.1	51.4	64.1
17/12/2022 06:15	50.8	48.9	52	61.2
17/12/2022 06:30	51.2	49.5	51.2	70.7
17/12/2022 06:45	54.3	49.7	55	72.8
17/12/2022 07:00	56.7	50.6	60.2	69.1
17/12/2022 07:15	60.5	51.5	60.4	78.2
17/12/2022 07:30	56.2	51.2	57.2	76.3
17/12/2022 07:45	61.9	51.5	62.1	82.1
17/12/2022 08:00	66.8	53	69.1	86.1
17/12/2022 08:15	57.5	52.6	59.3	75.9
17/12/2022 08:30	57.3	52.6	58.9	73.9
17/12/2022 08:45	60.8	51.9	61.8	85.5
17/12/2022 09:00	53.2	51	55	66.2
17/12/2022 09:15	60.2	51.6	59.3	82.2
17/12/2022 09:30	63.7	53.2	67.4	83.9
17/12/2022 09:45	61.4	53.5	63.7	84.4
17/12/2022 10:00	61.3	53.3	63.7	84.1
17/12/2022 10:15	65.1	54.7	64.7	85.7
17/12/2022 10:30	62.3	53.4	64.7	82.7
17/12/2022 10:45	57.6	53.5	60.4	73.1

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
17/12/2022 11:00	62	53.4	62.8	82.8
17/12/2022 11:15	62.8	52.9	62.4	86.8
17/12/2022 11:30	59.5	53.6	62.9	82.8
17/12/2022 11:45	69.6	52.8	68	96
17/12/2022 12:00	60.3	53	64	72.4
17/12/2022 12:15	59.5	51.5	62.2	80.7
17/12/2022 12:30	59.1	51.6	58.2	87.6
17/12/2022 12:45	57.3	51.2	58	79.5
17/12/2022 13:00	52.2	51.1	52.8	71.5
17/12/2022 13:15	51.6	50.5	52.5	57.5
17/12/2022 13:30	62.4	50.4	61.6	87.9
17/12/2022 13:45	60	52.6	60.7	81
17/12/2022 14:00	65.8	52.2	68.7	86.7
17/12/2022 14:15	54.3	51.5	55.2	68.5
17/12/2022 14:30	55.8	51.2	54	75.2
17/12/2022 14:45	54.6	51	56.5	68.8
17/12/2022 15:00	58.6	50.5	60.5	78.7
17/12/2022 15:15	53.5	50.1	52.6	72.9
17/12/2022 15:30	60.6	50.7	64.5	80
17/12/2022 15:45	52.1	50.9	52.8	63.4
17/12/2022 16:00	55.4	50.7	53.2	74.3
17/12/2022 16:15	51.1	50.1	51.8	60.2
17/12/2022 16:30	51.5	50.3	52.3	61.8
17/12/2022 16:45	51	50	51.7	55.7
17/12/2022 17:00	51.2	50.1	52.1	56.7
17/12/2022 17:15	57.8	50.5	57.6	77.4
17/12/2022 17:30	54.1	50.3	54.1	70.9
17/12/2022 17:45	51.2	50.2	52.1	59.2
17/12/2022 18:00	56	50	52.4	76.9
17/12/2022 18:15	50.7	49.7	51.5	56.7

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
17/12/2022 18:30	50.7	49.2	51.3	60.1
17/12/2022 18:45	50.5	49.2	50.8	61.2
17/12/2022 19:00	50.3	49.2	51.2	56.2
17/12/2022 19:15	49.7	48.8	50.5	52.6
17/12/2022 19:30	59.4	48.3	64.6	77.1
17/12/2022 19:45	49.1	48	49.9	55.9
17/12/2022 20:00	48.7	47.6	49.5	54.6
17/12/2022 20:15	49.1	48.2	49.9	52
17/12/2022 20:30	49	47.8	49.7	58
17/12/2022 20:45	48.6	47.6	49.4	54.2
17/12/2022 21:00	48.7	47.6	49.5	55.5
17/12/2022 21:15	49	47.6	49.6	59.5
17/12/2022 21:30	48.8	47.7	49.6	54
17/12/2022 21:45	48.7	47.6	49.6	56.4
17/12/2022 22:00	48.3	47.1	49.2	54
17/12/2022 22:15	48.1	47	48.9	52.4
17/12/2022 22:30	48.1	47.3	48.7	55.3
17/12/2022 22:45	48	46.9	48.7	54
17/12/2022 23:00	49.4	47.6	50.6	60.2
17/12/2022 23:15	55.8	47.2	55.6	71.5
17/12/2022 23:30	57.5	47.2	61	73.3
17/12/2022 23:45	47.9	46.9	48.7	52.8
18/12/2022 00:00	48.1	46.9	48.6	67.2
18/12/2022 00:15	47.4	46.2	48.3	59.3
18/12/2022 00:30	46.8	45.8	47.5	54.3
18/12/2022 00:45	46.8	45.8	47.7	50.3
18/12/2022 01:00	46.4	45.6	47	52.4
18/12/2022 01:15	46.2	45.4	46.8	48.1
18/12/2022 01:30	46	45.1	46.7	52.5
18/12/2022 01:45	46	45.1	46.7	56.4

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
18/12/2022 02:00	46.3	45.2	47.1	49.4
18/12/2022 02:15	45.8	45	46.4	48.2
18/12/2022 02:30	45.5	44.5	46.4	48.7
18/12/2022 02:45	45.5	44.4	46.3	48
18/12/2022 03:00	45.4	44.1	46.3	60.4
18/12/2022 03:15	45.7	44.5	46.7	51.4
18/12/2022 03:30	46	44.8	47	51.5
18/12/2022 03:45	56.1	44.8	60.3	73.9
18/12/2022 04:00	53.5	44.4	52.2	75.1
18/12/2022 04:15	46	44.7	46.8	55.8
18/12/2022 04:30	46.8	45.4	47.9	52.7
18/12/2022 04:45	47.6	46.2	48.6	55.2
18/12/2022 05:00	48.1	46.8	49.1	54.6
18/12/2022 05:15	49.7	46.8	51.7	59.9
18/12/2022 05:30	52.7	47.3	50.6	78.4
18/12/2022 05:45	48.5	47.1	49.1	62.8
18/12/2022 06:00	47.8	46.7	48.6	52.1
18/12/2022 06:15	48.3	47.2	49	57.5
18/12/2022 06:30	48	47	48.7	55.8
18/12/2022 06:45	47.9	46.2	48.4	65.4
18/12/2022 07:00	59.5	46.4	61.4	80.7
18/12/2022 07:15	63.7	49.4	66.3	82.5
18/12/2022 07:30	56.8	47.9	57.1	76.7
18/12/2022 07:45	55.8	48	55.1	77.2
18/12/2022 08:00	56.8	48.5	58.1	75.8
18/12/2022 08:15	57.2	48.5	59	76.7
18/12/2022 08:30	56.3	48.4	55.6	76.9
18/12/2022 08:45	57.9	48.7	60	77
18/12/2022 09:00	58.5	48.9	60.5	77.7
18/12/2022 09:15	56	50	56.6	75.5

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
18/12/2022 09:30	58	50.1	60.8	78.1
18/12/2022 09:45	54	48.4	54.9	74.7
18/12/2022 10:00	56.8	47.6	57.6	76.9
18/12/2022 10:15	50.9	47.5	53.7	61.8
18/12/2022 10:30	58.2	48.1	58.1	81.5
18/12/2022 10:45	56.8	49.4	55.9	77.3
18/12/2022 11:00	56.3	48.9	56	75.3
18/12/2022 11:15	56.3	49.4	55.6	78.2
18/12/2022 11:30	56.9	49.6	56.2	81.4
18/12/2022 11:45	59.1	50.2	59	79.8
18/12/2022 12:00	54.1	49.6	55.1	73.1
18/12/2022 12:15	53.9	49.8	54.7	70.2
18/12/2022 12:30	54	49.8	55.1	73.4
18/12/2022 12:45	54.8	49.6	55.8	72.3
18/12/2022 13:00	52.2	49.6	53.1	67.8
18/12/2022 13:15	59.9	49.2	61	90.6
18/12/2022 13:30	55.4	50.6	57	72.9
18/12/2022 13:45	53.7	50.3	55.1	69.8
18/12/2022 14:00	54.7	50.4	56	72.8
18/12/2022 14:15	56.7	50.6	57.6	77.2
18/12/2022 14:30	61.4	51	62.2	81.7
18/12/2022 14:45	56.5	51.4	56.4	76
18/12/2022 15:00	55.9	51.4	56.4	73.8
18/12/2022 15:15	55.7	51.5	56.6	73.7
18/12/2022 15:30	59.9	49.5	61.2	76.1
18/12/2022 15:45	48.3	46.7	49.4	65.3
18/12/2022 16:00	49	47.2	50	66.2
18/12/2022 16:15	57.6	47.3	57.9	79.2
18/12/2022 16:30	48.8	46.8	49.8	60.7
18/12/2022 16:45	54.2	47.2	56.4	70

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
18/12/2022 17:00	48.2	47	49.2	60.5
18/12/2022 17:15	50.5	48.4	51.5	61.7
18/12/2022 17:30	50.7	49.6	51.6	61.8
18/12/2022 17:45	49.5	47.7	50.9	57.7
18/12/2022 18:00	49.4	47.6	50.6	61.6
18/12/2022 18:15	48.2	47	49.2	57.3
18/12/2022 18:30	47.7	46.6	48.6	55.3
18/12/2022 18:45	47.7	46.2	48.8	58.5
18/12/2022 19:00	48.2	46.3	49.1	59.7
18/12/2022 19:15	47.2	45.7	48.3	58.5
18/12/2022 19:30	46.7	45.4	47.5	56.7
18/12/2022 19:45	46.5	45.3	47.2	63.1
18/12/2022 20:00	46.9	45.7	47.8	59.2
18/12/2022 20:15	46.8	45.4	47.8	53.7
18/12/2022 20:30	54.5	45.5	50.3	77.1
18/12/2022 20:45	46.1	44.7	46.9	58.1
18/12/2022 21:00	47.8	45	48	64.3
18/12/2022 21:15	47.2	45.3	48.5	58.2
18/12/2022 21:30	45.8	44.6	46.7	55.8
18/12/2022 21:45	46.1	44.7	47.1	53.8
18/12/2022 22:00	46.5	44.4	48.7	60.1
18/12/2022 22:15	48	44.6	50.7	64.1
18/12/2022 22:30	45.2	44.1	46.2	54.5
18/12/2022 22:45	45.1	43.7	46.1	54
18/12/2022 23:00	48	44.7	50.4	59
18/12/2022 23:15	48.7	46.3	50.4	62.4
18/12/2022 23:30	48.9	46.6	49.7	67
18/12/2022 23:45	47.8	45.2	49.8	65.9
19/12/2022 00:00	45.8	44.6	46.6	53.6
19/12/2022 00:15	46	44.4	47.1	55.3

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
19/12/2022 00:30	45.3	44.1	46.3	54.4
19/12/2022 00:45	45.5	43.9	46.3	60.9
19/12/2022 01:00	45.1	43.8	46.2	52.1
19/12/2022 01:15	45.3	43.7	46.6	53.7
19/12/2022 01:30	45.5	43.9	46.8	54.7
19/12/2022 01:45	45.6	43.9	46.7	60.1
19/12/2022 02:00	45.1	43.8	46.2	51.8
19/12/2022 02:15	45.2	43.7	46.3	56.2
19/12/2022 02:30	45	43.6	46	56
19/12/2022 02:45	44.7	43.2	45.8	54.3
19/12/2022 03:00	44.7	43.5	45.6	52.1
19/12/2022 03:15	45.2	43.9	46.3	55.9
19/12/2022 03:30	45.3	43.9	46.5	53.3
19/12/2022 03:45	45.9	44.3	47	60.4
19/12/2022 04:00	45.4	43.6	46.3	58.1
19/12/2022 04:15	52.3	44.1	46.7	73.6
19/12/2022 04:30	46.2	44.4	46.9	60
19/12/2022 04:45	45.6	44.6	46.4	55.8
19/12/2022 05:00	46	44.8	46.8	56.1
19/12/2022 05:15	47.2	45.7	48.1	66.4
19/12/2022 05:30	48.5	46.5	49.1	63.9
19/12/2022 05:45	50.7	48.5	51.7	63.2
19/12/2022 06:00	53.5	48.3	53.7	74.2
19/12/2022 06:15	55.9	49.5	55.4	75.9
19/12/2022 06:30	57.2	50.3	59.4	74
19/12/2022 06:45	61.7	51.2	65.7	79.2
19/12/2022 07:00	76.6	53.2	76.7	103.6
19/12/2022 07:15	60.6	54.1	62.3	79.5
19/12/2022 07:30	61.3	57.4	63	77.8
19/12/2022 07:45	62.5	57	64	80.4

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
19/12/2022 08:00	61.6	55.8	62.5	78.8
19/12/2022 08:15	58	54.3	59.9	78.4
19/12/2022 08:30	57.8	53.4	58.9	71.4
19/12/2022 08:45	55.4	52.8	56.8	73.9
19/12/2022 09:00	60.7	53.3	62	90
19/12/2022 09:15	62.1	53.7	65	82.3
19/12/2022 09:30	67.8	61.6	65	101.2
19/12/2022 09:45	63.2	61.3	65	76
19/12/2022 10:00	59.5	53.8	62	79.6
19/12/2022 10:15	63.7	56.5	65.7	88.7
19/12/2022 10:30	63.5	62.2	64.5	70.6
19/12/2022 10:45	61.1	56	63.6	72.2
19/12/2022 11:00	62.2	55.5	65.2	76.8
19/12/2022 11:15	62.1	55.3	65.5	77
19/12/2022 11:30	63.1	56.8	66.2	82.8
19/12/2022 11:45	60.6	54.5	63.7	77.7
19/12/2022 12:00	59.6	53.5	61	80.9
19/12/2022 12:15	75.4	55.4	78.8	96
19/12/2022 12:30	62.1	59.4	65.1	73
19/12/2022 12:45	60.5	53.4	63.8	79.2
19/12/2022 13:00	54.6	52.7	55.9	68.6
19/12/2022 13:15	55.3	51.7	57.5	75.5
19/12/2022 13:30	59.4	53.6	62.4	76.7
19/12/2022 13:45	58.4	54.5	60.7	71.2
19/12/2022 14:00	58.9	54.2	61.8	75.6
19/12/2022 14:15	61.2	53.3	63.3	83.2
19/12/2022 14:30	61.5	53.1	65.2	79.2
19/12/2022 14:45	59.8	54.9	62	78
19/12/2022 15:00	59.2	55.2	61.9	74.9

Table A2-2-Measurement Holiday Inn, Trafford City-Time History Results, dB

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
19/12/2022 16:15	60.2	56.4	61.7	80.3
19/12/2022 16:30	60.1	57.3	62.1	76.6
19/12/2022 16:45	60.2	57.4	61.5	76.8
19/12/2022 17:00	60.7	56.9	60.8	85.5
19/12/2022 17:15	60.2	56.8	61.6	76.7
19/12/2022 17:30	60.3	57	62.6	74.9
19/12/2022 17:45	60.6	56.6	63.1	78.7
19/12/2022 18:00	61.5	57.4	64.4	76.4
19/12/2022 18:15	60.4	56.9	62.7	75
19/12/2022 18:30	61.3	57.1	64.1	77.8
19/12/2022 18:45	59.9	56.9	61.7	78.2
19/12/2022 19:00	60.9	57.8	62.4	78.4
19/12/2022 19:15	61.4	58	63.5	75.2
19/12/2022 19:30	60.7	57.8	62.7	71.6
19/12/2022 19:45	60.9	57.3	62.7	75.5
19/12/2022 20:00	59.4	56.5	60.9	70.3
19/12/2022 20:15	59.7	56.7	61.5	77.3
19/12/2022 20:30	59.3	56.1	60.4	71.8
19/12/2022 20:45	60	56.6	61.6	75.8
19/12/2022 21:00	59.6	56.8	61.3	73
19/12/2022 21:15	59.1	56.6	60.5	73.5
19/12/2022 21:30	58	55.8	59.4	72.3
19/12/2022 21:45	58.3	56.2	60.3	66.9
19/12/2022 22:00	58.8	56.3	60.1	70.1
19/12/2022 22:15	58.5	56.1	59.8	70.2
19/12/2022 22:30	56.9	55.3	58.1	66.8
19/12/2022 22:45	57.6	54.9	58.7	70.6
19/12/2022 23:00	64.4	54.9	58.2	93.9
19/12/2022 23:15	57.2	53.9	57.8	74.1

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
19/12/2022 23:30	54.6	52.6	55.7	68.5
19/12/2022 23:45	54.1	52.2	54.6	69.3
20/12/2022 00:00	53.9	52.4	54.9	67.4
20/12/2022 00:15	54.8	52.9	56.2	65.6
20/12/2022 00:30	55.3	53.2	56.9	61.4
20/12/2022 00:45	54.7	52.5	56.4	62.2
20/12/2022 01:00	53.8	51.9	55.3	62
20/12/2022 01:15	53	51.4	54.4	60.3
20/12/2022 01:30	52.9	51.1	54.3	58
20/12/2022 01:45	53.5	51.6	55.2	60
20/12/2022 02:00	53.3	51.7	54.6	61.6
20/12/2022 02:15	53	51.1	54.3	59.4
20/12/2022 02:30	53.4	51.6	54.7	65.4
20/12/2022 02:45	54.6	52.3	55.8	68.9
20/12/2022 03:00	55.2	51.5	57	70.6
20/12/2022 03:15	54.8	52.7	56.2	61.4
20/12/2022 03:30	55.3	53.2	56.5	68.4
20/12/2022 03:45	55.7	53.6	56.7	72.3
20/12/2022 04:00	54.7	53.1	56.2	59.8
20/12/2022 04:15	55.5	53.9	56.8	63.3
20/12/2022 04:30	57.4	55.3	58.9	66.2
20/12/2022 04:45	56.7	54.8	58.2	62
20/12/2022 05:00	57	55	58.7	61.4
20/12/2022 05:15	58.6	56.4	60.2	63.4
20/12/2022 05:30	60.3	58	61.8	70.8
20/12/2022 05:45	60.2	58.7	61.4	64.4
20/12/2022 06:00	60.8	58.7	62.2	71.9
20/12/2022 06:15	61.5	59.6	62.7	70.8
20/12/2022 06:30	62.3	60.8	63.3	75.6
20/12/2022 06:45	63.2	61.1	64	75.3

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
20/12/2022 07:00	63.6	61.5	64	80.3
20/12/2022 07:15	65.9	61.9	65	90.7
20/12/2022 07:30	62.5	60.3	63.9	83.9
20/12/2022 07:45	62.4	60	63	80.9
20/12/2022 08:00	61.7	59.9	62.7	74.3
20/12/2022 08:15	63.5	59.9	66.8	77.4
20/12/2022 08:30	63.8	59.8	62.9	93.7
20/12/2022 08:45	61.6	59.9	62.6	71.9
20/12/2022 09:00	63.9	60.4	64.1	83.5
20/12/2022 09:15	62.1	60.3	63.1	71.7
20/12/2022 09:30	61.6	59.3	62.8	72.8
20/12/2022 09:45	61.3	59.4	62	73.5
20/12/2022 10:00	61.1	59	62.8	75.8
20/12/2022 10:15	62.3	58.4	62.1	81.9
20/12/2022 10:30	60.6	58.5	61.2	75.4
20/12/2022 10:45	61	58.3	62	74.1
20/12/2022 11:00	61.7	58	63.8	74.6
20/12/2022 11:15	60.5	57.9	61.8	74.4
20/12/2022 11:30	60.2	58.1	61.4	73.8
20/12/2022 11:45	60.6	57.8	62.4	73.2
20/12/2022 12:00	60.2	57.3	60.9	77.2
20/12/2022 12:15	60.6	56.9	61.8	75.3
20/12/2022 12:30	60.1	56.7	62.2	74.8
20/12/2022 12:45	59.3	56.5	60.2	74.5
20/12/2022 13:00	59.7	56.3	60.5	74.7
20/12/2022 13:15	61.1	58	62.7	76.1
20/12/2022 13:30	63	58.6	64.3	85.4
20/12/2022 13:45	62.3	58.4	65.3	78.2
20/12/2022 14:00	61	58.3	62.4	75.3
20/12/2022 14:15	61.2	57.8	62.2	78.5

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
20/12/2022 14:30	63.4	58.6	62.9	88.3
20/12/2022 14:45	60.2	58.2	61.3	72.8
20/12/2022 15:00	60.9	58.7	61.5	79.9
20/12/2022 15:15	60.5	58.4	61.6	74.5
20/12/2022 15:30	60.6	58.5	61.4	73.7
20/12/2022 15:45	60.5	58.6	61.4	70.6
20/12/2022 16:00	60.6	58	61.5	75.6
20/12/2022 16:15	60.1	57.8	60.9	77
20/12/2022 16:30	60.3	57.9	61.8	75.6
20/12/2022 16:45	60.6	58.3	62.2	71.2
20/12/2022 17:00	60.3	57.9	61.4	73.1
20/12/2022 17:15	60	57.7	61.2	73.2
20/12/2022 17:30	59.7	57.9	61	69.7
20/12/2022 17:45	61.2	57.7	62.6	78.1
20/12/2022 18:00	59.7	57.2	61.1	71.3
20/12/2022 18:15	60.8	57.4	62.1	75
20/12/2022 18:30	62	57.3	62.6	86.4
20/12/2022 18:45	60.4	57	62.7	74.1
20/12/2022 19:00	59.5	56.9	61	72.9
20/12/2022 19:15	60	57.4	61.5	71.4
20/12/2022 19:30	60.6	57.8	61.3	77.5
20/12/2022 19:45	59.9	57.9	61.1	69.9
20/12/2022 20:00	60.8	58.2	62.2	73.2
20/12/2022 20:15	60.8	58.4	61.9	72.7
20/12/2022 20:30	60.7	58.5	61.9	71.8
20/12/2022 20:45	60.8	57.9	62	73.3
20/12/2022 21:00	60.9	57.9	62.5	75.7
20/12/2022 21:15	59.7	57.5	61	73.1
20/12/2022 21:30	58.5	56.6	59.5	72.2
20/12/2022 21:45	58	56.4	59.1	67.5

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
20/12/2022 22:00	58.4	56.3	59.5	68.7
20/12/2022 22:15	57.8	56.1	59	69.6
20/12/2022 22:30	56.9	55	58.4	66.5
20/12/2022 22:45	56.4	54.6	57.4	68.9
20/12/2022 23:00	56.9	54.4	58	68.5
20/12/2022 23:15	56.5	54.3	57.6	69.3
20/12/2022 23:30	54.7	53.2	55.9	60.3
20/12/2022 23:45	54.8	52.7	56	67.9
21/12/2022 00:00	55.4	52.7	56.8	69.6
21/12/2022 00:15	54.7	52.8	56.1	61
21/12/2022 00:30	54.7	52.9	56.1	65.9
21/12/2022 00:45	54.2	52	55.3	68.5
21/12/2022 01:00	53.9	51.7	54.9	68.4
21/12/2022 01:15	54.1	52.5	55.1	63.9
21/12/2022 01:30	53.7	51.7	54.9	65.7
21/12/2022 01:45	53.4	51.3	54.1	70.1
21/12/2022 02:00	53	51.4	54.4	58.4
21/12/2022 02:15	53.5	51.7	55.1	57.9
21/12/2022 02:30	53.3	51.4	54.8	59.8
21/12/2022 02:45	54.7	52.4	56.2	65.7
21/12/2022 03:00	53.6	52	55	63
21/12/2022 03:15	53.7	51.5	55.2	62
21/12/2022 03:30	54.3	52.1	55.6	66.8
21/12/2022 03:45	54.6	52.7	56.4	59.3
21/12/2022 04:00	54.4	52.7	55.7	60.8
21/12/2022 04:15	55.2	53.4	56.5	67.3
21/12/2022 04:30	56.4	54.6	57.8	69.2
21/12/2022 04:45	55.9	53	57.3	74.3
21/12/2022 05:00	56.9	54	57.9	75
21/12/2022 05:15	56.5	53.7	57.8	71

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
21/12/2022 05:30	57.7	55.5	59.2	62.6
21/12/2022 05:45	58.5	56.8	59.7	64.5
21/12/2022 06:00	59.3	57.7	60.5	66.7
21/12/2022 06:15	59.7	58.1	60.6	68.9
21/12/2022 06:30	61.2	59.2	62.2	73.7
21/12/2022 06:45	61.3	59.7	62.3	70.3
21/12/2022 07:00	61.4	59.5	62.4	72.4
21/12/2022 07:15	62.6	60	63.6	82.5
21/12/2022 07:30	64	61.1	64.6	83.4
21/12/2022 07:45	62.1	60.6	63	69.9
21/12/2022 08:00	62.9	60.4	63.3	82.5
21/12/2022 08:15	62.5	60.4	63.8	71.7
21/12/2022 08:30	62.6	60.8	63.8	78.8
21/12/2022 08:45	62.1	60.4	63.3	70.4
21/12/2022 09:00	61.8	60.2	62.7	70.4
21/12/2022 09:15	62.2	60.2	63.1	75.5
21/12/2022 09:30	62.5	60.2	64	77.7
21/12/2022 09:45	61.8	59.8	62.9	74.6
21/12/2022 10:00	61.7	59.6	62.8	72.6
21/12/2022 10:15	61.7	58.9	63.3	74.3
21/12/2022 10:30	60.9	58.6	62	71.2
21/12/2022 10:45	61.5	58.7	63.5	74.5
21/12/2022 11:00	60.5	58.2	61.5	76.8
21/12/2022 11:15	60.9	58.6	61.9	72.6
21/12/2022 11:30	60.9	58.4	62.3	72.1
21/12/2022 11:45	61	58.7	62.1	73.7
21/12/2022 12:00	64	58.1	62.3	88.8
21/12/2022 12:15	60.8	57.8	63	72.2
21/12/2022 12:30	62.8	57.4	62.1	85.9
21/12/2022 12:45	61.5	57.9	64.1	73.4

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
21/12/2022 13:00	60.8	57.6	62.2	76.8
21/12/2022 13:15	61	57.5	62.6	81.9
21/12/2022 13:30	61.2	58.1	63.5	71.4
21/12/2022 13:45	61.9	57.4	63.3	79.7
21/12/2022 14:00	62.2	57.9	65.4	76.8
21/12/2022 14:15	66.7	57.5	64	98
21/12/2022 14:30	60.6	57.5	63.1	71.1
21/12/2022 14:45	61.2	56.8	61.6	81.9
21/12/2022 15:00	59.3	56.6	60.3	80.8

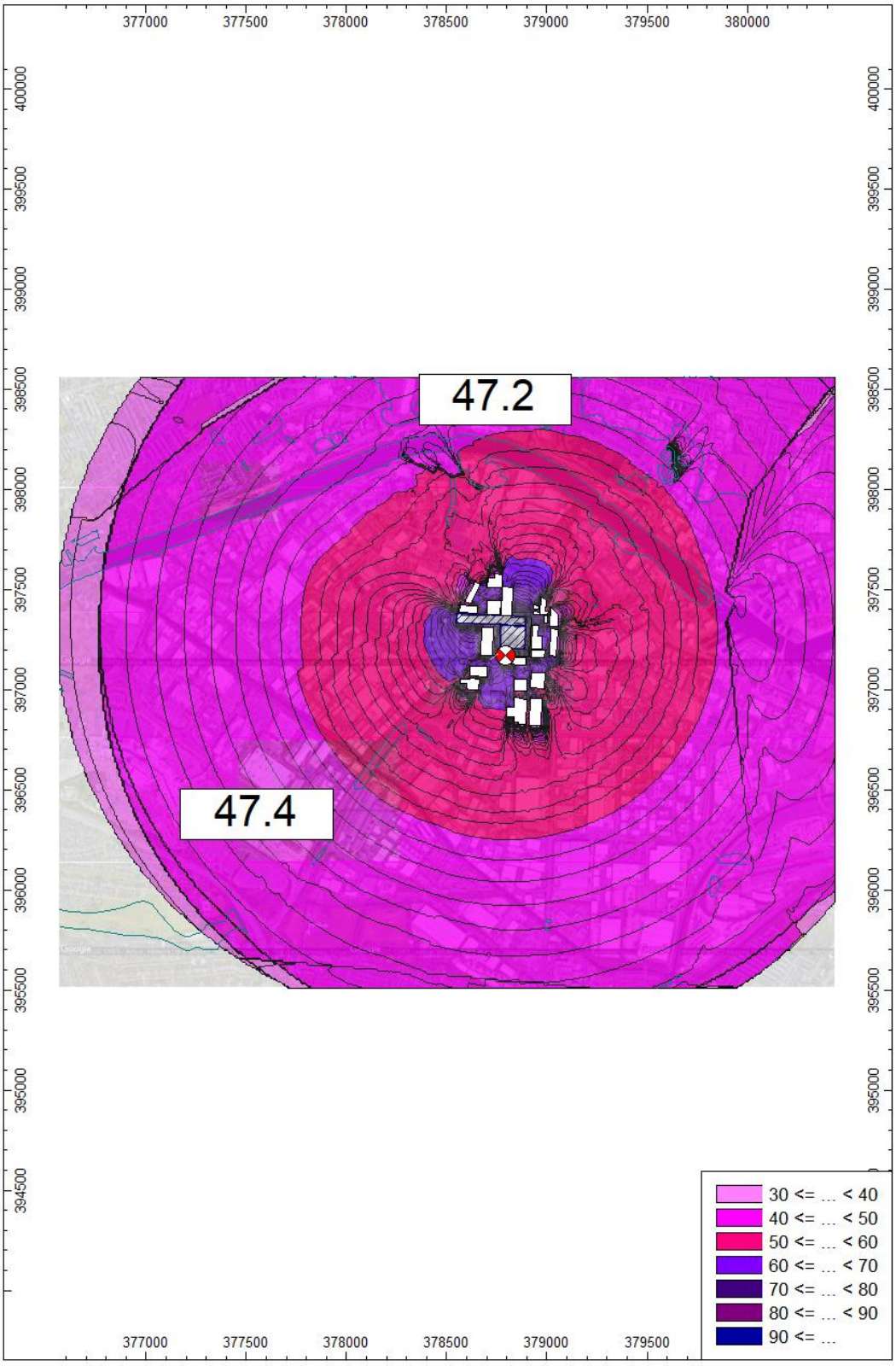
Table A2-3-Measurement Ladywell Apartments, Salford -Time History Results, dB

Day, Date and Time	$L_{Aeq, 15\ min}$	$L_{A90, 15\ min}$	$L_{A10, 15\ min}$	$L_{Amax(F)}$
19/12/2022 12:20	61.5	60.1	62.7	74.6
19/12/2022 12:30	61.8	60.3	63.1	67.1
19/12/2022 12:45	61.6	60.4	62.7	65.9
19/12/2022 13:00	61.7	60.4	62.8	68.1
19/12/2022 13:15	61.4	59.9	62.3	72.1
19/12/2022 13:30	62.3	60.8	63.5	68.2
19/12/2022 13:45	62.7	61.3	63.8	69.3
19/12/2022 14:00	62.7	61.3	63.7	74.4
19/12/2022 14:15	62.1	60.7	63.2	66.6
19/12/2022 14:30	62	60.5	63	69.6
19/12/2022 14:45	61	59.6	62	74.7

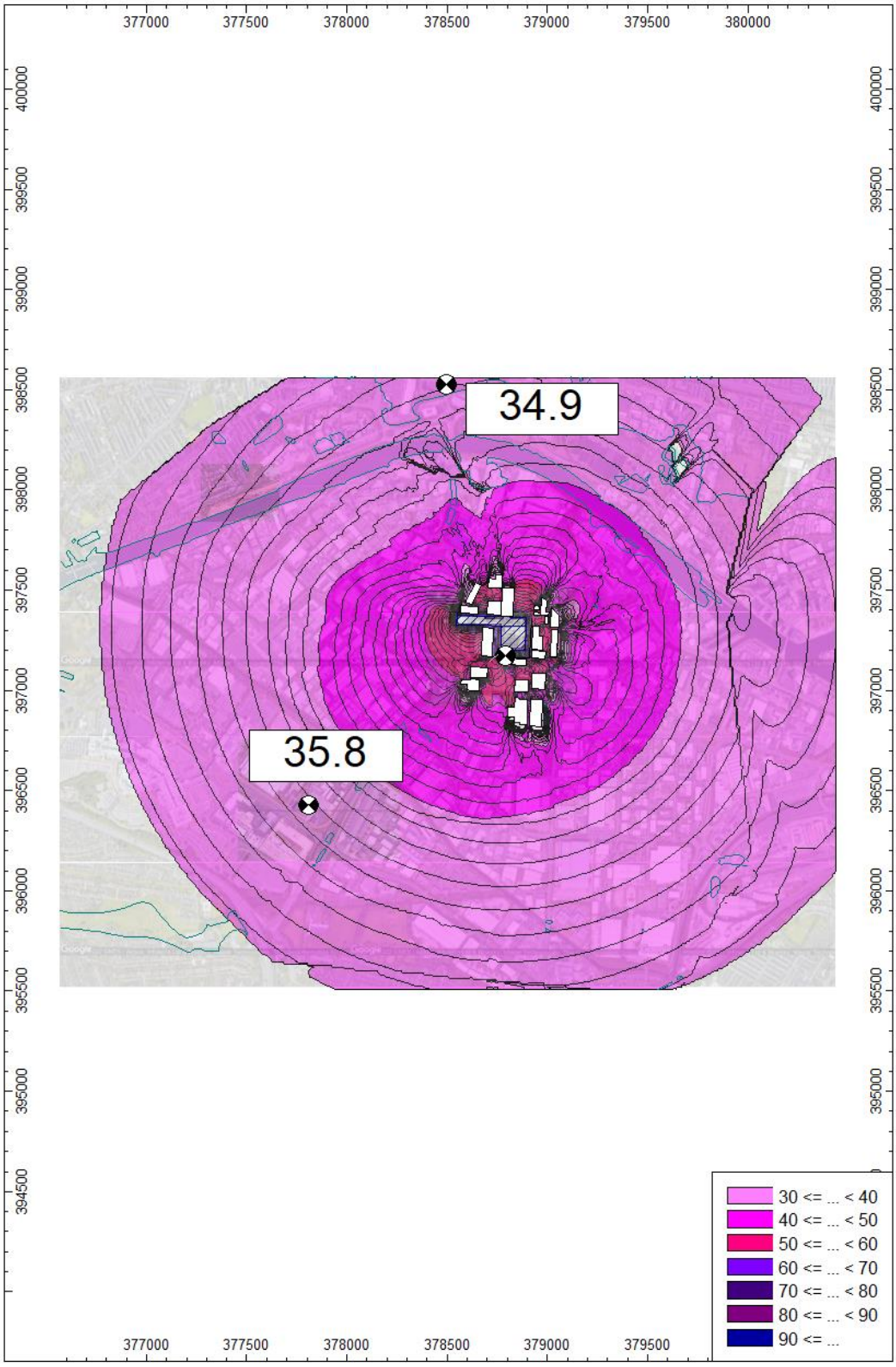
APPENDIX 03

Noise Modelling Results

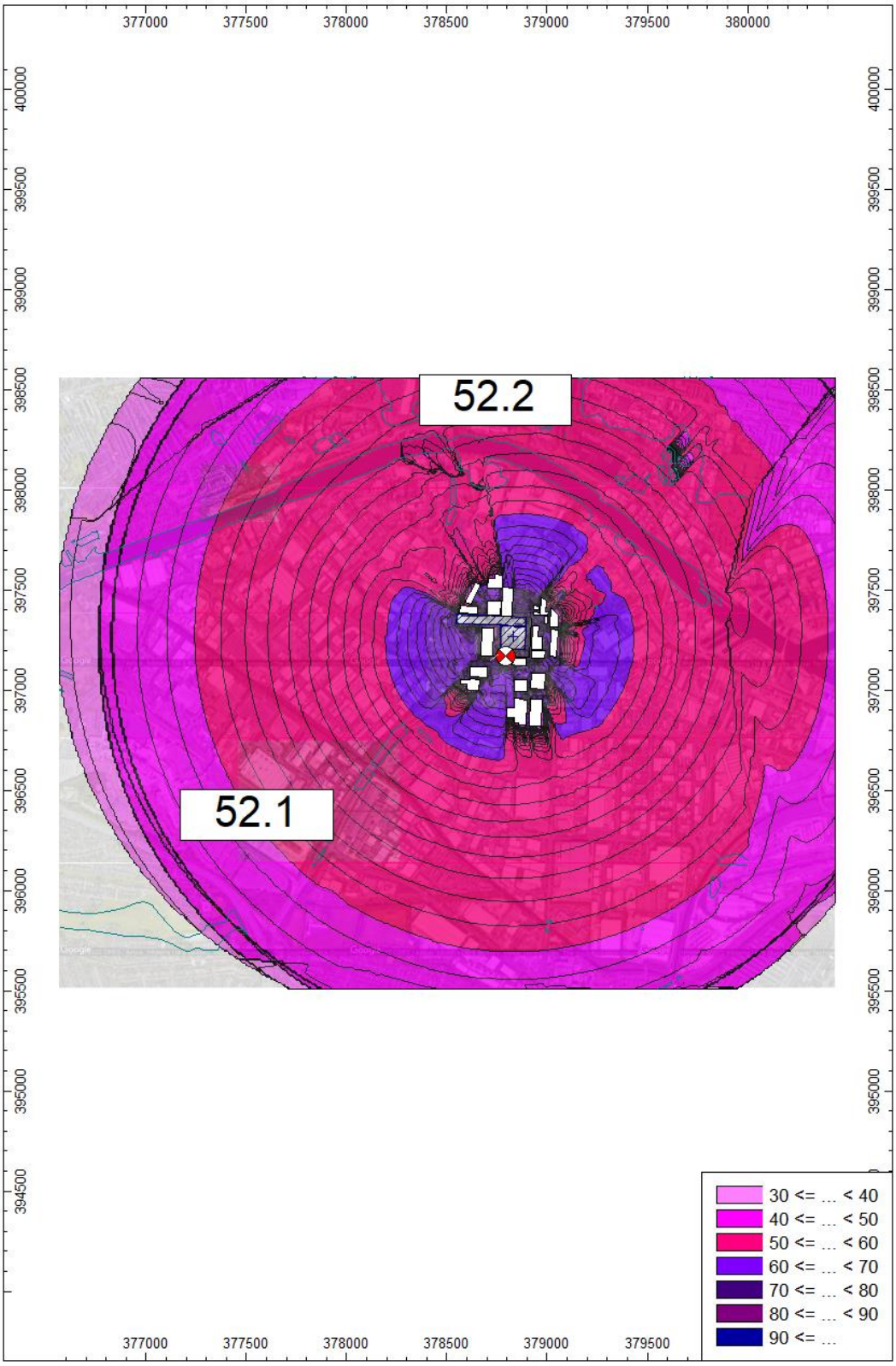
Daytime Existing BS4142 Noise Model- 1 hour dB L_{AeqT}



Night Time Existing Case BS4142 Noise Model- 15 minute dB L_{AeqT}



Day-Time Cumulative Case BS4142 Noise Model- 1, hour dB L_{AeqT}

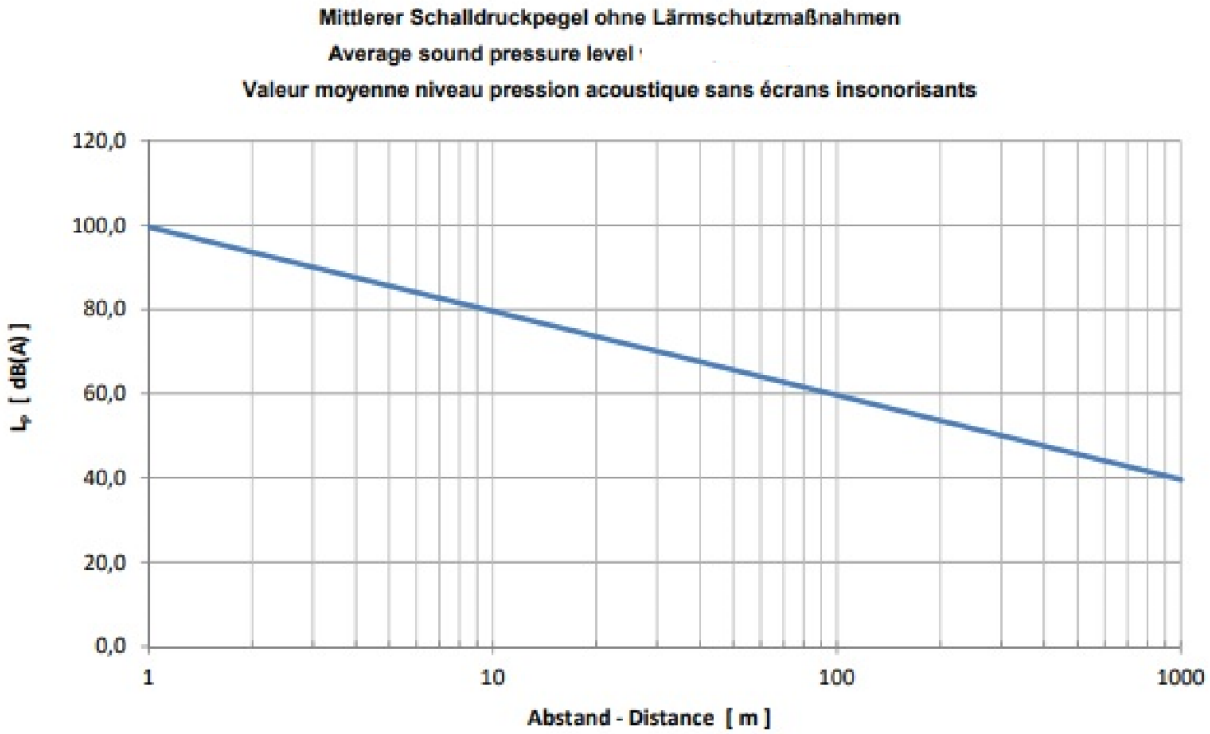


APPENDIX 04

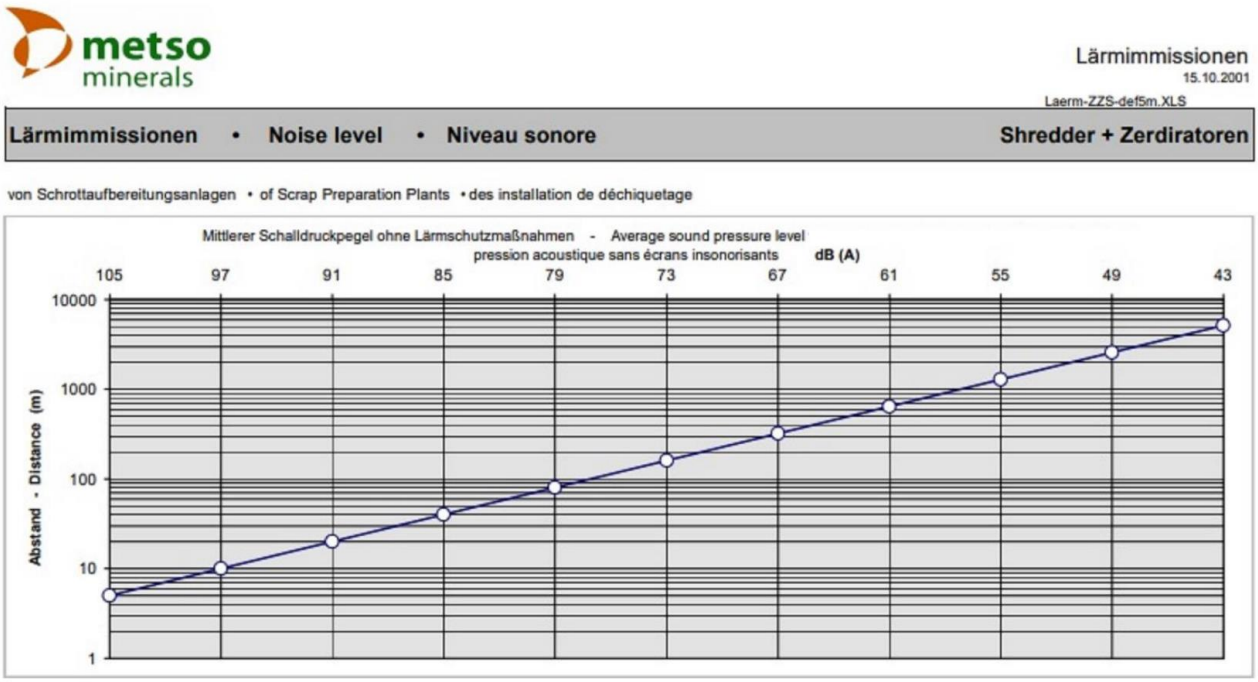
New Shredder Noise Levels

The information provided by the proposed Pre-Shredder and Shredder manufacturer (Metso) are provided below in graphs 1 & 2.

Graph 1: Pre-Shredder Noise Levels



Graph 2: Shredder Noise Levels



The above graphs show the following noise levels from the proposed Pre-Shredder & Shredder compared with existing Shredder:

Table 2: Summary of Noise Levels from Proposed Shredder Plant

Position	Pre-Shredder Noise Levels LAeq dB	Shredder Noise Levels LAeq dB	Existing Measured Noise Levels at same distance LAeq dB	Level difference (proposed compared with existing) LAeq dB
10m distance	80	97	104	-24 to -7
18m distance	75	92	96	-21 to -4
23m distance	73	90	95	-22 to -5
37m distance	68	86	93	-25 to -7

Conclusions

The results of the noise predictions and analysis show the following:

a) Noise levels from the existing Shredder are typically between 95dB to 104dB L_{Aeq} at 10m to 20m distance.

b) Noise levels from the proposed Pre-Shredder are typically between 74dB to 80dB L_{Aeq} at 10m to 20m distance. The addition of the Pre-Shredder is such that it will not have any cumulative issues in terms of noise as the levels compared with the Shredder are considerably lower.

c) Noise levels from the proposed Shredder are typically between 91dB to 97dB L_{Aeq} at 10m to 20m distance.

d) The noise levels from the proposed Shredder are therefore shown to be between 4dB and 7dB L_{Aeq} quieter than the existing plant.

APPENDIX 05

Noise Management Plan

1. Purpose

The term '**noise and vibration**' hereinafter will be used when referring to sound and/ or vibration being created from the site that causes/ has the potential to cause a nuisance to site staff or sensitive receptors in the surrounding area.

This procedure outlines the various abatement/ control techniques used by S. Norton & Co Ltd. at all its sites/depots, to manage noise and vibration from site operations, ensuring as far as practicably possible that suitable abatement techniques are implemented in line with industry best practices with reference to regulatory guidance; where applicable, in place at any given time. The procedure also defines how noise and vibration is monitored across S. Norton's operational sites, as well as the corrective action process followed if an issue is identified through internal/ external inspections.

The details of this procedure furthermore demonstrate how S. Norton & Co Ltd. sets out the control measures used to manage its environmental aspects, as defined within the **Aspects & Impacts Register.** Environmental Risk Assessments (ERA) are used to appraise the risk of individual activities, in relation to noise and vibration.

Process Users

- All operational sites regulated by an Environmental Permit

Element of Standard

ISO 14001:2015

- 8.1 Operational planning and control

Competence Management System

Procedure - General Rules

Environmental Manager is responsible for ensuring that:

- company procedures relating to the management of noise and vibration are defined and have been issued to site managers/ person in charge (PIC) for implementation, as necessary
- appropriate advice and guidance is given to site managers/ PIC in support of this procedure
- training and resources are made available to operational sites, in line with procedural requirements
- monitoring of noise and vibration is conducted as necessary companywide
- periodic inspections take place to ensure that noise and vibration procedures are being correctly implemented on site, verifying compliance through observation and gathering of evidence

Site Manager/Person in Charge (PIC) is responsible for ensuring that:

- company procedures relating to the management and control of noise and vibration are implemented & effective, including any site-specific agreements
- the correct abatement equipment is deployed and maintained on-site to ensure, where necessary, that noise and vibration is suitably controlled, in conjunction with advice given by the company's Environmental Manager, if requested
- the day to day management of noise and vibration is carried out, including the enforcement of good site practices, to prevent/minimise nuisance to surrounding sensitive receptors
- the appropriate corrective action is taken, if issues with noise and vibration are identified, in conjunction with advice given by the company's Environment Manager, if requested

- the relevant site staff attend site specific monthly review meetings – to discuss when necessary, noise and vibration management on site

Health, Safety and Environment Representative is responsible for:

- assisting/ supporting the site manager with the day to day management of noise and vibration,
- completing the relevant inspection checksheet for the site and communicating feedback to the site manager/ PIC
- assisting with noise and vibration monitoring exercises at their nominated site, as requested by the Environment Manager

Procedure

Noise and vibration may arise from anywhere on site, including but not limited to the operation of mobile and static plant, due to the nature and design of site activities/processes. If issues with noise and vibration are identified, during site inspections, monitoring exercises, during the review of an ERA or as a result of a complaint being received, then the current mitigation/ abatement will be reviewed and appropriate corrective action may be taken. Company procedures may also be updated.

SLR Commentary

Based on the findings of the noise impact assessment, at the present time no additional noise management measures have been identified as required based on the measurements undertaken and the noise modelling produced.

Noise levels at receptors are not significantly altered because of proposals, and no additional impacts have been identified, nonetheless the below good practice mitigation as per previous noise management plans produced by Norton S Trafford should be applied to any and all new processes to ensure noise management is maintained in future.

1. Abatement/ Control Techniques

Abatement on processing equipment will be implemented in line with industry best practices with reference to regulatory guidance; where applicable, in place at any given time. Typical abatement used on processing equipment will include but may not be limited to:

1.1 Vibration

Rubber Buffers

Fig. 1

Fig. 2

Spring Buffers

Fig. 3

Fig. 4

Rubber and Spring Buffers are used on site to mitigate vibration whilst the operating machinery is working. Buffers are used to absorb energy generated by static machinery whilst in use, isolating the excessive vibration. It is important that these control measures are in place to help decrease vibration levels going straight into the ground, with the possibility of damaging surrounding buildings or causing nuisance. If these buffers were not in place it may lead to unstable building structures, as a result of damage from excessive vibration, and nuisance issues with surrounding sensitive receptors.

Typically, the appropriate rubber/spring buffer(s) is supplied by the manufacturer, with the operating machinery. It is important to keep the rubber/spring buffers in good working order, ensuring they are effective at all times, which is achieved through regular inspection and maintenance.

1.2 Noise

White Noise Reversing Alarms

White noise reversing alarms are used to reduce noise levels in comparison to traditional 'bleeping' alarms, these alarms are fitted to mobile plant as necessary. The application of white noise reversing alarms is best suited to those sites which are in close proximity to residential areas and assist in the objective of reducing the likelihood of nuisance issues.

Fig. 5

An example of a white noise reversing alarm, on the back of a wheel loader used around site.

Acoustic Barriers

Fig. 6

Fig. 7

S. Norton commissions an external consultant to monitor noise and vibration, typically a report is compiled (with the aid of relevant British Standards), noting where appropriate, when additional noise and vibration procedures/ control measures need to be implemented. An acoustic barrier is an example of an engineered structure that may be implemented on-site, based on the design and recommendations resulting from a site noise and vibration survey report.

A simple acoustic barrier is typically adequate in providing a noise resistant structure at the boundary of a site, thus generating a reasonable level of protection, to surrounding sensitive receptors. Depending on the site specific application of an acoustic barrier, diffraction may also be reduced, by design. This relates to the sound waves being deflected in a different direction, caused by an interfering object being angled in a certain way. By having the barrier angled towards the site, instead of the sound waves bending down over the barrier and offsite the noise is rebounded, retaining a lot of the noise. This is demonstrated in both figures 5 and 6 as highlighted.

2. Good site practices

S. Norton implements good site practices to control/manage noise and vibration, including:

- The maintenance of any machine parts/equipment (See – **Maintenance Inspection Schedules**), whose deterioration may give rise to increases in noise (for example, bearings and spring/rubber buffers.
- Use of **Mobile/Static Plant Daily Checksheets** to notify of any defects; that may be creating abnormal noise and vibration, subsequently added to the sites maintenance tracking system(s) and assigned an appropriate priority ranking
- Speed limits are in place and are enforced to minimise noise and vibration levels arising from vehicular movements across site surfaces, site signs are commonly used to communicate site speed limits.
- The placement of material (when possible) to minimise noise levels

- Restricting operational hours; may be specific to machinery and material types, is typically deployed by limiting/controlling site operations during night periods ('night' denotes the period from 11pm until 7am) to reduce the likelihood of nuisance complaints, from surrounding sensitive receptors.

- Good site practices are included, where necessary, within written procedures and work instructions and may be specific to a site, a process, a work area and may also be detailed within employee roles and responsibilities. Company bulletins may also be used to notify operators of new site practices or serve as a reminder. Where applicable, signed acknowledgement records are kept for each operator as proof of understanding and communication. If good site practices are not adhered to, the appropriate disciplinary action may be taken.

3. Explosions

It is anticipated that an explosion event will result in noise and vibration levels likely to cause nuisance to receptors in the local area. Appropriate precautions will be taken to reduce the likelihood of explosions occurring from those sites which operate a metal fragmentiser. This will include the following:

- End of Life Vehicles (EoLVs) arriving to site will be fully depolluted in accordance with **Vehicle Depollution Process Overview SOP-023**, ensuring the removal of any flammable liquids/ substances prior to processing.
- EoLVs depolluted offsite will be checked prior to processing to confirm that the correct procedures have been followed. Checks will be performed in line with the **Control of Non-Conforming Product Procedure.**

- Checks will be made prior to the processing of any other materials likely to cause an explosion i.e. light iron, as it could contain loose pressurised cylinders, in line with the **Control of Non-Conforming Product Procedure.** Any explosions or prevented explosions are dealt with in accordance with the **Explosion/ Prevented Explosion Action Process Work Instruction.**

Where applicable, the Environment Agency will be informed of explosion incidents.

4. Specialist Mobile Plant

High rise cranes are used on our dockside facilities to enable the soft loading of vessels. Soft loading is beneficial in many ways:

- it reduces damage to vessels

- minimises noise and aerial emissions by eliminating the need for dropping material from height into the ships hold

- the cranes are sufficient to allow for the placement of material on high level stockpiles, eliminating the need to throw material which can cause issues with noise and aerial emissions

5. Ship loading

During ship loading, which is an activity undertaken only at dockside sites, a number of control measures are implemented to mitigate noise & vibration:

- High Rise cranes are used to soft load vessels – eliminating the need to drop material into the ships hold, reducing noise & vibration levels emitted into the local area

- Preparation of the dockside and stockpiles; prior to the vessel reaching the berth, minimises material handling, reducing noise & vibration levels emitted into the local area

- Monitoring of noise and vibration levels (subjective assessment), making adjustments to activities if nuisance issues are anticipated

- Operating hours are restricted for those materials that are known to cause levels of noise & vibration, likely to cause nuisance to surrounding sensitive receptors.

6. Inspections

Inspections are carried out, at a minimum, to meet the requirements of each site's Environmental Permit and any other arrangements formally agreed with the Environment Agency. Inspections are conducted on two levels, Internal/ External and can take many forms.

6.1 Internal Inspections

All sites

- Environmental Compliance Inspection Report

Manchester/ Liverpool Site

- Noise and Vibration Daily Checksheet - Any inspection carried out by the Health & Safety and Environment Representative would be based on a subjective assessment at the time/ date recorded. Training is provided to each Representative to enable them to make appropriate judgments and recommend/ seek suitable corrective action as required.
- Mobile/Static Plant Daily Checksheet
- Maintenance Inspection Schedules

Internal Audits

When applicable, internal audits are conducted as part of our compliance to ISO 14001. Internal audits are a systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which our environmental management system and applicable legislative criteria are being fulfilled. The internal audit process would record evidence which is both qualitative and quantitative and would document instances/ areas of non-compliance, relating to noise and vibration, which would require action and timely closure. More detail about the internal audit process can be found within the **Internal Audit Procedure.**

6.2 External Inspections

External inspections of noise and vibration may be conducted by the Environment Agency during specific events or may occur during general site inspections. A Compliance Assessment Report (CAR) will be produced after each inspection (site visit) by the Environment Agency, any recommendations or permit breaches will be detailed on the CAR and subsequent remedial actions will be taken by S. Norton as appropriate.

The third-party certification body, which certifies our Environmental Management System to ISO 14001, conducts inspections on all aspects of our Environmental Management System inclusive of noise and vibration management procedures. The external audit process collates evidence which is both qualitative and quantitative and identifies instances/ areas of non-compliance, which would require action and timely closure. Verification of closure is sought by the third-party certification body, during surveillance visits and re-certification audits, which occur annually over a three-year period.

7. Corrective Action

Corrective action is taken if areas of non-compliance are identified during internal and external inspections. Additionally, noise & vibration levels likely to cause nuisance, as highlighted by monitoring exercises will also require corrective action. Corrective action is taken in accordance with the **Corrective & Preventive Action Procedure**.

8. Complaints

All complaints are recorded on the Event Log. Environmental complaints, inclusive of those pertaining to noise and vibration, will be directed to the Environment Manager for action, follow-up and closure. The complaints handling process is defined within the **Complaints, Concerns and Compliments Procedure QP-8.2-02**. Records of all environmental complaints are retained for each site and are available for inspection by the Environment Agency at any given time.

9. Quantitative Monitoring

Norton's may commission an external consultant to monitor noise and vibration levels using specialist equipment. The assessment criteria is decided and agreed on the merit of each event; however typically this will conclude an assessment of boundary noise levels, taking into consideration local conditions such as any limits imposed through planning agreements.

Where applicable, noise and vibration analysis results will be sent to the Environment Agency.

10. Management Controls

Management controls are implemented by the:

- setting of key objectives and targets
- use of defined management procedures, supported by the training and education of site staff, in the correct use and maintenance of abatement equipment and agreed good site practices.

The suitability and effectiveness of management procedures relating to noise and vibration are closely monitored via internal/ external inspections.

Performance against objectives and targets is monitored as part of the company's management review process, as defined within the **Management Review Procedure.**

11. Document & Record Control

A defined **Document Control Procedure** ensures the continued accuracy and relevance of all documentation utilised by S. Norton, due to the application of document control markings i.e. revision numbers, identification numbers etc. and a defined document change management system. S. Norton also uses a defined **Control of Records Procedure,** to ensure; internal & legal requirements for the storage and maintenance of records are fulfilled, inclusive of those which may be specifically required for noise and vibration management.

12. Aspect & Impacts Review

The companies **Aspects & Impacts Register** is maintained by the Environment Manager. This Register is broken down into process areas/ activities, each area/ activity has an Environmental Risk Assessment (ERA), this risk assessment is used to determine a score for each activity/ process. The aspect categories are defined on the aspects & impacts register and are

inclusive of noise and vibration, therefore the impact of noise and vibration levels, for each process area/activity, are considered and scored.

The scoring methodology for the ERAs is contained within the **Aspects & Impacts Procedure**; those scores which are identified as significant are considered during improvement projects, performance deliverables and policy reviews.

13. Training

A training matrix is maintained within the companies Integrated Management System (IMS). Training requirements are reviewed as specified within the **Training and Development Procedure**; this ensures that staff involved in the management & control of noise and vibration are/ remain appropriately trained. Qualified external consultants will be used to carry out noise and vibration monitoring exercises, as necessary.

References

- Aspects & Impacts Procedure EP–4.3-01
- Aspects & Impacts Register OCD 008
- Control of Non-Conforming Product QP–8.3-01
- Control of Records Procedure QP–4.2-02
- Corrective & Preventive Action Procedure QP–8.5-02
- Event Log
- Complaints, Concerns and Compliments Procedure QP-8.2-02
- Mobile Plant Daily Checksheet QF-7.5-47
- Production Forms (Static Plant – various)
- Vehicle Depollution Process Overview SOP-023
- Document Control Procedure QP–4.2-01
- Environmental Compliance Inspection Report EF-4.5-01
- Maintenance Inspection Schedules
- Management Review Procedure QP-5.6-01
- Noise and Vibration Daily Checksheet EP-4.4.6-03
- Solent Stevedores - Daily Environmental Inspection Checksheet
- Training and Development Procedure QP-6.2-01

Record of Revision

Revision	Date	Description of Change
1	12/01/2018	Initial Release Of Document
2	20/04/2021	Updated to new format and ISO14001: 2015 standard and Competence Management System (CMS)
3	31/01/2022	SLR Consulting Additional Commentary.

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