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NOISE MANAGEMENT PLAN
for
EDEN WORKS TRANSFER STATION
KELBROOK, LANCASHIRE

Report No 112/5

October 2024

For

Blackburn Skips Limited
Handbridge Mill
Oxford Road
Burnley
BB11 3AZ

BBS WASTE MANAGEMENT SERVICES

DOCUMENT CONTROL

DOCUMENT TITLE	Noise Management Plan
REPORT NO	112/5
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APPENDICES

1. INTRODUCTION

1.1 This Noise Management Plan (NMP) has been produced on behalf of Blackburn Skips Limited for their waste transfer station at Eden Works, Colne Road, Kelbrook, Lancashire, BB18 6SH. The site is regulated under environmental permit EPR/JB3101SK.

1.2 The NMP has been informed from a noise impact assessment (NIA) carried out and reported in PDA report J004895-7813-RDC-01dated 14/05/2024, which is contained in Appendix C. It is considered that this NMP represents best practicable means for minimising noise associated with the operation of the site.

2.0 SITE DETAILS

2.1 The site is located on the Eden Works Business Park accessed from the A56 (Colne Road), situated to the north of Kelbrook, a small settlement 3 km to the southeast of Barnoldswick, Lancashire. The approximate National Grid Reference for the centre of the site is SD 90252 45199.

2.2 Surrounding land use includes farmland to the east and industrial units to the south, west and north. Neighbouring units within the industrial estate includes pre-cast concrete manufacture, vehicle storage, building suppliers yards and other industrial uses.

2.3 The nearest residential properties are situated approximately 95 m to the north of the site located on Colne Road.

3.0 NOISE SOURCES

3.1 The main noise sources associated with the site are:

- Operation of screening plant in open fronted building
- HGV movements of trucks delivering waste material and removing processed materials
- Operation of loading shovels, moving waste around site
- Operation of a trommel and conveyors within the processing building

4.0 NOISE CONTROL MEASURES

4.1 The NIA indicates that noise levels from the site are below the onset level of adverse impacts at the nearest noise sensitive receptors. No specific physical mitigation measures are required to mitigate the noise from the site, however the operator has a responsibility to ensure that nuisances are avoided and that emissions from the site (including noise) are minimised. As such the measures detailed below will be implemented.

4.2 **Maintenance** - it will be ensured that all plant and equipment is regularly maintained to ensure that it does not produce excessive noise. Any

maintenance work which itself has potential to produce noise should only be undertaken in the normal operating hours of the site.

4.3 **Vehicle Movements** - use of horns on vehicles will be minimised. Site roads will be well maintained and the site 10 mph speed limit will be enforced. Loud vehicle radios will not be permitted. Reversing / movement alarms will only be used when essential for safety with variable sound level alarms preferred so that alarm sound level tracks background sound.

4.4 **New Plant** - when purchasing new plant and equipment the noise of the new plant will be considered and if necessary a revised assessment of the noise impact of the site will be carried out to ensure that noise levels are not excessive at the nearest noise sensitive properties. Where possible, new plant should be quieter than any plant it replaces and the Operator will try to use new technologies as they become available to minimise the noise emissions from the site. Where necessary local shielding of noisy items of plant using barriers will be considered.

5.0 COMPLAINTS

5.1 Neighbouring land owners and nearby noise sensitive premises such as houses and schools are likely to be the most sensitive receptors to noise from the site. Good relationships with neighbouring property owners and businesses are essential to anticipate potential problems and avoid them.

5.2 Any complaints and the actions taken to address them will be recorded and the records retained. If a complaint relates to an activity which is currently occurring the complaint will be investigated immediately and if necessary the process will be halted until the noise problem has been mitigated.

5.3 Complaints may be investigated initially by visiting complainants property and listening for excessive noise from the site. Additionally wind direction and speed, activities occurring on site and any activities on any neighbouring sites which may be related to the complaint should be recorded. The full complaints procedure is contained in Appendix A.

5.4 If initial investigations are unable to resolve a complaint a full investigation by a professional acoustician should be carried out and action taken to mitigate the noise egress to the complainant's property.

6.0 MONITORING

6.1 Monitoring by listening and noting perceived noise levels at the site boundaries will be carried out regularly by site managers. The monitoring procedure is contained in Appendix B.

6.2 More extensive monitoring measurements and noise impact assessments should be carried out periodically to ensure that noise levels are remaining within acceptable levels. In particular noise monitoring will be carried out:

- When new plant is commissioned or the site layout is changed.
- Following any complaint of noise from the site which cannot be resolved following initial investigation
- Following any significant changes at the site.

7.0 TRAINING

7.1 All staff at the site will be made aware of the need to be constantly vigilant regarding the control and management of site noise. Staff will be aware of:

- Their responsibilities with regard to avoiding excessive noise and reducing noise emissions to a minimum.
- What they should do to report potential noise issues where an abnormal condition occurs which may result in increased noise emissions.

8.0 REVIEW

8.1 The NMP will be reviewed annually as part of the annual review of the EMS, following any complaints received relating to noise or following relevant variations to the waste operations.

APPENDIX A

Complaints Procedure

Complaints Procedure

1. Any complaints relating to the site will be recorded in the site diary. This includes complaints relating to dust or air quality.

2. All complaints received will be recorded and investigated by the SM. A response will be reported back to the complainant.

3. A record of incidents, accidents or non-conformances will be kept including the following information:

- Date and time of incident
- What happened
- What caused it
- Details of any contamination
- Who was involved
- What action was taken
- Were external agencies involved
- Any changes that have been made to the procedures/ EMS to ensure the incident does not reoccur

Management Responsibilities

4. The responsibility of handling complaints is with the SM with support from senior management. Incidents are investigated by the SM whereby rectifying action is determined.

Community Liaison

5. Liaison with immediate neighbours is undertaken by phone call or by visiting in person.

APPENDIX B

Noise Monitoring Procedure

NOISE MONITORING PROCEDURE

1. A daily site inspection will be carried out by the site manager which will consist of a walk around the site boundary, pausing and listening at processing areas.

2. The inspection results will be recorded in the site diary including a record of the following information:

- date and time of inspection
- fixed plant in use at the time of the inspection
- mobile plant in use
- type of noise encountered eg. steady or intermittent, pitch of the noise eg. low/rumbling or high pitched
- whether noise was considerd typical or if it was unusual and could cause annoyance
- whether further investigaiton is required

3. If increased or unfamiliar noise was encountered this will be actioned to be investigated immediately and the results will be recorded in the site diary including any action taken to reduce noise.

4. All fixed plant and mobile plant is checked on start up by the operators and and defects, including noise generation, are recorded and reported. Rectifying action is recorded in the site diary.

APPENDIX C

Noise Impact Assessment

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Lymm
WA13 0ER

NOISE IMPACT ASSESSMENT OF SCREENING PLANT

BLACKBURN SKIPS LTD, EDEN WORKS, COLNE ROAD, KELBROOK

REPORT REFERENCE NO. J004895-7813-RDC-01

14th May 2024

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Document Control Sheet

Details of Assessment	
Client	Blackburn Skips Ltd
Document Title	Noise Impact Assessment, Blackburn Skips Ltd, Kelbrook.
Report Reference	J004895-7813-RDC-01

Client Address:	Company Address:
Handbridge Mill Oxford Road Burnley Lancashire BB11 3AZ	Philip Dunbavin Acoustics Ltd 3 Bridgewater Court Barsbank Lane Lymm WA13 0ER

Issue	Date	Author	Remark	Status
01	14/05/2024	Richard Cookson	Initial Issue	

	Name	Position
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1.0 SUMMARY

At the request of Blackburn Skips Ltd, a noise impact assessment has been undertaken of the Screening Plant situated outside the existing waste transfer station, Eden Works, Colne Road, Kelbrook, BB18 6SH.

A noise survey has been conducted at locations representative of the nearest noise sensitive properties to the screening plant. The results of the survey have been used to assess the background sound at the nearest noise sensitive receptors and to determine the likely impact of the continued use in terms of noise.

The Assessment has been undertaken following the guidance contained within BS4142:2014+A1:2019 –*'Methods for rating and assessing industrial and commercial sound'*.

We have measured the sound levels generated by the operation of the Screening plant, and using this data we have calculated the Rating Level of the sound at the nearest noise sensitive receivers.

The results of the preliminary calculation of impact in accordance with BS 4142:2014+A1:2019 have indicated that the Rating Level is 10 dB below the pre-existing Background Level hence is well below the onset of an adverse impact, depending on context.

When context is taken into account, the impact of the Screening Plant remains 'low'.

2.0 INTRODUCTION

The Blackburn Skips site at Eden Works, Kelbrook takes up a part of the Eden Works industrial estate and consists of an outdoor yard and weigh-bridge, a Waste Transfer Building, a Vehicle Repair and Maintenance building and an outdoor screening plant. Waste is delivered to the site, primarily in skips, emptied onto the floor of the waste transfer station from where it is sorted using an excavator, trommel and picking-line. The sorted waste passes via chutes to bins outside of the waste transfer building. Inert soil and aggregates may be passed down a chute to the outdoor screening plant to be further graded. The site is surrounded by other commercial uses, including a precast concrete unit manufacturer, MOT garage, vehicle hire and other commercial uses. The nearest residential properties are located approximately 100m to the south of the site on Colne Road.

The location of the site and surrounding local area including the closest residential receivers are shown in Figure 1 below.

Figure 1. Site Location

3.0 NOISE ASSESSMENT CRITERIA

3.1 Guidance - Noise and Vibration Management: Environmental Permits

The above on-line guidance details the procedure for performing a risk assessment for noise and vibration emissions with regard to Environmental Permits. The full guidance is available at :

https://www.gov.uk/government/publications/noise-and-vibration-management-environmental-permits/noise-and-vibration-management-environmental-permits

The guidance states that the assessment should be carried out by a competent person who should be for example a holder of either:

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

The guidance goes on to describe how the assessment should be carried out in terms of initial desktop risk assessment, off-site monitoring survey, source assessment and Best Available Technology (BAT) or appropriate measures justification for any required mitigation.

Broadly, the above assessment is to be carried out in accordance with the methodology of BS4142 'Methods for rating and assessing industrial and commercial sound', with any noise propagation modelling carried out in accordance with ISO 9613 'Acoustics – attenuation of sound during propagation outdoors'.

3.2 BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

The effect of plant noise emissions on the nearest noise sensitive residences can be assessed in accordance with BS4142:2014+A1:2019 – '*Methods for rating and assessing industrial and commercial sound*'.

The standard describes a method of determining the level of a noise of commercial or industrial nature, together with procedures for assessing the impact of such a noise outside nearby noise sensitive areas.

The standard provides a procedure for comparing the noise from commercial sources with background noise levels in the absence of the commercial noise and determining the likely impact of the noise on noise sensitive areas.

In accordance with BS 4142 the background noise level is the typical A-weighted sound pressure level at the assessment position that is exceeded for 90% of a given time interval (L_{A90}). The specific noise level is the equivalent continuous (L_{Aeq}) sound pressure level at the assessment position produced by the noise source over a given time interval.

Certain acoustic features can increase the impact over that expected from a simple comparison between the specific noise level and the background level. Where such features are present, these are taken into account by adding corrections to the specific noise level.

The corrections are applied based on whether the following features occur, or are expected to be present. The correction values can either be determined subjectively, or by various objective measurement procedures.

- The noise contains a distinguishable, discrete, continuous tone (whine, hiss, screech, hum, etc.). 0 – 6 dB penalty
- The noise contains distinct impulses (bangs, clicks, clatters, or thumps). 0 – 9 dB penalty.
- The noise is irregular enough to attract attention. 0 – 3 dB penalty.
- Other features. 0 – 3 dB penalty.

From the addition of the above penalties where appropriate the rating level is established, this being the value that is compared with the background noise.

According to BS 4142 an initial estimate of the impact is given for a rating level of:

- 10 dB(A) or more above the background is an indication of significant adverse impact, depending on the context.
- 5 dB(A) above the background is an indication of an adverse impact, depending on the context.
- 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.

The above initial assessment may then be modified depending on the context to take into account;

- The absolute level of the sound.
- The character and level of the residual sound compared to the character and level of the specific sound.
- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:

    1. Façade insulation treatment
    2. Ventilation and / or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and
    3. Acoustic screening

3.3 WHO Guidelines for Community Noise

In 1999, the WHO (World Health Organisation) published Guidelines for Community Noise, stating the following internal noise levels are applicable to dwellings.

Table 1 - WHO Guidelines for Community Noise criteria

Specific Environment	***Critical Health Effect(s)***	***L_{Aeq} dB***	***Time Base (hours)***[1]
Outdoor living area	Serious annoyance, daytime and evening	55	16
	Moderate annoyance, daytime and evening	50	16
Outside Bedrooms	Sleep disturbance, window open (outdoor values) night time	45	8

[1] Typically taken to be daytime/evening - 07:00 – 23:00 hours, and night time 23:00 – 07:00 hours.

WHO guidelines state, '*To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55 dB L_{Aeq} on balconies, terraces and in outdoor living areas. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound level should not exceed 50 dB L_{Aeq}*.'

4.0 SURVEY DETAILS

4.1 Ambient Sound Measurement Locations

Ambient sound measurements were undertaken at one location to the rear of the nearest noise sensitive houses to the south of the site on Colne Road (A56). The measurement location was selected to be representative of the worst case noise sensitive receivers in the vicinity of the proposed development. The microphone was mounted 1.5m above ground and at least 3.5m from any reflecting surface expected to influence measured levels. A range of statistical noise indicators was measured, including broadband L_{Aeq} and L_{A90}. Measurements were setup to log every 1 second and also to record parameters over 15 minute intervals consistent with the requirements for Background Sound measurements in accordance with BS 4142.

The measurement location is highlighted in Figure 2 below:

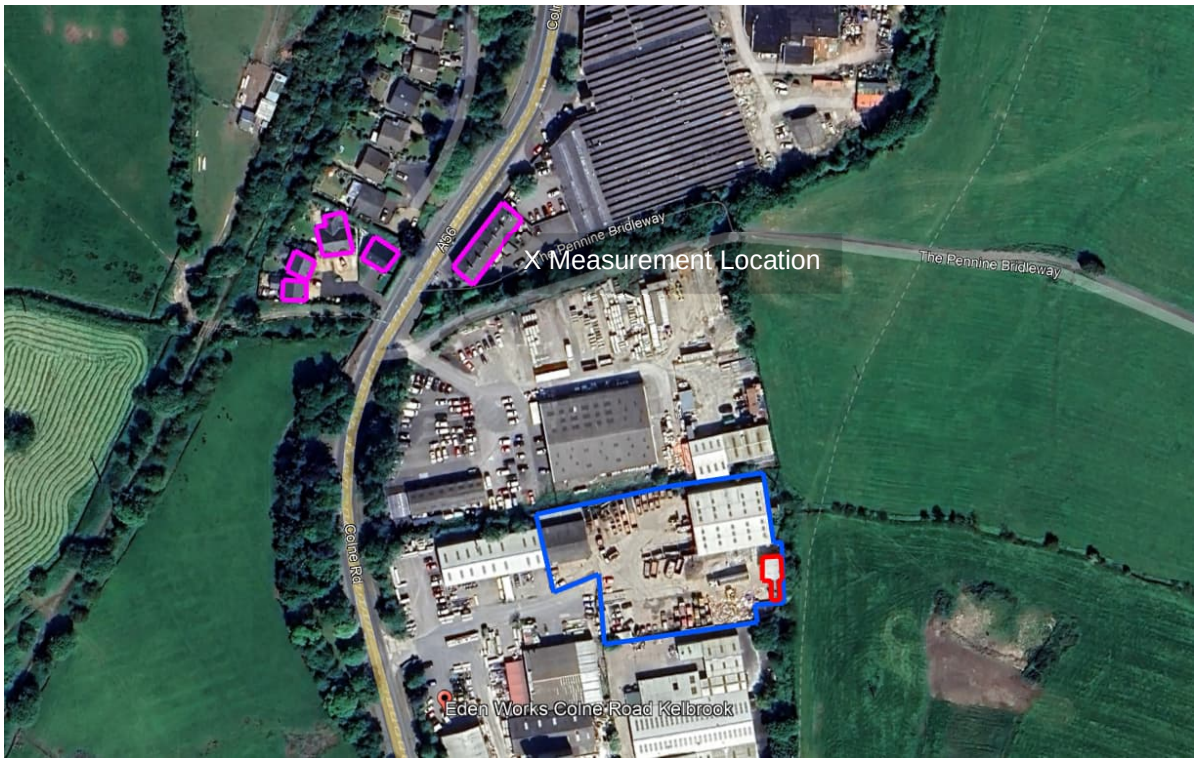

Figure 2. Measurement Positions

4.2 Survey Times

The ambient sound measurements were taken between 17:04 – 18:00 on the 9th April 2024, and between 05:45 – 09:56 on 10th April 2024.

Additional source measurements were taken of the existing waste transfer operations and close to the new screening plant. These measurements were taken on 10th April 2024 between 09:30 and 09:45. All measurements were taken by Richard Cookson of PDA Ltd.

4.3 Measurement Equipment

The survey was conducted using 2 × NTi XL2 sound level meters, for which calibration certificates are held. The sound level meters are Class 1 accuracy in accordance with IEC 61672-1. The meters were

set to A-Weighted and fast response. The meters were calibrated immediately before and after measurements took place and no significant drift was observed.

4.4 Weather

Weather observations were taken on-site.

For the measurements on the afternoon / evening of the 9th April conditions were overcast with blustery wind from the west varying between 0 – 4 m/s and a temperature of 9°C.

On the morning of 10th April conditions were clear with some mist, wind from the west a steady 1m/s and a temperature of 8°C.

4.5 Subjective Description of Environmental Noise Sources at Noise Sensitive Receivers

During the ambient sound survey at the nearest receivers the sound comprised of road traffic noise and frequent aircraft noise.

Measurements of the sources at the Blackburn Skips site were dominated by the screening plant and sound escaping from the open entrance to the waste transfer building supplemented by occasional movement of vehicles on-site.

4.6 Measurements of sources at Blackburn Skips site

Measurements of the sources at the Blackburn Skips site were dominated by the screening plant and sound escaping from the open entrance to the waste transfer building supplemented by occasional movement of vehicles on-site.

A time lapse camera was used at the gate of the site to monitor the periods of operation of the site.

4.6.1 Waste transfer

Measurements of waste transfer operations were taken within the waste transfer building with an excavator with a grab-arm transferring waste, a trommel and a picking line in operation.

In addition measurements were taken of operation of a telehandler at 15m in the yard moving material and skips around the yard. It was observed from the time lapse camera that the telehandler / loader operated for approximately 50% of the time.

4.6.2 Screening plant

Measurements of the external screening plant were taken 11m from the operational plant using a sound level meter in a single location. During the operation of the external screening plant all other activity on the site was halted.

5.0 MEASURED RESULTS

5.1 Ambient sound levels

A summary of the ambient sound level measurements is given below.

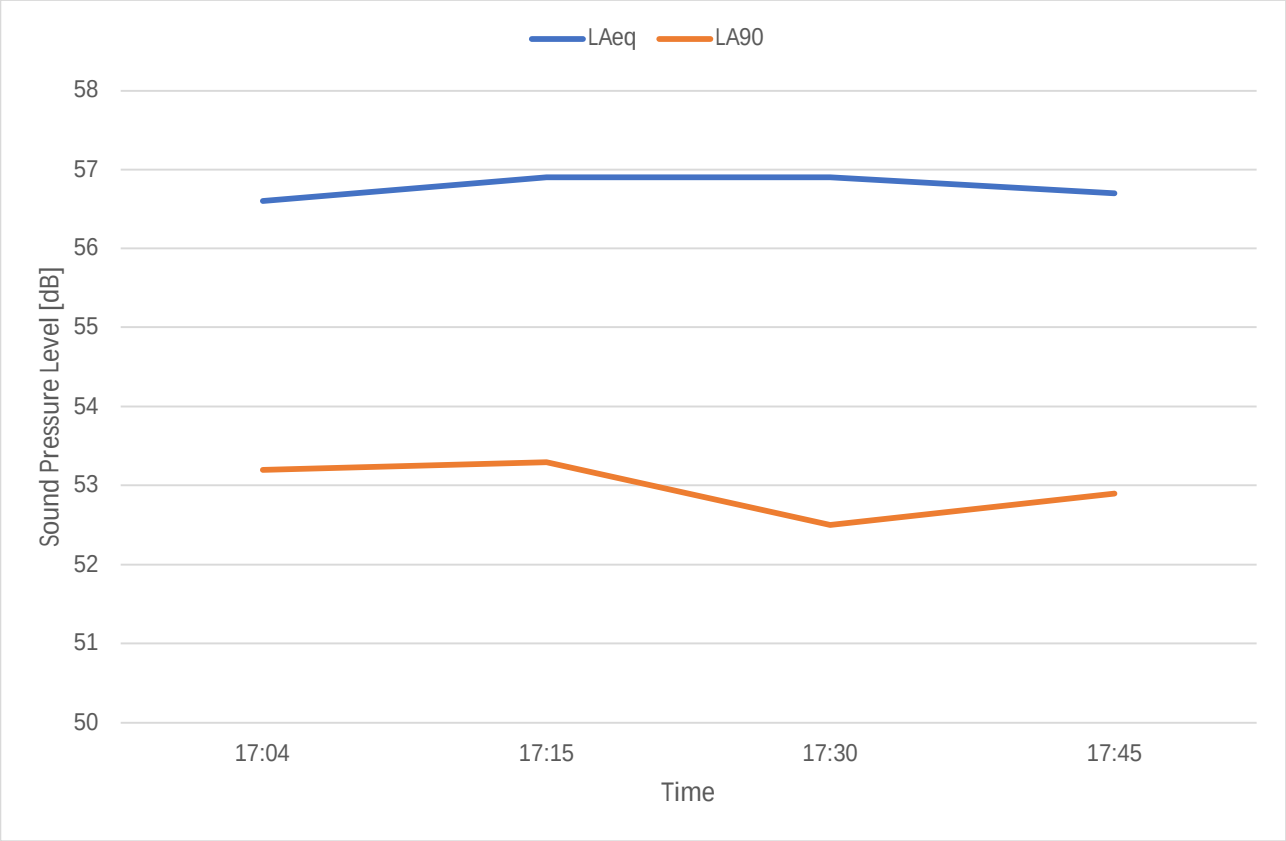

Figure 3 – Ambient sound levels measured 9th April evening (Immediately after site closed)

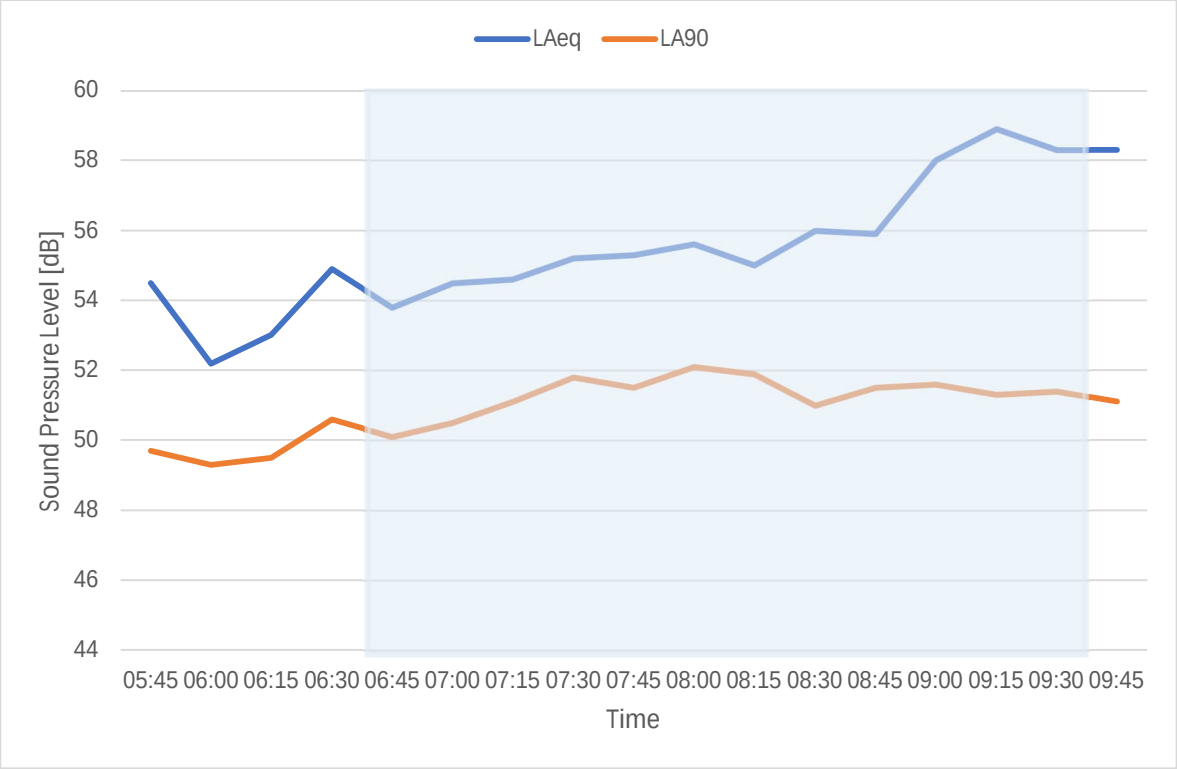

Figure 4 – Ambient sound levels measured 10th April morning (Blue shaded area indicates times during which the site was operational)

It was noted that the Blackburn Skips site was operational for part of the morning measurement.

5.2 Derivation of Background Noise

In accordance with the requirements of BS4142 the determination of background is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during relevant time periods. Within BS4142 is states the following:

"8.1.4 The monitoring duration should reflect the range of background sound levels for the period being assessed. In practice, there is no "single" background sound level as this is a fluctuating parameter. However, the background sound level used for the assessment should be representative of the period being assessed.

NOTE 1 To obtain a representative background sound level a series of either sequential or disaggregated measurements ought to be carried out for the period(s) of interest, possibly on more than one occasion. A representative level ought to account for the range of background sound levels and ought not automatically to be assumed to be either the minimum or modal value."

We would also note that the input to the screening plant is generated by the waste transfer operations on the Blackburn Skips site, and as such the screening operations can only take place in the context where the waste transfer operations are already in existence. However, for the avoidance of doubt, background sound levels have been determined for periods when the whole of the Blackburn Skips site was not operating. These comprise of the whole period of the evening measurement on 9th April, the morning measurement of 10th April prior to 06:45, and the 09:45-10:00 period of the 10th April when the site was observed to be on a break with both the waste transfer and screening operations not operating.

Although the evening measurements were in absence of the site, it was noted that the blustery wind conditions during this period of measurement may have elevated background sound levels due to the

sound from trees close to the receivers. Although this may be considered as part of the normal background sound climate at these receivers, for the avoidance of doubt this period has been omitted from the assessment of background levels. Referring to Figure 4, and noting the L_{A90} level immediately prior to activity on the site starting and also the level at the 09:45-10:00 break-period it is noted that the background sound level for both of these periods was 51 dB(A).

Table 2 - Representative Background and Residual Levels

	Measurement Position 1 (dB[A])
Background Sound Level L_{A90}	49 - 53
Residual Sound Level L_{Aeq}	52 - 58
Representative Background Sound Level When Site Not Running L_{A90}	51
Residual Sound Level When Site Not Running L_{Aeq}	55 - 58

5.3 Specific Sound Level Measurements

5.3.1 Waste Transfer Operations

Waste transfer operations consisted of the unloading of skips in the waste transfer building, and sorting of waste using a tracked excavator fitted with a grab-arm, trommel and picking line.

Average sound levels within the waste transfer building were measured as follows:

Table 3 – Sound Levels within Waste Transfer Building

dB(A)	**dB(Z)**							
	63	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
83.4	81.1	80.3	81.1	81.1	78.4	76.2	71.4	62.3

The above levels have been used to calculate the noise egress from the waste transfer building.

5.4 Skip vehicle movements

The skip vehicle movements on site were recorded using a time-lapse camera fitted to the gate of the site taking photographs at 5s intervals throughout the survey. The sound of skip vehicle movements has been taken from previous measurements from the PDA database as follows:

Table 4 – 4 wheel skip lorry movement levels

Measurement	**Duration (s)**	**dB(A)**	**dB(Z)**							
			63	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
Skip lorry pass @ 4m	15	74.1	71.6	70.3	70.7	66.5	68.2	68.9	65.6	55.0

5.5 Telehandler yard operation

For approximately 50% of the time it was noted that a telehandler operated in the yard of the site, moving skips and waste around the site. Measurements were taken at 15m from the telehandler operating on hard ground.

Table 5 – Telehandler levels

Measurement	dB(A)	dB(Z)							
		63	125	250	500	1000	2000	4000	8000
Telehandler @ 15m	74.8	73.9	78.9	72.5	73.6	70.1	65.4	60.9	53.2

5.6 Screen Plant Operation

The operation of the screen plant was measured from a location 11m to the west of the screen plant aligned with the centreline of the plant. Note that the waste transfer operations were halted during the measurement of the screen.

Table 6 – Screen sound levels

Measurement	dB(A)	dB(Z)							
		63	125	250	500	1000	2000	4000	8000
Screen @ 11m	82.1	83.3	81.3	79.9	82.7	76.3	70.9	71.6	61.7

6.0 NOISE IMPACT ASSESSMENT

6.1 Waste Transfer operations

The specific sound measurements shown in Table 3 - Table 5 have been used to calibrate a SoundPlan (SP) computer model which predicts the noise propagation to the nearest noise sensitive receivers for the existing permitted operations at the site. Ground was modelled as hard ground for the site and surrounding industrial uses, and also for the industrial area around Soughbridge Mill to the north of the site. The remaining areas of grassland surrounding the site were modelled as soft ground. Please note that the calculations follow the methodology detailed within ISO 9613-2 Acoustics - Attenuation of sound during propagation outdoors – Part 2: General method of calculation. An overview of the SP model for the existing permitted operations is provided below in Figure 5.

Figure 5 - SoundPlan model - sound propagation to nearest noise sensitive properties with existing permitted waste transfer operations – Tables give sound pressure level for the indicated floor heights

6.2 Screening plant

An additional model was produced which also included the proposed screening plant. The source for the screening plant was modelled as a line source 2 m above ground level at the location of the screening plant next to the eastern boundary of the site. The sound source spectra were set to those measured in the tables above. The spectrum of the source was set to the values measured in Table 6 above and the model was calibrated such that the sound pressure level due to the screening plant alone at point 3 in the model matched the value measured at the same location with the screening plant operating in isolation.

Figure 6 - SoundPlan model - sound propagation to nearest noise sensitive properties with proposed screening plant operational – Tables give sound pressure level for the indicated floor heights

6.3 Feature Correction

The existing operation of the site features mainly continuous broadband sound from the waste transfer operations, although there are occasional impulsive noises due to skips being loaded and unloaded, and telehandler / loader operations in the yard.

Observations from the nearest noise sensitive residences indicate that the site activities are not significantly audible, being attenuated by distance and shielding, and also masked by other surrounding industrial uses and road traffic noise.

With regard to the operation of the screening plant, observations from close measurements on site, and audio recordings of the same, indicate a predominantly broadband sound source without any significant tonality or intermittency, with an additional high-frequency ‘tinkling / crackling’ sound due to small stones and particles passing through the plant.

In order to measure the specific sound due to the Screening Plant, the plant was operated in isolation for approximately 5 minutes, then shut down again. Listening to the audio recording taken from the nearest noise sensitive residence from the time prior to the plant starting up, to the time when the plant starts to shut down, it is not possible to discern any noise from the plant. As such acoustic feature corrections are not required or appropriate for the screening plant.

6.3.1 Preliminary Impact Assessment

Please refer to the table below which details the results of the modelling calculation described above and compares these Rating Levels with the Background Sound Levels derived within Section 5.2.

Table 7 - Comparison of Proposed Operations with underlying background sound levels during the day

Predicted Specific Sound Level $L_{Aeq,T}$ (dB)	Feature Correction	Rating Level L_{Ar} (dB)	Representative Background $L_{A90(15\text{-}min)}$ (dB)	Difference between Rating Level and Background (dB)
41	+0	41	51	-10

It is noted that BS4142 indicates the following:

> *"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."*

The initial estimate of impact indicates that the nearby noise sensitive properties are well below the level of adverse impact, depending on context. This is supported by the observation on-site and the analysis of audio recordings from the noise sensitive receivers which indicate that the operation of the screening plant is not audibly discernible in the ambient sound outside the noise sensitive receivers.

In accordance with BS4142:2014+A1:2019 the above preliminary estimates need to be adjusted if required after consideration of context which is discussed further in Section 7.0 below.

7.0 CONTEXT

The BS4142 preliminary estimate of impact for the site operations needs to be modified for context. With reference to context BS4142 indicates that the significance of sound of an industrial and/or commercial nature affecting residential uses depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. BS4142 indicates that pertinent factors that could modify context would include: the absolute level of sound; the character and level of the residual sound compared to the character and level of the specific sound; the sensitivity of the receptor and whether dwellings or other premises used for residential purpose already incorporate design measurements that secure good internal and/or outdoor acoustic conditions.

The Rating Level of 41 dB is below the WHO Guidelines for Community Noise 50 dB criterion for moderate annoyance in outdoor living spaces, such that if other environmental sound sources were not present the sound due to the operation of the site would remain below the 50dB moderate annoyance criterion. We would note that in this case there are significant levels of environmental noise due to other sources and in this case the ambient sound levels in the absence of the specific source are already high.

We would further note that the assessment has been carried out conservatively by including for all of the operations at the Blackburn Skips site, whereas, in strict accordance with BS 4142:2014+A1:2019, only the specific noise due to the source considered (the screening plant) ought to be assessed as the other sources of noise at the site are already permitted and pre-existing.

The character of the sound from the Blackburn Skips site is not out of character with other environmental sounds in the vicinity of the site. The sound climate is dominated by continuous road traffic on Colne Road which includes a reasonably high proportion of HGV traffic. In addition to this the other surrounding industrial and commercial uses were observed to include use of outdoor diesel fork lift trucks and heavy goods vehicle loading both at the industrial unit to the north of the Blackburn Skips site and at the Pre-cast Concrete manufacturing site to the West of the Blackburn Skips site.

Taking into account the above contextual features, we are of the opinion that the preliminary impact of the proposed development at all nearby noise sensitive receivers, after context has been taken into account, would remain the same. Hence the impact of the use of the screening plant after context has been taken into account, would remain low.

8.0 UNCERTAINTY

BS4142 indicates that an assessment of noise impact should consider uncertainty within the assessment. This uncertainty can arise from: uncertainty in measurements; uncertainty in sound emission and sound power level; and uncertainty in calculation method.

8.1 Uncertainty in Measurements

It is noted that the instrumentation used for the assessment conform to Class 1 accuracy in accordance with IEC 61672. In addition, the instrumentation has been calibrated to national standards and were field calibrated at the time of the measurements. The measurements of background were undertaken on the boundary of the nearest residential receivers.

We would therefore consider that the effect of uncertainty on the measurement of background sound would be minimal.

8.2 Uncertainty in Sound Power Levels

The noise emission from the Screening Plant has been measured in-situ in normal operation using instrumentation conforming to Class 1 accuracy in accordance with IEC 61672. The propagation model was calibrated to ensure that the measured values were predicted at the measurement locations.

We would therefore consider that the uncertainty of the determination of the source sound powers would be minimal.

8.3 Uncertainty in Calculation Method

It is noted that the calculations have been undertaken utilising a known prediction method and have utilised the standard ISO 9613. In addition calculations have been undertaken utilising commercial prediction software. We note that the ISO 9613 method assumes meteorological conditions favourable to noise propagation (in all directions), and for much of the time during operation of the plant we would expect noise propagation to be less favourable (i.e. lower noise) than those predicted herein.

Taking into account of the above, we would consider uncertainty in the results of the assessment due to the calculation method to be low, with the calculations being conservative.

9.0 CONCLUSION

At the request of Blackburn Skips Ltd, a noise impact assessment has been undertaken of the Screening Plant situated outside the existing waste transfer station, Eden Works, Colne Road, Kelbrook, BB18 6SH.

A noise survey has been conducted at locations representative of the nearest noise sensitive properties to the screening plant. The results of the survey have been used to assess the background sound at the nearest noise sensitive receptors and to determine the likely impact of the continued use in terms of noise.

The Assessment has been undertaken following the guidance contained within BS4142:2014+A1:2019 –*'Methods for rating and assessing industrial and commercial sound'*.

We have measured the sound levels generated by the operation of the Screening plant, and using this data we have calculated the Rating Level of the sound at the nearest noise sensitive receivers.

The results of the preliminary calculation of impact in accordance with BS 4142:2014+A1:2019 have indicated that the Rating Level is 10 dB below the pre-existing Background Level hence is well below the onset of an adverse impact, depending on context.

When context is taken into account, the impact of the Screening Plant remains 'low'.

APPENDIX A – DEFINITION OF ACOUSTIC TERMS

The decibel

This is the basic unit of noise, denoted dB.

A Weighting

This is a weighting process which simulates the human ear's different sensitivity at different frequencies. A weighting can be shown two typical ways, 50 dB(A) L_{eq} or 50 dB L_{Aeq}. Both mean the same thing. (See below for a definition of L_{eq}). The dB(A) level can be regarded as the overall level perceived by human beings.

L_{eq} and $L_{eq(s)}$

This is the equivalent continuous noise level which contains the same acoustic energy as the actual time-varying sound. In other words it is a kind of average noise level. It is denoted dB L_{eq} or, for A-weighted figures dB(A) L_{eq} or dB L_{Aeq}. It can also be expressed in terms of frequency analysis (see later). $L_{eq(s)}$ is the sample L_{eq} level.

L_n

This is the level exceeded for n% of the time. It is denoted dB L_n or, for A-weighted figures dB(A) L_n or dB L_{An}. It can be expressed in terms of frequency analysis (see later). L_{90} is the level exceeded for 90% of the time and is a measure of the lowest level typically reached. L_{10} is the level exceeded for 10% of the time and is the highest level typically reached. L_{50} is the level exceeded for 50% of the time and, mathematically, it is the median.

L_{max}

This is the maximum level reached during a measurement period. The "time constant", or the ability of the equipment to respond to impulses is usually expressed along with it, e.g. "Fast", "Slow", etc. It is denoted dB L_{max} or, for A-weighted figures dB(A) L_{max}, dB L_{Amax}, etc. It can also be expressed in terms of frequency analysis.

Frequency Analysis

Whereas dB(A) gives a very useful overall figure, it has its limitations in that it cannot be used to model or predict the effect of noise control and mitigation as this nearly always has radically different performance at different frequencies.

Frequency analysis expresses an overall noise level at each frequency or band of frequencies in the audible range. Octave band analysis divides the audible range into 10 bands from 31.5 Hz to 16 kHz and the noise level in each band can be expressed in any form e.g. L_{eq}, L_{90}, L_{max} etc. One third octave band analysis uses 30 bands.

Narrow band analysis takes the process to resolutions of less than 1 Hz. This is useful for identifying the existence of tones (whines, hums, etc.) and in pin-pointing the sources.

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