SITE CONDITION REPORT

Timberpak Ltd

Leeds 2

Unit 41
Knowsthorpe Way
Leeds
LS9 0NP

EPR/KB3709XA/A001

Olive Compliance Ltd
19 Main Street,Ponteland, Newcastle upon Tyne, NE20 9NH
Company No: 12861220

CONTENTS

DOCUMENT REFERENCES

Appendix 1 – Site Photographs

1.0 Introduction

Timberpak Ltd (Timberpak) has instructed Olive Compliance Limited (OCL) to prepare an application for a Bespoke Environmental Permit Application for their site at Unit 41, Knowsthorpe Way, Leeds, LS9 0NP.

This SCR has been prepared in accordance with the Environment Agency's H5 Guidance Note on SCR[1]. The objective of the SCR is to record and describe the condition of the land at the site at the time of the permit application. The SCR will provide a point of reference and baseline environmental data so that when the permit is surrendered it can be demonstrated that there has been no deterioration in the condition of the land as a result of the proposed operations and ensure that the condition of the land is in a 'satisfactory state' on surrender of the permit.

Sections 1 to 3 of the EA's SCR template have been completed in the preparation of this document, which comprises the following:

- site details;
- condition of the land at permit issue;
    - geology;
    - hydrogeology;
    - hydrology;
- pollution history;
- evidence of historic contamination; and
- proposed permitted activities.

Section 4 to 7 of the SCR template will be maintained during the life of the permit and Sections 8 to 10 will be completed and submitted only in support of the application to surrender the permit.

[1] EA Guidance; Site Condition Report – guidance and templates, Version 3, May 2013.

2.0 Site Condition Report (H5) Template

1.0 SITE DETAILS	
Name of the applicant	Timberpak Ltd
Activity address	41 Knowsthorpe Way, Leeds, LS9 0NP
National grid reference	432970 431680

Document reference and dates for Site Condition Report at permit application and surrender	N/A

Document references for site plans (including location and boundaries)	Drawing 002 Permit Boundary Drawing 003 Site Layout Drawing 004 Receptor Plan Drawing 005 Drainage Plans

2.0 CONDITION OF THE LAND AT PERMIT ISSUE	
Environmental setting including: • geology • hydrogeology • surface waters	**Geology** The British Geological Survey (BGS) identifies the site to be located upon natural superficial deposits of River Terrace Deposits 1 described as Sand and gravel, locally with lenses of silt, clay or peat. The British Geological Survey (BGS) identifies the site to be located upon a bedrock of Pennine Lower Coal Measures Formation described as interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part. **Hydrogeology** The nearest Groundwater Source Protection Zone is 10 km to the northeast of the site. Typology - Secondary A **Groundwater Vulnerability** The groundwater vulnerability maps indicate a medium-low vulnerability. **Source Protection Zone** The site is not located within a Source Protection Zone (SPZ). **Hydrology** The nearest surface waterbody is the River Aire 300m south of the site. **Flooding** The site is classed as having an extremely low risk of flooding from surface water, rivers, the sea or reservoirs. **Air Quality** The site is not in an air quality management zone. **Current Site Condition** The current permitted area surfacing is made up of concrete with existing site drainage with a large industrial warehouse

	leading to the external drainage system (Yorkshire Water). Site secure with perimeter fencing and automated security gates in place.

Pollution history including: • pollution incidents that may have affected land • historical land-uses and associated contaminants • any visual/olfactory evidence of existing contamination • evidence of damage to pollution prevention measures	**Historical Land-uses** Information on historical land use has been gathered from Landmark Search. A review of historical maps show the Site existed as open agricultural landform the first map edition, dated 1854. The Site remained undeveloped until sometime between 2006 and 2021 when a factory was constructed, with a car park in the west and outdoor storage/loading area in the east. Identified is the following recorded permits: • a surrendered registered waste treatment site licence recorded as accepting uncontaminated construction/demolition waste, and uncontaminated excavation waste, active on November 1st 1991. The sit up until the 2021 has been operating as Hesco Bastion manufacturing for industry. The above land uses may have contributed to any existing contamination at the site however, as shown in the planning history detailed below, infrastructure including concrete surfacing has been installed to prevent and to remove potential pathways for contaminants to migrate to the land and soils beneath the site. The site is in excellent condition with site surfacing and infrastructure (budilings) maintained. No evidence of pollution or historic damage. **Planning History** Demolition of industrial unit and two storey office Hesco Bastion Knowsthorpe Gate Cross Green Leeds LS9 0NP Ref. No: 13/01520/DEM | Status: Decided Alterations to form infill extension to existing canopy area Adjacent Unit 41 Hesco Bastion Ltd Knowsthorpe Way Cross Green Leeds LS9 0SW Ref. No: 18/07536/FU | Status: Decided **Pollution History** On site: There are no recorded pollution incidents within the site boundary that may have affected the land beneath the site.

	Off site: Within 1km of any of the site there have been no recorded pollution incidents that could affect the land beneath the site.
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	No record or evidence of historic contamination available. No visual or identifiable contamination recorded.
Baseline soil and groundwater reference data	Baseline soil and groundwater reference data not available.
Supporting information	Environmental Risk Assessment (ERA) Site Photographs – Appendix 1 Landmark Report Reference: 279493117

3.0 PERMITTED ACTIVITIES	
Permitted activities	Bespoke permit application for the Physical treatment of non-hazardous waste
Non-permitted activities undertaken	N/A
Document references for: • Plan showing activity layout; and • Environmental risk assessment.	**Drawing 003**

APPENDIX 1

Site Photographs – pre-operational photographs

Inside storage shed – surfacing and infrastructure

Inside storage shed – surfacing and infrastructure

Inside storage shed – surfacing and infrastructure

Inside storage shed – surfacing and infrastructure

Inside storage shed – surfacing and infrastructure

Inside storage shed – surfacing and infrastructure

Inside storage shed – surfacing and infrastructure

Storage yard and acceptance area – northern boundary

Storage yard and acceptance area – northern boundary

Storage yard and acceptance area – surfacing

Storage yard and acceptance area – site surfacing

Storage yard and acceptance area

Storage yard and acceptance area

Storage yard and acceptance area

Canopy to warehouse/storage building

External yard area adjacent to warehouse/storage building

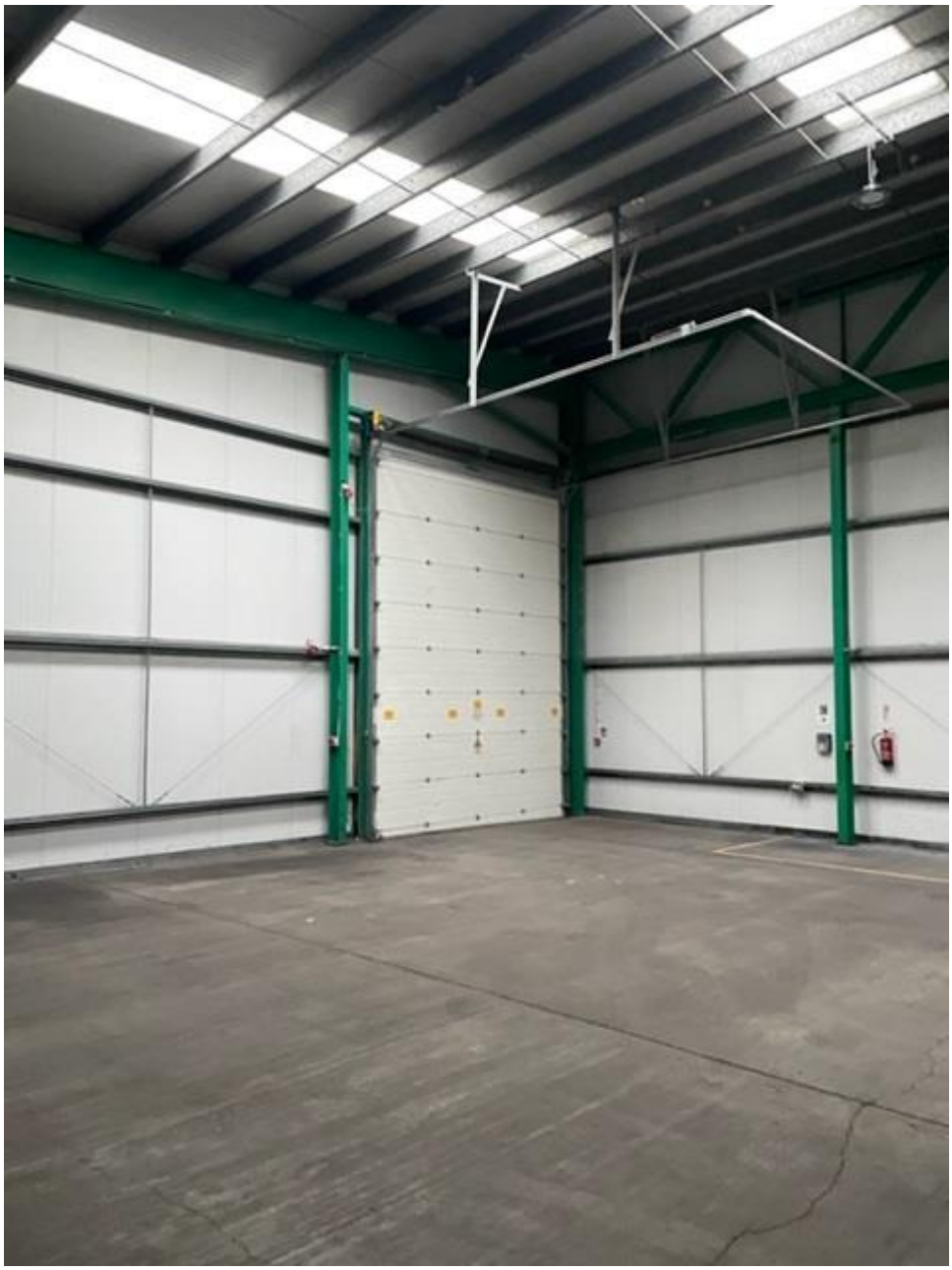
East boundary – sealed surfaces

Car park drainage channels

External canopy are to warehouse

Warehouse – proposed treated wood storage area

Workshop



Workshop

Car Park area

Drainage Channel – southern boundary

Unit 41, Knowsthorpe Way, Leeds

Noise impact assessment

9569.1

13th January 2022

Revision A

1 Covering page with sign-off

Revision	Description	Issued by	Date
A	First issue	WW	13th January 2022

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Company name	Apex Acoustics Limited
Name and location of the site	Timberpak, Unit 41 Knowsthorpe Way, Leeds
company contact for whom the report was carried out	EGGER Timberpak Limited

Prepared by

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2 Synopsis

2.1 Apex Acoustics has been appointed by EGGER Timberpak Limited to carry out a noise impact assessment in support of a permit application.

2.2 The nearby noise sensitive receptors are identified as the residential properties 1130 m to the north of the site on Halton Moor Road and 1200 m to the south of the site on the A639. The nearby protected species and habitats are identified the Deciduous Woodland to the east and Protected Fish to the south. The noise impact on Protected Fish has been scoped out as fishes are unlikely affected by the sound in the air.

2.3 The background noise levels at the most affected noise sensitive receptors have been measured; noise from all the proposed plant, and vehicle movements have been measured including shredders, feeding grabbers, backhoe loaders, HGV and the associated site activities.

2.4 The sound propagation is modelled and calculated according to ISO 9613-2 implemented by Cadna/A software.

2.5 The noise impacts on these noise sensitive receptors are assessed in accordance with BS 4142 and relevant research.

2.6 The rating levels at residential receptors are at least 12 dB below the background sound levels. This is likely to be a low impact according to BS 4142. As the rating levels are far below the background, measurement or calculation uncertainties are unlikely change the assessment outputs. The noise impact on the Deciduous Woodland is not considered significant.

2.7 No additional noise control measures are considered necessary.

3 Introduction

3.1 This report is prepared in support of a permit application of a timber processing site at Unit 41 Knowsthorpe Way, Leeds. The site is located at the centre of an industrial area. The nearest residential dwellings are at least 1100 m away from the proposed site. The site dimensions are about 230 m (west to east) x 110 m (north to south).

3.2 The site is currently used as a warehouse and it will be changed to collect and process timber materials.

3.3 The main activities of the proposed facility are as follows:

- HGVs deliver raw timber materials to the site, and then unload the materials.
- A loader pushes / piles the raw materials.
- A grabber then puts the raw material on a conveyor to separate the materials to MDF and clean timber.
- Once the raw materials are separated, the grabber moves the separated materials to feed the two shredders.
- The shredder and grabber for clean wood is electrically driven and is used significantly more than the shredder and grabber for the MDF, which is diesel powered.
- After shredding the timber to wood chips, a loader within the warehouse collects the chips and loads them to HGVs and the HGVs deliver the wood chips out the site.

3.4 The site will operate from 6:00 hours till 22:00 hours Monday to Friday and then potentially 07:00 hours to 16:00 hours Saturday and Sunday. Some extended hours of operation may happen occasionally.

4 Assessment location

4.1 **Noise sensitive receptors**

4.2 The noise and vibration sensitive locations have been identified based on the desktop study. There are three areas to the north, south and northwest have been identified as the closest residential areas. The protected species and habitats have been identified by the Environmental Agency. No other noise and vibration sensitive areas have been identified.

4.3 The distance from the centre of the site to the identified noise sensitive areas are shown in Figure 1.

4.4 The residential area to the northwest of the proposed site is 200 m further to the proposed site compared to the other two residential areas to the north and south. Additionally, this residential area is close to the A63 which is a busy dual carriageway. It is likely that the background sound level at this area is higher than the other two and if the noise at the other areas can achieve the assessment requirement, the noise at this area will also comply with the requirements. Therefore, the residential area to the northwest is not considered further in this report.

4.5 The site location, identified noise sensitive areas and monitoring positions are shown in Figure 1.

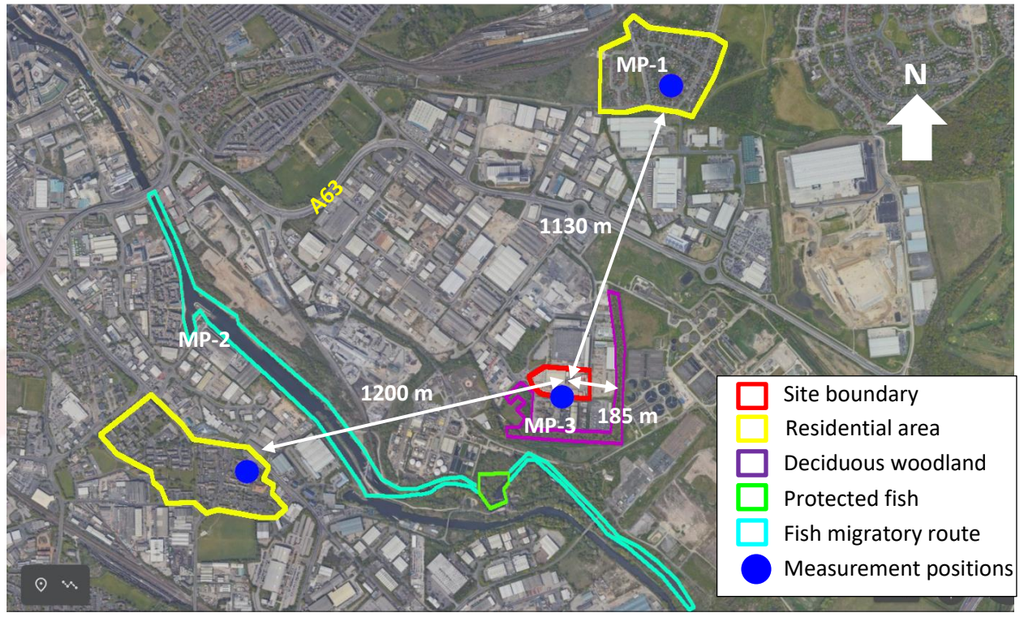


Figure 1: Site boundary, identified noise sensitive receptors and monitoring positions

4.6 **Noise sources locations**

The main noise sources on site have been determined based on the proposed layout drawings, and a visit to a similar site owned by the applicant at Washington as shown in Figure 2.

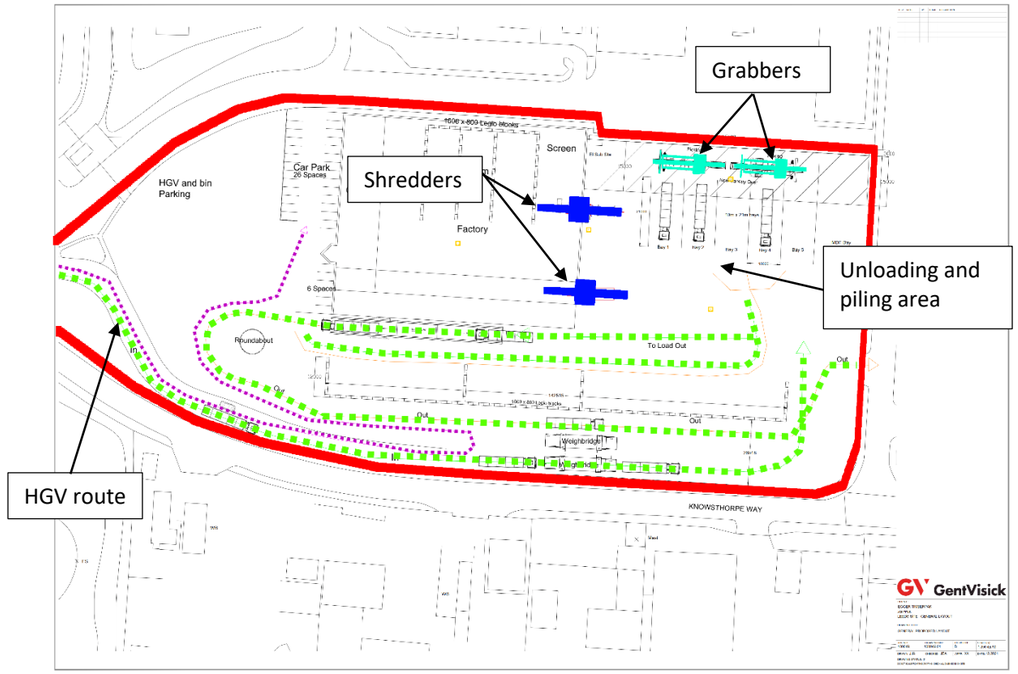


Figure 2: Main noise sources on site

4.7 **Ground type and ground cover**

4.8 The proposed site is located within the centre of an industrial area. The ground is covered mostly by industrial warehouses, and hard road / parking areas. It is likely that the ground would not provide any sound attenuation other than the shielding effects from the buildings

4.9 **Geographical context of the location**

4.10 The site is currently used as a warehouse. The new noise sources introduced to the site include shredders, grabbers, HGVs and the related site activities.

4.11 The background sound levels at the identified noise sensitive receptors have been measured for more than three consecutive days. The photographs of the measurements in progress are shown in Figure 15 and Figure 16.

5 Equipment and meteorology

5.1 The equipment used is listed in Table 1.

Position	Equipment	Model	Serial no.	Field calibration, mV/Pa	Meteorological condition
MP-1	Sound level meter	NTi XL2	A2A-14176-E0	Pre: 41.0 Post 41.0	Weather history taken from Leeds Bradford International Airport Station as shown in the Appendix
	Calibrator	Larson Davis CAL 200	15307		
MP-2	Sound level meter	A2A-14205-E0	A2A-14205-E0	Pre: 44.7 Post 44.9	
	Calibrator	Larson Davis CAL 200	15308		
MP-3	Sound level meter	NTi XL2	A2A-05832-E0	Pre: 43.1 Post 43.0	No rain around 9°C 25% cloud coverage 5 m/s wind speed
	Calibrator	Larson Davis CAL 200	9462		
Source measurement position 1 to 4 as indicated in Appendix C	Sound level meter	NTi XL2	A2A-14176-E0	Pre: 41.6 Post: 41.6	No rain around 6°C 100% cloud coverage
	Calibrator	Larson Davis CAL 200	15307		

Table 1: Equipment used

5.2 Both meter and calibrator have current calibration certificates traceable to national standards. The sound level meter has been calibrated within the last two years and calibrator has been calibrated within the last year in accordance with the guidance of BS 4142; calibration certificates are available on request.

5.3 The equipment was field-calibrated before and after the measurements with no significant drift in sensitivity noted.

6 Methodology

6.1 **Assessment on residential areas**

6.2 The noise impact assessment on residential receptors is assessed following the guidance in BS 4142. BS 4142 describes methods for rating and assessing sound of an industrial nature in terms of the potential adverse impact on residential receptors.

6.3 The specific sound source of an industrial nature is rated according to BS 4142 and compared against the measured existing background sound environment on certain context.

6.4 The rating level is calculated based on the specific sound level plus penalties due to perceptible sound features, including

- Tonality penalty

  It is stated in BS 4142 that tonality can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible

- Impulsivity penalty

  It is stated that impulsivity can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible.

- Intermittency penalty

  If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

- Other features penalty

  Penalties can be applied due to other readily distinguishable features

6.5 Based on the initial assessment between the rating level and the background level:

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact
- A difference of around + 5dB is likely to be an indication of an adverse impact
- Where the rating level does not exceed the background sound level, this is an indication of the specific source having a low impact

6.6 The final assessment is based on the initial assessment and the noise context.

6.7 **Assessment on protected species and habitats**

6.8 Protected habitats (Deciduous Woodland), and Protected species (Brown Trout Bullhead European Eel migratory route) are within the screening distance to the site and must be considered in the permit application.

6.9 The assessment methodology has been discussed with the Environmental Agency. However, there is no national or international guidance on how to assess noise impact on deciduous wood land. The assessment is based on the latest research and historical projects.

6.10 For continuous / repetitive noise, the threshold of significance being commonly cited is 70 dB $L_{Aeq,T}$[1]. For sudden noise, the threshold of significance being commonly cited is 50 dB $L_{Aeq,T}$[2]. Greater than this level, it is suggested that a more detailed assessment may be required.

6.11 However, "studies on UK PS (Priority Species) and SPI (Species of Principle Importance) provide an overwhelming lack of strong evidence for or against noise impact[3]".

6.12 The protected fish and eels are under water. Therefore, the noise in the air is unlikely to affect the protected species. They are not considered further in this assessment.

6.13 **Prediction of sound levels**

6.14 Noise transmission and propagation is modelled to the noise sensitive receptors using proprietary software, CadnaA, which models noise propagation outdoors according to ISO 9613-2.

6.15 ISO 9613-2 is a widely used and accepted standard to calculate sound propagation outdoors. This standard includes sound reflection, sound diffraction over buildings, meteorological conditions, ground effects, and sound propagating over built-up areas. This is considered the most appropriate calculation method available for this assessment.

[1] M. Wright, P. Goodman and T. Cameron, "Exploring behavioural responses of shorebirds to impulsive noise," Wildfowl & Wetlands Trust, 2010. N.Cutts, A. Phelps and D.Burdon, "Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance," Institute of Estuarine & Coastal Studies (IECS), The University of Hull, 2009

[2] Noise impact assessment on wintering birds, Anna's Road exploration well site, Westby, Blackpool, Oct 2012

[3] Defra, "The Effects of Noise on Biodiversity (NO0235)," School of Biological Sciences, University of Bristol, 2011

7 Noise monitoring data and predictions

7.1 All the measured noise levels described in this section are free field levels.

7.2 **Background sound measurements**

7.3 The background sound level measurements at the identified residential areas were measured from 14th December to 17th December 2021. The measurement duration is considered to be long enough to get the representative background sound level with statistical analysis.

7.4 The background noise measurement locations are shown in Figure 3 and Figure 4. The background sound levels at these positions are likely lower than that directly exposed to the adjacent industrial area. These positions are also considered representative for the residential area.

7.5 The measured time histories are shown in Figure 18 and Figure 19.

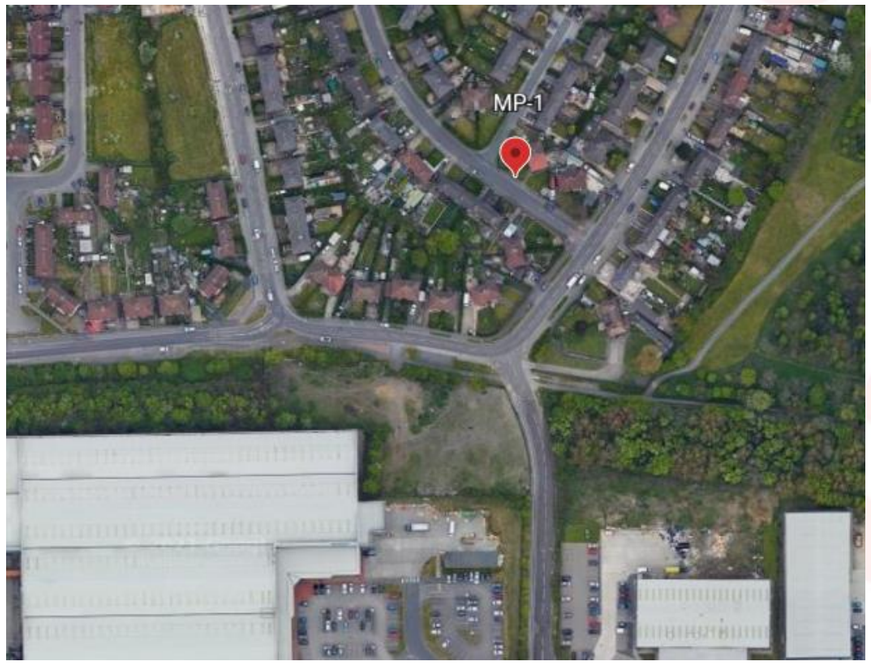


Figure 3: Built-up conditions around MP-1

Figure 4: Built-up conditions around MP-2

7.6 Statistical analysis was carried out to determine the representative background level of the daytime operating hours. The most commonly occurred background sound levels are considered the representative values during daytime as highlighted in Figure 5 and Figure 6.

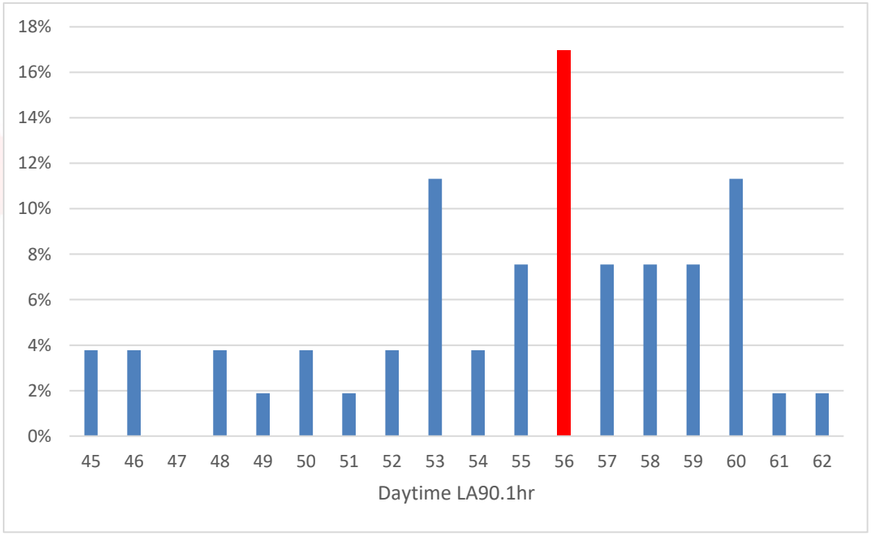


Figure 5: Statistical analysis of measurements at MP-1

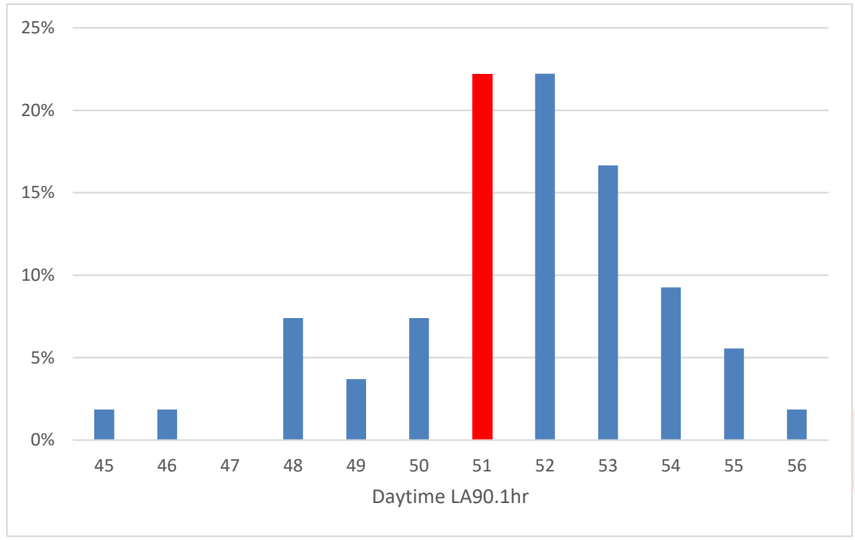


Figure 6: Statistical analysis of measurements at MP-2

7.7 It is understood that the proposed site only operates between 06:00 hours and 07:00 hours during night-time. The background sound levels measured at night time are shown in Table 12 in Appendix A. The measured lowest background time during that time is considered as the representative value and used in the assessment.

7.8 Based on the above analysis, the representative sound levels during the daytime and night time assessment periods are shown in Table 2.

Position	representative background sound level	
	Daytime 07:00 to 23:00 hours	Night time 06:00 to 07:00 hours
MP-1	56	48
MP-2	51	47

Table 2: Representative background sound level used in the assessment

7.9 **Residual sound measurement for the deciduous woodland**

7.10 The measurement was carried out for one hour time between 13:00 hour and 14:00 hour on 13th January 2022. The measurement in progress is shown in Figure 17.

7.11 As the distance from the existing scrap yard to the measurement position and to the Deciduous Woodland is similar, the measurements are considered as representative of the existing noise environment at the Deciduous Woodland.

7.12 The major existing noise sources affecting the deciduous woodland are road traffic on Knowsthorpe Way and the noise from the nearby scrap yard. The scrap yard generates sudden "banging" sound when dropping metal scrap. During the one-hour measurement, six loud "banning" sound were identified as marked in red in Figure 7.

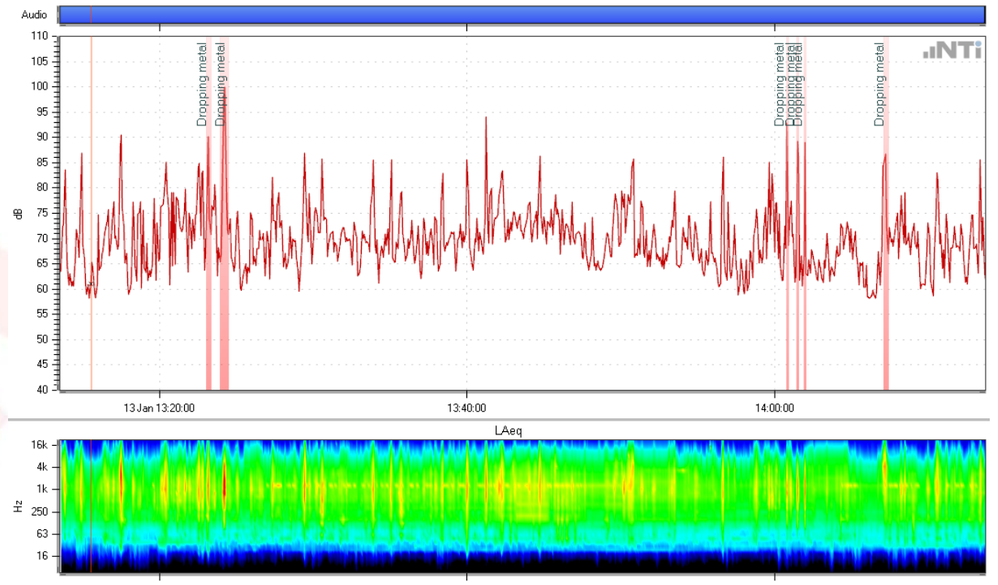


Figure 7: Measurement time history of the existing sound environment near the deciduous woodland

7.13 The measured existing noise levels are shown in Table 3.

Position	$L_{Aeq,1hr}$, dB	L_{AFmax}, dB	$L_{A90,1hr}$, dB
MP-3	71	87 - 100	59

Table 3: Measured noise levels nearby the deciduous woodland

7.14 **Noise source measurements**

7.15 The applicant has a similar site to process timber materials at Washington. It is understood that the same equipment will be used at the Leeds site. Therefore the noise sources at the Washington site were measured and used to assess the noise impact from the proposed site at Leeds.

7.16 The measured noise sources site include:

- Shredder
- Feeding grabber
- HGV movements

- Noise breakout from the warehouse
- Backhoe loader piling materials

7.17 Pictures of the measurements in progress for the shredder / feeding grabber, and noise within the warehouse are shown in Figure 8 and Figure 9.

Figure 8: Measurement of the shredder and feeding grabbers

Figure 9: Measurement of the noise within the warehouse

7.18 When the grabber crushed raw materials before putting them on the shredder conveyor, "banging" and "thudding" sound features were perceived at around 15 m away, where the measurement position is located. When there were sufficient materials on the conveyor, the shredder made continuous loud noise, and when there were not sufficient materials, the shredder is much quieter before it crushed any materials as demonstrated in the measurement history as shown in Figure 10. No tonal noise could be perceived at the measurement position.

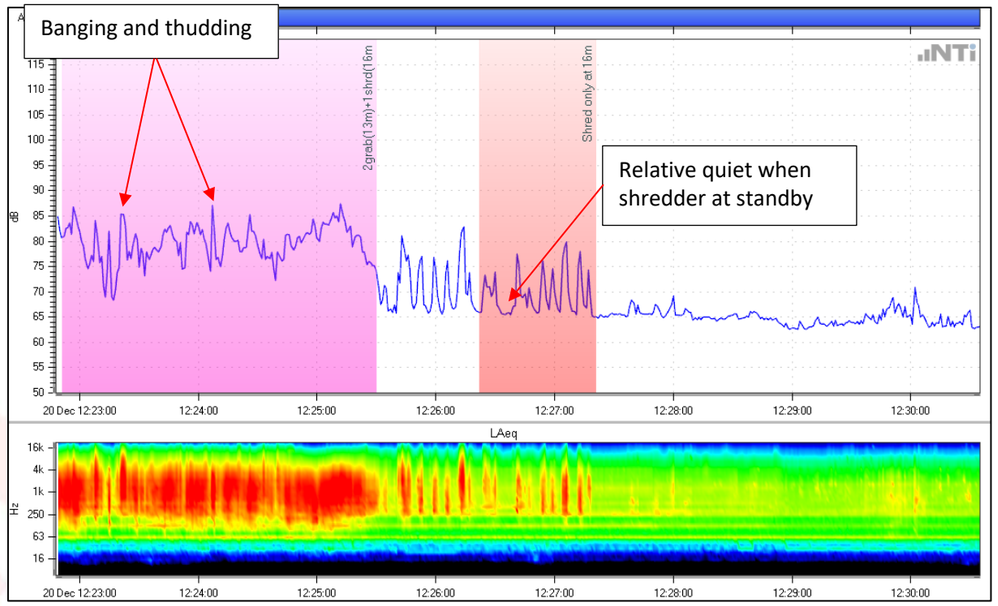


Figure 10: Measurement time history of the shredder and feeding grabbers

7.19 When the HGVs were unloading, a "banging" sound is perceived at around 10 m. When the backhoe loader was piling material, it had similar sound features as the HGV unloading. The passby noise of the HGV is also a broad band noise without any perceptible sound features at the measurement position as shown in Figure 11.

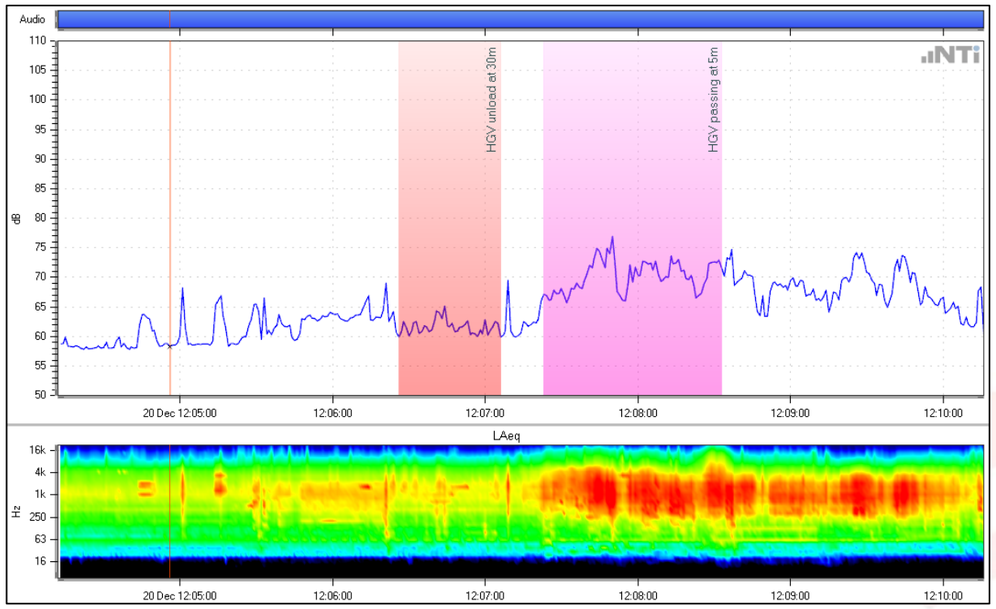


Figure 11: HGV passing by at around 5 m (as highlighted in pink)

7.20 The noise within the warehouse is steady, without any perceptible sound features as demonstrated in the measured time history and spectrum Figure 12.

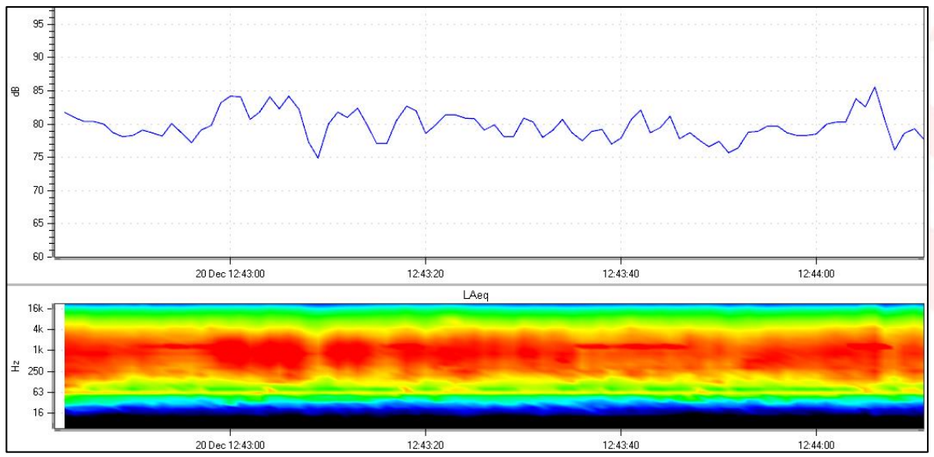


Figure 12: Measured time history and spectrum within the warehouse

7.21 The measured source noise levels and the spectra are shown in Table 4.

Measurement description	Octave band centre frequency, Hz A-weighted sound pressure level, dB									
	dB(A)	31.5	63	125	250	500	1000	2000	4000	8000
HGV passing at 5m	71	39	48	52	59	65	66	65	60	49
Unload at 30m	62	32	44	48	51	55	56	56	50	38
Backhoe loader push raw materials at 10m	74	38	52	58	64	69	70	67	60	48
1 no. shredder at 16m	72	31	56	57	64	66	66	64	59	49
1 no. Shredder at 16m + 2 no. grabbers at 13 m	81	36	58	63	70	74	77	75	68	59
2 no. grabber at 13m	80	34	55	62	68	74	76	74	68	59
Inside warehouse (internal reverberant noise level)	80	37	60	64	70	74	77	71	64	54

Table 4: Measured sound levels of the noise sources

7.22 As the measurement positions are far enough away compared to the size of the noise sources, the noise sources are considered as point sources. Based on the measured noise level and the distance, the sound power levels are calculated, as shown in Table 5.

Noise source	Octave band centre frequency, Hz Sound power levels, dB L_{wA}									
	dB(A)	31.5	63	125	250	500	1000	2000	4000	8000
HGV passing	93	61	70	74	81	87	88	87	82	71
Unload	99	70	82	86	88	92	94	94	88	76
Backhoe loader push raw materials	102	66	80	86	92	97	98	95	88	76
1 no. shredder	104	63	88	89	96	98	98	96	91	81
2 no. grabbers	111	64	85	92	98	104	107	105	98	89

Table 5: Calculated sound power levels

7.23 The proposed number of noise sources and operating mode are shown in Table 6. All the noise sources are assumed to operate continuously.

Nosie source	Proposed number	Operating mode
HGV passing	117	This is the predicted daily movements in 2023 as shown in Appendix B. This is equivalent to 8 no. HGV per hour during the site operating period
Unloading	88	This is the predicted daily number of HGVs that may come in site in 2023. This is equivalent to 6 no. HGV unloading per hour during the site operating period
Backhoe loader pushing raw materials	1	Assume the backhoe loader is working all the time
Shredder	2	It is understood that one shredder will be used for clean timber and frequently used; the other one is for MDF and not frequently used. In the assessment the two shredders are assumed to operate all the time as the worst case condition
Grabbers	2	The two grabbers are assumed to operate all the time

Table 6: Sources and their operating modes

7.24 **Noise propagation model**

7.25 The shredders, grabbers, unloading and backhoe loader movements are modelled as point source. The HGV movements are modelled as moving point source (i.e. line source with site speed of 5 km/h. The noise breakout from the warehouse is modelled based on the proposed opening size of the warehouse as vertical area sources.

7.26 The height of the buildings within the site is modelled based on the layout drawing. Only the industrial buildings directly adjacent to the site or the noise sensitive areas are modelled. Other industrial buildings are not modelled for simplicity reasons and therefore the additional noise attenuation due to built-up area effect is neglected. The heights of these buildings are determined based on Google Street view.

7.27 The 3D view of the acoustic model is shown in Figure 13. The other parameters are shown in Table 7.

Parameter	Value
Standard used to model sound propagation	ISO 9613-2
Site location and layout	Architectural drawing
Topography	Flat
Receptor positions	At the noise sensitive receptors closest to the proposed site
Building and barrier absorption coefficient	1 dB loss per reflection
Ground factor	Hard ground
Number of reflections	3

Table 7: Parameters used in the sound propagation model

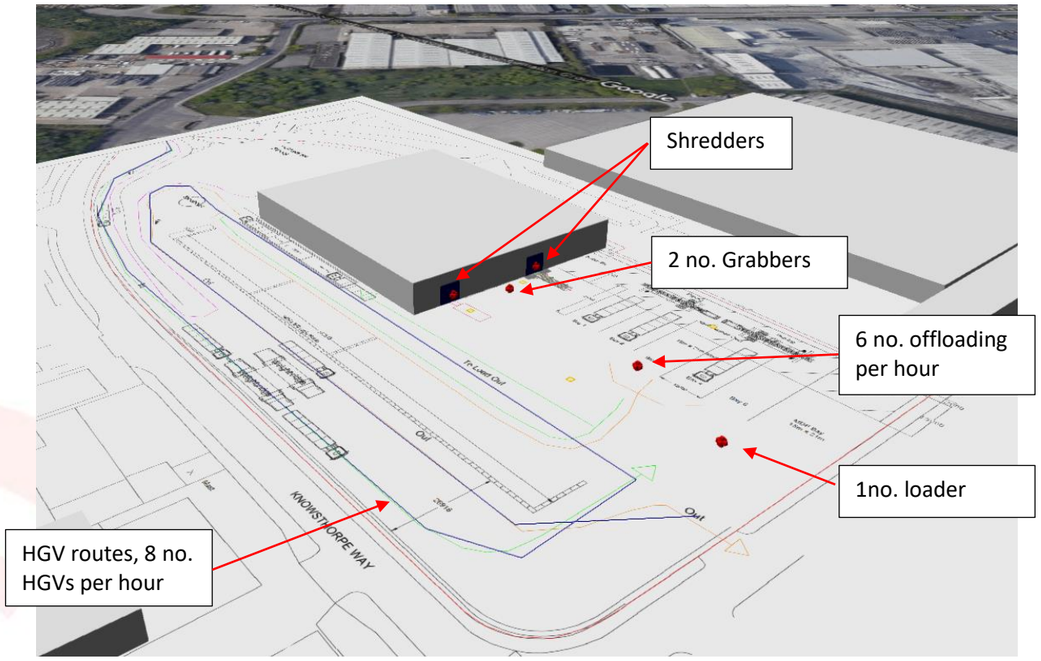


Figure 13: 3D view of the acoustic model

7.28 **Predicted sound levels**

7.29 The predicted specific sound level contour at 1.5 m high is shown in Figure 14. The calculated specific sound levels at the nearest noise sensitive receptors are shown in Table 8.

Receiver location	Distance to the centre of the site	Specific sound level, dB $L_{Aeq,T}$	Comment
Residential receiver 1	1130 m	33	It is understood that the site activities and equipment will operate in the same pattern during the daytime and night time. Therefore, the daytime and night time specific sound levels are considered to be the same in the following assessment
Residential receiver 2	1200 m	26	
Deciduous woodland	185 m	44 to 64	

Table 8: Calculate the specific sound levels

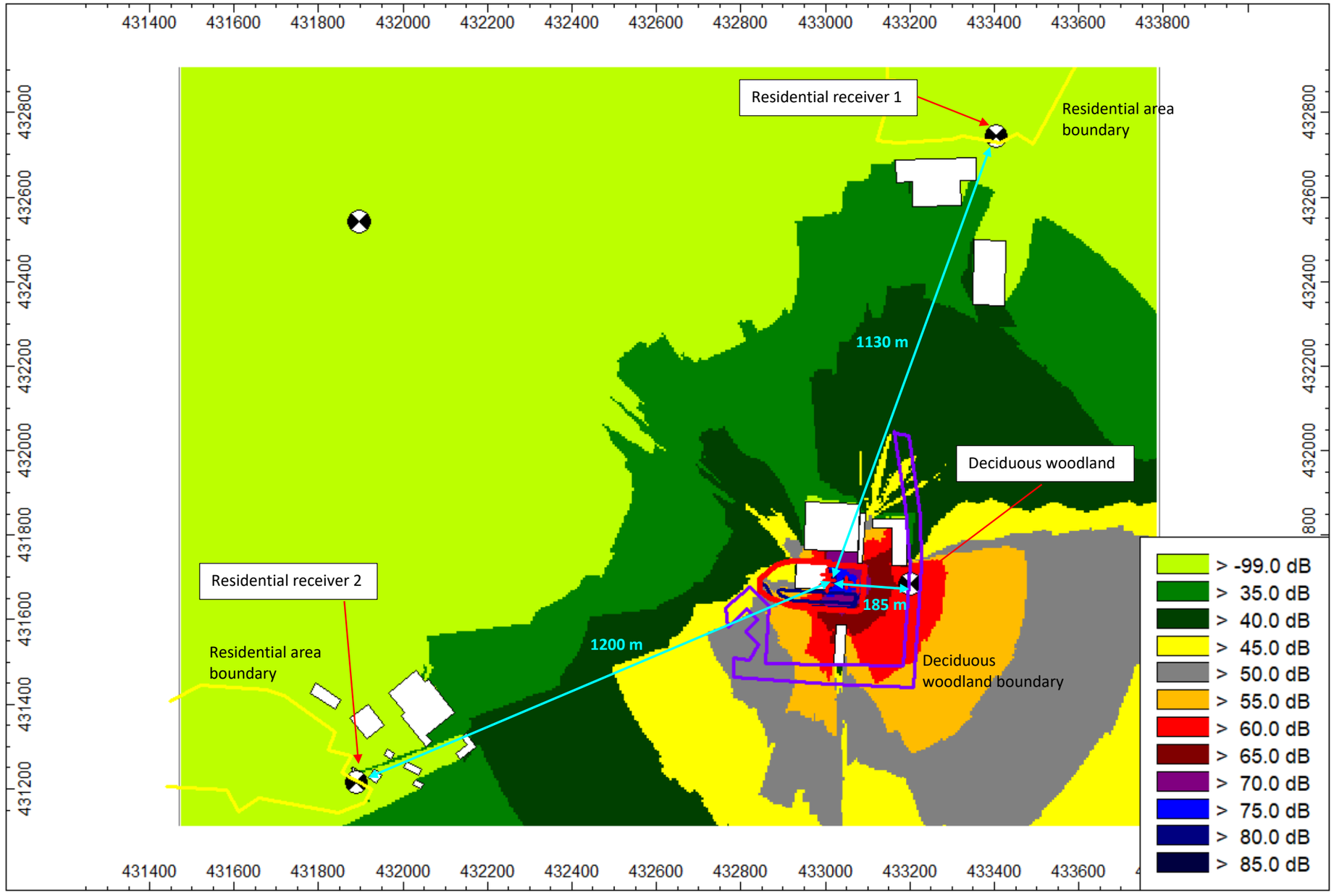


Figure 14: Specific sound level contour at 1.5 m

8 Noise impact assessment

8.1 The noise impacts on the identified noise sensitive receptors are assessed separately.

8.2 **Assessment on residential area to the north**

Parameter	Daytime assessment	Night-time assessment	Commentary
Background sound level	56 dB L_{A90}	48 dB L_{A90}	Daytime background sound level is considered representative of the assessment period based on statistical anabasis. The measured lowest night time background sound level is used in the assessment
Specific sound level L_s	33 dB $L_{Aeq,1\text{-}hr}$	33 dB $L_{Aeq,15min}$	--
Acoustic feature correction	+3 dB	+ 3 dB	A subjective assessment to determine acoustic features is undertaken, and the following penalties are considered applicable: • Tonality – 0 dB; • Impulsivity – 0 dB; • Intermittency – 0 dB; • Other – 3 dB the banging and thudding sound might be perceptible;
Rating level, $L_{Ar,Tr}$	36 dB	36 dB	
Excess over background sound level	- 20 dB	- 12 dB	--
Initial assessment	Low impact	Low impact	--
Final assessment	The rating level is 20 dB below the background. The plant noise is unlikely to be perceptible during the daytime. Therefore, the plant noise is likely to have **a low impact during daytime**.	The rating level is 12 dB below the background. The plant noise may not be perceptible during the night-time. Therefore, the plant noise is likely to have **a low impact during night time**.	--
Uncertainty of assessment	The rating level is more than 10 dB below the background. Uncertainties are unlikely to change the output of the assessment		--

Table 9: Noise impact assessment – residential area to the north

8.3 **Assessment on residential area to the south**

Parameter	Daytime assessment	Night-time assessment	Commentary
Background sound level	51 dB L_{A90}	47 dB L_{A90}	Daytime background sound level is considered representative of the assessment period based on statistical anabasis. The measured lowest night time background sound level is used in the assessment
Specific sound level L_s	26 dB $L_{Aeq,1\text{-}hr}$	26 dB $L_{Aeq,15min}$	--
Acoustic feature correction	+3 dB	+ 3 dB	A subjective assessment to determine acoustic features is undertaken, and the following penalties are considered applicable: • Tonality – 0 dB; • Impulsivity – 0 dB; • Intermittency – 0 dB; • Other – 3 dB the banging and thudding sound might be perceptible;
Rating level, $L_{Ar,Tr}$	29 dB	29 dB	
Excess over background sound level	- 22 dB	- 18 dB	--
Initial assessment	Low impact	Low impact	--
Final assessment	The rating level is 22 dB below the background. The plant noise is unlikely to be perceptible during the daytime. Therefore, the plant noise is likely to have **a low impact during daytime**.	The rating level is 18 dB below the background. The plant noise is unlikely to be perceptible during the daytime. Therefore, the plant noise is likely to have **a low impact during night time**.	--
Uncertainty of assessment	The rating level is more than 18 dB below the background. Uncertainties are unlikely to change the output of the assessment		--

Table 10: Noise impact assessment – residential area to the south

8.4 Assessment on deciduous woodland

Parameter	Sound levels	Assessment
Residual sound level	56 dB L_{A90}	The majority area of the deciduous woodland area is between 44 and 60 dB L_{Aeq}, with a small part to the east of the site of 64 dB $L_{Aeq.}$ This is below the significant level of 70 dB(A) for continuous / repetitive noise. Although the site may generate "banging" and "thudding" noise, it is likely to be masked by the site noise itself and reduce the perceived impulses. The calculated noise level is less than the measured existing noise level of 70 dB L_{Aeq} near the woodland. The existing scrap yard generates sudden loud noises when dropping scrap material. The proposed site is unlikely change the soundscape at the deciduous woodland. Based on the above analysis, it is considered that the noise impact on the deciduous woodland is not significant.
Specific sound level L_s	44 – 64 dB L_{Aeq}	
Uncertainty of assessment	As described in the Methodology section, there is no strong evidence if noise is for or against other species.	

Table 11: Noise impact assessment – deciduous woodland

9 Noise control

9.1 The noise impacts on the identified noise sensitive receptor are likely to be low impacts during normal operation. The site is also located at least 1100 m from the noise sensitive receptors. The uncertainty of the assessment is unlikely to change the assessment output. Considering the above, it is not necessary to implement noise control measures.

10 Uncertainty

10.1 The background sound levels were measured for more than three consecutive days to minimise the uncertainty due to noise level fluctuations. The wind gusts during the noise measurement periods were occasionally higher than 5 m/s. As the measurement period is long enough to make most of the noise data be recorded at suitable meteorological conditions, the uncertainty due to weather conditions were minimised.

10.2 Only the industrial buildings directly adjacent to the site or the noise sensitive receptors are considered. The noise shielding effect due to other industrial buildings are neglected. The noise shielding effect is likely to increase if these buildings are included and the noise impact is likely to be lower.

10.3 The two shredders are assumed to operate simultaneously during the assessment period. It is understood that the shredder for MDF is not frequently used. The backhoe loader is assumed to operate continuously during the assessment period. In reality, the backhoe load only piles the raw materials when necessary. Therefore the noise impact is likely to be lower when the site is in operation.

10.4 The unloading location and backhoe location are assumed to be a fixed position in the model. These two noise sources will move around within a certain area. Considering the minimum distance to the nearest residential area is more than 1100 m, any noise source location changes within the site compared to that distance is not significant. Additionally, the locations of the major noise source such as shredders are fixed. Therefore, the mobile noise sources are likely to have negligible effect.

10.5 The calculated rating levels are far below the measured representative background sound levels, the above uncertainties are unlikely to change the output of the assessment.

11 Conclusions

11.1 Noise from the proposed plant, and vehicle activities were measured at similar site current in operation. Representative background sound levels at the nearby noise sensitive receptors were also measured.

11.2 Noise impact from the proposed permit application has been assessed according to BS 4142 and relevant research. The noise impacts on all identified noise sensitive receptors are likely to be low. It is considered that additional noise control measures are not necessary.

Appendix A Noise measurement history and meteorological conditions

A.1 Measurement in progress at MP-1 and MP-2 are shown in Figure 15 and Figure 16 respectively.

Figure 15: Measurement in progress – MP-1

Figure 16: Measurement in progress – MP-2

A.2 Measurement in progress at MP-3 is shown in Figure 17

Figure 17: Measurement in progress at MP-3

11.3 The measured night time background sound levels are show in Table 12.

MP-1			MP-2		
Start time	LA90,15min, dB	Minimum value	Start time	LA90,15min, dB	Minimum value
15/12/2021 06:00	47	48	15/12/2021 06:00	50	47
15/12/2021 06:15	49		15/12/2021 06:15	50	
15/12/2021 06:30	49		15/12/2021 06:30	51	
15/12/2021 06:45	51		15/12/2021 06:45	51	
16/12/2021 06:00	49		16/12/2021 06:00	51	
16/12/2021 06:15	48		16/12/2021 06:15	51	
16/12/2021 06:30	52		16/12/2021 06:30	52	
16/12/2021 06:45	53		16/12/2021 06:45	54	
17/12/2021 06:00	51		17/12/2021 06:00	50	
17/12/2021 06:15	52		17/12/2021 06:15	50	
17/12/2021 06:30	52		17/12/2021 06:30	51	
17/12/2021 06:45	52		17/12/2021 06:45	52	

Table 12: Measured night time background sound levels

11.4 The measured time history at MP-1 and MP-2 are shown in Figure 18 and Figure 19 respectively.

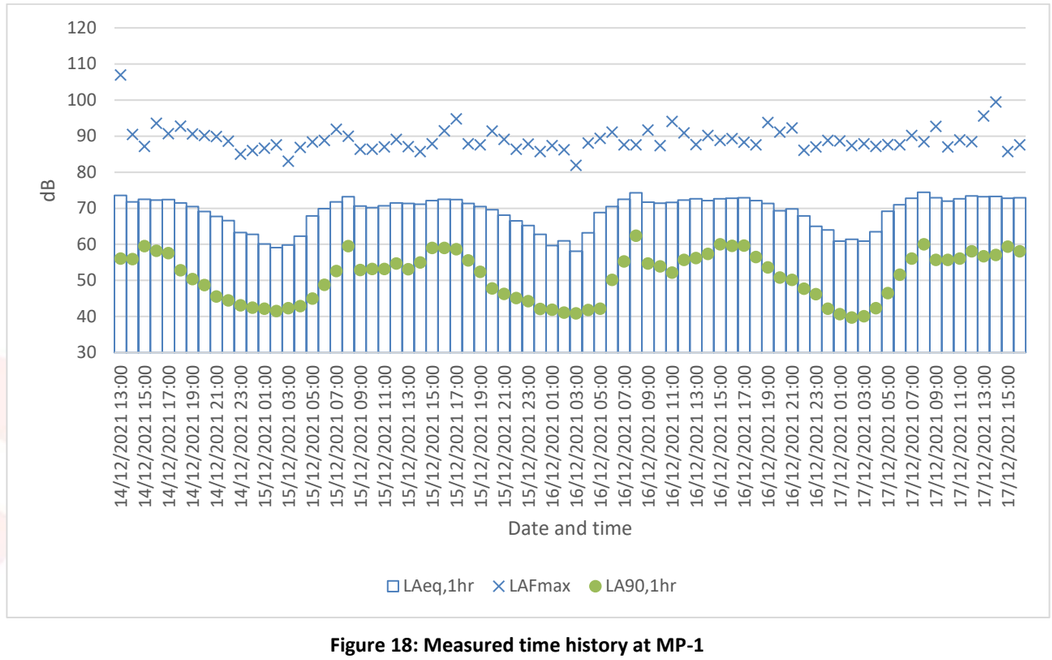


Figure 18: Measured time history at MP-1

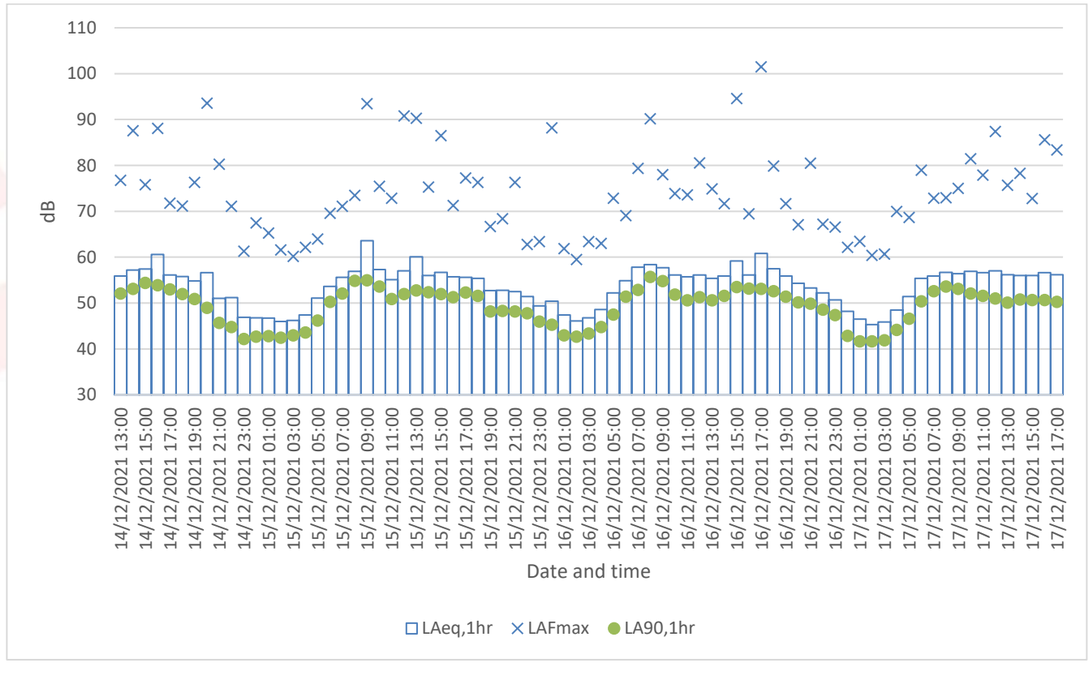
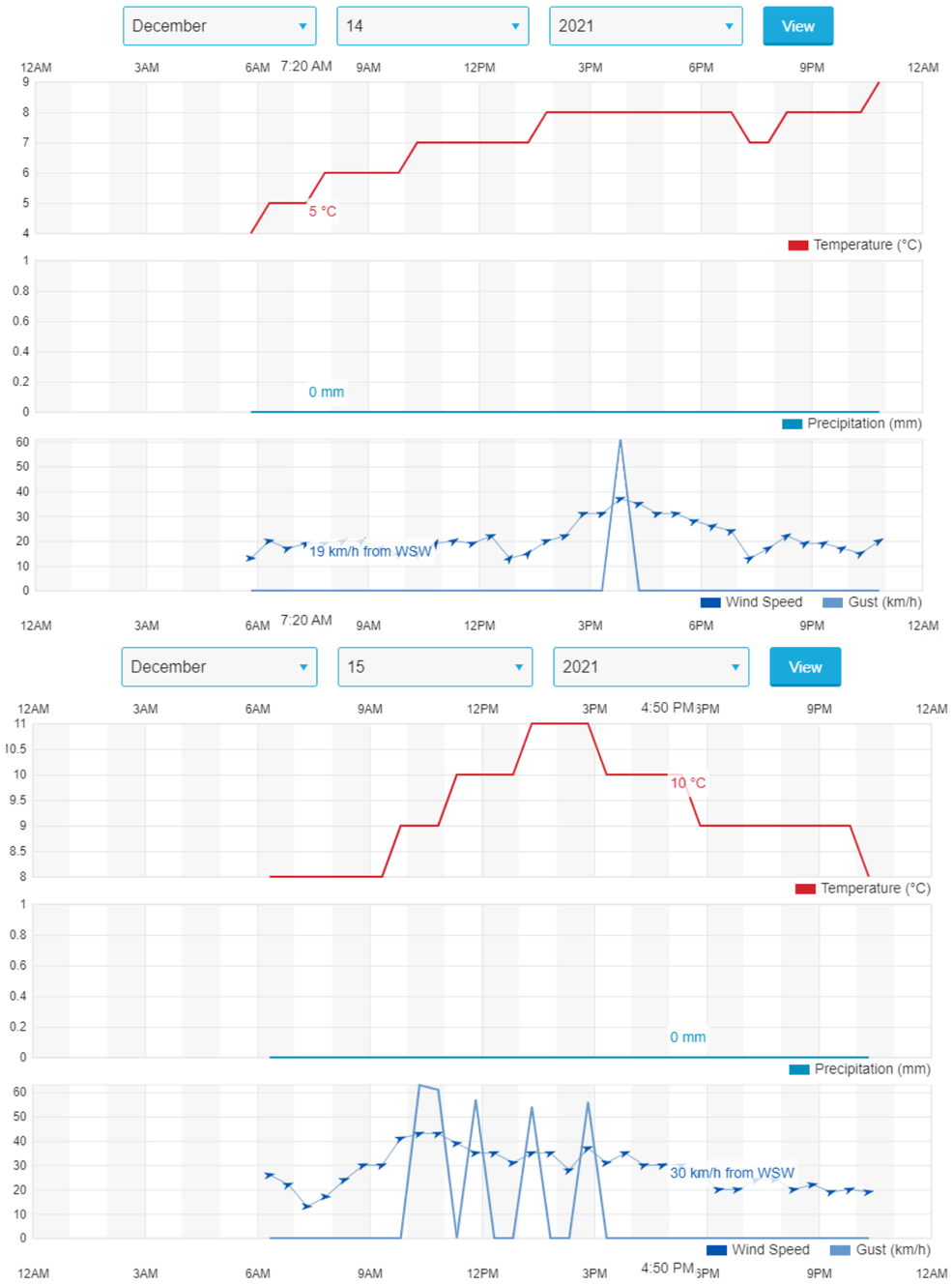
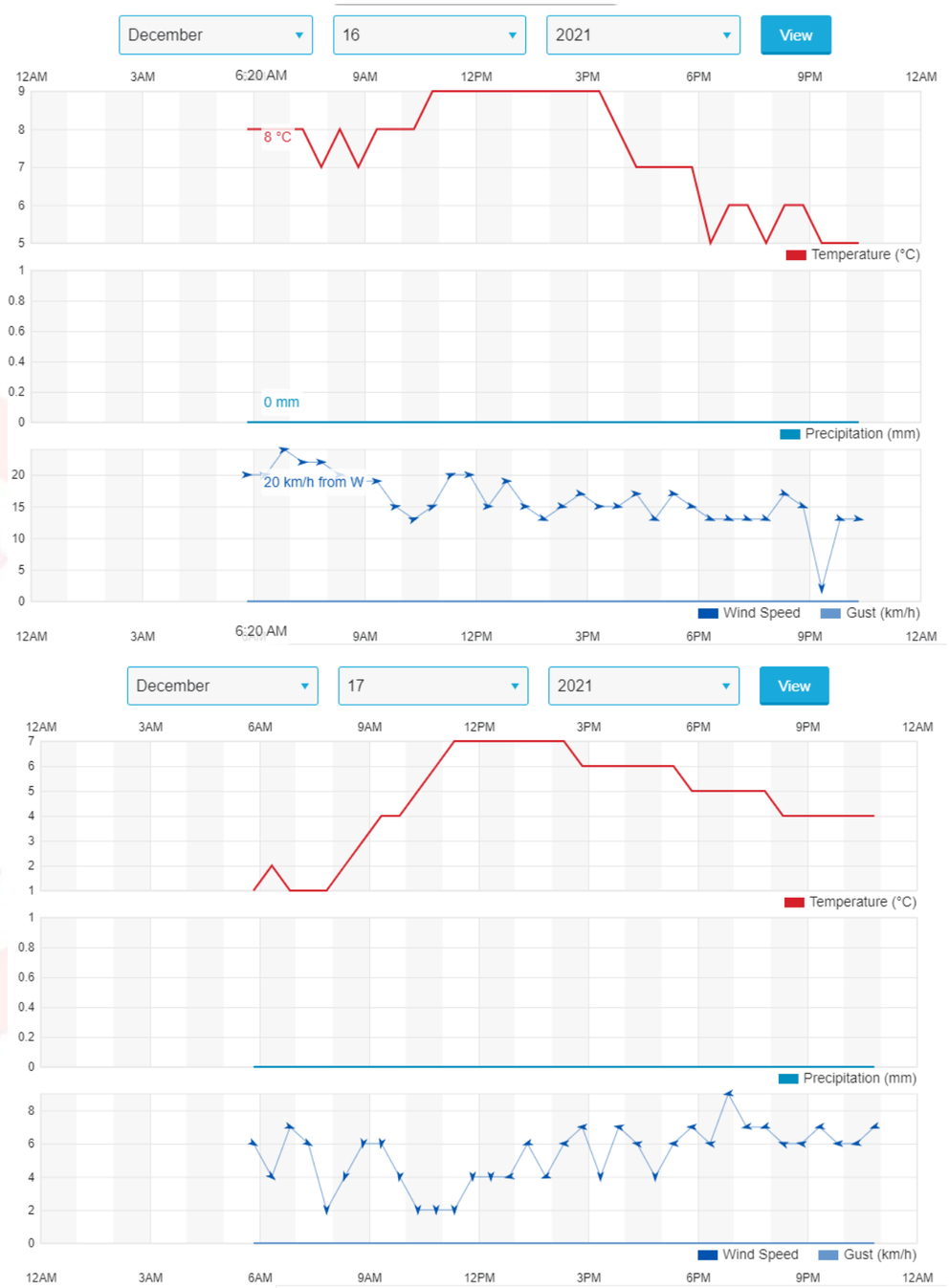


Figure 19: Measured time histories at MP-2

11.5 Meteorological conditions during the background sound measurements are shown below.


December
14
2021
View
12AM
3AM
6AM
7:20 AM
9AM
12PM
3PM
6PM
9PM
12AM
5 °C
Temperature (°C)
0 mm
Precipitation (mm)
19 km/h from WSW
Wind Speed
Gust (km/h)
December
15
2021
View
4:50 PM
10 °C
30 km/h from WSW


December
16
2021
View
6:20 AM
8 °C
Temperature (°C)
0 mm
Precipitation (mm)
20 km/h from W
Wind Speed
Gust (km/h)
December
17
2021
View

Appendix B Current and expected vehicle movements

B.1 The current and vehicle movements per day at the proposed site are provided by the client as shown in Figure 20 and Figure 21 respectively.

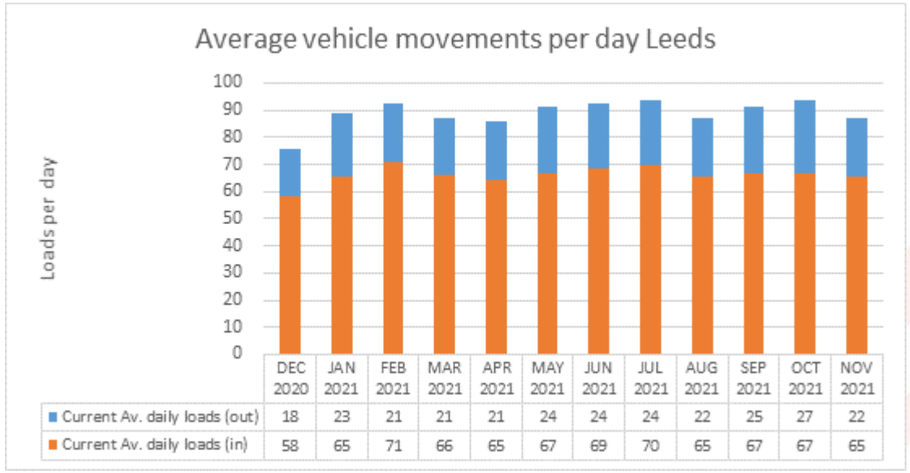


Figure 20: Current vehicle movements per day

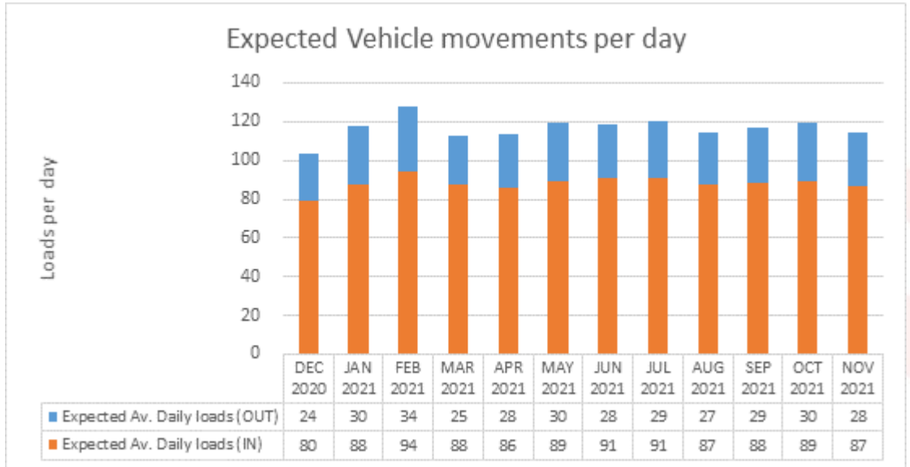
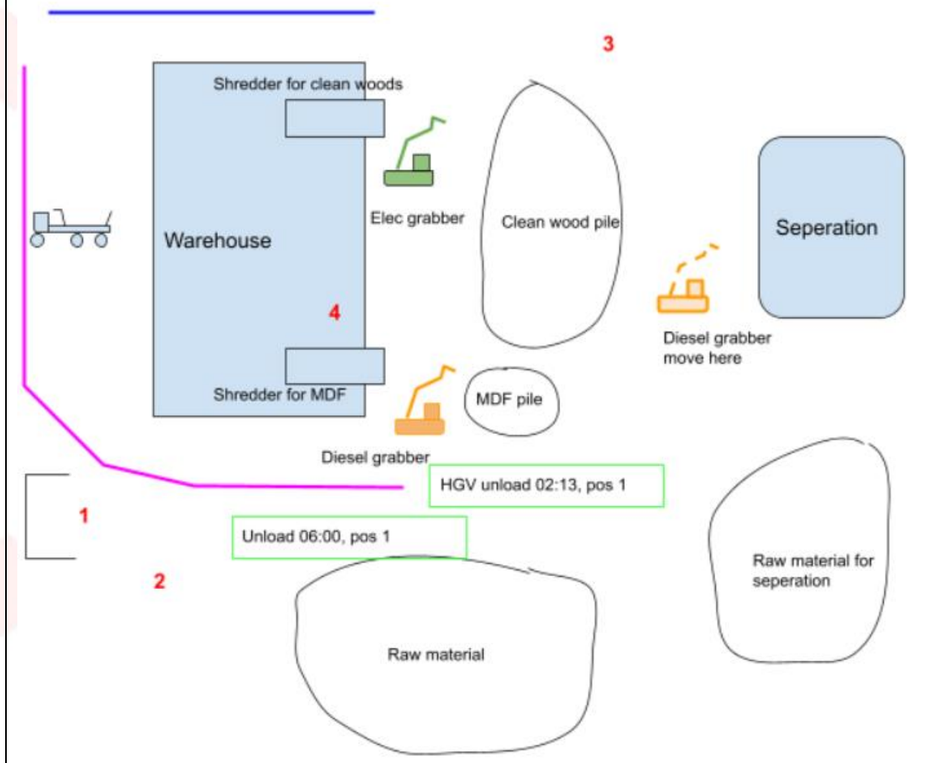


Figure 21: Expected vehicle movements per day in 2023

Appendix C Site survey note

C.1 The site note of the source noise measurements is shown below.

Survey requirements	
Site address	22b Pattinson Industrial Estate, Staithes Rd, Washington NE38 8NW
Date	20/12/2021
Lead consultant	WW
Survey purpose	to measure the source noise levels
Location mark up	
Notes	Noise sources Washington site contains

	2 x shredders. One is for shredding clean woods, and the other one is for shredding DMF. most of time only the shredder for clean woods operates. Occasionally the two shredders work at the same time. 1 x grabber feeds each shredder. The most frequently used shredder is fed by a eclectic powered grabber. 1 or 2 backhoe loader(s) move boards and stuff on site 30+ HGVs deliver wasted timber to the site daily. All delivery HGV have fixed route 1 x forklift may be used to unload typical noise description Banging, thudding, reversing alarm, cracking, shredding noise as background Process HGV deliver raw timber like materials to the site, the HGV unload the raw material itself or via a forklift, a backhoe loader pile the raw materials and feed the separation machine. the separation machine separate the raw materials to pure timber and MDF. A diesel grabber pile the pure timber to one place for the electricity powered shredder and pile the MDF to another adjacent place for the diesel powered shredder. The shredder the timber to tiny wood chips. A loader move the wood chips within the warehouse to a loading position for HGV to move the wood chips outside the site.

Weather conditions

Pos	Wind speed (m/s)	Wind direction	Rain *(No = OK, Yes or surface spray = speak to consultant)*	Temp	Cloud % (0,25,50,75,100)	Date & time
	still		no rain	6°C	100%	20/12/2021 at around 12:00am

Notes

Pos	Description	File no.	Date & time	Notes
1 safe zone		000		HGV at 5m around 5mph
1		001		HGV standby at 10 m
1		002		Siren distance away
				HGV on checking piont
				Banging
			02:13	HGV unload at stech location, around 30 m away
				Backhoe loader reverse
			03:10	HGV pass at 5m around 5mph then reverse
			04:20	HGV leave at 5 m around 5mph
			05:06	Shredder is working
			06:00	unload at 20 m around
2	5.5 m to pos 1	003	00:52	backhoe loader push materials at around 10m
1		004	00:00	shredder as the bacground
1		005		
3	13 m to yellow grabber, 16m to conveyor	006	02:33	only shredder
			02:46	nothing left on conveyor, check the video to confirm the process
			04:56	forklift reversing and grabber engine
				Yellow grabber LH22, diesel engine Green grabber SENEBOGEN eclectic engine
4	within the warehouse, around 15 m to conveyor, 10m to mobile loader	007		

C.2 Site survey note of the measurement nearby the deciduous woodland (MP-3) is shown below.

Weather conditions

Pos	Wind speed (m/s)	Wind direction	Rain *(No = OK, Yes or surface spray = speak to consultant)*	Temp	Cloud % (0,25,50,75,100)	Date & time
	12 mph	w	No	9°C	25	13/01/2021 13:00

Notes

Pos	Meter ID	File no.	Date & time	Notes
MP-3	yellow	002	13/01/2021 13:13	Major sound sources: heavy vehicles traffic along knowsthorpe way
				Noise from emr (closest to me I can hear the workers in the Non-ferrous metals unit; they are talking and taking materials from customers)
				Then more in distance, big vehicles reversing / dropping scrap

				The wind is sometimes quite loud
				Customers cars going in and out of emr
				When things are quiet, you can hear some birds (seagulls mostly)
				It smells awful, a mixture of manure and melting metal. it sounds awful too!
				It feels like noise is also coming from behind me, but it sounds like a reflection of the emr soundscape

Appendix D Grid reference of sources, buildings and receivers

D.1 The grid references of the receivers representing the most affected noise sensitive receptors are shown in Table 13.

Receiver description	X (m)	Y (m)	Z (m)
North	433405.6	432742.9	4
South	431890	431214.8	4
Deciduous woodland	433201.5	431683.2	4

Table 13: Grid reference of the receivers

D.2 The grid reference sof the sources used in the acoustic model are shown in Table 14.

Source description	X (m)	Y (m)	Z (m)
2no. Grabber	433009	431693	2
Shredder	433004	431707	2
Shredder	433003	431682	2
Backhoe loader pushing materials	433076	431679	2
88 no. unloading, 6 per hour	433050	431688	2
Warehouse opening 1	433002	431684	5
	433002	431678	5
Warehouse opening 2	433004	431709	5
	433004	431704	5
HGV movement routes	432847	431686	1
	432858	431682	1
	432873	431656	1
	432899	431641	1
	432939	431632	1
	433058	431628	1
	433072	431634	1
	433072	431661	1
	432917	431668	1
	432894	431671	1
	432889	431666	1
	432893	431659	1

Source description	X (m)	Y (m)	Z (m)
	432927	431644	1
	433066	431639	1
	433084	431661	1

Table 14: Grid reference of the noise sources

D.3 The building references used in the acoustic model are shown in Table 15.

Building name	x (m)	y (m)	z (m)
Sika Everbuild	432953.8	431878.4	6
	432949.5	431766.4	6
	433077	431761.6	6
	433081.2	431873.6	6
warehouse within site	432931.4	431735.7	8
	432928.3	431674.9	8
	433001.6	431670.9	8
	433005.3	431731.6	8
warehouse	433112.5	431816.9	6
	433112.5	431838	6
	433193	431838	6
	433193	431729.6	6
	433158.2	431729.6	6
	433158.2	431816.9	6
Scientific games international	432030.3	431480.7	6
	431964.7	431426.9	6
	432003.7	431379.5	6
	431996	431373.3	6
	432054.5	431300.3	6
	432068	431312.6	6
	432056.2	431326.7	6
	432122.8	431381.5	6
	432059.2	431459	6
	432052.6	431453.6	6
Sika Everbuild 2	433080.9	431852.5	6
	433076.9	431734.3	6
	433088.4	431733.8	6
	433094.1	431851.4	6
Navigation house	432137.7	431322.2	6
	432152.1	431304.1	6
	432125.8	431282.1	6
	432136	431269.2	6
	432174.8	431299.2	6
	432150.7	431331.7	6
Nelson House	432010.4	431264.3	6
	432002.4	431251	6
	432035.8	431230.9	6
	432043.7	431244.2	6
Direct house	432031.4	431220.9	6
	432024	431209	6
	432040.8	431198.6	6
	432048.2	431210.5	6
Skeleton	433026	431588.2	6
	433020	431496.3	6
	433044.2	431494.8	6
	433050.2	431586.7	6
BMK flooring	433166	432687.9	6
	433167.1	432635	6
	433204.7	432635.7	6
	433205.9	432576.7	6
	433321.1	432579	6
	433319.9	432639.5	6
	433356.9	432640.2	6
	433355.9	432691.7	6
Symington Ltd	433351.6	432497.9	6
	433349	432344.6	6
	433424.2	432343.3	6

Building name	x (m)	y (m)	z (m)
	433426.8	432496.6	6
Hunslet engine company	431963	431293	6
	431955.7	431281	6
	431972.2	431270.9	6
	431979.6	431282.9	6
Troy foods	431916.2	431399.6	6
	431875.1	431366.8	6
	431914.5	431317.3	6
	431955.7	431350.1	6
Warehouse outside	431793.4	431451.2	6
	431778.8	431427.4	6
	431839.6	431387.4	6
	431854	431410.4	6
Land and sea fisheries	431880.4	431252.2	5
	431878.5	431248.6	5
	431880.6	431247.5	5
	431878.6	431243.6	5
	431883.1	431241.3	5
	431887	431248.9	5
Post office	431891.7	431245.5	5
	431888.1	431239.7	5
	431890	431238.7	5
	431888.4	431235.7	5
	431894.1	431232.1	5
	431899.4	431240.9	5
Crooked clock	431925.9	431237.8	5
	431931	431246.4	5
	431941	431240.6	5
	431940	431238.5	5
	431948.7	431233	5
	431936.7	431213.7	5
	431917.7	431226.2	5

Building name	x (m)	y (m)	z (m)
	431922	431233.6	5
	431925.2	431231.6	5
	431928.1	431236.3	5

Table 15: Grid reference of the buildings

Appendix E Professional qualifications and competence

E.1 All Apex Acoustics consultants work under the close supervision of a member who holds qualification in acoustics and is a member of the IOA.

E.2 This can be verified by searching the Institute of Acoustics' list of Members, available here, with the surname of the consultant.

http://www.ioa.org.uk/membership-check

E.3 Apex Acoustics is a member of the Association of Noise Consultants (ANC). The ANC is a trade organisation which seeks to raise the standards of acoustic consultancy and as such there are barriers to entry to ensure member's competency.

E.4 This report has been completed and checked by an appropriately qualified and experienced acoustic consultant.