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WALSALL COUNCIL

WALSALL HWRC & WTS – MIDDLEMORE LANE

NOISE ASSESSMENT REPORT

APRIL 2025

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WALSALL COUNCIL

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NOISE ASSESSMENT REPORT

APRIL 2025

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EXECUTIVE SUMMARY

Purpose of this Report

Wardell Armstrong LLP (WA) has been instructed by Walsall Council to prepare a noise assessment to support a permit application for a new Household Waste Recycling Centre (HWRC) and Waste Transfer Station (WTS) at the former McKechnie Brass Ltd site on Middlemore Lane, Walsall.

The HWRC is being constructed to provide a capacity of 40,000 tonnes per annum (TPA) of mixed household waste recyclate. The WTS will be constructed to provide a throughput capacity of 125,00 TPA of paper and cardboard, metals, plastics and black bin waste. The facility is being designed by Morgan Sindall and the operator will be Suez Group.

The purpose of this report is to assess the noise impact from the operations associated with the HWRC and WTS facility. This report includes the results of a noise survey and an operational noise assessment carried out in accordance with guidance presented in British Standard 4142: 2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS 4142) and the Environment Agency's (EA) Noise and Vibration Management guidance.

Assessment

The noise associated with the development has been assessed at the closest existing sensitive receptors (ESRs). The assessment is based on source noise measurements undertaken by WA for the HGV loading/unloading waste, forklift operations, metal compaction, customer vehicle noise and noise produced by discarding waste into skips.

As the site was under construction at the time of writing, the baseline noise survey was undertaken during periods when construction activities were not taking place to ensure a representative noise climate has been assessed. The assessment has considered the daytime period only, including weekends.

Findings

The results of the BS 4142 assessment indicate that noise associated with the proposed development are above existing background sound levels at all of the assessed receptors. Taking in consideration of the site's context the assessment concludes that the proposed development will have an adverse impact on ESRs. In accordance with the Environment Agency's noise guidance document, the predicted noise level falls within the category of

'Audible or detectable noise' and therefore appropriate measures are required to minimise noise impacts.

1 INTRODUCTION

1.1 Background

1.1.1 Wardell Armstrong LLP (WA) has been instructed by Walsall Council to prepare a noise assessment to support a permit application for a new Household Waste Recycling Centre (HWRC) and Waste Transfer Station (WTS) at the former McKechnie Brass Ltd site on Middlemore Lane, Walsall.

1.1.2 WA previously undertook an assessment in December 2021 to support a planning application at an early design stage where the proposed site layout and sound generating processes were not confirmed.

1.2 Site Location

1.2.1 The site is located within the Redhouse Industrial Estate in Walsall. To the north of the site lie existing industrial buildings. To the east of the site lie further industrial buildings and some sports fields. Approximately 200m to the northeast of the site lies an area of existing residential properties on the Briars. Approximately 250m to the southeast of the site lies another area of existing residential properties on Westfield Drive. To the south of the site, approximately 230m lie industrial buildings and an area of residential properties on Bonner Grove. To the west of the site lie industrial buildings.

1.3 Site Details

1.3.1 The HWRC is being constructed to provide a capacity of 40,000 tonnes per annum (TPA) of mixed household waste recyclate. The WTS will be constructed to provide a throughput capacity of 125,00 TPA of paper and cardboard, metals, plastics and black bin waste. The facility is being designed by Morgan Sindall and the operator will be Suez Group.

1.3.2 The site will be operational between 08:00 to 19:00 seven days a week.

1.3.3 The main operational noise sources expected on site are HGV loading/unloading waste, forklift operations, metal compaction, customer vehicle noise and noise produced by discarding waste into skips.

1.4 Scope of the Report

1.4.1 The scope of this noise assessment comprises a consideration of noise from proposed site activities which might affect existing noise sensitive receptors.

1.4.2 As the site was under construction at the time of writing, a noise survey has been undertaken at ESRs during periods where construction has ceased to determine the existing background sound climate. Source noise measurements of the expected operations have been undertaken at an existing WTS and HWRC site at Fryers Road in Walsall.

2 ASSESSMENT METHODOLOGY

2.1 Relevant Standards, Guidance and Policy

2.1.1 The assessment has been undertaken in accordance with the following policy, standards and guidance:

- British Standard 4142: 2014+A1:2019 Methods for rating and assessing industrial and commercial sound[1] (BS 4142);
- Environment Agency, Noise and Vibration Management: Environmental Permits, 2022[2].

2.1.2 Details of the guidance documents are provided in **Appendix A**

2.2 Assessment Criteria

2.2.1 BS 4142:2014+A1:2019 provides guidance on appropriate methodology and criteria for assessing the impacts of a new or existing sound source by comparing the operational sound level (rating level) with the sound level that is present without development (background sound level) i.e., the existing acoustic environment.

2.2.2 The appropriate reference time interval for assessing the noise level is dependent upon when it operates. BS 4142 determines the reference time internal as 1 hour during the daytime (07:00 – 23:00). It is understood that the development is not proposed to operate during night-time hours and therefore only daytime has been considered within this assessment.

2.2.3 A penalty should be applied to the specific sound level if a tone, impulse or other characteristic occurs or is expected to be present. These character corrections vary in their weighting depending upon the severity of the acoustic feature, as follows (with regards to the subjective method).

1 British Standards Institute, 2014. BS 4142:2014:2014 + A1:2019 Methods for rating and assessing industrial and commercial sound. BSI London, UK

2 Environment Agency, 2022. Noise and Vibration Management: Environmental Permits

Table 1: BS4142 Subjective Character Corrections		
Acoustic Feature	**Correction (dB)**	**Comments**
Tonality	+2	Where the tonality is just perceptible
	+4	Where the tonality is clearly perceptible
	+6	Where the tonality is highly perceptible
Impulsivity	+3	Where the impulsivity is just perceptible
	+6	Where the impulsivity is clearly perceptible
	+9	Where the impulsivity is highly perceptible
Intermittency	+3	Where the intermittency is readily distinctive against the acoustic environment
Other sound characteristics	+3	Where a sound exhibits characteristics that are neither tonal nor impulsive, though it is readily distinctive acoustic the acoustic environment at the receptor

2.2.4 The assessment is based on the following potential results as shown in **Table 2**.

Table 2: BS4142 Assessment Guidance	
BS4142 Conclusion	**Source Condition**
Rating level from site operations of around +10 dB or more above the existing L_{A90} background sound level	An indication of significant adverse impact, depending on the context
Rating level from site operations of around +5 dB above the existing L_{A90} background sound level	An indication of an adverse impact, depending on the context
Rating level from site operations of between +1 and +4dB above the existing L_{A90} background sound level	An indication that the specific noise source is less likely to have a adverse or significant adverse impact depending on context.
Rating level from site operations does not exceed the existing L_{A90} background sound level	An indication of a specific sound source having a low impact, depending on the context

2.2.5 The context is used to rate and assess sound of an industrial nature including, but not limited to, assessing sound from proposed, new, modified, or additional sources of industrial sound, and sound at proposed new dwellings.

Noise and Vibration Management: Environmental Permits

2.2.6 The Environment Agency have produced a guidance to help holders and potential holders of permits apply for, vary, and comply with their permits in terms of noise and vibration.

2.2.7 The Noise and Vibration Management: Environmental Permits provides the effect levels at ESRs in relation to the closest corresponding BS 4142 criteria for each defined level. **Table 3** presents the appropriate noise criteria, and the actions required.

Table 3: Noise Level Criteria and Actions		
Effect Level	**Level Criteria**	**Action Required**
No noise, or barely audible or detectable noise	Difference between Rating Level ($L_{Ar,Tr}$) dB and existing background sound level is below or equal to background or between 1-4dB. The closest Corresponding BS 4142 descriptor is 'low impact or no impact'	This level of noise means that no action is needed beyond basic appropriate measures or BAT.
Audible or detectable noise	Difference between Rating Level ($L_{Ar,Tr}$) dB and existing background sound level $L_{A90,T}$ dB is between 5-9dB. The closest corresponding BS 4142 descriptor is 'adverse impact' (following consideration of the context).	Use appropriate measures to prevent or, where that is not practicable, minimise noise.
Unacceptable level of audible or detectable noise	Difference between Rating Level ($L_{Ar,Tr}$) dB and existing background sound level $L_{A90,T}$ dB is equal to or greater than 10dB. The closest corresponding BS 4142 descriptor is 'significant adverse impact' (following consideration of the context).	Must take further action or you may have to reduce or stop operations. The Environment Agency will not issue a permit if you are likely to be operating at this level.

2.3 Existing Sensitive Receptors

2.3.1 Aerial imagery of the site and surrounding area has been reviewed to identify the nearest ESRs. The closest ESRs likely to experience an impact have been identified and set out in **Table 4** and shown in **Figure 1**.

Table 4: Identified Existing Sensitive Receptors				
ID	**Location**	**Coordinates**		**Distance from Site Boundary**
		Easting	**Northing**	
ESR1	Westfield Drive, WS9 8ZA	405247	300632	200m South East
ESR2	The Briars WS9 8AW	405108	301095	190m North East
ESR3	Bonner Grove WS9 0DU	404843	300477	190m South West-

Figure 1: Existing Sensitive Receptor Locations

3 NOISE SURVEY

3.1.1 A noise survey was undertaken at the site by WA on Sunday 23rd March 2025 and Monday 24th March 2025. The weather conditions were recorded as being dry with scattered clouds, wind speeds of less than 5m/s and temperatures of 10-15 degrees Celsius.

3.1.2 Attended noise measurements were taken at three monitoring locations off-site representative of the closest ESR's. The monitoring locations are detailed in **Table 5** and are shown illustratively in Figure **2**.

Table 5: Noise Monitoring Locations

Monitoring Location	Description	Start Date & Time	End Date & Time	Coordinates (X,Y)
ST1	North Eastern receptors and representative of ESR1 – The Briar	23-Mar-25 14:10	23-Mar-25 14:25	405130, 301090
		23-Mar-25 15:10	23-Mar-25 15:25	
		23-Mar-25 16:25	23-Mar-25 16:40	
		24-Mar-25 12:16	24-Mar-25 12:31	
		24-Mar-25 15:31	24-Mar-25 15:46	
		24-Mar-25 16:46	24-Mar-25 17:01	
ST2	South Eastern receptors and representative of ESR2 – Westfield Drive	23-Mar-25 14:32	23-Mar-25 14:47	405240, 300640
		23-Mar-25 15:32	23-Mar-25 15:47	
		23-Mar-25 16:47	23-Mar-25 17:02	
		24-Mar-25 12:38	24-Mar-25 12:53	
		24-Mar-25 15:53	24-Mar-25 16:08	
		24-Mar-25 17:08	24-Mar-25 17:23	
ST3	South Western receptors and representative of ESR3 – Bonner Grove	23-Mar-25 14:56	23-Mar-25 15:11	404850, 300460
		23-Mar-25 15:56	23-Mar-25 16:11	
		23-Mar-25 17:11	23-Mar-25 17:26	

		24-Mar-25 13:12	24-Mar-25 13:27	
		24-Mar-25 16:27	24-Mar-25 16:42	
		24-Mar-25 17:27	24-Mar-25 17:42	

Figure 2: Noise Measurement Locations

3.1.3 Noise measurements were made using a Class 1 integrating sound level meter. In accordance with BS 7385, the meters were mounted vertically on tripods 1.5m above the ground and more than 3.5m from any other reflecting surfaces.

3.1.4 The sound level meters were calibrated to a reference level of 94dB at 1kHz both before and after the noise measurements. A further check was carried out on completion to determine if there was any drift in the meter at the end of the measurement. There was no drift observed in the calibration at any measurement location.

3.2 ESR Noise Measurements

3.2.1 **Table 6** presents a summary of the sound level data measured at the closest ESR's with the site both operational and not operational.

Table 6: Daytime Noise Levels at ESR's				
Monitoring Location	**Date**	**Measured Residual Sound Level (dB $L_{Aeq,45min}$)**	**Maximum Measured Sound Level (dB L_{AFmax})**	**Measured Background Sound Level (dB $L_{A90,45min}$)**
ST1	Sunday 23rd March 2025	49.8	68.0	42.2
	Monday 24th March 2025	48.9	67.6	42.6
ST2	Sunday 23rd March 2025	49.9	63.9	46.7
	Monday 24th March 2025	48.0	66.4	43.9
ST3	Sunday 23rd March 2025	47.0	66.2	42.2
	Monday 24th March 2025	50.2	74.8	40.2

3.3 Determination of Background Sound Levels

3.3.1 Background sound levels have been determined for daytime weekday and weekend periods based on a sample attended measurement survey at the nearest sensitive receptors.

3.3.2 The sample survey consisted of six 15-minute samples over two days (Sunday and Monday) at each of the measurement locations. A summary of the representative background sound levels used for each ESR location are shown in **Table 7**.

Table 7: Representative Background Sound Levels at ESRs			
Monitoring Location	**Receptors**	**Weekday/Weekend**	**Daytime, dB $L_{A90,45min}$**
ST1	ESR2	Weekend	42
		Weekday	43
ST2	ESR1	Weekend	47
		Weekday	44
ST3	ESR3	Weekend	42
		Weekday	40

3.4 Site Source Noise Measurements

3.4.1 Source noise measurements were undertaken on site representative of HGV pass-by's, metal being thrown into a skip and a shovel manoeuvring waste in the WTS shed .

3.4.2 **Table 8** presents a summary and breakdown of the sound level data measured of operational noise sources on-site for inclusion within the model.

Table 8: Source Noise Measurements				
Source	**Description**	**Distance r (m)**	**Average Measured Ambient Sound Level (dB $L_{Aeq,T}$)**	**Maximum Measured Sound Levels (dB L_{AFmax})**
Metal skip	12:52 – 12:57 – Metal being thrown into skip	3	70.2	84.1
HGV Pass-by	11:01 – 11:03 – Two HGV pass-by events	3	68.1	76.5
Shovel	13:24 – 13:25 – Shovel manoeuvring waste in WTS shed.	20	78.3	90.9
*Car Pass-by	Car pass-by at 3m	3	-	80.1
*LGV Pass-by	LGV pass-by at 3m	3	-	90.3
*Metal skip (Metal Compaction)	Metal being crushed within a skip	5	82.0	-
*JCB Movement	JCB manoeuvring around the HWRC	6	79.0	-
*Co-Mingled waste deposits	Waste being thrown into Co-Mingled waste deposits	1	87.0	-
*Container Exchange	Container loaded onto HGV	8	72.0	-

* Noise measurements taken from WA library of source measurements

5 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTY

5.1.1 This assessment is affected by the following assumptions, limitations, and uncertainty.

5.2 Assumptions

5.2.1 The following assumptions have been made

- The site will be operational between 08:00 to 19:00 on Monday to Sunday.
- Existing Sensitive Receptors (ESRs) are positioned 1m from the façade with the height between 4-9m depending on the height of the floor.
- For the purpose of noise breakout from the waste transfer building, it is assumed the building is made up of internal metal cladding, with Kingspan KS1000RW external wall and roof panels.
- It is assumed that the roller shutters on the northern and southern façades will be open during operation.

5.3 Limitations

5.3.1 Source levels have been based on measured levels at the existing Suez HWRC at Fryers Road in relation to waste being deposited in skips, site HGV movements and internal levels within the existing waste transfer shed.

5.3.2 The car & LGV pass by noise levels are based on library data held by WA.

5.4 Uncertainty

5.4.1 As stated with the EA permitting guidance, the uncertainty of the measurements and predictions must be identified and minimised. It also stated that uncertainties should be proportionate to the risk that the site presents, and the likely scale of the uncertainty.

5.4.2 With regard to source noise, a noise survey has been undertaken to inform the model to predict noise levels at ESRs. The model uses the noise prediction methodology set out in ISO 9613-2:2024 ‘Attenuation of sound during propagation outdoors’ which accounts for downwind propagation.

5.4.3 To reduce measurement uncertainty the following steps have been taken:

- In accordance with guidance the microphone was mounted vertically on a tripod 1.5m above the ground. The monitoring location was also more than 3.5 metres from any other reflecting surfaces;

- The background noise measurements were undertaken during suitable weather conditions;
- The daytime background noise monitoring was undertaken during what is considered to be the representative periods of the daytime;
- The results of each measurement period are reported to the nearest 1dB;
- Bi-annual calibration of sound level meters and annual calibration of calibrators (relevant calibration certificates can be provided upon request);
- On site calibration checks before and after measurements are taken; and
- Noise measurements were made using a Class 1, integrating sound level meter.

5.4.4 Subjective analysis of the noise sources measured on site has been undertaken to determine relevant BS 4142 rating penalties for tonal, impulsive or intermittent characteristics. The significance of these characteristics has been assessed by comparison of the specific and residual sound at the noise sensitive locations. It is considered that any uncertainty within the subjective assessment has suitably been mitigated within this assessment by the use of suitably qualified surveyors and assessors.

6 NOISE MODELLING

6.1.1 The assessment of the propagation of sound across the development site has been undertaken using the noise modelling software SoundPLAN version 9.1. The SoundPLAN model uses the noise prediction methodology set out in ISO 9613-2:2024 'Attenuation of sound during propagation outdoors'.

6.2 Noise Model Setup

6.2.1 SoundPLAN modelling software utilises publicly available topography data and digital terrain mapping to generate 3D environmental models. The model implements the following factors to predict noise propagation:

- Sound source location;
- Relative distances between sound sources/receivers;
- Location and dimensions of object barriers including man-made or natural;
- Ground contours, determining the relative ground heights;
- Ground absorption effects due to soft/hard ground;
- Ground absorption areas entered for the site and surrounding area (0= hard ground to 1 = soft ground).

6.2.2 The ground absorption factor has been set to G=0.6 for the model area

6.2.3 Orders of reflections has been set to 3.

6.2.4 Buildings surrounding the site have been modelled at a height of 8m height for two storey residential properties.

Model Noise Source Inputs

6.2.5 Information regarding noise emissions from site operations have been determined using source noise measurements undertaken by WA.

External Noise Sources

6.2.6 It is understood that the majority of the operational activity will be centred around the household waste skips and the domestic waste transfer station building. This will include the arrival/departure of private vehicles and refuse collection vehicles operated by the local authority, deposition of waste into skips, the unloading of domestic waste from refuse collection vehicles and bulking up and loading of domestic waste into HGV for off-site disposal within the waste transfer shed. A small trade

waste collection is also included which will service LGV and small vans from local traders and small businesses.

6.2.7 Source measurements of typical activity at the existing Suez HWRC have been made for vehicle arrival and departures, activities within the waste transfer shed and deposition of waste into open skips. This has been supplemented with WA library data for similar activities at other waste facilities.

6.2.8 **Table 9** details the noise model inputs that have been used for a typical worst-case 1hr activity period.

Table 9: External noise sources used in modelling scenario

Description	Source Number	Source Type	Sound Power Level dBA	On-time Assumption
Waste Deposited in Skip (based on metal waste)	21	Point Source	101.6	8%
HGV Manoeuvring	3	Moving Point on a line	94.0 (51.4 at 18 kph)	2 trips per hour
Car Manoeuvring	1	Moving Point on a line	97.5 (54.9 at 18kph))	80 trips per hour
LGV Manoeuvring	1	Moving Point on a line	107.8 (65.2 at 18kph)	40 trips per hour
Metal Compaction in Skip	2	Point Source	104.0	8%
JCB Manoeuvring	1	Moving Point on a line	102.6 (67.8 at 3 kph)	16%
Co-mingled waste deposits	8	Point Source	95.0	8%
Container Exchange	1	Point Source	98.1	8%
LGV Unloading	2	Point Source	101.6	8%

Waste Transfer Shed

6.2.9 The dominant noise source noted within the warehouse was the compact material handler. Noise emission levels within the warehouse have been derived from the noise measurement taken at ST5. **Table 10**, details the noise model inputs for the internal compact material handler.

Table 10: Noise sources and sound levels used in modelling scenario				
Details of Equipment	**Quantity**	**Source Type**	**Sound Power Level (dB(A))**	**On-time Assumption**
HGV Manoeuvring	3	Moving Point on a Line	94.0 (51.0 at 18kph)	2 trips per hour
Loading Shovel	1	Moving Point on a Line	112.3 (73.4 @7.2kph)	50% on

6.2.10 Noise break-out calculations through the 6 loading shutter doors have been undertaken using the using the noise level above, building dimensions, shutter door dimensions, acoustic absorption and sound reduction. The buildings internal facades have been assumed to be 1mm trapezoidal metal cladding for wall and roof construction. The building has been modelled as 11m in height. It is assumed that the 6 roller shutter doors will be 100% open during operation with a width of 5.1m and height of 9.5m. The sound reduction index (SRI) within **Table 11**.

Table 11: Break Out SRI								
Façade	**Material**	**1/1 Octave Spectrum**						
		63Hz	**125Hz**	**250Hz**	**500Hz**	**1kHz**	**2kHz**	**4kHz**
External Walls and Roof	1mm trapezoidal sheet steel	13	14	29	38	40	45	55
Open Shutter Doors	-	0	0	0	0	0	0	0

7 ASSESSMENT OF EFFECTS

7.1 BS 4142:2014+A1:2019 Assessment

7.1.1 This section of the report sets out the assessment of noise emissions from the site and the potential impacts they have on the closest ESR's as presented in **Table 4**.

Identification of the Specific Sound Level

7.1.2 The predicted specific sound levels during the daytime at the ESRs are presented below in **Table 12** and illustratively in **Figure 1**.

7.1.3 The sound from the site has been predicted as a free-field noise level, 1m from the façade of the identified ESRs.

Table 12: Predicted Specific Sound Level at ESRs

Receptor	Daytime, dB $L_{Aeq, 1hr}$
ESR1	46
ESR2	45
ESR3	46

Acoustic Character Corrections

7.1.4 BS 4142 includes guidance on the application of acoustic character corrections which include tonality, impulsivity or intermittency. Where such features are present at the assessment location character corrections to the specific sound level are added to obtain a rating level.

7.1.5 With regard to the proposed development, it was observed whilst on-site that the main acoustic characteristic included the tipping, banging and clanging whilst the metal waste is being loaded, unloaded and processed. Therefore, a penalty of +3dB has been added to account for any character associated with the noise which would cause the sound to be noticeable above the existing ambient sound climate.

Initial Estimate of Impact

7.1.6 In accordance with BS 4142 the noise rating levels from the site have been compared with the corresponding L_{A90} background sound levels at each ESR, as detailed in **Table 7**. Table 13 presents the difference between the background noise level and noise rating level associated with the proposed development.

Table 13: BS4142:2014 Initial Assessment Results

Description	ESR1	ESR2	ESR3
Specific Sound Level dB	46	45	46
Acoustic Feature Correction	3	3	3
Rating Sound Level dB $L_{Ar,Tr}$	49	48	49
Background Sound Level, dB $L_{A90,t}$			
Weekend	42	47	42
Weekday	43	44	40
BS 4142:2014 Difference between Rating Sound Level & Background Sound Level			
Weekend	+7	+1	+6
Weekday	+6	+4	+8

7.1.7 The initial estimate of impact shows that predicted daytime noise rating levels at ESR1, ESR2 and ESR3 are above the existing background sound level by +7dB, +4dB and +8dB respectively, inclusive of a 3dB acoustic character correction. With reference to the noise criteria presented in **Section 2.2** of this report, a rating level of greater than 5dB above the background is an indication that specific sound source is likely to have an adverse impact in line with BS 4142.

7.1.8 In accordance with the Environment Agency's noise guidance document, the predicted noise level falls within the category of *'Audible or detectable noise'*. An impact of this level requires appropriate measures to prevent or, where that is not practicable, minimise noise. Appropriate measures to prevent and minimise noise have been outlined in **Section 8**.

Consideration of Context

7.1.9 It is important to consider the context of the proposed development in terms of the existing operations. The site is located on the edge of an industrial area. The nearest residential receptors are around 180-200m away from the site.

7.1.10 The receptors are exposed to traffic and intermittent noise events associated with the industrial estate and wider transportation network.

7.1.11 The assessment considers a worst-case scenario with both the HWRC operating and the waste transfer

8 APPROPRIATE MEASURES TO PREVENT AND MINIMISE NOISE

8.1.1 In line with the Environment Agency's noise guidance document, it is recommended that Best Available Techniques (BAT) are implemented on site to prevent and minimise noise impact beyond the site boundary. An example of BAT include:

- Plant and equipment will be maintained in good working order with regular inspections undertaken;
- No unnecessary shouting in the external yard area;
- Keep site routes well maintained to avoid unnecessary noise from trucks hitting potholes, ruts etc;
- Manoeuvring should be minimised as far as practicable to avoid unnecessary revving of engines;
- Engines to be switched off when vehicle is waiting or not in use;
- No use of vehicle horns unless as an emergency health and safety requirement;
- Minimise drop heights of materials and excessive banging of materials when loading/unloading; and
- Training and toolbox talks regarding minimising noise will be carried out for onsite employees.
- Implementation of site noise management plan to ensure that noisier activities are managed to reduce noise levels off site. such as waste compaction of metals are undertaken during the daytime peri

9 CONCLUSIONS

9.1.1 This report presents the findings of a noise assessment to support a permit application for a household and trade waste recycling centre and domestic waste transfer station at Middlemore Lane, Walsall.

9.1.2 The purpose of this report is to assess the noise impact from the expected typical operations associated with the facility. This report includes the results of a noise survey and an operational noise assessment carried out in accordance with guidance presented in British Standard 4142: 2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS 4142) and the Environment Agency's (EA) Noise and Vibration Management guidance.

9.1.3 It is understood that the site will be operational between 08:00 to 19:00 on Monday to Sunday. Therefore, the assessment has considered the daytime assessment period only.

9.1.4 The results of the BS 4142 assessment indicate that noise associated with the proposed development are above existing background sound levels at all of the assessed receptors. Taking in consideration of the site's context the assessment concludes that the proposed development will have an adverse impact on ESRs. In accordance with the Environment Agency's noise guidance document, the predicted noise level falls within the category of *'Audible or detectable noise'* and therefore appropriate measures are required to minimise noise impacts.

9.1.5 An example of BAT is included in **Section 8** of this report which should be implemented at the commencement of operational activities.

9.1.6 This noise assessment concludes that the proposed development complies with the EA Guidance and noise should not be reasons for refusal of the environmental permit.

APPENDICES

Appendix A - Relevant Standards, Policy and Standards Summary

Table A1: Legislation Relevant to the Noise Assessment	
Legislation	**Legislative Context**
The Environmental Protection Act 1990 (as amended by the Noise and Statutory Nuisance Act 1993) (particularly Section 79) (EPA)	The EPA sets out: the definition of statutory nuisance due to noise; the duty on local authorities to investigate and abate nuisance; and the defence against abatement because "best practicable means" has been employed to minimise noise (including vibration) for business premises. The EPA sets out the means for a person affected by noise nuisance to seek abatement through the courts. The Noise and Statutory Nuisance Act sets out an extension of powers to abate noise nuisance to a wider range of sources than the Environmental Protection Act 1990.
Noise Policy Statement for England (NPSE)	Paragraph 1.6 sets out the long-term vision of Government noise policy, i.e. to "*promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.*" Paragraph 1.7 states that the NPSE vision is supported by aims to effectively manage and control environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development by avoiding significant adverse impacts, mitigating and minimising adverse impacts and contributing to the improvement of health and quality of life. Paragraph 2.20 states that to identify "significant adverse" and "adverse" impact in line with the three aims of NPSE, there are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organization: No Observed Effect Level (NOEL): This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise. Lowest Observed Adverse Effect Level (LOAEL): This is the level above which adverse effects on health and quality of life can be detected. Significant Observed Adverse Effect Level (SOAEL). This is the level above which significant adverse effects on health and quality of life occur. Paragraph 2.24 states that where an impact lies somewhere between LOAEL and SOAEL, all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur. Paragraph 2.22 notes that the NPSE states "*it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.*"
The Control of Pollution Act 1974 (particularly Sections 60 and 61) (CoPA)	Sets out the Section 60 notice which a local authority can serve so as to impose requirements upon relevant construction activities with regard to the control of noise. Under Section 61 of the CoPA, the party that intends to carry out works to which Section 60 applies may apply to the local authority for consent and "an application under this section shall contain particulars of – The works, and method by which they are to be carried out; and The steps proposed to be taken to minimise noise resulting from the works."

Table A2: Guidance Relevant to the Noise Assessment	
Guidance document	**Summary**
Institute of Environmental Management and Assessment (IEMA) (2014) Guidelines for Environmental Noise Impact Assessment	Presents guidelines on how the assessment of noise effects should be presented within the Environmental Impact Assessment (EIA) process. The IEMA guidelines cover aspects such as: scoping, baseline, prediction and example definitions of significance criteria.
ISO 9613:2024 Acoustics – Attenuation of sound during propagation outdoors: Part 2 General Method of Calculation (ISO 9613-2)	Defines a method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at distances from a source.
BS 4142:2014 +A1:2019 *Methods for rating and assessing industrial and commercial sound*	BS 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* is used to rate and assess sound of an industrial nature including, but not limited to, assessing sound from proposed, new, modified, or additional sources of industrial sound, and sound at proposed new dwellings. It contains guidance on the monitoring and assessment of industrial and commercial sound sources (including fixed installations comprising mechanical and electrical plant and equipment) affecting sensitive receptors.
Environment Agency, Noise and Vibration Management: Environmental Permits, 2022.	Environmental permits have conditions that require operators to control pollution – this includes controlling noise and vibration. This guidance covers: •how the environment agencies will assess noise from certain industrial processes •what the law says you must do to manage noise and vibration •advice on how to manage noise – in particular, how to carry out a noise impact assessment and what operators should include in a noise management plan

Appendix B – Terminology

This section provides explanations and definitions for terms which may be used in this report.

The decibel scale, A-weighting & typical sound levels

A logarithmic scale is used when defining sound level measurements, the scale used is the decibel (dB). This is due to the ratio between the lowest audible sound and the highest being a million to one in terms of change in sound pressure. The human response to airborne sound pressure level is typically between 0 – 140 dB.

Due to the sensitivity of the ear in terms of pitch and frequency, A-weighting is applied to instrument measured sound which accounts for the relative loudness perceived by the human ear. Therefore, these measurements with this correction factor are written as dBA or dB(A).

The dB(A) unit is internationally accepted and has been found to correspond well with people's subjective reaction to sound. Typical dB(A) sound levels for familiar sounds are given in **Table B.1**.

Table B.1 Typical sound levels[3]	
Approximate noise level dB(A)	**Example**
0	Threshold of hearing for normal young people.
20	Recording studio, ambient level.
40	Quiet residential neighbourhood, ambient level.
60	Department store, restaurant, speech levels.
80	Next to busy highway, shouting.
100	Textile mill; press room with presses running; punch press and wood planers, at operators' position.
120	Ship's engine room, rock concert, in front and close to speakers.
140	Moon launch at 100m; artillery fire, gunner's position.

Sound power, sound level indices and other descriptors

The sound levels given in Table A.1 are sound pressure levels (L_p) and describe the sound level at a measurable distance from a source. Sound power level (L_w) is the total acoustic energy emitted by a source and are intrinsic.

Sound pressure levels vary over time depending on sound generating activities. The following indices are used to take account of these variations:

> $\boldsymbol{L_{Aeq,T}}$- the equivalent continuous sound level. This is the sound level of a steady sound having the same energy as a fluctuating sound over the same period. Ambient sound levels are described with this index. $L_{Aeq,T}$ is considered the best general-purpose index for environmental sound, as it is the index which generally best represents how sound levels are perceived;

[3] Bies, D.A., Hansen, C.H., 2009. Engineering Noise Control: Theory & Practice. 4th Edition. Abingdon: Spon Press.

$L_{A90,\ T}$ - this noise index represents the sound level exceeded for 90% of the measurement period and is used to indicate quieter times during the measurement period. In BS 4142 assessments it is usually referred to as the background sound level, and describes the quietest 10% of a measurement period; and

L_{Amax} - is the maximum recorded sound level during the measurement period.

In addition, the following descriptors are often used in noise assessments:

Ambient sound is the totally encompassing sound in a given situation, at a given time, usually composed of sound from many sources near and far;

Fast time weighting is where a sound pressure level measurement using a 125 ms moving average time weighting period has been used;

Free field signifies that a sound measurement has been undertaken in 'free field' conditions i.e., away from any reflecting facades, other than the ground, e.g., building facades, close boarded fence work etc.; and

Façade level: A standard correction of +3 dB may be added to a free field sound level to estimate the sound level 1 m away from a façade to account for both the sound upon the façade and the reflected sound from the façade. When considering the break in of external sound into a room, the sound level which is incident upon the façade, rather than the façade level, is considered because only the incident sound will pass through the fabric of the building, whilst reflected sound travels away from the building. The standard +3 dB façade correction is most applicable in situations where the façade has a relatively unobstructed angle of view of the source (i.e., an uninterrupted 180° angle of view of the source in the horizontal plane).

Appendix C – Noise Survey Data

Table C.1 ST1				
Period start	**L_{Aeq} dB**	**L_{A90} dB**	**L_{A10} dB**	**L_{Afmax} dB**
23/03/2025 14:10	51.1	47.1	54.2	63.9
23/03/2025 14:11	49	46.4	51	56.4
23/03/2025 14:12	48.9	45.8	50.3	56.6
23/03/2025 14:13	46.9	44.4	48.6	52.3
23/03/2025 14:14	46.7	42	49.7	53.8
23/03/2025 14:15	47.1	43.5	49.2	54.1
23/03/2025 14:16	48.6	44.6	50.4	60.5
23/03/2025 14:17	47.9	45	49.4	61.5
23/03/2025 14:18	48.4	44.7	50.3	58.6
23/03/2025 14:19	48.1	45.2	50	53.6
23/03/2025 14:20	48.2	45.4	50.4	58.9
23/03/2025 14:21	48.6	45.4	50.9	58.4
23/03/2025 14:22	48.7	46.6	50.8	54.7
23/03/2025 14:23	46.5	40.1	49.4	55.1
23/03/2025 14:24	48.8	45.1	51.7	57.2
23/03/2025 14:25	47	46	48	49.7
23/03/2025 15:17	48.2	48.1	48.1	49.3
23/03/2025 15:18	52.2	43.7	53.5	72.1
23/03/2025 15:19	50.4	41.9	53.3	65.8
23/03/2025 15:20	46.9	39.7	49.8	54.3
23/03/2025 15:21	47.2	43.7	49.1	51.2
23/03/2025 15:22	47.3	41.7	49.6	52.1
23/03/2025 15:23	47	44.2	49.3	51.5
23/03/2025 15:24	47.2	44.8	49	52.2
23/03/2025 15:25	53.7	46.5	58.2	64
23/03/2025 15:26	46.4	42.1	50.2	55.1
23/03/2025 15:27	46.3	44.2	47.9	53.7
23/03/2025 15:28	48.8	45	51	59.8
23/03/2025 15:29	56.9	44.4	62.3	67.6
23/03/2025 15:30	48.4	43.5	49.3	61.1
23/03/2025 15:31	50	46.8	52.7	60.1
23/03/2025 15:32	48	41.8	50.8	57.5
23/03/2025 15:33	50.5	49	51.3	53.6
23/03/2025 16:26	37	36.9	36.9	37.6
23/03/2025 16:27	42.9	36.6	45.9	52.8
23/03/2025 16:28	44.5	39.1	47.7	49.7
23/03/2025 16:29	42.1	38.4	44.7	54
23/03/2025 16:30	46.1	40.6	49.2	55.8
23/03/2025 16:31	48.8	42.3	51.9	64.1
23/03/2025 16:32	49.2	39.9	52.2	64.8
23/03/2025 16:33	48.9	45.1	52.3	58.4
23/03/2025 16:34	56.9	46.1	61.5	72.4
23/03/2025 16:35	55.6	44.8	60.1	70.9

23/03/2025 16:36	51.1	39.7	55.1	62.5
23/03/2025 16:37	47.3	43.2	50.1	54.5
23/03/2025 16:38	46.9	42.1	49.6	52.6
23/03/2025 16:39	48.6	42.3	53	60.3
23/03/2025 16:40	48.2	40.8	51.5	61.1
23/03/2025 16:41	47.2	38.6	52.1	59.4
23/03/2025 16:42	47	39.9	48.9	53.6
24/03/2025 12:16	47.8	42.1	51.4	60.4
24/03/2025 12:17	50.3	42.6	54.1	60.5
24/03/2025 12:18	51.1	42.9	55.3	61.9
24/03/2025 12:19	48.5	44.2	50.3	65.5
24/03/2025 12:20	54.7	48.9	57.1	67.7
24/03/2025 12:21	46.8	40.9	50.3	62.1
24/03/2025 12:22	54.2	44.7	56.7	73.9
24/03/2025 12:23	46.7	42.1	50.2	57.8
24/03/2025 12:24	48.5	40.9	52.4	62.3
24/03/2025 12:25	51.9	47.4	54.6	65.1
24/03/2025 12:26	53.4	47.9	56.7	64
24/03/2025 12:27	45.9	41.9	48.2	63
24/03/2025 12:28	48.7	42.9	51.4	64.2
24/03/2025 12:29	45.7	42.1	47.5	51.8
24/03/2025 12:30	45.2	41.8	47.9	52.9
24/03/2025 12:31	43.4	42.6	43.6	45.4
24/03/2025 15:44	49.2	45.3	50.9	56
24/03/2025 15:45	55.1	51.5	57.8	60.9
24/03/2025 15:46	47.7	45.2	50.1	54.8
24/03/2025 15:47	48.3	45	50.3	55.8
24/03/2025 15:48	45.2	41.5	47.1	50.7
24/03/2025 15:49	45.9	43.7	47.8	50.9
24/03/2025 15:50	45.3	41.8	47.5	50.9
24/03/2025 15:51	46.7	42.9	50.3	54.9
24/03/2025 15:52	46.6	43.1	48.6	53
24/03/2025 15:53	44.8	40.8	46.9	53.6
24/03/2025 15:54	47.6	44.4	49.9	57
24/03/2025 15:55	49.3	42.2	47.4	68.4
24/03/2025 15:56	45.3	41.2	45.5	63.9
24/03/2025 15:57	47.4	43.5	50.1	57.2
24/03/2025 15:58	45.7	40.6	47.6	50
24/03/2025 15:59	43.5	42.5	43.9	45.1
24/03/2025 16:53	46	42	48.5	51.9
24/03/2025 16:54	46.3	40.4	50.1	55
24/03/2025 16:55	49.9	45.2	53.6	57.7
24/03/2025 16:56	45.1	41.9	46.9	49.9
24/03/2025 16:57	46.9	43.7	49.1	55.9
24/03/2025 16:58	47.8	44	49.7	59.4

24/03/2025 16:59	47.4	43.1	50.4	55
24/03/2025 17:00	48	42.9	50.2	62.1
24/03/2025 17:01	46	43.4	47.4	49.3
24/03/2025 17:02	48.2	46	50.8	57
24/03/2025 17:03	50.6	43.5	53.1	65.9
24/03/2025 17:04	47.2	45.1	48.8	52.1
24/03/2025 17:05	48.6	44	51.4	55.1
24/03/2025 17:06	45.5	42.5	47.1	51.6
24/03/2025 17:07	44.7	41	46.6	52.2
24/03/2025 17:08	43.8	42.8	44.4	45.1

Table C.2 ST2				
Period start	**L_{Aeq} dB**	**L_{A90} dB**	**L_{A10} dB**	**L_{Afmax} dB**
23/03/2025 14:32	49.7	46.7	52	53.8
23/03/2025 14:33	50.9	49	52.7	56
23/03/2025 14:34	49.7	47.6	52	54.1
23/03/2025 14:35	49.5	46.7	51.8	55
23/03/2025 14:36	50.1	48.1	52.1	58
23/03/2025 14:37	50.7	48.7	52.3	56.1
23/03/2025 14:38	50.9	49.2	52.1	55.8
23/03/2025 14:39	52.6	48.2	53.6	67.1
23/03/2025 14:40	51.1	48.4	53.4	57.6
23/03/2025 14:41	48.7	46.8	50.3	52.7
23/03/2025 14:42	49	46.4	50.4	54.5
23/03/2025 14:43	50.1	47.2	52.1	55.8
23/03/2025 14:44	50.8	47.2	53.5	58.7
23/03/2025 14:45	48.7	46.2	50.3	55.6
23/03/2025 14:46	50.3	48.1	51.2	61.3
23/03/2025 14:47	49.5	49.2	49.5	51.3
23/03/2025 15:40	50.6	47.3	52.9	55.8
23/03/2025 15:41	49.9	48.2	51	53.4
23/03/2025 15:42	51.1	48	52.8	55.8
23/03/2025 15:43	49.7	46.6	51.7	55.3
23/03/2025 15:44	50.2	48.3	51.8	54.5
23/03/2025 15:45	49.8	46.9	52.2	56.4
23/03/2025 15:46	50.4	48.1	51.6	53.9
23/03/2025 15:47	51.1	49.3	52.6	55.6
23/03/2025 15:48	50.4	48.4	51.8	57.2
23/03/2025 15:49	51	47.7	52.8	59.6
23/03/2025 15:50	49.2	46.5	51.4	62.6
23/03/2025 15:51	50.1	47.4	52.2	55.2
23/03/2025 15:52	47.5	45.7	49.1	55.3
23/03/2025 15:53	49.3	47.2	50.3	53
23/03/2025 15:54	50.9	48.7	52.8	55.5
23/03/2025 15:55	53.4	52.4	53.9	54.9

23/03/2025 16:49	47.8	45.7	49.9	53.1
23/03/2025 16:50	47.9	45.1	49.7	51.9
23/03/2025 16:51	47.8	46	48.7	51.8
23/03/2025 16:52	47.9	46	49.6	53.2
23/03/2025 16:53	48.5	46.6	50.5	53.5
23/03/2025 16:54	48.1	45.2	49.6	53.6
23/03/2025 16:55	49.8	46.9	51.7	54.2
23/03/2025 16:56	48.8	46.8	50.3	52.4
23/03/2025 16:57	49.6	46.3	52.1	54.2
23/03/2025 16:58	51	47.7	53.7	57.2
23/03/2025 16:59	49.7	47.1	51.5	55.2
23/03/2025 17:00	49.1	45.8	52	55.3
23/03/2025 17:01	48.6	46.1	51.6	54.1
23/03/2025 17:02	48.9	47	50.4	52.3
23/03/2025 17:03	49.8	47.4	51.8	53.9
23/03/2025 17:04	48.4	47.5	49.1	50.2
24/03/2025 12:38	46.8	43.7	49.2	55.1
24/03/2025 12:39	46.9	42.9	50.6	58.8
24/03/2025 12:40	48.6	44.3	51.5	58.6
24/03/2025 12:41	46.6	44.2	49.6	55.4
24/03/2025 12:42	51.2	46.6	53.9	60.7
24/03/2025 12:43	50.2	46.2	52.9	59.4
24/03/2025 12:44	47	43.8	49.9	58.9
24/03/2025 12:45	46.2	44.1	47.5	56.1
24/03/2025 12:46	45.5	44.2	46.4	49.3
24/03/2025 12:47	45.4	43.8	46.6	50.1
24/03/2025 12:48	44.8	42.5	46.2	51.8
24/03/2025 12:49	46.5	43.8	48	58.1
24/03/2025 12:50	47.2	44.1	48.8	52.6
24/03/2025 12:51	45.6	43.5	47.7	50.8
24/03/2025 12:52	45.5	43	48.1	53.6
24/03/2025 12:53	45	44.3	45.3	47
24/03/2025 16:07	49.4	45.2	51.6	59.6
24/03/2025 16:08	46	43.2	47.4	58.1
24/03/2025 16:09	44.8	43.2	46.2	49
24/03/2025 16:10	46.1	43.7	48.3	52
24/03/2025 16:11	46.6	44.7	48.2	56.5
24/03/2025 16:12	47	45.7	48	49.9
24/03/2025 16:13	46.8	44.1	48.8	51
24/03/2025 16:14	48.6	45.2	49.8	60.8
24/03/2025 16:15	45.6	43.4	47.4	49.9
24/03/2025 16:16	49	44.5	50.8	63.8
24/03/2025 16:17	44.3	43	45.4	48.6
24/03/2025 16:18	47.3	43.7	48.9	57.6
24/03/2025 16:19	45.5	43.8	46.9	52.4

24/03/2025 16:20	47.8	44.7	50.3	57.6
24/03/2025 16:21	51.2	44.4	55.7	64.6
24/03/2025 16:22	48.3	44.8	50	53.5
24/03/2025 17:14	46.8	44.4	49	54.7
24/03/2025 17:15	46.6	43.1	48.8	54.6
24/03/2025 17:16	48.4	45.1	50.3	61.7
24/03/2025 17:17	47.8	44.5	50.2	60.9
24/03/2025 17:18	54.1	44.9	58.4	69.7
24/03/2025 17:19	48.8	45.7	50.3	58.2
24/03/2025 17:20	48.8	45.5	51	55.5
24/03/2025 17:21	48	45.7	49.9	56.5
24/03/2025 17:22	47.9	44.5	50.7	57.6
24/03/2025 17:23	48.1	45.8	49.7	54.2
24/03/2025 17:24	46.9	44.8	48.6	51.5
24/03/2025 17:25	46.6	44.4	49.2	51.3
24/03/2025 17:26	52.5	45.6	56.6	67.5
24/03/2025 17:27	46.1	44.4	47.5	52.2
24/03/2025 17:28	46	44.6	47	53.3
24/03/2025 17:29	47.3	47.2	47.3	52

Table C.3 ST3				
Period start	**L_{Aeq} dB**	**L_{A90} dB**	**L_{A10} dB**	**L_{Afmax} dB**
23/03/2025 14:56	47.2	43.6	50.8	58.6
23/03/2025 14:57	50.9	43.9	50.5	72.9
23/03/2025 14:58	44.8	41.9	47.3	50.9
23/03/2025 14:59	49.1	45.9	51.5	56.4
23/03/2025 15:00	52	43.7	57.6	69.1
23/03/2025 15:01	44.3	42.4	45.9	54
23/03/2025 15:02	47	43.2	50.8	58.5
23/03/2025 15:03	47	43.8	50	54.6
23/03/2025 15:04	45.1	43.1	47.8	52
23/03/2025 15:05	45.1	42	47.7	51.3
23/03/2025 15:06	47.3	44.3	49.1	58.1
23/03/2025 15:07	48.3	45.4	50.7	53.7
23/03/2025 15:08	47.6	44.7	49.4	59.8
23/03/2025 15:09	46.1	43	47.7	56
23/03/2025 15:10	47	44.3	48.8	54.3
23/03/2025 15:11	46.7	45.7	47.5	51.2
23/03/2025 16:04	47.2	43.4	48.8	59.2
23/03/2025 16:05	46.8	44.9	48.6	52.6
23/03/2025 16:06	47.9	45.8	50.3	53.5
23/03/2025 16:07	47.4	44.7	48.8	55.9
23/03/2025 16:08	46	42.9	48.9	50.4
23/03/2025 16:09	47.2	42.8	49.7	59.4
23/03/2025 16:10	46.6	43.9	48.6	60.7

23/03/2025 16:11	48.5	47.4	49.4	53.1
23/03/2025 16:12	47.3	44.5	48.9	60
23/03/2025 16:13	45.8	41.7	49.4	53.8
23/03/2025 16:14	45	42.2	47	50
23/03/2025 16:15	44.5	42	46.8	53.5
23/03/2025 16:16	44	41.2	45.7	59
23/03/2025 16:17	44.9	41.2	47.5	53.5
23/03/2025 16:18	44.9	42.4	47.4	55
23/03/2025 16:19	45	44.7	45.3	46.3
23/03/2025 17:11	43.4	43.3	43.3	44.9
23/03/2025 17:12	50.9	43.4	56.2	62.6
23/03/2025 17:13	45.7	42.8	48.2	51.6
23/03/2025 17:14	43.9	41.5	45.7	54
23/03/2025 17:15	43.3	40.6	45.9	51.1
23/03/2025 17:16	44.7	42	47.4	52.6
23/03/2025 17:17	44.7	42	46.5	48.1
23/03/2025 17:18	46.7	45.1	47.9	50.7
23/03/2025 17:19	47.6	45.7	49.3	52.2
23/03/2025 17:20	43.8	40.3	46.8	51.3
23/03/2025 17:21	43.7	40.9	46.8	50.1
23/03/2025 17:22	44.3	42.6	45.9	52.8
23/03/2025 17:23	44.6	42.4	46.2	54.4
23/03/2025 17:24	46.7	41.6	49.9	64.8
23/03/2025 17:25	50.6	42.1	54	68.7
23/03/2025 17:26	46.7	42.5	49.7	53.8
23/03/2025 17:27	43.5	42.4	44.4	47.2
24/03/2025 13:12	42.3	37	45.6	49.3
24/03/2025 13:13	42.2	39.6	43.9	49.8
24/03/2025 13:14	46.8	37.8	53.2	56.1
24/03/2025 13:15	48.1	39	51.7	54.9
24/03/2025 13:16	43.7	40.2	46.4	50.5
24/03/2025 13:17	43.1	39.3	45.2	49.4
24/03/2025 13:18	43.4	38.2	45.6	55.5
24/03/2025 13:19	42.8	38.8	44.7	53.6
24/03/2025 13:20	42.8	36.8	46.4	50.9
24/03/2025 13:21	45.7	39	48.7	60.7
24/03/2025 13:22	46.5	41.2	50	57.4
24/03/2025 13:23	62.6	44.1	63	77.4
24/03/2025 13:24	48.5	42.1	52.8	54.9
24/03/2025 13:25	43.3	41.1	45.3	49.8
24/03/2025 13:26	42.8	39.6	44.7	56.9
24/03/2025 13:27	42.9	42.4	43.4	45.3
24/03/2025 16:30	44.5	41.9	46.6	52.2
24/03/2025 16:31	59	43.7	64.2	72.3
24/03/2025 16:32	47.5	42.7	52.1	56.5

24/03/2025 16:33	44.9	40.6	46.4	54.8
24/03/2025 16:34	43.3	41.1	44.9	51.1
24/03/2025 16:35	45.9	42.7	48.5	53.4
24/03/2025 16:36	46.4	43.4	48.1	53.3
24/03/2025 16:37	49.4	43.2	49.9	68.7
24/03/2025 16:38	47.4	41.9	51.3	59.6
24/03/2025 16:39	46.7	43.6	48.9	57.7
24/03/2025 16:40	47.2	41	50.3	53.9
24/03/2025 16:41	47.9	43.5	50.6	56.6
24/03/2025 16:42	49.4	46.5	51	59.9
24/03/2025 16:43	56.1	44.3	60.2	61.8
24/03/2025 16:44	46.2	42	46.7	61.3
24/03/2025 16:45	44.9	42.9	45.8	49.4
24/03/2025 17:37	46.3	43.6	48.1	55
24/03/2025 17:38	46.6	44.3	48.9	53.8
24/03/2025 17:39	45.7	43.9	47	53.8
24/03/2025 17:40	46.9	44.1	49.2	53.6
24/03/2025 17:41	47.5	44.3	49.6	53.5
24/03/2025 17:42	45	39.4	48.6	57.5
24/03/2025 17:43	47.2	44	49.6	54.4
24/03/2025 17:44	44.4	40.1	46.6	52.5
24/03/2025 17:45	47.4	42.5	49.4	60
24/03/2025 17:46	48.9	44.4	52	58.3
24/03/2025 17:47	46.9	44.1	49.2	55.7
24/03/2025 17:48	42.5	38.6	45	50.1
24/03/2025 17:49	40.7	37.4	43.3	46.7
24/03/2025 17:50	44.8	41.3	46	53.5
24/03/2025 17:51	44.2	39.6	46.6	52.6
24/03/2025 17:52	47.4	46.7	47.9	48.6

Table C.4 Metal Skip				
Period start	**L_{Aeq} dB**	**L_{A90} dB**	**L_{A10} dB**	**L_{Afmax} dB**
23/03/2025 12:45	65.3	59.9	67.1	76.7
23/03/2025 12:46	64	55.1	68	69.4
23/03/2025 12:47	62.1	54	65.5	71.4
23/03/2025 12:48	64.6	58.7	68.2	70.1
23/03/2025 12:49	65.5	58.8	67.7	75.9
23/03/2025 12:50	66.8	56	71.3	78.9
23/03/2025 12:51	66.2	56.3	67.9	79.5
23/03/2025 12:52	67.6	59.6	68.9	79.6
23/03/2025 12:53	67.4	61.8	70	82.1
23/03/2025 12:54	70.3	62	75.2	84.1
23/03/2025 12:55	73.1	63.6	75.4	81.2
23/03/2025 12:56	70.2	66.4	75.1	79.2

Table C.5 HGV Pass				
Period start	**L_{Aeq} dB**	**L_{A90} dB**	**L_{A10} dB**	**L_{Afmax} dB**
24/03/2025 11:01	63.5	60.6	65.6	73.8
24/03/2025 11:02	70	62.3	73.4	84.7
24/03/2025 11:03	69.7	62.3	74.7	79.4

Table C.6 WTS Shovel				
Period start	**L_{Aeq} dB**	**L_{A90} dB**	**L_{A10} dB**	**L_{Afmax} dB**
23/03/2025 13:24	78.3	69.2	81.3	94.8
23/03/2025 13:25	74.1	62.9	77.6	89.6
23/03/2025 13:26	63.7	59.9	64.7	77.7
23/03/2025 13:27	72.1	62.7	71	91.7
23/03/2025 13:28	66.5	62	69.7	76.9
23/03/2025 13:29	67.5	62.4	68.5	86.7
23/03/2025 13:30	64.1	50.5	67.1	78.9
23/03/2025 13:31	65.8	57.9	67.9	78.8
23/03/2025 13:32	64.8	59.1	67.5	75.3

DRAWINGS

DO NOT SCALE FROM THIS DRAWING

Key

- Site Boundary
- Existing Sensitive Receptors

Line source

- Car movements
- LGV movements
- HGV movements
- JCB movements

Point source

- Waste in skip (Car)
- Co-mingle deposits
- Waste in skip (LGV)
- Metal Crushing
- Container Exchange

Noise Contours LAeq,T

- <50 dB
- 50dB - 54dB
- 55dB- 59dB
- >60dB

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D

CLIENT

Walsall Council

PROJECT

BR10255 - Walsall HWRC & WTS

DRAWING TITLE

Figure 1 - Daytime Noise Contours

DRG No.		REV
BR10255/001		A
DRG SIZE: A3	SCALE: 1:2,500	DATE: April 2025
DRAWN: NF	CHECKED BY: PB	APPROVED BY: PB

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