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SCORRIER

NOISE ASSESSMENT REPORT

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RECYCLE IT GLOBAL

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NOISE ASSESSMENT REPORT

AUGUST 2024

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EXECUTIVE SUMMARY

Purpose of this Report

Wardell Armstrong LLP (WA) has been instructed by Recycle it Global (RIG) to prepare a noise impact assessment to support a permit application for a wash plant.

The purpose of this report is to assess noise impact from the operations associated with the wash plant. It includes the results of a noise survey and assessment carried out in accordance with current guidance, including an assessment in accordance with *British Standard 4142: 2014+A1:2019 Methods for rating and assessing industrial and commercial sound* (BS 4142) and the Environment Agency (EA).

Assessment

The noise associated with the proposed development has been assessed at the nearest ESRs. The assessment is based upon noise emission data, provided by the client, for the plant and equipment for the proposed development.

The site is subject to the environmental permitting regulations, regulated by EA. As part of the development proposals to build a wash plant at the Park-an-Chy waste transfer station, a Permit Variation application has been submitted with the EA.

The assessment is based upon worst-case noise emission data for typical pieces of equipment which have been assumed for the operations associated with the wash plant.

Findings

Without additional mitigation, sound levels are predicted to exceed the background sound level by 5 dBA and 4 dBA at ESR1 and ESR2, respectively. This is between a low impact and adverse impact at ESR 2 and an adverse impact at ESR1 in accordance with BS 4142. Furthermore, predicted sound levels at ESR3, ESR4 and ESR5 are below background sound levels and therefore, considered a low impact in accordance with BS 4142.

Without additional mitigation and in accordance with EA Guidance, operational activity is likely to produce audible or detectable noise at ESR1 and Barely audible and detectable noise at ESR2.

As adverse impacts are predicted at ESR1 and impacts at ESR2 are at the upper boundary for a low impact, additional mitigation has been recommended in the form of Best Available Techniques which would be controlled through a Noise Management Plan (NMP).

With additional mitigation sound levels are predicted to be equal to or below the background sound level at all receptors. This is an indication of a low impact in accordance with BS 4142.

The residual effect, in accordance with EA Guidance, is that operational activity is likely to be inaudible and detectable or barely audible or detectable at all receptors.

1 INTRODUCTION

1.1.1 Wardell Armstrong (WA) has been commissioned by Recycle it Global (RIG) to undertake a noise impact assessment to accompany a permit variation. RIG have proposed to install a Wash Plant at Parc-an-Chy Waste Transfer Station, Scorrier Estate, Treskerby Road, Scorrier.

1.1.2 WA were previously commissioned to carry out a noise assessment to accompany a Section 73 planning application (ref: PA23/10125) for the wash plant which was granted planning permission by Cornwall Council (CC).

1.2 Site Location

1.2.1 North of the site is agricultural land and woodland, beyond which is Blue Lotus Therapy Centre and Scorrier House approximately 300 m from site. Immediately northeast and south of the site are earth bunds with open fields and scattered dwellings to the east and south. Dwellings south of the site are predominantly along St Day Road approximately 670 m from the site boundary. West of the site is the village of Treskerby with the nearest dwellings approximately 250 m from the site boundary.

1.3 Site details

1.3.1 The development comprises a wash plant which is proposed to operate at the Park-an-Chy transfer station. The site will be operational between 08:00 and 18:00 hours on Monday to Friday and between 08:00 and 13:00 hours on Saturdays.

1.3.2 The operations associated with the wash plant comprise of fixed and mobile plant.

1.4 Scope of the Report

1.4.1 The scope of this noise assessment comprises a consideration of noise from the proposed activities associated with the Wash Plant which might affect existing noise sensitive receptors during the operations. The assessment is in accordance with current guidance.

1.4.2 The pertinent aspects of the Scope of Work are as follows:

- Construct a sound propagation model of the Site and surrounding area to predict the sound rating level at each Existing Sensitive Receptor (ESR) due to the operation of the development; and
- Assess the likely significance of the impact of noise at each ESR in accordance with current guidance.

2 METHODOLOGY

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

- Institute of Environmental Management and Assessment (IEMA) (2014) Guidelines for Environmental Noise Impact Assessment¹
- British Standard 4142: 2014+A1:2019 Methods for rating and assessing industrial and commercial sound² (BS 4142);
- British Standard 8233: 2014 Guidance on sound Insulation and noise reduction for buildings³ (BS 8233); and
- Environment Agency, Noise and Vibration Management: Environmental Permits, 2022.

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

2.2 Assessment Criteria

British Standard 4142:2014+A1:2019

2.2.1 The criteria used are based on the background comparison thresholds, in accordance with BS 4142:2014.

2.3 Initial estimate of impact

2.3.1 BS 4142:2014 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. The assessment is based on the following potential results:

Table 1 BS4142 Assessment Guidance	
Penalty	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 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

¹ Institute of Environmental Management and Assessment (2014). Guidelines for Environmental Noise Impact Assessment. IEMA, London.

² British Standards Institute, 2014. BS 4142:2014:2014 + A1:2019 Methods for rating and assessing industrial and commercial sound. BSI London, UK

³ British Standards Institution (2014). BS 8223:2014, Guidance on sound insulation and noise reduction on buildings. BSI: London, UK

2.3.2 The context considers the existing use in the area and the existence of the current use of the site. It is therefore considered that the sensitivity of the area to site activity noise would be lower than might be considered with a rural or completely residential location.

2.4 BS 4142:2014 penalties

2.4.1 A penalty should be applied to the specific sound level if a tone, impulse or other characteristic occurs or is expected to be present for new or modified sound sources. The following penalties are considered in addition to the specific noise level to form the rating level with penalties being added arithmetically to create a total penalty correction.

Tonality

2.4.2 For sound sources ranging from not tonal to prominently tonal, the Joint Nordic Method gives a penalty of between +1 dB and +6 dB for tonality. Based on a subjective assessment this can be interpreted as presented in **Table 2** Table .

Table 2: Subjective method – tonality penalties	
Penalty	Source Condition
+2dB	Tone which is just perceptible at the noise receptor
+4dB	Tone is clearly perceptible at the noise receptor
+6dB	Tone is highly perceptible at the noise receptor

Impulsivity

2.4.3 A penalty of up to +9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Based on a subjective assessment this can be interpreted as per **Table 3**.

Table 3: Subjective method – impulsivity penalties	
Penalty	Source Condition
+3dB	Impulsivity which is just perceptible at the noise receptor
+6dB	Impulsivity is clearly perceptible at the noise receptor
+9dB	Impulsivity is highly perceptible at the noise receptor

Intermittency and Other Sound Characteristics

2.4.4 Where the specific sound is intermittent and/or readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

Reference Time Periods

2.4.5 The appropriate reference time interval for assessing a sound source is dependent upon when it operates i.e., during the daytime or night-time. BS 4142 determines the reference time interval as 1 hour during the day (07:00 – 23:00).

Environment Agency Context

2.4.6 To enable the assessment of the proposed development in accordance with EA Guidance, **Table 4** presents equivalent noise levels and associated actions with the target noise level criteria identified. The noise level criteria below have been derived from standards and design guidance.

Table 4: Noise Level Criteria and Actions			
Effect Level	Noise Sources	Level Criteria	Action Required
No audible or detectable noise	Fixed and mobile plant associated with the proposed wash plant.	Difference between Rating Level ($L_{Ar,Tr}$) dB is 10 dB less than the existing background level $L_{A90,T}$ dB	This level of noise means that no action is needed beyond basic appropriate measures or BAT.
	Change in Noise Level	Increase in ambient $L_{Aeq,T}$ due to contribution from proposed development of ≤ 1 dB.	Within negligible short-term impact classification range in Table 7.14 in IEMA 2014 guidance Guidelines for Environmental Noise Impact Assessment
Barely audible or detectable noise	Fixed and mobile plant associated with the proposed wash plant.	Difference between Rating Level ($L_{Ar,Tr}$) dB and existing background sound level $L_{A90,T}$ dB is between 1-4dB.	This level of noise means that no action is needed beyond basic appropriate measures or BAT.
	Change in Noise Level	Increase in ambient $L_{Aeq,T}$ due to contribution from proposed development of 1.0-2.9dB.	Within minor short-term impact classification range in Table 7.14 in IEMA 2014 guidance Guidelines for Environmental Noise Impact Assessment
Audible or detectable noise	Fixed and mobile plant associated with the proposed wash plant.	Difference between Rating Level ($L_{Ar,Tr}$) dB and existing background sound level $L_{A90,T}$ dB is between 5-9dB.	Use appropriate measures to prevent or, where that is not practicable, minimise noise.
	Change in Noise Level	Increase in ambient $L_{Aeq,T}$ due to contribution from proposed development of 3.0-4.9dB.	Within moderate short-term impact classification range in Table 7.14 in IEMA 2014 guidance Guidelines for

Table 4: Noise Level Criteria and Actions			
Effect Level	Noise Sources	Level Criteria	Action Required
			Environmental Noise Impact Assessment
Unacceptable level of audible or detectable noise	Fixed and mobile plant associated with the proposed wash plant.	Difference between Rating Level ($L_{Ar,Tr}$) dB and existing background sound level $L_{A90,T}$ dB is equal to or greater than 10dB	Must take further action or you may have to reduce or stop operations. The environment agencies will not issue a permit if you are likely to be operating at this level.
	Change in Noise Level	Increase in ambient $L_{Aeq,T}$ due to contribution from proposed development of ≥ 5.0 dB.	Within negligible short-term impact classification range in Table 7.14 in IEMA 2014 guidance Guidelines for Environmental Noise Impact Assessment

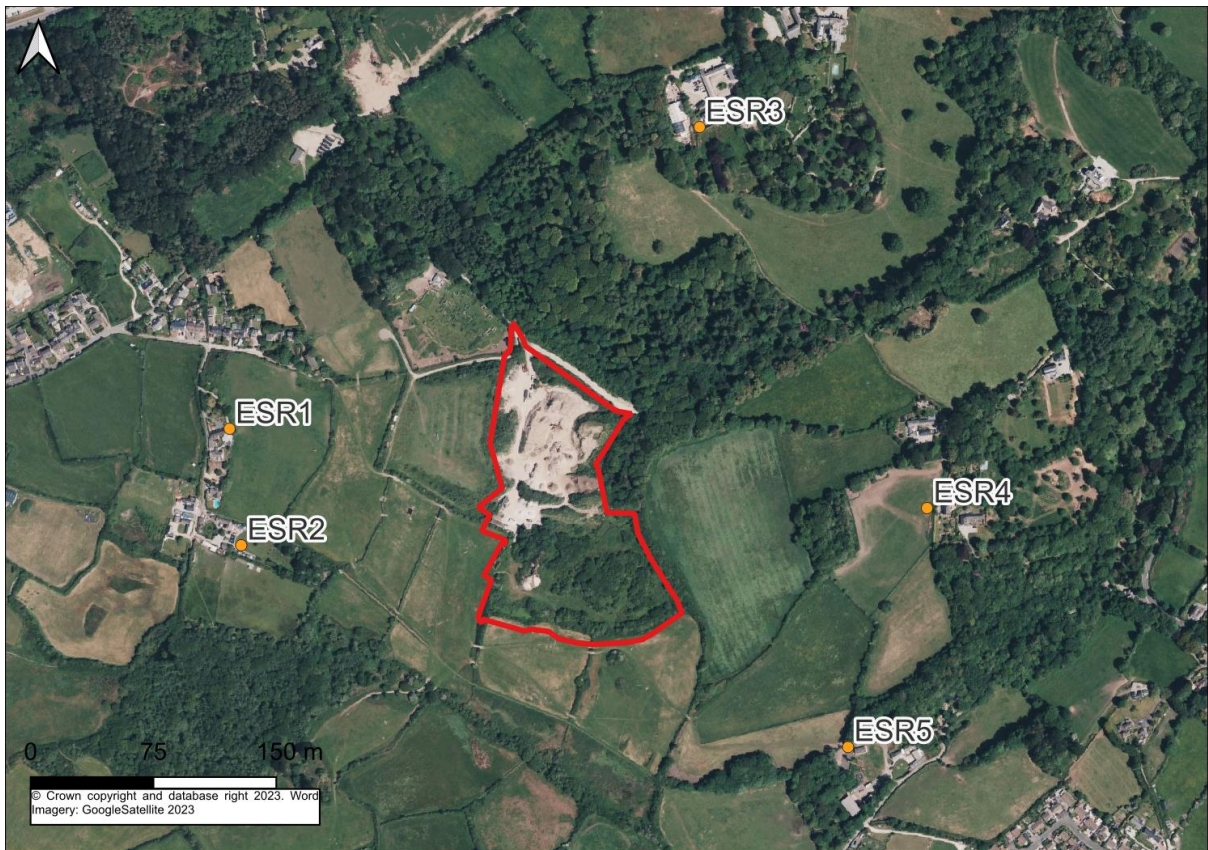
2.5 Existing Sensitive Receptors

2.5.1 Aerial imagery of the site and surrounding area has been reviewed to identify the nearest ESRs in all directions.

2.5.2 Five ESRs have been selected as the closest to the existing site. The selected ESRs are the most likely to be affected by noise due to the proposed activities. These are detailed in **Table 5** and shown in **Figure 1**.

Table 5: Noise Survey Locations					
Receptor	Location	Grid Co-ordinates		Bearing from Site	Approximate Distance from the proposed site boundary to the receptor, m
		Easting	Northing		
ESR1	Houses at Treskerby	171782	43286	West	320
ESR2	Treskerby House / Hunters Lodge	171803	43142	West	280
ESR3	Bryher House	172317	43651	North	315
ESR4	Fourburrow Cottage / Fourburrow House	172641	43197	East	370
ESR5	Kennel Cottage	172548	42930	South-East	260

Figure 1 – Existing Sensitive Receptor Locations



3 BASELINE CONDITIONS

3.1.1 Noise surveys have been undertaken by WA on the 24th to the 26th July 2024. Noise measurements have been taken at two monitoring locations (ML1, and ML2), that are representative of the existing noise sensitive receptors. Descriptions of the monitoring locations are as follows and are shown in drawing NT16913/001.

3.1.2 A-weighted⁴ L_{eq} ⁵ and L_{90} ⁶ noise levels were measured to comply with the requirements of BS4142, together with the maximum and minimum sound pressure levels to provide additional information.

Monitoring Location 1: This monitoring location was positioned west of the site boundary on Treskerby adjacent to the ESR1. This position is representative of ESR1 and ESR2.

Monitoring Location 2: This monitoring location was positioned west of the site boundary. The monitoring location is representative of ESR3, ESR4 and ESR5.

3.1.3 The noise monitoring has been undertaken as described in **Table 6**.

Table 6: Details of the Noise Monitoring					
Monitoring Location	Attended / Unattended	Start Date & Time	End Date & Time	Measurement Height	Audible Noise Sources
ML1	Unattended	24/7/2024 15:45	26/7/2024 09:30	1.5	Construction noise from RIG site. Chainsaw noise. Wind and bird noise. Constant noise from A393. Occasional noise from local roads.
ML2	Unattended	24/7/2024	26/7/2024	1.5	Construction noise from RIG site. Wind and bird noise. No road traffic noise

3.1.4 The audible sources of noise throughout the day included construction noise from the RIG site, and road traffic noise from A393 and local roads. Equipment and Meteorology

⁴ A' Weighting An electronic filter in a sound level meter which mimics the human ear's response to sounds at different frequencies under defined conditions

⁵ L_{eqs} Equivalent continuous noise level; the steady sound pressure which contains an equivalent quantity of sound energy as the time-varying sound pressure levels.

⁶ L_{90} The noise level which is exceeded for 90% of the measurement period.

3.1.5 Measurements were taken using Class 1, integrating sound level meters. Microphones were mounted vertically on a tripods 1.5 meters above ground level, in free field positions. The equipment used is detailed in **Table 7**.

Table 7: Equipment used during the noise monitoring				
Item	Manufacturer	Model	Serial Number	Calibration Date
Sound Level Meter	01dB	CUBE	12198	11/08/2024
	Svantek	Svan 971	60031	29/04/2024
Pre-amp	01dB	46CD	2004097	11/10/2024
	Svantek	SV18	142073	29/04/2024
Microphone Capsule	01dB	46CD	292566	11/10/2024
	ACO	7152	88587	29/04/2024
Weather Station	Davis	Vantage Vue	MU240320005	-
Calibrator	Cirrus	CR:515	67438	23/01/2025

3.1.6 The sound level meters were calibrated to a reference level of 94dB at 1kHz both before, and on completion of, the noise survey. No significant drift in calibration was measured during the survey.

3.1.7 Weather conditions during the monitoring period have been obtained during the survey through an onsite weather station. The weather station was located at ML1 with the sound level meter.

3.1.8 The onsite weather station encountered an internal error and stopped logging at 25/07/2024 06:15. Therefore, data from a nearby weather has been utilised for the remainder of the monitoring. This weather station located near Radnor Road, Scorrier.

3.1.9 **Table 8** details the weather on site during the noise survey.

Table 8: Details of onsite weather conditions during noise survey.				
Period Start	Period End	Temperature	Wind Speed	Precipitation (mm)
24/07/2024	24/07/2024	15 - 24	0 - 4	0 - 1.5

Period Start	Period End	Temperature	Wind Speed	Precipitation (mm)
15:45	23:00			
24/07/2024 23:00	25/07/2024 07:00	16	0 – 0.3	1 - 3
25/07/2024 07:00	25/07/2024 23:00	13 - 17	0 - 2	0 – 0.1
25/07/2024 23:00	26/07/2024 07:00	12 – 14	0 - 1	0
26/07/2024 07:00	26/07/2024 09:30	14 - 15	0 - 2	0

3.1.10 The noise monitoring was at ML1 and ML2 was largely unattended, however observations of noise sources were made during the set up and decommissioning of the sound level meter. The observations identified the following:

Construction Noise: Construction noise was audible at ML1 and ML2 from works at the development site.

Transportation Noise: Road traffic noise from the A393 was dominant at ML1. Nearby local roads were clearly audible at ML1 and barely audible at ML2.

3.2 Summary of Measured Sound Levels

3.2.1 The measured sound levels for each monitoring location have been divided into daytime (0700-2300 hours) and night-time (2300-0700 hours) categories.

3.2.2 The ambient sound levels have been produced by logarithmically averaging L_{Aeq} values to produce single daytime and night-time levels. The background noise levels have been separated into mode, mean and median to show what values were considered when choosing a representative level.

3.2.3 The results for each of the monitoring locations are presented in **Table 9**.

Monitoring Location	Time Period	Average Measured Ambient Noise Level (Figures in dB $L_{Aeq,t}$)	Measured Background Noise Level (Figures in dB $L_{A90,t}$)			
			Range	Mode	Mean	Median
ML1	Daytime (0700 hrs – 2300 hrs)	44	35 - 42	39	39	39
ML2	Daytime (0700 hrs – 2300 hrs)	45	35 - 46	42	42	43

3.2.4 Based on the results obtained, a robust assessment can be made of the sound levels at the existing noise sensitive receptors.

3.2.5 Further details of the measured levels are shown in **Appendix B**.

3.3 Determination of Background Sound Level

3.3.1 Section 8 of BS 4142 provides guidance on the selection of the background sound to be used in the assessment. BS 4142 states that the background sound levels used for the assessment should be representative of the period being assessed (i.e., daytime or night-time periods,) and that there is no 'single' background sound level.

3.3.2 For the assessment, background sound levels measured outside of the operational hours have been used due to construction works taking place on site.

3.3.3 The data collected and presented within **Appendix B** is considered representative of the $L_{A90,1 \text{ hour}}$ daytime background sound levels at existing sensitive receptors.

3.3.4 The modal value of the background sound level, measured whilst construction was being undertaken, was compared against the measured background sound level outside of construction activities. The background sound level at ML1 did not change, and the background sound level at ML2 decreased by -2 dB.

3.3.5 Therefore, the modal value of the background sound levels measured outside of operational hours has been deemed a robust and representative level for receptors as shown in **Appendix C**.

3.3.6 A summary of the representative background sound levels used in this assessment are shown in **Table 10**.

Monitoring Location	Receptors	Daytime, dB $L_{A90, 1hr}$
ML1	ESR1 and ESR2	39
ML2	ESR3, ESR4 and ESR5	42

4 ASSUMPTIONS, LIMITATIONS, AND UNCERTAINTY

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

4.2 Assumptions

4.2.1 The following assumptions have been made:

- Noise Sensitive Receptors (ESRs) are positioned at a height of 1.5 m above ground level during the daytime period.
- The site will be operational between 08:00 and 18:00 hours on Monday to Friday and between 08:00 and 13:00 hours on Saturdays.

4.3 Limitations

4.3.1 It was not possible to undertake the noise survey without operations on site as construction works were being undertaken during the noise survey. Therefore, the background sound survey was undertaken while the site was operational. Discussions which RIG confirmed that construction activities would be kept to a minimum during the noise monitoring period.

4.3.2 To avoid background sound levels being influenced by construction activities, measured noise data outside of the hours of construction have been used.

4.4 Uncertainty

4.4.1 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.

4.4.2 With regard to the sources of noise, manufacturer data has been used within the model to predict the levels at the ESRs. The model uses the noise prediction methodology set out in ISO 9613-2:1996 'Attenuation of sound during propagation outdoors' which accounts for downwind propagation.

4.4.3 Furthermore, care has been when setting up the noise model to ensure its accuracy, and that represents the proposed site layout and the local environment local area (i.e. topography and existing buildings).

4.4.4 Equipment is assumed to operate for 85% of the time during operational hours.

4.4.5 A reasonable and professional judgement has been made when undertaking the assessment, and while there could be a small margin of uncertainty within the predictions, it is unlikely to increase the overall impact level at the ESRs.

4.4.6 To further 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, with a weather station situated on site;
- Noise data has been removed during periods of adverse weather;
- The daytime background noise monitoring was undertaken during what is considered to be the representative periods of the daytime;
- The daytime background noise monitoring was undertaken over 1 hour periods in accordance with the reference period required by BS4142;
- The results of each measurement period are reported to the nearest 1dB; and
- Noise measurements were made using a Class 1, integrating sound level meter.

5 DETAILS OF NOISE MODEL

5.1.1 This section of the report sets out the details of the methods used to prepare the noise model so that proposed sources of noise can be accurately determined at the closest occupied dwellings.

5.1.2 The computer noise model has been used to consider the noise from the existing and proposed operations at receptors.

5.2 Noise Model Set-up

5.2.1 The assessment of the propagation of sound from the operations associated with the wash plant at receptors has been undertaken using the noise modelling software SoundPLAN version 9.0 (SoundPLAN).

5.2.2 SoundPLAN software uses geographical information to create a model of the study area on which to generate noise contours and includes objects that affect the propagation of noise such as buildings and topography.

5.2.3 SoundPLAN model uses the noise prediction methodology set out in ISO 9613-2:1996 'Attenuation of sound during propagation outdoors'. The noise modelling produces noise contour plans demonstrating the levels of industrial noise at receptors.

5.2.4 The intervening ground between the waste transfer station and receptors is predominantly soft ground, therefore a ground factor of 1 has been used to represent soft ground (where 0 = hard ground, and reflective and 1 = soft ground).

5.2.5 The existing bunds to the northeast and west of site have been included in the topography within the model.

5.2.6 Noise data from the manufacturers have been included in the noise.

5.2.7 Noise have been modelled as fully omni-directional point and line sources.

5.2.8 The following noise sources, detailed in **Table 11**, have been input into the noise model.

Table 11: Noise sources and sound levels used in modelling scenario			
Details of Equipment	Quantity	Sound Power Level (dB(A))	On-time (%)
Terex Cobra 290R - Crusher	1	93	85%
Terex Finley 883+ - Screener	1	98	85%
Komatsu PC360 - Excavator	1	104	85%
Volvo A25G - ADT	1	110	85%

Table 11: Noise sources and sound levels used in modelling scenario			
Details of Equipment	Quantity	Sound Power Level (dB(A))	On-time (%)
CASE 521G – Loading Shovel	1	102	85%
CAT 980 – Loading Shovel	1	109	85%
JCB Telehandler	1	84	85%
Terex Screener	1	95	85%
Terex Aggresand 206	1	95	85%
Powerscrub 200	1	92	85%
4026 Conveyor x5	5	97	85%

5.2.9 The site has 2 Komatsu PC360 machines and 2 CAT 980s, however it is unlikely that all the machines would be operational at one time. The equipment, which is listed in **Table 11**, and which has been included in the noise model, is considered the worse-case scenario for activity at the site at any one time.

5.2.10 The noise impact assessment has been carried out in Section 6 of this report. This has been carried out using the calculated noise levels at receptors from the SoundPLAN model.

5.2.11 A noise contour drawing NT16913/002 has been prepared showing noise levels across the operational site and at residential receptors, based on the site layout provided by the client and manufacturers’ noise data.

6 NOISE IMPACT ASSESSMENT

6.1 BS4142:2014+A1:2019 Assessment

6.1.1 This section of the report sets out the assessment of noise emissions from the site, and the potential impacts they have on the receptors.

Identification of the Specific Sound

6.1.2 The predicted specific sound levels during the daytime at the ESRs are presented below in **Table 12**.

6.1.3 The sound from the site have been predicted as a free-field noise level, 1m from the façade of the identified ESRs. The daytime specific sound levels have been predicted at ground floor (1.5m).

Receptor	Daytime, dB LAeq, 1hr
ESR1	44
ESR2	43
ESR3	43
ESR4	42
ESR5	34

Application of Weighting for Characteristics of Specific Sound

6.1.4 BS4142 includes guidance on the application of additional weightings which include tonality, impulsivity or intermittency. Where such features are present at the assessment location characteristic corrections to the specific sound should be added to obtain a rating level.

6.1.5 With regard to the proposed operations associated with the wash plant, these will also operate in a similar way to the existing waste transfer station, and distinctive acoustic characteristics are not expected to be audible any of the ESRs. Therefore, no corrections have been applied.

Initial Estimate of Impact

6.1.6 In accordance with BS4142, the noise rating levels from the site, as received at the ESR, have been compared with the corresponding LA90 background sound levels and are shown below in **Table 13**.

Table 13: BS4142 Assessment of the Noise from the wash plant as received at ESRs during the Daytime (Figures in dB(A))

Description	ESR1	ESR2	ESR3	ESR4	ESR5
Specific Sound Level at ESRs	44	43	43	42	34
Character Corrections	0				
Rating Level	44	43	43	42	34
Background Sound Level	39	39	42	42	42
Excess of Rating Over Background	+5	+4	-1	0	-8

6.1.7 The initial estimate of impact shows that predicted sound levels at ESR1 and ESR2 are above the existing background sound level. The exceedance at ESR1 and ESR2 is predicted to be +5dB and +4dB, respectively, above the existing background sound level. This is between a **low** and **adverse** impact at ESR 2 and is considered an **Adverse** impact at ESR1 in accordance with BS4142.

6.1.8 At ESR3, ESR4 and ESR5, the predicted sound level does not exceed the background sound level, which is a **Low** impact in accordance with BS4142.

6.2 Change in Ambient Sound Level Assessment

6.2.1 The measured residual sound levels have been logarithmically added to the specific sound level to determine the change in noise level following the installation of the wash plant. The results are presented in in **Table 14**.

Table 14: Change in Ambient Sound Level Assessment

Description	ESR1	ESR2	ESR3	ESR4	ESR5
Baseline Residual Sound Level $L_{Aeq,T}$	44	44	45	45	45
Specific Sound Level $L_{Aeq,T}$	44	43	43	42	34
Ambient Noise Level with Site $L_{Aeq,T}$	47	47	47	47	45
Noise Change	+3	+3	+2	+2	0

6.2.2 The results in **Table 14** show that the change in noise level ESR1 and ESR2 is +3dB. When considering the assessment criteria in IEMA, this shows that a minor long-term impact would occur.

6.2.3 ESR3 and ESR4 will have an increase of +2dB which will be a negligible change, when considering the assessment criteria in IEMA.

6.3 Assessment in accordance with EA guidance

- 6.3.1 For receptors ESR3, ESR4 and ESR5 the predicted sound levels in **Table 13** show that sound levels from operational activity will be barely audible or detectable.
- 6.3.2 For receptors ESR1 and ESR2 the results in **Table 13** show that sound levels from operational activity will be audible or detectable.
- 6.3.3 In accordance with EA Guidance, where audible or detectable noise is produced, appropriate measures should be taken to ensure noise minimised at ESRs. Therefore, mitigation measures have been suggested in Section 7 of this report to minimise noise at ESRs.

7 MITIGATION

- 7.1.1 The noise modelling has demonstrated that predicted sound levels would exceed existing background sound levels ESR1 and ES2 without additional mitigation.
- 7.1.2 The results of the noise modelling showed that the mobile plant on site, specifically the CAT 980 – Loading Shovel, was predicted to be the dominant source at ESR1 and ESR2.
- 7.1.3 Therefore, mitigation is required to ensure the proposed development does not cause a significant adverse impact on receptors.
- 7.1.4 It is recommended that Best Available Techniques (BAT) are implemented on site and controlled through a Noise Management Plan (NMP).
- 7.1.5 It is expected that BAT will provide between 5-10 dB of noise reduction to onsite operations. BAT includes:
- All plant and machinery should be regularly maintained to control noise emissions, with particular emphasis on lubrication of bearings and the integrity of silencers;
 - Site staff should be aware where the nearest houses are located and avoid all unnecessary noise due to misuse of tools and equipment, unnecessary shouting, and radios;
 - As far as possible, avoid multiple noisy operations occurring simultaneously in close proximity to the same sensitive receptor;
 - Adherence to set daytime working hours during the week and at weekends;
 - Machines not in use will be shut down or throttled down to a minimum;
 - Electrically powered plant, equipment and tools will be preferred over diesel or petrol driven; and
 - Localised screening to be employed in areas where there are fixed plant items.
- 7.1.6 An assessment of the noise impact at receptors, with the implementation BAT, is found in the residual impact assessment in this report, in Section 8.

8 RESIDUAL IMPACT ASSESSMENT

8.1 BS4142:2014+A1:2019

8.1.1 An assessment of the residual impact has been undertaken following the implementation of the proposed mitigation measures.

8.1.2 To provide a robust assessment, a -5 dB reduction has been applied to the site operations.

Table 15: BS4142 Assessment of the Noise from the wash plant as received at ESRs during the Daytime, with BAT introduced (Figures in dB(A))

Description	ESR1	ESR2	ESR3	ESR4	ESR5
Specific Sound Level at ESRs	39	38	38	37	29
Character Corrections	0				
Rating Level	39	38	38	37	29
Background Sound Level	39	39	42	42	42
Excess of Rating Over Background	0	-1	-4	-5	-13

8.1.3 The results shown in **Table 15** demonstrate that, with mitigation, the rating level at each receptor will not exceed the background sound level at ESRs. This is a low impact, in accordance with BS4142.

Context Assessment

8.1.4 Consideration of the contextual aspects is provided below, in accordance with BS 4142:2014, and is followed by determination of significance of potential impacts.

8.1.5 With the implementation of BAT, where low impacts are identified these would still be considered low in the context for the site and therefore, adverse impacts are less likely to occur and would not be considered significant.

8.2 Change in Ambient Sound Level Assessment

8.2.1 The measured residual sound levels have been logarithmically added to the specific sound level of the wash plant, to determine the change in noise level following the introduction of BAT. The results are presented in **Table 16**.

Table 16: Change in Ambient Sound Level Assessment					
Description	ESR1	ESR2	ESR3	ESR4	ESR5
Baseline Residual Sound Level $L_{Aeq,T}$	44	44	45	45	45
Specific Sound Level $L_{Aeq,T}$	39	38	38	37	29
Ambient Noise Level with Site $L_{Aeq,T}$	45	45	46	46	45
Noise Change	+1	+1	+1	+1	0

8.2.2 The results in **Table 16** show that the change in noise level ESR1, ESR2, ESR3 and ESR4 is +1dB. When considering the assessment criteria in IEMA, this shows that a negligible change would occur.

8.2.3 ESR5 will not have an increase, when introducing BAT, which will also be a negligible change, when considering the assessment criteria in IEMA.

8.3 Assessment in accordance with EA guidance

8.3.1 For receptors ESR1, ESR2, ESR3 and ESR4, the predicted sound levels in **Table 15** show that sound levels from operational activity will be barely audible or detectable.

8.3.2 For receptor ESR5, the results in **Table 15** show that sound levels from operational activity will not be audible or detectable.

8.3.3 In accordance with EA Guidance, where audible or detectable noise is produced, appropriate measures should be taken to ensure noise minimised at ESRs. Therefore, mitigation measures have been suggested in Section 7 of this report to minimise noise at ESRs.

9 CONCLUSIONS

- 9.1.1 The potential noise associated with the proposed wash plant have been assessed at the nearest ESRs.
- 9.1.2 The purpose of this report is to assess noise from the proposed waste transfer station. It includes the results of a noise survey and assessment carried out in accordance with current guidance, including an assessment in accordance with BS4142 and EA Guidance.
- 9.1.3 The dominant noise from the proposed activities will be mobile plant and the proposed wash plant.
- 9.1.4 For this assessment, it has been assumed that all site plant is simultaneously operational throughout working hours, this is not likely and represents a robust worst case.
- 9.1.5 The results of the BS4142 assessment indicates that noise associated with the wash plant will have an **Adverse** impact at ESR1 and between a low and adverse impact at ESR2. Furthermore, a **Low** impact is predicted at ESR3, ESR4 and ESR5.
- 9.1.6 Therefore, mitigation measures, in the form BAT controlled through an NMP have been recommended to reduce noise at ESRs as far as practically possible. BAT is likely to provide between 10-5dB attenuation at ESRs.
- 9.1.7 With this mitigation included, the proposed development would have a **Low** impact at all receptors, in accordance with BS4142.
- 9.1.8 Furthermore, with the implementation of BAT, it is likely that activity sound levels at receptors will be inaudible, barely audible or detectable.
- 9.1.9 Therefore, the proposed development complies with all EA Guidance and BS4142, and noise should not be reasons for refusal of the environmental permit.

APPENDICIES

Appendix A - Noise Policy and Guidance

Table A1: Legislation relevant to the noise and vibration 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.
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 – <i>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.”</i>

Table A2: Guidance relevant to the noise and vibration 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 9613:1996 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 7445-1:2003 <i>Description and measurement of environmental noise. Guide to quantities and procedures</i>	Details standardised guidance for the measurement of environmental noise. The pertinent details of BS 7445-1:2003 ¹ adopted in this assessment are as follows: <ul style="list-style-type: none"> instrumentation to measure equivalent continuous A-weighted sound pressure level conforming to Type 1 as given in BS EN 61672-1:2013 <i>Electroacoustics. Sound level meters - specifications</i>.¹; all equipment calibrated and the calibration shall follow manufacturer’s instructions. All WSP sound monitoring equipment is calibrated at an accredited laboratory at a minimum interval of 24 months. To maintain confidence in recorded sound levels, sound level meters were field calibrated prior to and after use with the

¹ British Standards Institution (2013). BS 61672-1:2013 Electroacoustics. Sound level meters – specifications. BSI, London.

	<p>recommended manufacturer’s calibrator. No significant drift (i.e., greater than 0.5 dB) in calibration was recorded; and</p> <p>minimise the influence of reflections by, whenever possible, undertaking measurements at least 3.5 m from any reflective surface other than the ground. Preferred measurement height is 1.2 m to 1.5 m above the ground.</p>
<p>BS 4142:2014 +A1:2019 <i>Methods for rating and assessing industrial and commercial sound</i></p>	<p>BS 4142:2014+A1:2019 <i>Methods for rating and assessing industrial and commercial sound</i> 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.</p>
<p>BS 8233:2014 Guidance on sound insulation and noise reduction for buildings</p>	<p>BS8233:2014 presents design criteria for noise within habitable rooms in new residential developments to avoid adverse impacts on sustainability for the intended use. In summary, these are:</p> <ul style="list-style-type: none"> • Resting in Living Rooms: 35 dB $L_{Aeq,16h}$ (daytime) • Dining in Dining Rooms / Areas: 40 dB $L_{Aeq,16h}$ (daytime) • Sleeping or resting in Bedrooms: 35 dB $L_{Aeq,16h}$ (daytime) / 30 dB $L_{Aeq,8h}$ (night-time).
<p>Environment Agency, Noise and Vibration Management: Environmental Permits, 2022.</p>	<p>Environmental permits have conditions that require operators to control pollution – this includes controlling noise and vibration.</p> <p>This guidance covers:</p> <ul style="list-style-type: none"> • 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 – Noise Survey Data

Monitoing Location 1

Time	Period	LAeq (dB)	LAmx,f (dB)	LA90 (dB)	Wind Speed (m/s)	Rain (mm)	Discarded due to wind>5 and rain>0 (Y/N)
24/07/2024 15:45	DAY	45.7	69.4	39.5	2	0.00	N
24/07/2024 16:00	DAY	46.7	59	42.3	3	0.00	N
24/07/2024 16:15	DAY	47.9	64.1	43.0	3	0.00	N
24/07/2024 16:30	DAY	46.5	53.7	43.1	3	0.50	Y
24/07/2024 16:45	DAY	45.9	55.5	41.3	3	0.00	N
24/07/2024 17:00	DAY	47.2	58.8	41.8	3	0.30	Y
24/07/2024 17:15	DAY	45.7	53.4	42.1	3	0.00	N
24/07/2024 17:30	DAY	45.1	54.4	41.4	3	0.30	Y
24/07/2024 17:45	DAY	48.3	56.6	43.3	3	0.00	N
24/07/2024 18:00	DAY	48.2	57.5	43.2	3	0.30	Y
24/07/2024 18:15	DAY	48.4	60.7	42.8	3	0.30	Y
24/07/2024 18:30	DAY	47.6	57.1	42.9	3	0.00	N
24/07/2024 18:45	DAY	50.6	61.4	44.5	4	0.00	N
24/07/2024 19:00	DAY	48.0	55.6	41.6	3	0.00	N
24/07/2024 19:15	DAY	48.5	58.7	42.0	3	0.00	N
24/07/2024 19:30	DAY	47.0	56.6	40.9	3	0.00	N
24/07/2024 19:45	DAY	47.2	58.1	41.2	3	0.00	N
24/07/2024 20:00	DAY	44.2	53.8	39.0	3	0.00	N
24/07/2024 20:15	DAY	44.3	55	38.9	3	0.00	N
24/07/2024 20:30	DAY	43.9	56.1	39.0	3	0.00	N
24/07/2024 20:45	DAY	44.9	55.4	39.0	3	0.00	N
24/07/2024 21:00	DAY	46.1	58.5	41.2	3	0.00	N
24/07/2024 21:15	DAY	42.8	53.7	37.3	3	0.00	N
24/07/2024 21:30	DAY	44.2	54.3	38.4	3	0.00	N
24/07/2024 21:45	DAY	40.6	48.6	36.4	2	0.00	N
24/07/2024 22:00	DAY	45.0	56.6	39.2	2	0.00	N
24/07/2024 22:15	DAY	41.5	55.6	36.7	2	0.00	N
24/07/2024 22:30	DAY	40.6	50.8	36.7	2	0.00	N
24/07/2024 22:45	DAY	40.0	49.8	35.8	2	0.00	N
24/07/2024 23:00	NIGHT	40.9	51.1	35.1	3	0.30	Y
24/07/2024 23:15	NIGHT	40.1	49.2	34.8	2	0.00	N
24/07/2024 23:30	NIGHT	38.6	49.3	33.3	2	0.00	N
24/07/2024 23:45	NIGHT	38.1	46.7	33.9	2	0.00	N
25/07/2024 00:00	NIGHT	37.3	48.4	31.0	2	0.00	N
25/07/2024 00:15	NIGHT	38.4	48.3	31.9	2	0.00	N
25/07/2024 00:30	NIGHT	41.7	50.1	34.3	3	0.00	N
25/07/2024 00:45	NIGHT	34.7	45	30.2	2	0.00	N
25/07/2024 01:00	NIGHT	33.8	41.4	28.8	2	0.00	N
25/07/2024 01:15	NIGHT	35.7	46.3	31.2	2	0.00	N
25/07/2024 01:30	NIGHT	36.5	48.2	30.3	2	0.00	N
25/07/2024 01:45	NIGHT	35.7	47.6	30.2	2	0.00	N
25/07/2024 02:00	NIGHT	34.6	43.5	29.4	2	0.00	N
25/07/2024 02:15	NIGHT	36.3	47.6	30.7	2	0.00	N
25/07/2024 02:30	NIGHT	37.1	47.5	31.7	2	0.30	Y
25/07/2024 02:45	NIGHT	36.2	49.3	30.4	2	0.00	N
25/07/2024 03:00	NIGHT	34.3	41.5	29.8	2	0.00	N
25/07/2024 03:15	NIGHT	32.6	40.2	28.0	2	0.00	N
25/07/2024 03:30	NIGHT	30.7	43.6	26.9	2	0.00	N
25/07/2024 03:45	NIGHT	31.4	40.4	26.9	2	0.00	N
25/07/2024 04:00	NIGHT	33.3	42.7	28.0	2	0.00	N
25/07/2024 04:15	NIGHT	31.1	40	26.2	2	0.00	N
25/07/2024 04:30	NIGHT	28.8	36.8	26.0	1	0.00	N
25/07/2024 04:45	NIGHT	29.8	38.5	26.4	1	0.00	N
25/07/2024 05:00	NIGHT	30.7	37.7	26.9	1	0.00	N
25/07/2024 05:15	NIGHT	52.2	64.8	29.7	1	0.00	N

Monitoing Location 1

Time	Period	LAeq (dB)	LAm _{ax,f} (dB)	LA90 (dB)	Wind Speed (m/s)	Rain (mm)	Discarded due to wind>5 and rain>0 (Y/N)
25/07/2024 05:30	NIGHT	50.3	67.2	31.3	1	0.00	N
25/07/2024 05:45	NIGHT	52.1	69.9	30.9	1	0.00	N
25/07/2024 06:00	NIGHT	43.7	63.3	30.1	1	0.00	N
25/07/2024 06:15	NIGHT	35.5	59.3	30.5	1	0.00	N
25/07/2024 06:30	NIGHT	36.4	49.5	33.4	1	0.00	N
25/07/2024 06:45	NIGHT	39.0	55.7	36.4	1	0.00	N
25/07/2024 07:00	DAY	42.2	59.7	37.5	1	0.00	N
25/07/2024 07:15	DAY	43.2	57	37.0	1	0.02	Y
25/07/2024 07:30	DAY	40.0	45.9	37.5	1	0.04	Y
25/07/2024 07:45	DAY	44.6	60.9	38.7	1	0.07	Y
25/07/2024 08:00	DAY	49.9	63.9	42.0	1	0.13	Y
25/07/2024 08:15	DAY	46.2	53	41.7	1	0.09	Y
25/07/2024 08:30	DAY	42.5	49.1	40.4	1	0.08	Y
25/07/2024 08:45	DAY	42.1	47.5	39.6	1	0.08	Y
25/07/2024 09:00	DAY	40.5	51.2	38.5	1	0.05	Y
25/07/2024 09:15	DAY	39.6	49.8	37.2	1	0.01	Y
25/07/2024 09:30	DAY	38.0	44.2	36.0	1	0.00	N
25/07/2024 09:45	DAY	38.2	56	35.3	2	0.00	N
25/07/2024 10:00	DAY	45.8	53.2	36.5	1	0.00	N
25/07/2024 10:15	DAY	42.5	57.3	36.6	2	0.00	N
25/07/2024 10:30	DAY	39.5	48.9	37.3	2	0.00	N
25/07/2024 10:45	DAY	39.2	46	37.3	1	0.01	Y
25/07/2024 11:00	DAY	39.5	43.3	37.8	1	0.08	Y
25/07/2024 11:15	DAY	39.9	44.9	38.3	1	0.03	Y
25/07/2024 11:30	DAY	38.3	41.6	36.8	0	0.01	Y
25/07/2024 11:45	DAY	38.6	44	36.7	1	0.00	N
25/07/2024 12:00	DAY	39.8	47.1	37.5	1	0.00	N
25/07/2024 12:15	DAY	40.2	52	37.7	1	0.00	N
25/07/2024 12:30	DAY	42.1	58.8	38.7	1	0.00	N
25/07/2024 12:45	DAY	41.7	49.7	39.2	1	0.00	N
25/07/2024 13:00	DAY	40.0	47.1	37.6	1	0.00	N
25/07/2024 13:15	DAY	41.6	53.9	38.6	1	0.00	N
25/07/2024 13:30	DAY	42.6	50.9	40.0	1	0.00	N
25/07/2024 13:45	DAY	43.4	50	40.8	1	0.00	N
25/07/2024 14:00	DAY	43.4	55.2	40.9	1	0.00	N
25/07/2024 14:15	DAY	42.3	49.1	40.0	1	0.00	N
25/07/2024 14:30	DAY	40.7	47.7	38.3	1	0.00	N
25/07/2024 14:45	DAY	40.4	47.4	37.5	1	0.00	N
25/07/2024 15:00	DAY	41.1	46.6	39.1	1	0.00	N
25/07/2024 15:15	DAY	41.2	49.6	38.8	1	0.00	N
25/07/2024 15:30	DAY	42.0	61.3	38.3	1	0.00	N
25/07/2024 15:45	DAY	41.9	48.1	39.7	1	0.00	N
25/07/2024 16:00	DAY	41.9	48	39.6	1	0.00	N
25/07/2024 16:15	DAY	42.7	47.6	40.6	1	0.00	N
25/07/2024 16:30	DAY	43.6	52.5	41.4	1	0.00	N
25/07/2024 16:45	DAY	46.5	65.2	42.4	1	0.00	N
25/07/2024 17:00	DAY	44.8	54.1	42.5	1	0.00	N
25/07/2024 17:15	DAY	44.7	49.2	42.2	1	0.00	N
25/07/2024 17:30	DAY	45.5	57.8	42.8	1	0.00	N
25/07/2024 17:45	DAY	44.2	51.1	41.8	1	0.00	N
25/07/2024 18:00	DAY	43.5	48.7	41.1	1	0.00	N
25/07/2024 18:15	DAY	42.8	51.9	40.4	1	0.00	N
25/07/2024 18:30	DAY	43.1	50.2	40.9	1	0.00	N
25/07/2024 18:45	DAY	42.1	48.6	39.9	1	0.00	N
25/07/2024 19:00	DAY	41.3	48	39.0	1	0.00	N
25/07/2024 19:15	DAY	41.1	48.2	38.7	1	0.00	N

Monitoing Location 1

Time	Period	LAeq (dB)	LAmx,f (dB)	LA90 (dB)	Wind Speed (m/s)	Rain (mm)	Discarded due to wind>5 and rain>0 (Y/N)
25/07/2024 19:30	DAY	42.1	55.3	39.3	1	0.00	N
25/07/2024 19:45	DAY	41.6	47.9	38.9	1	0.00	N
25/07/2024 20:00	DAY	41.5	58.9	38.1	1	0.00	N
25/07/2024 20:15	DAY	41.8	48.6	38.7	1	0.00	N
25/07/2024 20:30	DAY	40.2	48.1	37.5	1	0.00	N
25/07/2024 20:45	DAY	40.9	51.1	37.1	1	0.00	N
25/07/2024 21:00	DAY	55.3	76.6	36.1	1	0.00	N
25/07/2024 21:15	DAY	40.2	49.6	35.9	1	0.00	N
25/07/2024 21:30	DAY	40.9	52.4	37.5	2	0.00	N
25/07/2024 21:45	DAY	40.3	51.1	37.0	1	0.00	N
25/07/2024 22:00	DAY	38.4	51	35.4	1	0.00	N
25/07/2024 22:15	DAY	37.2	47.8	34.2	1	0.00	N
25/07/2024 22:30	DAY	39.4	54.7	34.3	1	0.00	N
25/07/2024 22:45	DAY	38.5	45.5	34.6	1	0.00	N
25/07/2024 23:00	NIGHT	36.6	43	33.5	1	0.00	N
25/07/2024 23:15	NIGHT	38.2	48.2	34.2	1	0.00	N
25/07/2024 23:30	NIGHT	38.7	51.2	33.3	1	0.00	N
25/07/2024 23:45	NIGHT	35.6	42.7	31.2	1	0.00	N
26/07/2024 00:00	NIGHT	35.3	47.2	30.4	1	0.00	N
26/07/2024 00:15	NIGHT	35.0	47.7	30.4	1	0.00	N
26/07/2024 00:30	NIGHT	34.0	45.8	29.1	1	0.00	N
26/07/2024 00:45	NIGHT	32.0	41.8	27.2	1	0.00	N
26/07/2024 01:00	NIGHT	34.4	49	27.1	1	0.00	N
26/07/2024 01:15	NIGHT	32.2	45.8	26.0	1	0.00	N
26/07/2024 01:30	NIGHT	31.7	42.4	26.7	1	0.00	N
26/07/2024 01:45	NIGHT	31.8	48.3	25.8	1	0.00	N
26/07/2024 02:00	NIGHT	32.2	44.5	26.1	1	0.00	N
26/07/2024 02:15	NIGHT	31.4	47.4	25.2	1	0.00	N
26/07/2024 02:30	NIGHT	30.5	48.5	24.2	1	0.00	N
26/07/2024 02:45	NIGHT	28.8	40.1	24.6	2	0.00	N
26/07/2024 03:00	NIGHT	30.3	43.1	25.6	2	0.00	N
26/07/2024 03:15	NIGHT	30.9	47	25.5	1	0.00	N
26/07/2024 03:30	NIGHT	32.2	47.5	26.2	1	0.00	N
26/07/2024 03:45	NIGHT	33.9	49	27.2	1	0.00	N
26/07/2024 04:00	NIGHT	32.4	46.4	26.6	1	0.00	N
26/07/2024 04:15	NIGHT	32.1	44.9	25.7	1	0.00	N
26/07/2024 04:30	NIGHT	33.7	45.9	27.1	1	0.00	N
26/07/2024 04:45	NIGHT	34.2	45.8	27.0	1	0.00	N
26/07/2024 05:00	NIGHT	45.9	59.1	31.6	1	0.00	N
26/07/2024 05:15	NIGHT	51.1	63.4	36.8	1	0.00	N
26/07/2024 05:30	NIGHT	45.8	61.8	33.7	1	0.00	N
26/07/2024 05:45	NIGHT	50.6	60.9	35.9	1	0.00	N
26/07/2024 06:00	NIGHT	46.2	57.8	37.4	1	0.00	N
26/07/2024 06:15	NIGHT	40.3	55.9	36.7	1	0.00	N
26/07/2024 06:30	NIGHT	40.8	55.7	38.0	1	0.00	N
26/07/2024 06:45	NIGHT	40.8	51	38.1	1	0.00	N
26/07/2024 07:00	DAY	39.8	48.9	36.8	1	0.00	N
26/07/2024 07:15	DAY	40.5	50.7	38.5	1	0.00	N
26/07/2024 07:30	DAY	40.0	51.9	37.9	1	0.00	N
26/07/2024 07:45	DAY	44.9	73.3	36.2	1	0.00	N
26/07/2024 08:00	DAY	39.0	50.6	36.6	1	0.00	N
26/07/2024 08:15	DAY	41.7	50	36.2	1	0.00	N
26/07/2024 08:30	DAY	47.6	56.8	37.4	1	0.00	N
26/07/2024 08:45	DAY	41.2	63.8	36.7	1	0.00	N
26/07/2024 09:00	DAY	41.7	52.4	38.9	1	0.00	N
26/07/2024 09:15	DAY	45.4	64.5	37.9	0	0.00	N

Monitoing Location 2

Time	Period	LAeq (dB)	LAmx,f (dB)	LA90 (dB)	Wind Speed (m/s)	Rain mm	Discarded due to wind>5 and rain>0 (Y/N)
24/07/2024 16:15	DAY	46.26	58.2	43	3	0.0	N
24/07/2024 16:30	DAY	46.1	62.2	42.5	3	0.5	Y
24/07/2024 16:45	DAY	45.53	58.3	42.6	3	0.0	N
24/07/2024 17:00	DAY	43.85	54.2	41.4	3	0.3	Y
24/07/2024 17:15	DAY	43.58	55.2	41.3	3	0.0	N
24/07/2024 17:30	DAY	43.64	51.0	41.4	3	0.3	Y
24/07/2024 17:45	DAY	43.79	57.0	41.4	3	0.0	N
24/07/2024 18:00	DAY	43.43	59.6	41.3	3	0.3	Y
24/07/2024 18:15	DAY	44.34	56.4	42.3	3	0.3	Y
24/07/2024 18:30	DAY	44.42	55.1	42.1	3	0.0	N
24/07/2024 18:45	DAY	44.38	62.2	41.6	4	0.0	N
24/07/2024 19:00	DAY	43.47	53.4	40.5	3	0.0	N
24/07/2024 19:15	DAY	43.59	60.2	40.2	3	0.0	N
24/07/2024 19:30	DAY	41.99	50.1	39.5	3	0.0	N
24/07/2024 19:45	DAY	41.17	53.0	38	3	0.0	N
24/07/2024 20:00	DAY	40.81	56.4	37.7	3	0.0	N
24/07/2024 20:15	DAY	39.77	57.1	36.6	3	0.0	N
24/07/2024 20:30	DAY	40.64	54.1	37.2	3	0.0	N
24/07/2024 20:45	DAY	41.85	49.1	39.8	3	0.0	N
24/07/2024 21:00	DAY	38.99	49.1	36	3	0.0	N
24/07/2024 21:15	DAY	38.73	49.5	36.4	3	0.0	N
24/07/2024 21:30	DAY	37.5	52.4	35.2	3	0.0	N
24/07/2024 21:45	DAY	39.53	50.7	35.7	2	0.0	N
24/07/2024 22:00	DAY	37.59	51.0	34.8	2	0.0	N
24/07/2024 22:15	DAY	36.71	47.3	34.5	2	0.0	N
24/07/2024 22:30	DAY	37.86	52.1	35.4	2	0.0	N
24/07/2024 22:45	DAY	37.27	50.3	35.1	2	0.0	N
24/07/2024 23:00	NIGHT	37.39	46.1	35	3	0.3	Y
24/07/2024 23:15	NIGHT	36.21	47.5	34	2	0.0	N
24/07/2024 23:30	NIGHT	36.64	53.7	34.1	2	0.0	N
24/07/2024 23:45	NIGHT	36.51	48.1	33.5	2	0.0	N
25/07/2024 00:00	NIGHT	35.92	54.2	32.5	2	0.0	N
25/07/2024 00:15	NIGHT	38.07	52.3	34.3	2	0.0	N
25/07/2024 00:30	NIGHT	34.99	50.3	31.9	3	0.0	N
25/07/2024 00:45	NIGHT	34.82	52.5	30.3	2	0.0	N
25/07/2024 01:00	NIGHT	34.95	47.3	30.4	2	0.0	N
25/07/2024 01:15	NIGHT	33.78	48.4	31	2	0.0	N
25/07/2024 01:30	NIGHT	34.06	51.4	30.2	2	0.0	N
25/07/2024 01:45	NIGHT	34.44	49.4	31	2	0.0	N
25/07/2024 02:00	NIGHT	33.98	50.3	31.3	2	0.0	N
25/07/2024 02:15	NIGHT	34.9	56.4	31.8	2	0.0	N
25/07/2024 02:30	NIGHT	36.58	52.6	33.2	2	0.3	Y
25/07/2024 02:45	NIGHT	36.12	49.4	31.7	2	0.0	N
25/07/2024 03:00	NIGHT	35.16	51.9	30.9	2	0.0	N
25/07/2024 03:15	NIGHT	35.34	49.7	31.1	2	0.0	N
25/07/2024 03:30	NIGHT	33.29	52.0	29	2	0.0	N
25/07/2024 03:45	NIGHT	33.2	45.2	29.5	2	0.0	N
25/07/2024 04:00	NIGHT	31.85	49.9	28.7	2	0.0	N
25/07/2024 04:15	NIGHT	33.3	53.9	29.2	2	0.0	N
25/07/2024 04:30	NIGHT	32.34	50.6	28.8	1	0.0	N
25/07/2024 04:45	NIGHT	32.84	54.0	28	1	0.0	N
25/07/2024 05:00	NIGHT	32.72	46.6	29	1	0.0	N
25/07/2024 05:15	NIGHT	36.72	53.1	31.8	1	0.0	N
25/07/2024 05:30	NIGHT	40.62	61.4	31.3	1	0.0	N
25/07/2024 05:45	NIGHT	35.23	51.1	31.7	1	0.0	N
25/07/2024 06:00	NIGHT	34.97	53.5	31.4	1	0.0	N

Monitoing Location 2

Time	Period	LAeq (dB)	LAmx,f (dB)	LA90 (dB)	Wind Speed (m/s)	Rain mm	Discarded due to wind>5 and rain>0 (Y/N)
25/07/2024 06:15	NIGHT	35.26	50.9	32.5	1	0.0	N
25/07/2024 06:30	NIGHT	37.95	55.5	35.4	1	0.0	N
25/07/2024 06:45	NIGHT	45.26	63.3	37.2	1	0.0	N
25/07/2024 07:00	DAY	41.71	57.3	35.5	1	0.0	N
25/07/2024 07:15	DAY	42.4	61.7	36.5	1	0.0	Y
25/07/2024 07:30	DAY	42.57	54.9	38.3	1	0.0	Y
25/07/2024 07:45	DAY	47.23	55.3	43.5	1	0.1	Y
25/07/2024 08:00	DAY	48.56	59.4	45.1	1	0.1	Y
25/07/2024 08:15	DAY	47.65	60.9	45.2	1	0.1	Y
25/07/2024 08:30	DAY	47.07	55.3	44.8	1	0.1	Y
25/07/2024 08:45	DAY	44.91	64.4	42.8	1	0.1	Y
25/07/2024 09:00	DAY	44.23	54.4	41.8	1	0.1	Y
25/07/2024 09:15	DAY	44.62	56.9	41.6	1	0.0	Y
25/07/2024 09:30	DAY	41.98	59.2	38.4	1	0.0	N
25/07/2024 09:45	DAY	42.14	61.1	39.3	2	0.0	N
25/07/2024 10:00	DAY	39.76	48.8	37.3	1	0.0	N
25/07/2024 10:15	DAY	42.16	63.8	39	2	0.0	N
25/07/2024 10:30	DAY	43.33	58.8	40.6	2	0.0	N
25/07/2024 10:45	DAY	43.27	58.9	39.9	1	0.0	Y
25/07/2024 11:00	DAY	44.28	60.0	41.1	1	0.1	Y
25/07/2024 11:15	DAY	44.77	60.4	40.8	1	0.0	Y
25/07/2024 11:30	DAY	43	63.0	40.3	0	0.0	Y
25/07/2024 11:45	DAY	45.43	57.5	43	1	0.0	N
25/07/2024 12:00	DAY	45.1	61.1	42.1	1	0.0	N
25/07/2024 12:15	DAY	47.31	65.3	43.1	1	0.0	N
25/07/2024 12:30	DAY	46.81	62.3	43.5	1	0.0	N
25/07/2024 12:45	DAY	44.89	60.4	42	1	0.0	N
25/07/2024 13:00	DAY	44.55	56.0	42	1	0.0	N
25/07/2024 13:15	DAY	47.1	56.2	43.5	1	0.0	N
25/07/2024 13:30	DAY	49.62	61.8	44.4	1	0.0	N
25/07/2024 13:45	DAY	49.14	60.2	44.8	1	0.0	N
25/07/2024 14:00	DAY	49.6	61.6	46	1	0.0	N
25/07/2024 14:15	DAY	48.22	61.7	43.5	1	0.0	N
25/07/2024 14:30	DAY	45.64	59.1	41.4	1	0.0	N
25/07/2024 14:45	DAY	46.39	63.0	43.6	1	0.0	N
25/07/2024 15:00	DAY	47.1	59.4	43	1	0.0	N
25/07/2024 15:15	DAY	44.38	62.3	41.1	1	0.0	N
25/07/2024 15:30	DAY	46.74	60.4	43.9	1	0.0	N
25/07/2024 15:45	DAY	47.14	58.9	43.6	1	0.0	N
25/07/2024 16:00	DAY	42	61.3	43.3	1	0.0	N
25/07/2024 16:15	DAY	41.9	48.1	43.6	1	0.0	N
25/07/2024 16:30	DAY	41.9	48.0	43.6	1	0.0	N
25/07/2024 16:45	DAY	42.7	47.6	44.6	1	0.0	N
25/07/2024 17:00	DAY	43.6	52.5	45.1	1	0.0	N
25/07/2024 17:15	DAY	46.5	65.2	47.3	1	0.0	N
25/07/2024 17:30	DAY	44.8	54.1	46.4	1	0.0	N
25/07/2024 17:45	DAY	44.7	49.2	46.4	1	0.0	N
25/07/2024 18:00	DAY	45.5	57.8	47.1	1	0.0	N
25/07/2024 18:15	DAY	44.2	51.1	46.2	1	0.0	N
25/07/2024 18:30	DAY	43.5	48.7	45.2	1	0.0	N
25/07/2024 18:45	DAY	42.8	51.9	44.4	1	0.0	N
25/07/2024 19:00	DAY	43.1	50.2	44.7	1	0.0	N
25/07/2024 19:15	DAY	42.1	48.6	43.8	1	0.0	N
25/07/2024 19:30	DAY	41.3	48.0	42.6	1	0.0	N
25/07/2024 19:45	DAY	41.1	48.2	42.9	1	0.0	N
25/07/2024 20:00	DAY	42.1	55.3	44	1	0.0	N

Monitoing Location 2

Time	Period	LAeq (dB)	LAmx,f (dB)	LA90 (dB)	Wind Speed (m/s)	Rain mm	Discarded due to wind>5 and rain>0 (Y/N)
25/07/2024 20:15	DAY	41.6	47.9	43.5	1	0.0	N
25/07/2024 20:30	DAY	41.5	58.9	43.3	1	0.0	N
25/07/2024 20:45	DAY	41.8	48.6	44.1	1	0.0	N
25/07/2024 21:00	DAY	40.2	48.1	41.9	1	0.0	N
25/07/2024 21:15	DAY	40.9	51.1	43	1	0.0	N
25/07/2024 21:30	DAY	55.3	76.6	44.4	2	0.0	N
25/07/2024 21:45	DAY	40.2	49.6	42.6	1	0.0	N
25/07/2024 22:00	DAY	40.9	52.4	42.8	1	0.0	N
25/07/2024 22:15	DAY	40.3	51.1	42	1	0.0	N
25/07/2024 22:30	DAY	38.4	51.0	40.2	1	0.0	N
25/07/2024 22:45	DAY	37.2	47.8	39.1	1	0.0	N
25/07/2024 23:00	NIGHT	39.4	54.7	41.9	1	0.0	N
25/07/2024 23:15	NIGHT	38.5	45.5	40.8	1	0.0	N
25/07/2024 23:30	NIGHT	36.6	43.0	38.9	1	0.0	N
25/07/2024 23:45	NIGHT	38.2	48.2	40.8	1	0.0	N
26/07/2024 00:00	NIGHT	38.7	51.2	41.2	1	0.0	N
26/07/2024 00:15	NIGHT	35.6	42.7	38.4	1	0.0	N
26/07/2024 00:30	NIGHT	35.3	47.2	37.7	1	0.0	N
26/07/2024 00:45	NIGHT	35	47.7	37.6	1	0.0	N
26/07/2024 01:00	NIGHT	34	45.8	36.7	1	0.0	N
26/07/2024 01:15	NIGHT	32	41.8	34.8	1	0.0	N
26/07/2024 01:30	NIGHT	34.4	49.0	37.3	1	0.0	N
26/07/2024 01:45	NIGHT	32.2	45.8	35.4	1	0.0	N
26/07/2024 02:00	NIGHT	31.7	42.4	34.7	1	0.0	N
26/07/2024 02:15	NIGHT	31.8	48.3	34.5	1	0.0	N
26/07/2024 02:30	NIGHT	32.2	44.5	35.5	1	0.0	N
26/07/2024 02:45	NIGHT	31.4	47.4	35	2	0.0	N
26/07/2024 03:00	NIGHT	30.5	48.5	32.8	2	0.0	N
26/07/2024 03:15	NIGHT	28.8	40.1	31.4	1	0.0	N
26/07/2024 03:30	NIGHT	30.3	43.1	32.9	1	0.0	N
26/07/2024 03:45	NIGHT	30.9	47.0	33	1	0.0	N
26/07/2024 04:00	NIGHT	32.2	47.5	34.6	1	0.0	N
26/07/2024 04:15	NIGHT	33.9	49.0	36.9	1	0.0	N
26/07/2024 04:30	NIGHT	32.4	46.4	35.1	1	0.0	N
26/07/2024 04:45	NIGHT	32.1	44.9	35.3	1	0.0	N
26/07/2024 05:00	NIGHT	33.7	45.9	37	1	0.0	N
26/07/2024 05:15	NIGHT	34.2	45.8	37.3	1	0.0	N
26/07/2024 05:30	NIGHT	45.9	59.1	51	1	0.0	N
26/07/2024 05:45	NIGHT	51.1	63.4	54.6	1	0.0	N
26/07/2024 06:00	NIGHT	45.8	61.8	48	1	0.0	N
26/07/2024 06:15	NIGHT	50.6	60.9	54.7	1	0.0	N
26/07/2024 06:30	NIGHT	46.2	57.8	50	1	0.0	N
26/07/2024 06:45	NIGHT	40.3	55.9	42.2	1	0.0	N
26/07/2024 07:00	DAY	40.8	55.7	42.4	1	0.0	N
26/07/2024 07:15	DAY	40.8	51.0	42.4	1	0.0	N
26/07/2024 07:30	DAY	39.8	48.9	41.9	1	0.0	N
26/07/2024 07:45	DAY	40.5	50.7	41.6	1	0.0	N
26/07/2024 08:00	DAY	40	51.9	41.2	1	0.0	N
26/07/2024 08:15	DAY	44.9	73.3	39.3	1	0.0	N
26/07/2024 08:30	DAY	39	50.6	40.4	1	0.0	N
26/07/2024 08:45	DAY	41.7	50.0	44.9	1	0.0	N
26/07/2024 09:00	DAY	47.6	56.8	51.3	1	0.0	N
26/07/2024 09:15	DAY	41.2	63.8	41.5	0	0.0	N
26/07/2024 09:30	DAY	41.7	52.4	43.1	2	0.0	N
26/07/2024 09:45	DAY	45.4	64.5	48.1	2	0.0	N

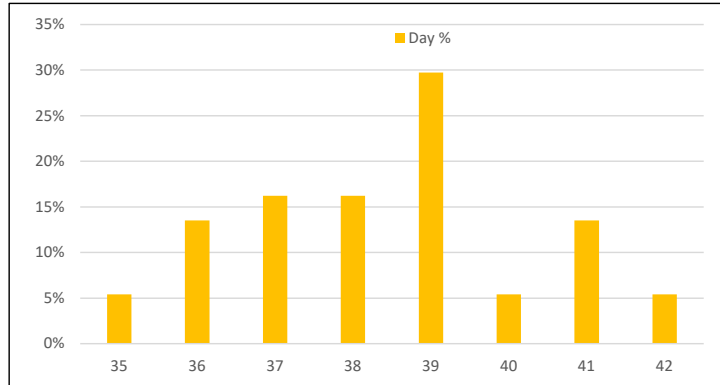
Appendix C – Selection of Background Sound Level

ML1 - Selection of Background Sound Level

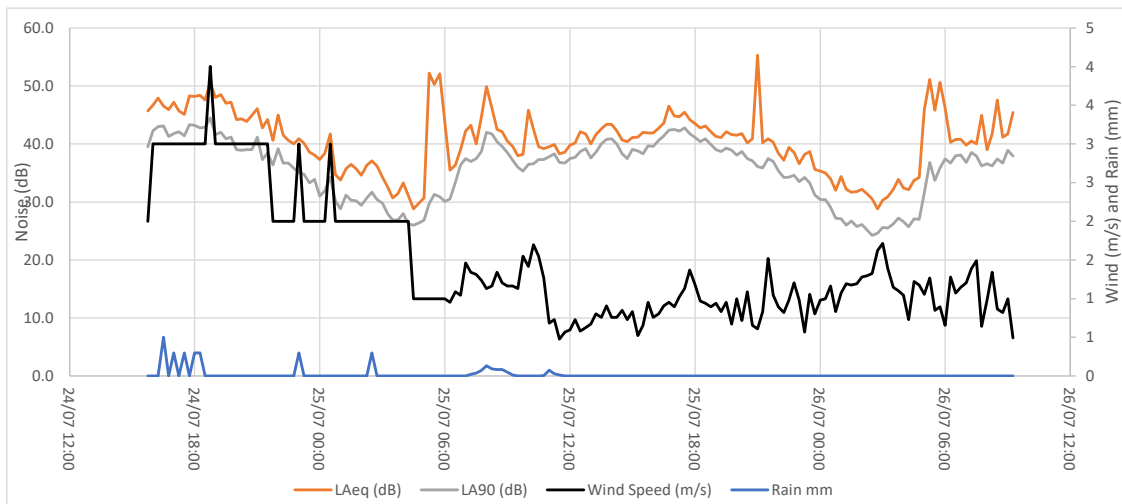
Noise Survey results - Summary of representative LA90 levels

Daytime LA90 (dB)	39	These levels have been selected based on the review of statistics of occurrence and the MOD value (most occurring) was selected. The statistics are presented below.
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Noise Survey results - Statistical Analysis of LA90 levels



Noise Survey results -Time Series

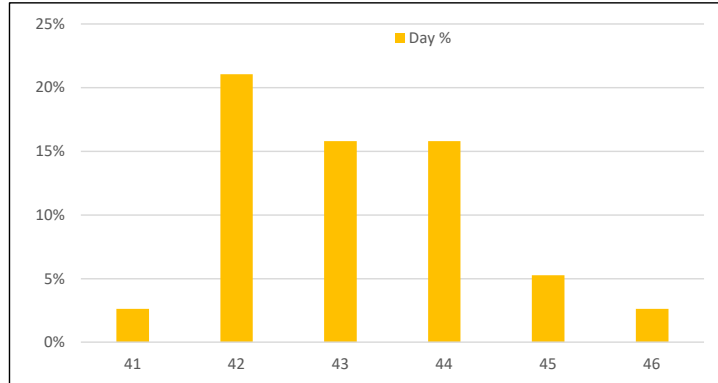


ML2 - Selection of Background Sound Level

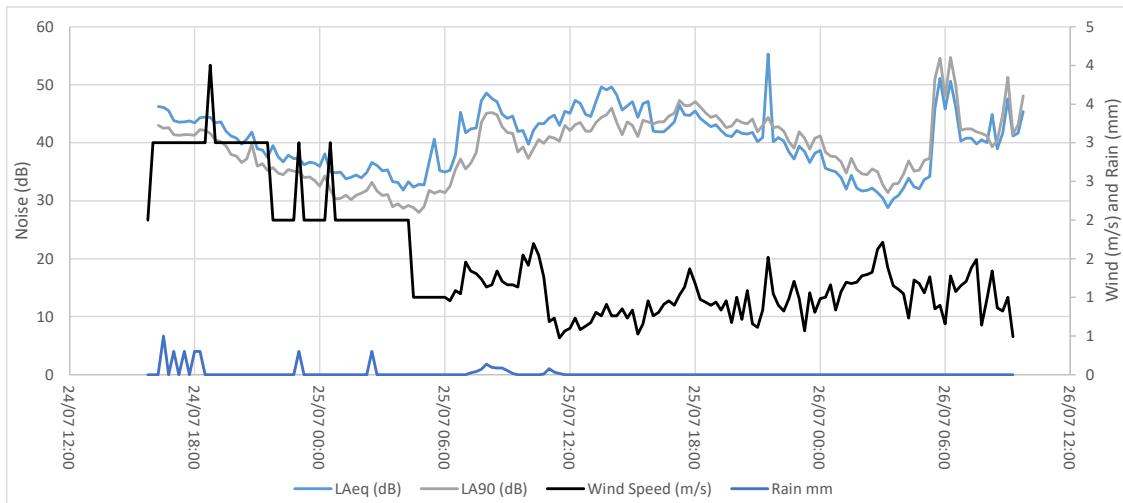
Noise Survey results - Summary of representative LA90 levels

Daytime LA90 (dB)	42	These levels have been selected based on the review of statistics of occurrence and the MOD value (most occurring) was selected. The statistics are presented below.
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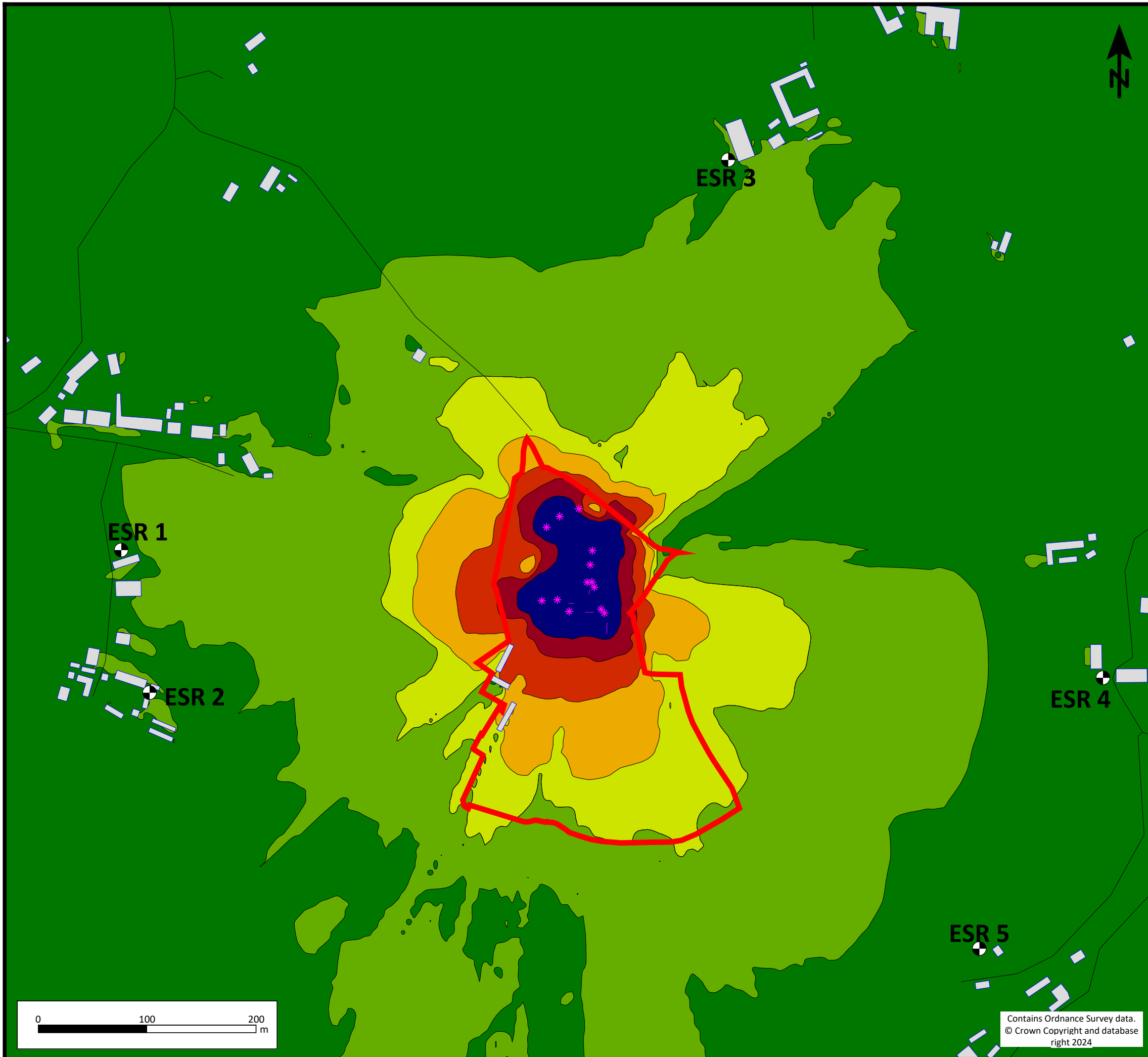
Noise Survey results - Statistical Analysis of LA90 levels



Noise Survey results -Time Series



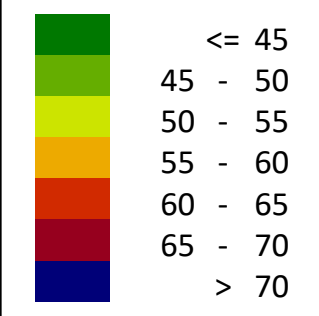
DRAWINGS



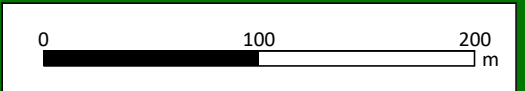
Key

- Site Boundary
- Existing Buildings
- Line source
- * Point source
- ⊙ Receiver

Daytime L_{Aeq} 1hour dB



CLIENT:	Recycle It Global	
PROJECT:	Scorrier Planning Permit	
TITLE:	Operational Noise Contours	
DRG NO:	NT16913/001	REV: A
DRG SIZE:	A3	SCALE: 1:3500
		DATE: 08/08/2024
DRAWN BY:	CG	CHECKED BY: JR
		APPROVED BY: MW



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