MZA ACOUSTICS

INNOVATIVE ENVIRONMENTAL SOLUTIONS UK LTD, OLDBURY, WEST MIDLANDS

Noise Impact Assessment of Additional Process Lines for Environmental Permitting

Document History

Project document Reference:

Rev	Date	Comment	Author	Checked
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Contents

1. INTRODUCTION

MZA Acoustics (MZA) has been appointed by R Williams Consultants Ltd (RWC) to undertake a noise impact assessment in relation to the proposed variation to the existing environmental permit EPR/GP3739VR for Innovative Environmental Solutions UK Limited (IES), Oldbury, West Midlands.

The facility is currently permitted for three scheduled activities that are 1. S5.3 Part A(1) (a) (ii); 2. S5.4 Part A(1) (b) (iv) and 3. S5.6 Part A (1) (a). 1 & 2 relate to a single mechanical treatment line (the 'existing mechanical process') processing 30,000 tonnes per year of assorted wastes for the recovery of metal from this waste for recycling whilst 3 relates to the wastes stored prior to and following treatment via activity 1 (also relates to other wastes received for storage only and subsequent collection and disposal which will not change with the variation).

The variation seeks to add two new mechanical treatment lines (the 'new mechanical processes') processing cables for the recovery of metal from this waste for recycling which will also be scheduled activities as per 1 & 2 above. This will also involve the storage of hazardous wastes prior to and following treatment via activity 1 which will be a scheduled activity as per 3 above. The variation will also involve the addition of two new LEV (local extraction ventilation systems) to the existing mechanical process. As such, all three activities (1, 2 & 3) will need to be varied.

It is noted that the existing permit also varied the original permit – the original permit enabling the facility to dispose of up to a total amount of 180,000 tonnes per year of waste feedstock (Automotive Shredder Residue - ASR) by incineration (section 5.1 Part A(1)(b) activity) (via two incineration lines) and recover energy to generate electricity for use on the site itself and export to the local electricity grid.

Only one of the two incineration lines was ever built and following this, the permit variation application was submitted to halve the two incineration lines to just one AND add the (now permitted) existing mechanical process - and the noise assessment was submitted as part of this variation on that basis. However, as the application progressed, a decision was made to remove the single remaining incineration line (this has now been removed) and so the section 5.1 Part A(1)(b) incineration activity was removed from what is now the existing the permit. Even so, the noise assessment that was submitted with the variation for the existing permit was not changed to reflect the cessation of the remaining incineration activity and remains the current noise assessment.

1.1 Proposed Process Changes

As above, the variation seeks to add two new mechanical treatment lines (the 'new mechanical processes') processing cables for the recovery of metal from this waste for recycling. The variation will also involve the addition of two new LEV (local extraction ventilation systems) to the existing mechanical process.

The core new mechanical processes' equipment will be installed in the area of the IES processing hall where the original incineration line one was installed (the existing mechanical process is already installed in the area where the second incineration line was to be installed). Besides the pre-shredder, all mechanical processing will take place within this building although the two granulation hopper units are loaded outside.

5no. additional high level exhaust stacks will be added as part of this variation (2 for the 2 x new LEVs for the existing mechanical process and 3 for the process air from the new mechanical process). Please note that the exhaust stack associated with the incineration activity has been removed and is no longer included in the existing permit. These 5no. additional exhaust stacks are considered potentially significant in terms of noise contribution beyond the site boundary and the potential impact should be assessed.

A new external cable storage area will supply the feed to the two new mechanical treatment lines and no additional HGV deliveries (to those used in the previous assessment) are envisaged to feed the process.

Operating hours for the new mechanical processes are expected to be the same that IES currently operates i.e. 24 x 7 per week. Throughput rate will be around 6 tonnes per hour for each of the 2 x new mechanical processes (around 12 tonnes per hour total) with an annual throughput of up to 42,046 tonnes each (84,091 tonnes total).

It is noted that the existing mechanical process is permitted for a throughput of 30,000 tonnes per annum and that the original incineration activity (which has now been removed) was permitted for 90,000 tonnes per annum per line i.e. 180,000 tonnes per annum total.

The proposed development is illustrated by the indicative layout in **Figure 3** and **Appendix 1** upon which this assessment is based.

This report presents our assessments of noise associated with the development at the nearest noise sensitive receptors close to the site boundary.

This report occasionally employs technical terminology. In order to assist the reader, a glossary of terms is presented at the end of this report.

The following noise impact assessment is intended to satisfy the Environment Agency in respect of the permit variation application as described above as well as fulfil the requirements of the local planning authority (LPA).

2. SITE DESCRIPTION

The existing IES site (the Site) is located in the Oldbury area of the West Midlands conurbation, approximately 2km west of West Bromwich and 10 miles northwest of Birmingham.

The Site is located within the well-established Albion Industrial Estate area of Oldbury, which has developed around the Birmingham Canal (Main Line), Wednesbury Old Canal and the Birmingham to Stafford railway which lies to the immediate north of the Site boundary.

Figure 1 below shows the general geographic site location, and **Figure 2** shows the approximate Site boundary in relation to surrounding land use and the nearest residential noise receptors assessed in this report.

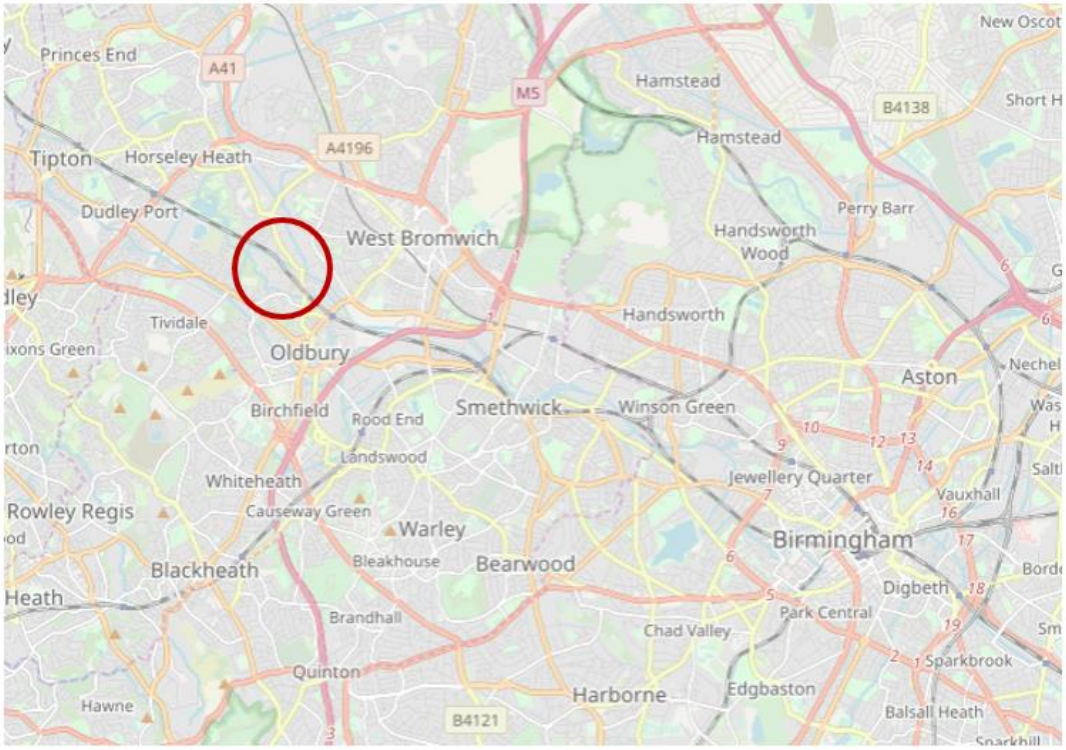


Figure 1 - General Site Location

2.1 Nearest Sensitive Receptors

The closest residential noise sensitive receptors are located on the recently completed housing development at Campbell Bannerman Way some 180m south west of the Site boundary and on Whitgreave Street 130m approximately, from the Site's northern boundary.

There are further dense residential areas extending to the south and west of the industrial estate and these are also taken into consideration in the following assessment, in line with the original noise impact for the development of the EfW Site, undertaken by Sharps Redmore Partnership (SRP) in September 2010)[1]. Although these

[1] Sharps Redmore Partnership noise impact assessment report of 'Proposed Energy Generation Facility, Union Road, Oldbury' ref 1010730/R4 dated 20/09/2010

residential areas are further than those properties cited above, and as such can be concluded that the criteria will be achieved by default.

The more IES Site location is indicated in red below on a map excerpt from openstreetmap.com with residential and industrial zones clearly indicated as adjoining land uses.

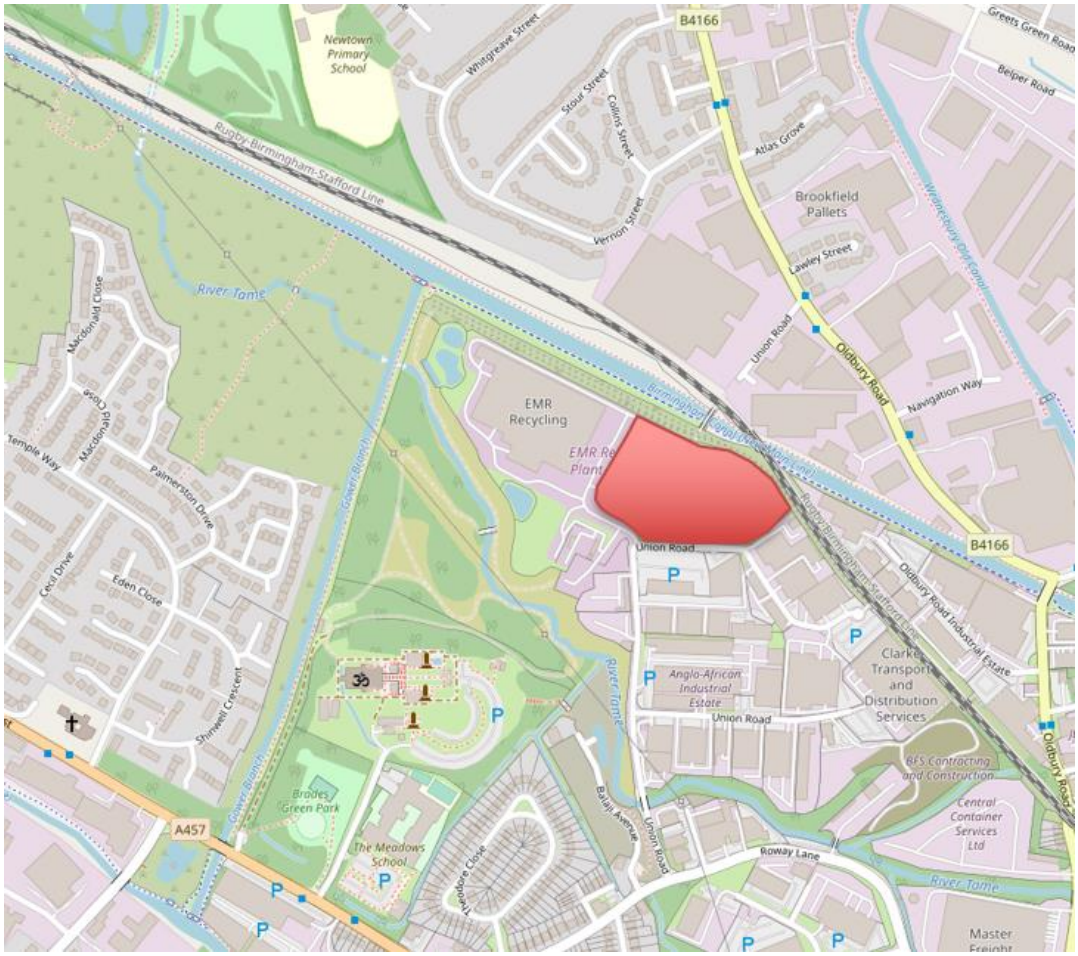


Figure 2 - Site Location

2.2 Key noise sources

The key environmental noise sources affecting the local sound climate are industrial noise, road traffic noise from the local and wider road network, and from rail traffic noise.

2.3 Previously Assessed Operational Site Layout

Figure 3 presents an excerpt of the previously assessed operational site layout, with key proposed noise sources indicated. It should be noted that much of the plant infrastructure shown in **Figure 3** is now removed from the Site and does not form part of the current Site activity.

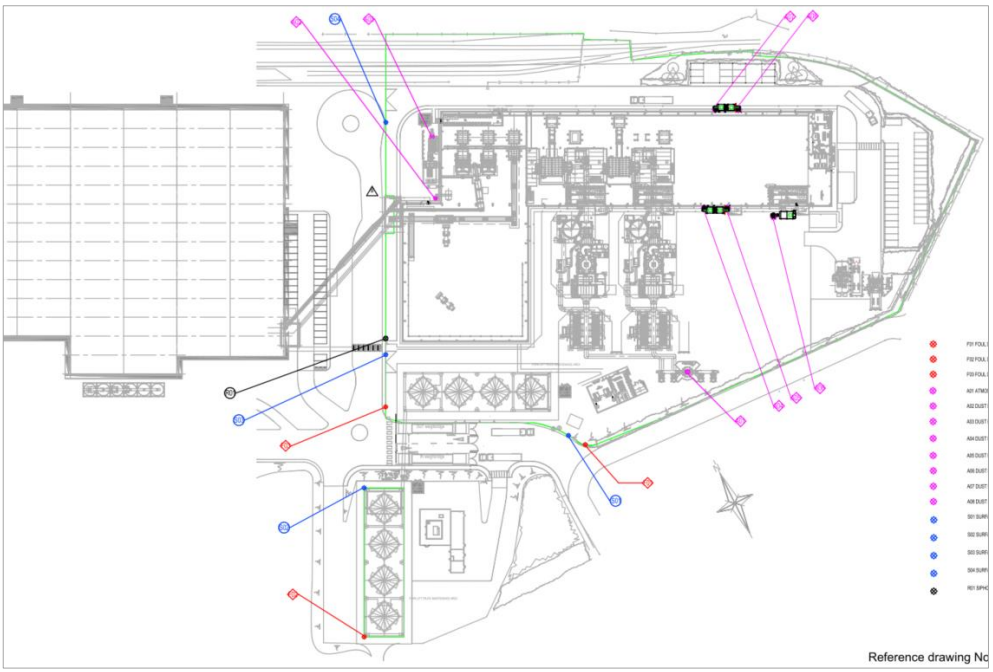


Figure 3 – Previously Assessed Operational Site Layout

2.4 Proposed Site Activity

The proposed additional activity will be primarily contained within the existing processing hall in the space created by removal of the gasification process infrastructure. The new indicative layout is presented in Figure 4. The process is mechanical separation of metals from electrical cable. Further process information is included in **Appendix 1**.

3. GUIDANCE AND CRITERIA

3.1 National Planning Policy Framework (NPPF) July 2021

The NPPF determines the government's planning policy for England. The document was first published in March 2012 with the most recent update in July 2021 which sets out how these policies are to be applied.

Section 15 'Conserving and enhancing the natural environment' states that Planning policies and decision should contribute to and enhance the natural and local environment by:

"...e) preventing new and existing development from contributing to, being put at risk from or being adversely affected by unacceptable levels of soil, air, water or **noise** pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans..."

Paragraph 185 continues:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so, they should:

a) Mitigate and reduce to a minimum potential adverse impacts resulting from **noise** from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) Identify and protect tranquil areas which have remained relatively undisturbed by **noise** and are prized for their recreational and amenity value for this reason; and

c) Limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."

The guidance contained within the NPPF further determines that consideration should be given to the Noise Policy Statement for England (DEFRA, March 2010).

3.2 Noise Policy Statement for England (NPSE, March 2010)

The NPSE attends to three types of noise;

- "Environmental noise" which includes noise from transportation sources;
- "Neighbour noise" which includes noise from inside and outside people's homes; and
- "Neighbourhood noise", which includes noise arising from within the community such as industrial and entertainment premises, trade and business premises, construction sites and noise in the street.

In line with the aims determined in the NPPF, the NPSE determines three aims;

- Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development;
- Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development; and,
- Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.

The guidance detailed within the NPSE relates a number of key phrases with regards to adverse effects which can be applied to noise impacts as used by the World Health Organisation.

- **NOEL – No Observed Effect Level** - The level below which no health effect or detrimental impact on the quality of life is observed.
- **LOAEL – Lowest Observed Adverse Effect Level** - The level at which adverse effects on health and quality of life can be detected
- **SOAEL – Significant Observed Adverse Effect Level** - The level above which significant adverse effects on health and quality of life occur.

The guidance indicates that it is not possible to have a single objective noise-based measure that defines SOAEL, and as such the SOAEL is likely to be different for different noise sources and receptors. The document indicates that further research is required to establish what may constitute a significant adverse impact on health and quality of life from noise.

While the NPSE determines the NOEL, LOAEL and SOAEL descriptions, the document indicates that, unlike other environmental disciplines, there are currently no European or national noise limits which have to be met although the NPSE states that "there can be specific local limits for specific developments" allowing for negotiation.

3.3 Planning Practice Guidance - Noise

The Planning Practice Guidance for noise (published in March 2014 and updated July 2019) broadly considers the same issues as demonstrated within both the NPPF and the NPSE with regards to noise within the planning realm.

The information detailed within the PPG indicates that noise should be considered when:

- New developments may create additional noise; and/ or,
- New developments would be sensitive to the prevailing acoustic environment.

The guidance indicates that Local Planning Authorities should take account of the acoustic environment and in doing so consider:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and,
- Whether or not a good standard of amenity can be achieved.

The impact of noise is rated within the policy document in terms of the relative 'Observed Effect Level', defined in line with the guidance within the NPSE. Based upon this, the Planning Practice Guidance provides the following matrix of likely average response:

Perception	Example of Outcomes	Increasing Effect Level	Action
Lowest Observed Adverse Effect Level			
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and Intrusive	Noise can be heard and causes small changes in behaviour and/ or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/ or attitude, e.g. avoiding certain activities during periods of intrusion: where there is no alternative	Significant Observed Adverse Effect	Avoid

Perception	Example of Outcomes	Increasing Effect Level	Action
	ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in character of the area.		
Noticeable and very disruptive	Extensive and regular changes in behaviour and/ or an ability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/ awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

Table 1 - PPG Observed Effect Levels

3.4 Integrated Pollution Prevention and Control Horizontal Guidance Notes 'IPPC H3 (Parts 1 and 2)

Integrated Pollution Prevention and Control (IPPC) is a regulatory system that employs an integrated approach to control the environmental impacts of certain industrial activities. It involves determining the appropriate controls for industry to protect the environment through a single Permitting process. To gain a Permit, Operators will have to show that they have systematically developed proposals to apply the Best Available Techniques (BATs) and meet certain other requirements, taking account of relevant local factors. The Regulators intend to implement IPPC to:

- protect the environment as a whole
- promote the use of "clean technology" to minimise waste at source
- encourage innovation, by leaving significant responsibility for developing satisfactory solutions to
- environmental issues with industrial Operators
- provide a "one-stop shop" for administering applications for Permits to operate.

Noise and vibration are included within the definition of "emissions" as set out in the Pollution Prevention & Control (PPC) Regulations. Conditions will need to be included within the Permit for the control of noise, as appropriate to the specific situation. The IPPC guidance note H3 provides supplementary information relevant to all sectors, to assist applicants in preventing and minimising noise and vibration emissions as described in the IPPC Sector Guidance Notes.

In terms of Noise, the application of BAT is likely to be similar in approach to the requirements of the long-standing Statutory Nuisance Legislation which requires the use of 'best Practicable Means' in order to avoid or minimise noise nuisance to sensitive

receptors, typically residential receptors. It is also significant that the BAT approach aims to prevent cases of gradual 'creeping' ambient sound levels due to the expansion of industrial sites and processes.

Part 1 outlines the main considerations relating to the Regulation and Permitting of noise and Part 2 'Noise Assessment and Control' describes the principles of noise measurement and prediction deemed appropriate to the quantification of noise and vibration impact and outlines the control of noise by design, by operational and management techniques and abatement technologies. The assessment process is reliant on the existing framework of assessment methodologies to quantify impact and specifically references BS 4142, discussed further below.

3.5 BS 7445-2:1991 'Description and Measurement of Environmental Noise'

BS 7445-2:1991 *'Description and Measurement of Environmental Noise - Part 2: Guide to the acquisition of data pertinent to land use'* defines parameters, procedures and instrumentation required for noise measurement and analysis. Accordingly, together with associated guidance within the documents below, this Standard has been used to ensure the survey and data are fit for purpose.

3.6 BS 4142:2014 Methods for rating and assessing industrial and commercial sound

BS 4142 provides a methodology for rating and assessing sound associated with both industrial and commercial premises. The purpose of the Standard is clearly outlined in the opening section where it states that the method is appropriate for the consideration of:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- Sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train movements on or around an industrial and/or commercial site.

The Standard is based around the premise that the significance of the noise impact of an industrial/commercial facility can be derived from the numerical subtraction of the background noise level (not necessarily the lowest background level measured, but the typical background of the receptor) from the measured/calculated rating level of the specific sound under consideration. This comparison will enable the impact of the specific sound to be concluded based upon the premise that typically "the greater this difference, the greater the magnitude of the impact". This difference is then considered as follows:

- A difference of around +10 dB or more is likely to be an indication of a **significant adverse impact**, depending on the context.

- A difference of around +5 dB is likely to be an indication of an **adverse impact**, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a **low impact**, depending on the context."

BS 4142 further states that "where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact" again depending upon the specific context of the site. The Standard further qualifies the assessment protocol by outlining conditions to the comparative assessment and stating that "not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact", thus implying that all sites should be assessed on their own merits and specifics.

The Standard quantifies the typical reference periods to be used in the assessment of noise, namely:

- Typical Daytime 07:00 – 23:00 1-hr assessment period
- Typical Night-time 23:00 – 07:00 15-min assessment period

The Standard also outlines methods for defining appropriate "character corrections" within the rating levels to account for tonal qualities, impulsive qualities, other sound characteristics and/or intermittency. It is noted by the Standard that where multiple features are present the corrections should be added in a linear fashion to the specific level.

Table 2 - BS 4142 Subjective Method Rating Correction

Level of Perceptibility	Tonal Correction dB	Impulsivity Correction dB	Correction for 'other sound characteristics' dB	Intermittency Correction dB
No Perceptibility	+0	+0	Where neither tonal nor impulsive but clearly identifiable +3	If intermittency is readily identifiable +3
Just Perceptible	+2	+3		
Clearly perceptible	+4	+6		
Highly perceptible	+6	+9		

This standard and methodology will only be used to assess the impact of sound from any fixed and mobile plant activity associated with the proposed development on the nearby identified noise sensitive properties.

In relation to the effect level thresholds described in the PPG, it is considered that the following assessment outcomes would correspond to the effect levels shown in Table 3 - Effect Level Thresholds in Respect of BS 4142 Assessment Outcomes.

3.7 Applied Methodology

Considering the above, noise from existing industry, local and distant road traffic noise, rail noise, birdsong and general community noise are considered to be the dominant local noise sources at the receptor locations. The Site is operational on a 24/7 basis and as such the day and night time effects need to be considered.

A baseline noise survey undertaken by MZA in 2019[2] confirmed that ambient noise levels in the area have remained reasonably consistent, typically around 50dB at Whitgreave Street, and mid 40dB at Palmerstone Drive. However, the mean L_{A90} values were between 5dB and 7dB lower in 2010 than those at measured at MP1 by MZA in 2019; and around 2dB lower at Location MP2.

This would suggest an underlying, more consistent sound source is contributing to the current background sound levels, rather than an increase in intermittent sounds such as rail pass-bys and road noise, particularly during the night time period.

The original design target for the Site operations was set 5dB above the nominal background noise levels:

- **40dB** $L_{Aeq,\ 1\ hour\ free\text{-}field}$ daytime; and
- **38dB** $L_{Aeq,1\ hour\ free\text{-}field}$ at night

These values are deemed to remain appropriate to the proposed operational changes and associated permit variation, although it should be noted that the nearest receptor position is now approximately 125m closer to the site, with the recent construction of houses on Campbell Bannerman Way.

The previous assessment demonstrated that the variation activity would not exceed the design criteria, and as the proposed change includes a significant reduction in external noise sources, it is not considered necessary to repeat the baseline survey at this time.

However, on-site noise measurements of the now commissioned plant operating under the existing permit will be undertaken to compare the 'real-life' noise emissions of the current site operations against the predicted noise model outcomes of the 2019 noise impact assessment.

The existing noise model will be updated to take account of the measured internal sound emissions within the mechanical processing hall and the source emission inputs revised to reflect the current equipment on Site following removal of the combustion units. The updated base-case output will be presented and compared with the predictive assessment outcomes of 2019.

Following this, the current variation scenario will be modelled to include the two further processing lines proposed, based upon noise data provided by the client from other technology operating elsewhere. Operational source data from the dust extraction emission points which are not directly measurable due to access issues, is otherwise assumed to not exceed a nominal 85 dB as per the previous activity variation assessment.

[2] Survey conducted by MZA on 13th September 2019, as described in report ref 1700339-RP-NIA-001.0 submitted to the Environment Agency in support of variation of permit EPR/GP3739VR/V003

The site will remain operational on a 24/7 basis and as such the standard assessment periods for BS 4142:2014 will be applicable. Whilst the assessment methodology applied in the original assessment is superseded (BS 4142:1997), the target criteria applied to the assessment of impact at the nearest receptors will be maintained for consistency.

When considering the assessment criteria in terms of the effect level threshold, the following is considered an appropriate interpretation of effects to be applied in the following impact assessment.

Table 3 - Effect Level Thresholds in Respect of BS 4142 Assessment Outcomes

Threshold	**BS 4142 Assessment Level Difference over Background $L_{A90,T}$**	**Comparison of predicted sound level at receptor over operational criteria limits**
NOEL	0 dB or less	0 dB or less
LOAEL	Around +5 dB	up to 5dB more
SOAEL	+10 dB or more	+5 dB or more

4. SOUND SOURCE MEASUREMENT SURVEY

Source noise measurements were undertaken during a visit to the operating Site on Monday 6th December 202 by C. Toher MSc AMIOA of MZA Acoustics.

Nearfield measurements were obtained at various plant side locations within the processing hall and at a number of positions outside the buildings, however due to the wet weather conditions at the time, the external ambient sound measurements are deemed to be less reliable, and also include a number of off-site noise contributions from rail pass bays, and in particular 'scrap activities' from an adjacent industrial Site.

Table 4 - Noise Survey Equipment

Equipment	Model Type	Serial Number	Calibration Due Date
Sound Level Meter	01dB Metravib FUSION	11703	14/06/2022
Pre-amplifier	01dB Metravib PRE22	1707134	
Microphone	GRAS 40CD 1/22" Pre-polarised free-field	331704	
Calibrator	01dB Metravib CAL31	82793	17/05/2022

The proposed internal layout of the waste processing hall is presented with the permit boundary shown as the green line in **Figure 4** below, and dust extraction emission points (stacks) are marked in pink. The Client's drawing (Rev I) is shown in full in **Appendix 1**.

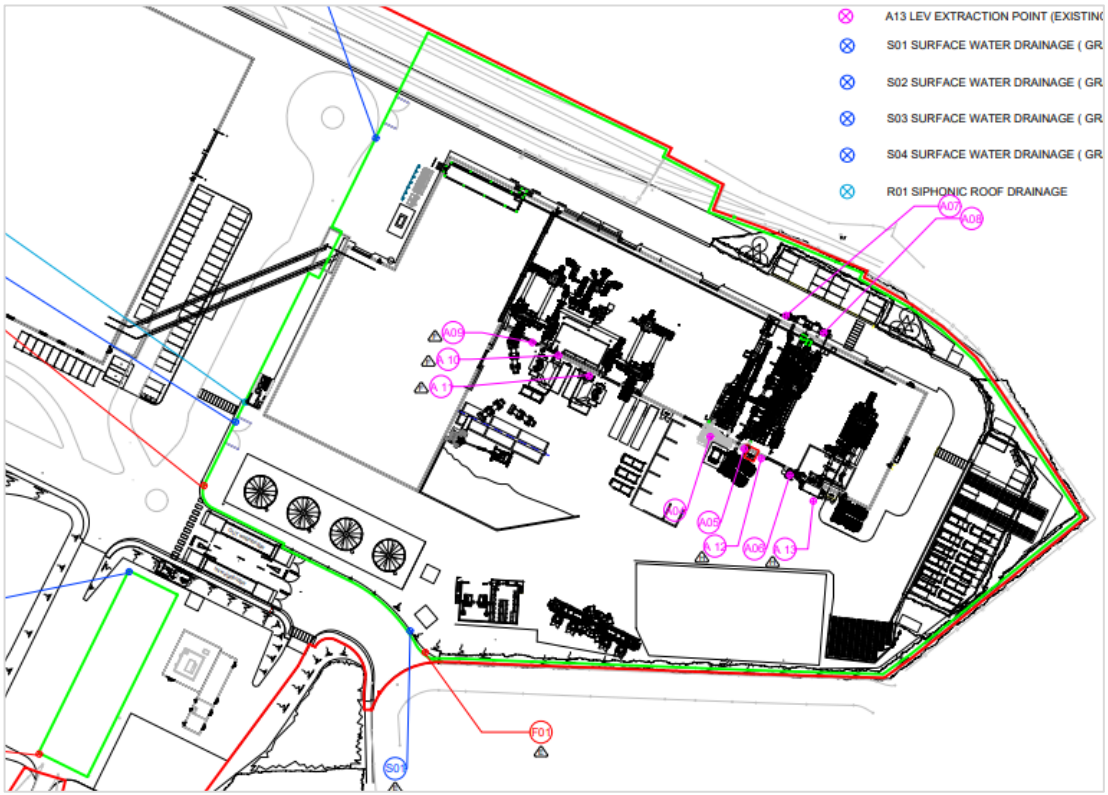


Figure 4 - Permit Area Plant Layout

Internal measurements were predominantly 1m from the sound source, with a number of further measurements to obtain more general operational sound within the processing hall. A summary of the data from the 18 internal source measurement positions is presented in **Appendix 2**.

Based on the noise measurement dataset, a calculation of a typical reverberant sound level representative of the total building emission is then produced and input into the noise model. The noise modelling process is described further in Section 5.

Noise data for the proposed plant was issued by the client, and is summarised in the **Table 5**.

Table 5 – Proposed Mechanical Process Plant

Process	Sound pressure level	Comments
Pre-shredder	88 dBA @ c.1m *(84dBA without material)*	1no. unit common to both mechanical lines - shreds raw waste stock to feed line 1 or 2. As a worst case, the 'with material' value input to the noise model calculation and is assumed to run continuously.
Granulation and Separation	100dBA @ c.1m *(87dBA without material)*	The granulator is the noisiest element of each mechanical processing line and therefore presents a worst case. The granulation and separation units run concurrently, and the model also assumes that both processing lines 1 and 2 are operating simultaneously and continuously as a worst case. Plastics are removed from the waste stream and further processed through the single dryer unit.

5. NOISE MODELLING

A 3D noise model of the Site was prepared in 2019 using CadnaA proprietary software in order to provide a more accurate propagation calculation future sound levels resulting from the process. The model has been updated to reflect the current as built and operated scenario which has changed slightly since the model was commissioned, and of a further future scenario based on the proposed addition of 2 more mechanical waste processing lines within the Process Hall.

The noise model was established using digital mapping available from OpenStreetMap.com which included building height data of the development site and immediate surrounding area, to enable an accurate assessment of the proposed operational scenarios at existing sensitive receptors. Openstreetmap.com does not provide ground height data, and therefore height point data was manually input guided by OS base mapping for the area.

Receptors are allocated by inserting a receptor point and the same receptors applied in 2019 have been continued as summarised below.

Table 6 – Receiver point data

Receiver Point Name	Height (m)	Relation to Topography	Coordinates (m)		
			X	Y	Z
Palmerston Drive - Position B	1.5	relative	397865	290811.5	139.46
Whitgreave Street - MP1	1.5	relative	398339.2	291127	139.11
Campbell Bannerman Way - MP2	1.5	relative	397984.3	290851.1	138.79
Portland Drive	1.5	relative	397823.8	291013.7	139.94
Theodore Close	1.5	relative	398243.5	290499.2	138.87
Gaitskell Terrace	1.5	relative	397923.2	290678.8	138.85
Whitgreave Street - Position A	1.5	relative	398320.6	291110.3	139.06

All receiver points are calculated at 1.5m above local ground. The modelled sound levels at the receptor points are presented in **Table 7** below.

All gasification (combustion) elements of the Site are now removed and the primary noise sources for the existing waste processing process include:

Existing External:

- HGV movements (currently 3 in and 3 out per daytime hour, none during 23:00 – 0700)
- 5no. elevated vent stacks terminating 3m above ridge of building

Existing Internal:

- Feedstock preparation:

    - Grab loader
    - Feed Conveyor
    - Shredder
    - Screen
    - Magnetic removal of large ferrous metal pieces
    - Eddy Current Separator
- Wire grinding unit:
    - Tip to feed hopper
    - Re-shred large items
    - Grinding
    - Air Separator of light waste
- Separation Unit:
    - Tip to feed hopper
    - Screening
    - Magnet to remove ferrous metals
    - Dry density separator
- Removal from Site by bulk bags or covered skips

Additional external:

- 5no. elevated vent stacks terminating 3m above ridge of building
- 1no. Pre-Shredder Unit

Additional internal:

- 2no. Granulation units
- 2no. Separation units
- 1no. Drying unit

Internally located plant has been grouped to assume an overall building emission as vertical area sources at building walls and as area sources at the roof, following the approach by the previous report.

A typical partition sound reduction index has been applied to the component 1/1 octave frequency bands which typically provide a circa 25dB reduction loss at wall and roof partitions. The resultant sound power level described in **Table 7** is applied to the area and vertical area sources representing the process building in the model.

Table 7 - Determination of building emission level

1/1 Octave band Frequency	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Combined operating dBA Lw	113.54	112.83	110.5	107.7	106.6	107.88	102.54	94.852
Reverberation Time, Secs	4.12	2.12	1.34	1.33	4.13	5.26	5.16	10.58
Sound Pressure Level dBA	85.0	81.4	77.1	74.3	78.1	80.4	75.0	70.4

The model was initially run as a base case, and subsequently a further receptor and grid calculation was completed for the proposed additional processing plant forming the variation application.

5.1 Results

The outcomes of the noise modelling process are provided numerically by receptor in **Table 8** below, and as grid noise maps in **Appendix 3**. The summary below provides a comparison of the proposed additional process lines with the exiting scenario, as reported in the 2019 impact assessment report, and also as a revised calculation of sound levels modelled using the measured sound levels undertaken in December 2021.

Table 8 – Comparison of Noise Modelling Scenario Outputs

Receiver	2019 assessment outputs (inc combustion)		Revised base case based on measured source data		Proposed Variation	
	Day	Night	Day	Night	Day	Night
Palmerston Drive - Position B	26	21	26	19	26	21
Whitgreave Street - MP1	33	30	32	26	32	27
Campbell Bannerman Way - MP2	38	35	37	29	37	30
Portland Drive	34	30	33	25	33	26
Theodore Close	36	33	34	29	34	30
Gaitskell Terrace	35	33	33	27	33	29
Whitgreave Street - Position A	40	37	38	32	39	33

6. NOISE IMPACT ASSESSMENT

6.1 Introduction

This section presents the details and results of assessments to consider the likely impact at the nearest noise sensitive receptors, with reference to the assessment methodology described in Section 3. Reference should also be made to the proposed site layout in **Appendix 1**. Furthermore, the likely impact at nearby ecological receptors is also considered, in line with the requirements of the original EA screening report.

6.2 Site Context

The facility is currently permitted for three scheduled activities that are 1. S5.3 Part A(1) (a) (ii); 2. S5.4 Part A(1) (b) (iv) and 3. S5.6 Part A (1) (a). 1 & 2 relate to a single mechanical treatment line (the 'existing mechanical process') processing 30,000 tonnes per annum of assorted wastes for the recovery of metal from this waste for recycling whilst 3 relates to the wastes stored prior to and following treatment via activity 1 (also relates to other wastes received for storage only and subsequent collection and disposal which will not change with the variation).

The following noise impact assessment considers the addition of two new mechanical treatment lines (the 'new mechanical processes') processing 84,091 tonnes per annum of cables for the recovery of metal from this waste for recycling and the addition of two new LEV (local extraction ventilation systems) to the existing mechanical process.

Operating hours for the facility are to remain the same, with 24/7 operations of processing plant. HGVs are noted to only arrive and depart the site during daytime period, and it is also assumed that as no waste is delivered overnight, the loading shovel would not be in operation outside the storage building and this has been considered by the 2no. operational scenarios modelled to predict the likely noise impact at the receptors, from the proposed variation.

6.3 BS4142 Assessment of Noise Impact

The outputs of predicted sound levels at the nearest sensitive receptors resulting from the proposed process activities have been summarised in **Table 9** below with a summary of the impact assessment against BS 4142 methodology for external noise levels.

No corrections have been applied to the predicted levels as the noise is considered to be entirely consistent with current Site operations and the additional external noise sources would be broad band and continuous in nature with no discrete acoustic characteristics, as described in BS 4142, and all other additional mechanical processing would be contained primarily within the existing building.

The principal purpose of noise impact assessment is to quantify the likely impact effect on the nearest noise sensitive receptors, which for this site are residential in nature. A further section below considers the potential for impact on non-human receptors.

Table 9 - Summary of noise impact assessment at nearest receptors

Nearest Residential Receptor	Predicted Specific Level at Nearest Receptor, dB L_{AS}	Rating Level, dB L_{Ar}	Typical Background Noise Level, dB $L_{A90,T}$	Assessment in relation to Background Level
Scenario 1 – Daytime				
Whitgreave Street	39	39	45	-6
Campbell Bannerman Way	37	37	38	-1
Palmerston Drive	26	26	38	-12
Scenario 2 – Night time				
Whitgreave Street	33	33	40	-7
Campbell Bannerman Way	30	30	38	-8
Palmerston Drive	21	21	38	-17

6.4 Operational noise impact

From the assessment summary presented in **Table 9**, emissions from the Site range between 1 dB and 12dB *below* the background sound level during the typical daytime operating period, and between 7dB and 17dB *below* the prevailing background sound level during the typical overnight period at the nearest receptor points.

Considering the conservative assessment presented above, and in line with the BS 4142 assessment outcomes, the overall impact of the Site including the proposed additional activity elements is defined as **low** at all nearest receptors during the daytime and night time periods.

BS 4142 states that "…the lower the rating level is relative to the measured background sound level, the less likely that the specific sound source will have an adverse impact…" As all predicted rating levels are below the prevailing background noise levels measured without the operation of the EMR/IES Site this would be considered a situation of low impact overall, and would meet the NOEL threshold identified in **Table 1**.

6.5 Comparison to the existing permitted noise levels.

The design target for the Site at the time of application was recommended to be set at 5dB above the nominal background noise levels of the representative nearest receptor positions:

- 40dB $L_{Aeq,1hour}$ free-field daytime; and
- 38dB $L_{Aeq,1hour}$ free-field at night

Although it is indicated that the background sound level has increased in general, these original design target values are deemed to remain appropriate to the requirements of the LPA and the proposed permit variation, although it should be noted that the nearest receptor position is now approximately 125m closer to the site, with the recent construction of houses on Campbell Bannerman Way. As such, the receptor at the original assessment location on Palmerston Drive is also included for reference. More distant receptors included in the noise model are not included as it is assumed om the basis that propagated sound from the process activity is reduced over distance, the impact would be less than at those receptors closest to the Site.

All predicted sound levels associated with the proposed additional process activities are **below** the permit criteria during the daytime, and **well below** the criteria at night and it is unlikely that sound from the existing or proposed activities would be discernible at the nearest sensitive receptors.

6.6 Ecological Receptors

The ecological receptors identified within the EA Screening report supplied, includes:

1. A single Special Area of Conservation (SAC) within 10km;
2. A single Local Nature Reserve (LNR) within 2km &
3. Multiple Local wildlife Sites (LWS) within 2km.

The determination of industrial sound impact for the existing permitted activities discussed in the IPPC sector guidance notes relates to achieving BAT and quantifying the acoustic rating and assessing of industrial and commercial sound emissions on human sensitive receptors, most typically in residential circumstances. The IPPC referenced methodology is BS4142:2014 which refers only to human receptors, as discussed in Section 3. The scope of the assessment is to demonstrate that the proposed new mechanical process does not change the environmental noise climate based upon the current permitted noise emissions from the Site at the nearest residential receptors, or where it does demonstrate appropriate noise mitigation to control the emission to an acceptable level.

The above noise impact assessment quantifies the potential change in noise climate at the nearest residential receptor locations and compares the calculated sound emission levels with the previously permitted levels, and against current national and local criteria to determine the suitability of the proposed variation in operations, with respect to environmental sound emissions. It is determined that the proposed activity would result in sound levels below the exiting background sound level at all the nearest residential receptors.

The closest residential receptors assessed are located at just 130m and 180m from the application Site and as a result are significantly closer to the Site than the majority of the ecological receptors identified within the EA's screening report.

The nearest ecological receptor area identified within this potential sphere of influence is the LWS around the River Tame and the canal-side area west of the Site boundary. The area includes a number of grassland and woodland habitats but no protected species designations are apparent, and the primary value of the area is therefore assumed to be primarily for the recreational and amenity enjoyment for nearby residents in this otherwise densely populated and industrial area.

Whilst there is no specific criteria to access noise impact on specific mammalian or avian receptors which may be present within the described habitats supported by the LWS, the qualification of noise impact on non-human species is usually limited to a comparison of absolute ambient noise levels, with and without a proposed development. Further qualitative consideration may also be given to the likelihood of discernible noise characteristics which may affect non-human receptors such as sudden loud impact noises, tonal emissions etc. As the proposed plant associated with the proposed new mechanical process is predominantly located within the processing building, and otherwise inherently designed to avoid such acoustic features in order to meet the stringent criteria at the human receptor locations already assessed, the subjective impact on non-human receptors is also deemed to be achieved by the above impact assessment.

This noise impact assessment determines that noise emissions from the proposed new mechanical process are in line with the original operating criteria at the nearest residential receptors, and absolute levels are predicted to be at or below the target values during the daytime and night time assessment periods. Furthermore, the noise emission at the nearest residential receptors assessed, indicate that the impact is **low**, with reference to the criteria of BS4142:2014, in accordance with the IPPC guidance.

Where there is demonstrated to be no significant change in noise contribution at the residential receptor locations assessed it is reasonable to conclude that the noise levels at intervening land and other specific ecological receptors identified would also not experience any substantive change in noise level contribution compared to the current permitted activities at the Site and are therefore within currently acceptable parameters.

The noise contour plans included in **Appendix 3** can be used to reference the predicted sound levels, attributable from the proposed new mechanical process. The approximate area of the LWS to the west of the Site are seen to be situated between the contours of 'less than 35dB(A)' and 'up to 50dB(A)'. Considering that the use of the LWS area is most likely a benefit to human receptors in terms of amenity and wildlife appreciation as much as the ecological receptors within, the most appropriate measure of impact is to assess against the criteria of the World Health Organisation publication "Guidelines for Community Noise" (1999). Here, the recommendation regarding "parkland and conservations areas" as specific environments is that *"existing quiet outdoor areas should be preserved and the ratio of intruding noise to natural background sound should be kept low."* The intention of which is assumed to be the preservation of tranquillity in these specified environments [for human enjoyment]. Whilst there is no absolute noise level criteria given for parkland and conservation areas, it could be considered appropriate in this instance to apply the noise criteria recommended for otherwise valuable external amenity space such as private gardens, which are recommended to achieve daytime noise levels at around 50 to 55 dB(A) $L_{Aeq,16hours}$ in order to achieve acceptable enjoyment by occupiers. Whilst baseline sound measurement have not been obtained within the LWS, the grid noise maps for the operational scenario confirm that the defined area of LWS is well within this criteria in terms of the contribution of noise predicted from the proposed new mechanical process. We would not therefore consider that the application would result in an adverse noise impact at the nearest ecological receptor identified, as a result of the approval and operation of proposed additional mechanical process lines.

7. DISCUSSION AND CONCLUSIONS

MZA Acoustics has been appointed by R Williams Consultants Ltd (RWC) to undertake a noise impact assessment in relation to the proposed variation to the existing environmental permit EPR/GP3739VR for Innovative Environmental Solutions UK Limited (IES), Oldbury, West Midlands. The facility is permitted under Part A1 of the Environmental Permitting Regulations regulated by the Environment Agency.

Baseline environmental sound monitoring was undertaken by MZA on 13th September 2019 and the results of that survey have been used to validate the current noise climate against the noise climate of the original noise impact assessment of the Site and operations undertaken in 2010 by Sharps Redmore Partnership.

Since the 2019 assessment, activity on the Site has changed somewhat and the previously permitted gasification activity is no longer undertaken and all associated plant infrastructure has been removed from the Site. In its place, it is proposed to install 2no. additional mechanical processing lines.

Furthermore, environmental noise levels at the nearest ecological receptor areas identified in the EA Screening Report are not expected to change as a result of the operation of the installation and operation of the proposed new mechanical process lines and may be screened out from further noise impact assessment.

The existing 3D noise model of the site was fully updated using CadnaA proprietary software in order to provide a more accurate calculation of future sound levels resulting from the Permitted operations and proposed activity.

Noise emissions from site operation has been found to be of Low Impact when compared to the prevailing background noise levels, based on a worst-case assessment following the methodology of BS 4142:2014. The proposed development assessed should not be precluded from approval in terms of noise impact on existing residential receptors.

Furthermore, the proposed activities has been assessed in line with original operating criteria at the nearest noise sensitive receptors, and is found to be below the target values during the daytime and overnight, despite the recent encroachment of the residential area to the Southwest of the Site.

It is anticipated that the modelled operating levels can be achieved using standard mitigation measures such as in-duct attenuation, acoustic screens and/or plant enclosures as previously applied in the design and construction of existing process buildings, and plant selection, and the application of best available techniques to satisfy permit regulation requirements.

7.1 Conclusion

Based on the findings of this assessment no further mitigation is required, however a noise management plan is included in **Appendix 4** which sets out the approach to monitor, control and improve noise and vibration emissions to air, as a result of the existing installation and the proposed additional activities discussed.

The limitations to this report are presented in **Appendix 5**.

Glossary of Acoustic Terminology

Acoustics and Noise

Acoustics is the branch of physics concerned with the properties of sound, including ultrasound, infrasound and vibration. A scientist or engineer who works in the field of acoustics is an acoustician or acoustic engineer.

Sound can be measured by a sound level meter or other measuring system. Noise is related to a human response, and is routinely described as unwanted sound, or sound that is considered undesirable or disruptive[3]. Care has been taken in this document to use the most relevant of these terms (whereby 'sound' is used predominantly); however, in most reference documents, and, indeed, generally, 'sound' and 'noise' are used interchangeably. Consequently, just because the term 'noise' is used doesn't necessarily mean a negative effect exits or will occur, and the context of the accompanying text should be taken into account.

Human hearing is able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble), and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain).

The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify sound in a manner that approximates the response of the human ear, a weighting mechanism is used, which reduces the importance of lower and higher frequencies in a similar manner to human hearing.

The weighting mechanism that best corresponds to the response of the human ear (though not necessarily perfectly) is the 'A'-weighting scale. This is widely used for environmental sound measurement, and the levels are denoted as dBA, dB(A) or LAeq, L_{A90} etc. according to the metric being measured or determined (see the Definitions over leaf).

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB is generally regarded as the minimum difference needed to perceive a change under normal listening conditions. Where other changes occur (associated with the change in sound level), such as additional vehicle movements on a road, which can be seen, then these may result in changes in sound level being more noticeable than they might otherwise be.

Further to such visual clues, and any other non-acoustical factors that affect people's response (such personal characteristics, and social, residential or environmental factors), the subjective response to a sound is dependent not only upon the sound pressure level and component frequencies, but also its intermittency. Consequently, various metrics have been developed to try and correlate people's attitudes to different sounds with the sound level and its fluctuations. The metrics used in this document, as per the relevant guidance, are defined overleaf.

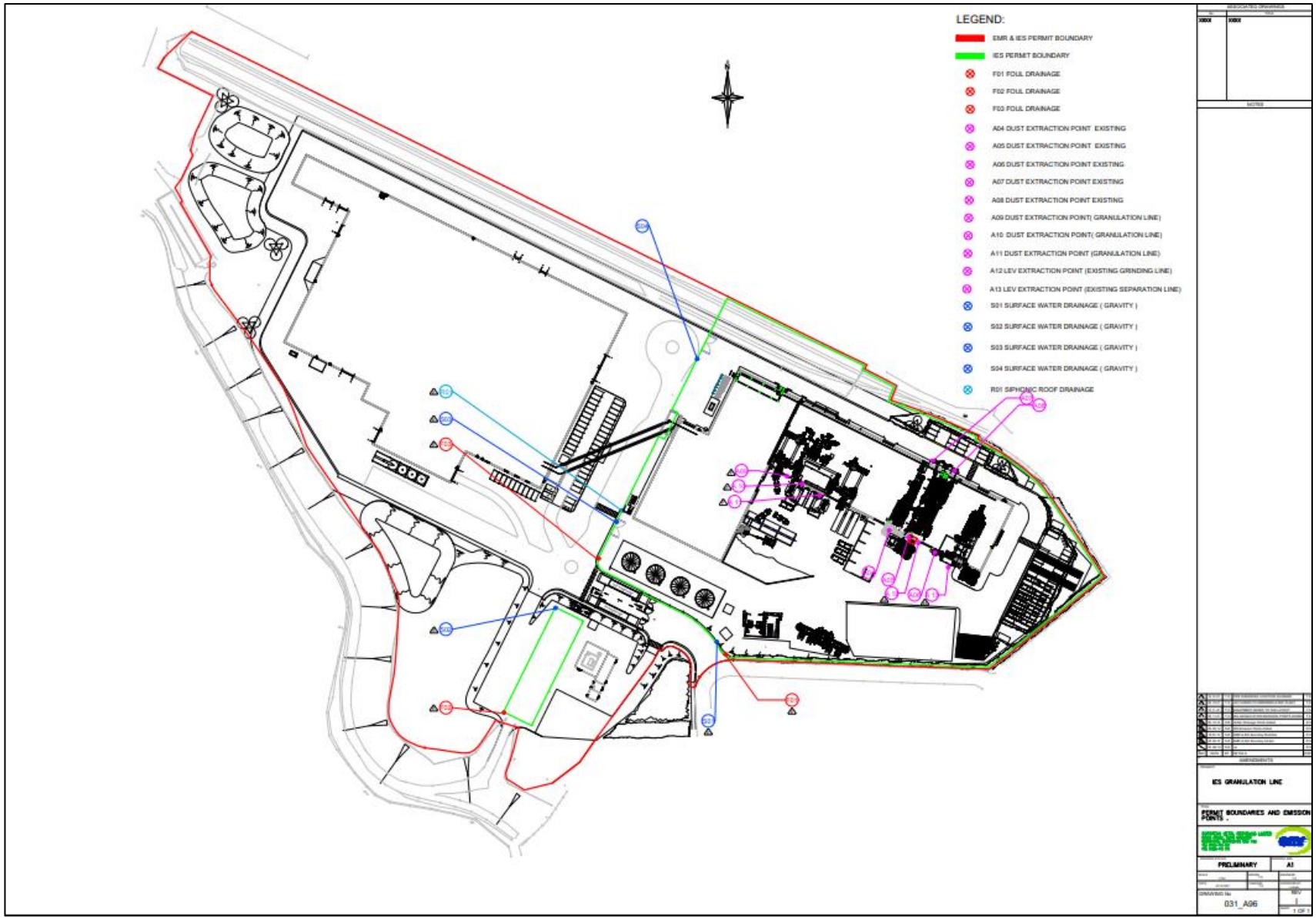
[3] Taken from the Foreword to BS 4142:2014 Methods for rating and assessing industrial and commercial sound.

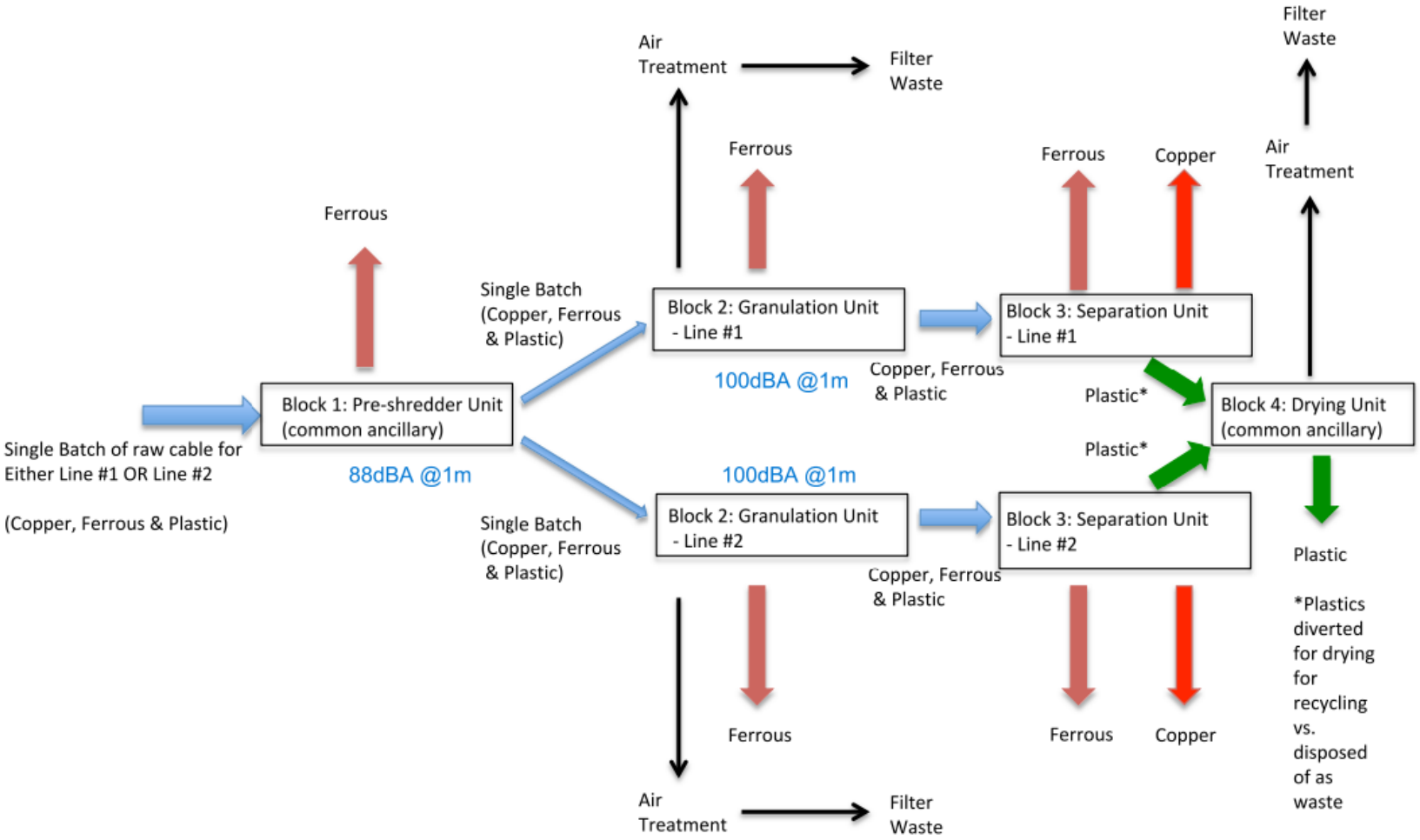
Airborne Sound	Sound that reaches the point of interest by propagation through air.
Ambient Sound:	Sound from all sources at any given time, form both near and far. Usually measured in terms of L_{Aeq}.
A-Weighting	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Background Sound Level	The A-weighted sound pressure level that can be considered the baseline in the absence of any noise from a specific source of sound under assessment. Measured in terms of $L_{A90,T}$.
Calibration	The measurement system/ chain should be periodically calibrated, within a laboratory, against traceable calibration instrumentation, to either National Standards or as UKAS-Accredited, as required. The calibration of the system should also be checked in the field using a portable calibrator before and after each short term measurements, and periodically for longer term monitoring.
Class 1	The Class of a sound level meter describes its accuracy as defined by the relevant international standards – Class 1 is more accurate than Class 2. The older standard IEC 60651 referred to the grade as "Type", whereas the new standard IEC 61672 refers to it as the "Class". The most accurate meters used in the field (as opposed to a laboratory) are Class 1. Class 2 meters can be used in some instances; however MZA Acoustics use Class 1 (or Type 1) meters by default, as required by BS 4142:2014, for example.
Decibel	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds (s1 and s2) is given by 20 log10 (s1/s2). The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20 Pa.
Fast time Weighting (F)	Averaging time used in sound level meters. Defined in BS EN 61672-2:2013 Electroacoustics. Sound level meters. Pattern evaluation tests.
Free-field / Façade	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5 m away.
IoA	The Institute of Acoustics is the UK's professional body for those working in acoustics, noise and vibration. It was formed in 1974 from the amalgamation of the Acoustics Group of the Institute of Physics and the British Acoustical Society (a daughter society of the Institution of Mechanical Engineers). It is a nominated body of the Engineering Council, offering registration at Chartered and Incorporated Engineer levels. All our consultants/ engineers are individual Members.
$L_{AF90,T}$	The A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time fast time-weighting (F). Generally used to describe the 'background' sound conditions.
L_{AFmax}	The maximum A-weighted sound pressure level during a given time period. Lmax is sometimes used for the assessment of occasional loud sounds, which may have little effect on the overall Leq noise level, but could still

	affect the sound environment. Unless described otherwise, it is measured using the fast time-weighting (F).
$L_{eq,\,T}$	A sound level index called the equivalent continuous sound level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded. Where the value is A-weighted, is will be presented 'LAeq,T' or 'dBA Leq,T', otherwise is should be an un-weighted (or linear) value.
L_p	See Sound Pressure Level.
Noise	Related to human response to sound. Unwanted sound, or sound that is considered undesirable or disruptive.
Octave Band	Frequency ranges in which the upper limit of each band is twice the lower limit. Octave bands are identified by their geometric mean frequency, or centre frequency.
Line Source	An idealised way of modelling a sound source, consisting of a uniform, flat plane.
Point Source	An idealised way of modelling a sound source, consisting of an infinitesimally small point, radiating sound equally in all dimensions
Sound Level Metrics	Sound levels usually fluctuate over time, so it is often necessary to consider an average or statistical sound level. This can be done in several ways, so a number of different metrics have been defined, according to how the averaging or statistics are carried out.
Sound Power	In a specified frequency band, the rate at which acoustic energy is radiated from a source. In general, the rate of flow of sound energy, whether from a source, through an area, or into an absorber.
Sound Power Level	Of airborne sound, ten times the common logarithm of the ratio of the sound power under consideration of the standard reference power of 1 pW. Expressed in decibels.
Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure.
Sound Pressure Level	The sound level is the sound pressure relative to a standard reference pressure of 20 Pa (20x10-6 Pascals) on a decibel scale.
Specific Sound	The sound source being assessed in a BS 4142:2014 assessment.
UKAS	United Kingdom Accreditation Service, recognised by government to assess organisations that provide certification, testing, inspection and calibration services against internationally agreed standards.

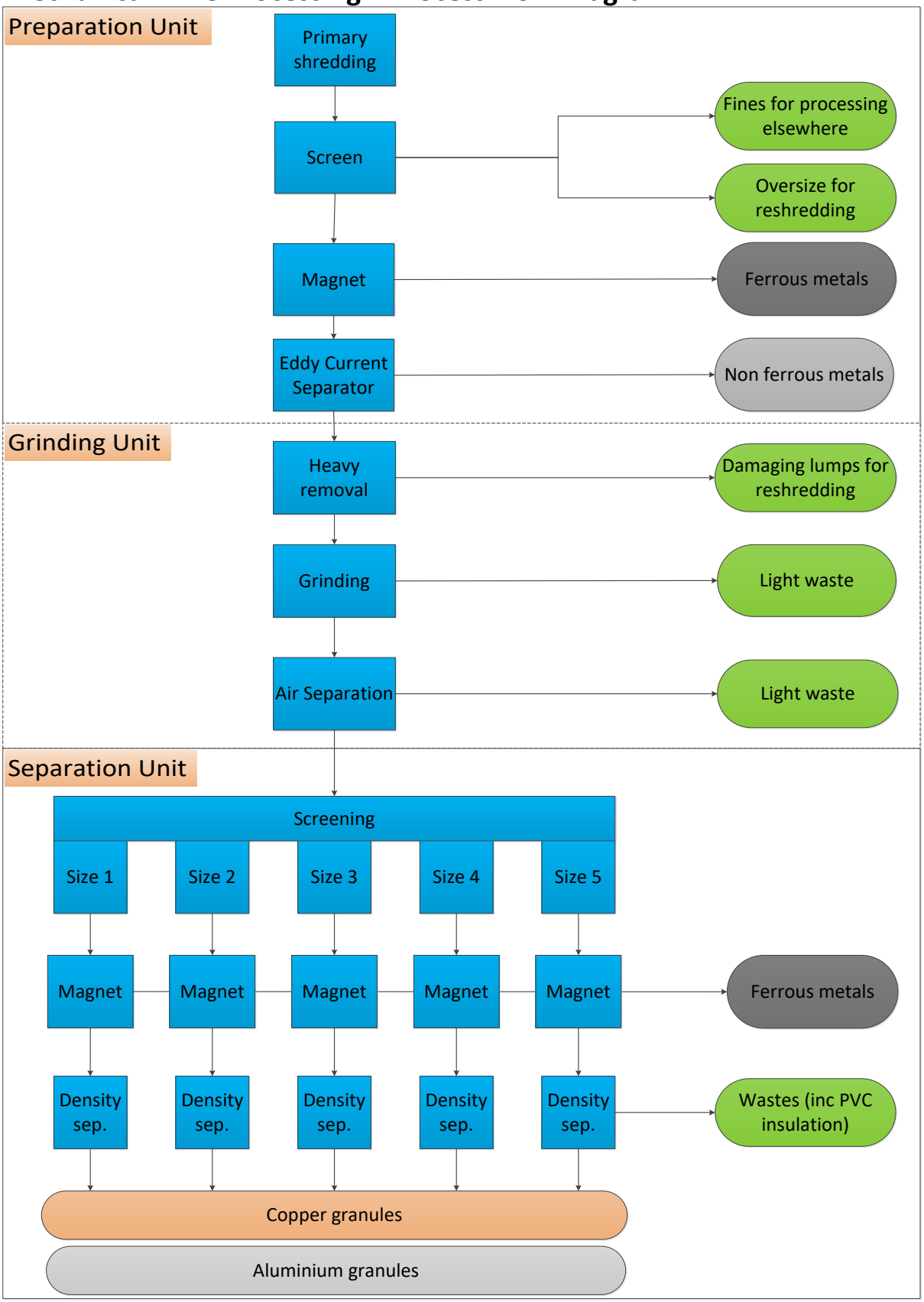
APPENDICES

Appendix 1 – Permit Area Layout & Process Information


LEGEND:
EMR & IES PERMIT BOUNDARY
IES PERMIT BOUNDARY
F01 FOUL DRAINAGE
F02 FOUL DRAINAGE
F03 FOUL DRAINAGE
A04 DUST EXTRACTION POINT EXISTING
A05 DUST EXTRACTION POINT EXISTING
A06 DUST EXTRACTION POINT EXISTING
A07 DUST EXTRACTION POINT EXISTING
A08 DUST EXTRACTION POINT EXISTING
A09 DUST EXTRACTION POINT(GRANULATION LINE)
A10 DUST EXTRACTION POINT(GRANULATION LINE)
A11 DUST EXTRACTION POINT (GRANULATION LINE)
A12 LEV EXTRACTION POINT (EXISTING GRINDING LINE)
A13 LEV EXTRACTION POINT (EXISTING SEPARATION LINE)
S01 SURFACE WATER DRAINAGE (GRAVITY)
S02 SURFACE WATER DRAINAGE (GRAVITY)
S03 SURFACE WATER DRAINAGE (GRAVITY)
S04 SURFACE WATER DRAINAGE (GRAVITY)
R01 SIPHONIC ROOF DRAINAGE
IES GRANULATION LINE
PERMIT BOUNDARIES AND EMISSION POINTS
PRELIMINARY
A1
031_A06


Air Treatment
Filter Waste
Ferrous
Filter Waste
Air Treatment
Ferrous
Copper
Ferrous
Single Batch (Copper, Ferrous & Plastic)
Block 2: Granulation Unit - Line #1
Block 3: Separation Unit - Line #1
100dBA @1m
Copper, Ferrous & Plastic
Plastic*
Block 4: Drying Unit (common ancillary)
Single Batch of raw cable for Either Line #1 OR Line #2
(Copper, Ferrous & Plastic)
Block 1: Pre-shredder Unit (common ancillary)
88dBA @1m
100dBA @1m
Plastic*
Single Batch (Copper, Ferrous & Plastic)
Block 2: Granulation Unit - Line #2
Block 3: Separation Unit - Line #2
Copper, Ferrous & Plastic
Plastic
*Plastics diverted for drying for recycling vs. disposed of as waste
Ferrous
Ferrous
Copper
Air Treatment
Filter Waste

Mechanical Wire Processing – Process Flow Diagram



Appendix 2 – Noise Model Input Data

Measured Sound Level Data

Position	Start time	32	63	125	250	500	1000	2000	8000	16000	A
1	12/06/2021 10:25	76	77	80	77	76	74	71	61	61	78
2	12/06/2021 10:28	87	90	87	83	81	79	75	67	63	83
3	12/06/2021 10:31	81	88	83	80	77	75	73	71	69	81
4	12/06/2021 10:34	75	70	78	73	70	64	58	45	40	71
5	12/06/2021 10:42	80	76	77	77	72	69	67	59	57	75
6	12/06/2021 10:45	82	77	79	79	75	73	74	78	79	83
7	12/06/2021 10:49	86	70	73	75	76	75	76	61	63	80
8	12/06/2021 10:55	88	77	79	80	85	83	86	79	78	90
9	12/06/2021 10:57	80	79	81	78	74	72	72	60	57	78
10	12/06/2021 11:00	80	77	77	76	73	73	74	59	56	78
11	12/06/2021 11:08	101	83	82	77	74	71	67	56	53	76
12	12/06/2021 11:11	101	99	84	78	75	73	69	55	53	79
13	12/06/2021 11:13	103	89	80	77	73	81	85	55	50	87
14	12/06/2021 11:16	101	83	84	78	77	75	77	74	69	82
15	12/06/2021 11:18	109	93	87	81	78	75	74	66	65	82
16	12/06/2021 11:20	100	87	82	78	75	73	73	64	63	79
17	12/06/2021 11:22	94	80	80	76	73	71	70	61	53	77
18	12/06/2021 11:27	91	81	78	77	74	73	72	63	54	78

CADNA Noise Source Input Data

Variation noise source inputs from CADNA

Source Type	Name	M.	ID	Result. PWL			Lw / Li			Correction			Sound Reduction		Attenuatic	Operating Time			K0	Freq.		Direct.	Height		Coordinates		
				Day (dBA)	Evening (dBA)	Night (dBA)	Type	Value	norm. dB(A)	Day dB(A)	Evening dB(A)	Night dB(A)	R	Area (m^2)		Day (min)	Special (min)	Night (min)	(dB)		(Hz)			(m)		X (m)	Y (m)	Z (m)
Point	Dust extraction point existing A04			85	85	85	Lw	Stack		0	0	0							0	1000	(none)		21.5	r	398463.7	290829.1	159.41
Point	Dust extraction point (existing granulation) A12			85	85	85	Lw	Stack		0	0	0							0	1000	(none)		21.5	r	398477.7	290823.1	159.45
Point	Dust Extraction point (existing granulation) A13			85	85	85	Lw	Stack		0	0	0							0	1000	(none)		21.5	r	398491.8	290811.6	159.49
Point	Dust Extraction point A07			85	85	85	Lw	Stack		0	0	0							0	1000	(none)		21.5	r	398485.5	290862.5	159.48
Point	Dust Extraction Point A08			85	85	85	Lw	Stack		0	0	0							0	1000	(none)		21.5	r	398495.9	290857.5	159.52
Point	dust extraction point A05			85	85	85	Lw	Stack		0	0	0							0	1000	(none)		21.5	r	398473.1	290825.5	159.44
Point	dust extraction point A06			85	85	85	Lw	Stack		0	0	0							0	1000	(none)		21.5	r	398485.7	290818.4	159.47
Point	NEW dust extraction point A09			85	85	85	Lw	Stack		0	0	0							0	1000	(none)		21.5	r	398414.7	290855	159.27
Point	NEW dust extraction point A10			85	85	85	Lw	Stack		0	0	0							0	1000	(none)		21.5	r	398422.2	290851.4	159.29
Point	NEW dust extraction point A11			85	85	85	Lw	Stack		0	0	0							0	1000	(none)		21.5	r	398430.4	290846.1	159.32
Point	Front End Loader at hopper			105	105	105	Lw	Loader		0	0	0							0	1000	(none)		1.5	r	398412.8	290835.6	139.26
Point	Pre Shredder outside		Preshredd	78.1	78.1	78.1	Lw	Variation		0	0	0							0	1000	(none)		2	r	398393.5	290829.5	139.71
Point	GUH#1		Granulatio	78.6	78.6	78.6	Lw	GUH		0	0	0							0	500	(none)		2	r	398409.9	290857	139.76
Point	GUH#2		Granulatio	78.6	78.6	78.6	Lw	GUH		0	0	0							0	500	(none)		2	r	398439.5	290841.3	139.84

Source Type	Name	M.	ID	Result. PWL			Result. PWL"			Lw / Li			Correction			Sound Reduction		Attenuatic	Operating Time			K0	Freq.		Direct.
				Day (dBA)	Evening (dBA)	Night (dBA)	Day (dBA)	Evening (dBA)	Night (dBA)	Type	Value	norm. dB(A)	Day dB(A)	Evening dB(A)	Night dB(A)	R	Area (m^2)		Day (min)	Special (min)	Night (min)	(dB)		(Hz)	
Vert Area	EMR building	-		82.8	82.8	82.8	44.6	44.6	44.6	Li	Existing		0	0	0	assumedw	6627.2					3	1000	(none)
Vert Area	IES Variation building		New	92.6	92.6	92.6	55.7	55.7	55.7	Li	Variation		0	0	0	assumedw	4880.66					3		(none)

Source Type	Name	M.	ID	Result. PWL			Result. PWL"			Lw / Li			Correction			Sound Reduction		Attenuatic	Operating Time			K0	Freq.		Direct.	Moving Pt. Src		
				Day (dBA)	Evening (dBA)	Night (dBA)	Day (dBA)	Evening (dBA)	Night (dBA)	Type	Value	norm. dB(A)	Day dB(A)	Evening dB(A)	Night dB(A)	R	Area (m^2)		Day (min)	Special (min)	Night (min)	(dB)		(Hz)		Number Day	Evening	Night
Area	IES Variation Roof			91.6	91.6	91.6	55.7	55.7	55.7	Li	Variation		0	0	0	assumedrc	3854.73					0		(none)			
Area	EMR roof emission			91.6	91.6	91.6	50.3	50.3	50.3	Li	Existing		0	0	0	assumedrc	13235.28					0		(none)			

Source Type	Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Correction			Sound Reduction		Attenuatic	Operating Time			K0	Freq.		Direct.	Moving Pt. Src			
				Day (dBA)	Evening (dBA)	Night (dBA)	Day (dBA)	Evening (dBA)	Night (dBA)	Type	Value	norm. dB(A)	Day dB(A)	Evening dB(A)	Night dB(A)	R	Area (m^2)		Day (min)	Special (min)	Night (min)	(dB)		(Hz)		Number Day	Evening	Night	Speed (km/h)
Line			road_0028	34.3	34.3	34.3	29.8	29.8	29.8	Lw	34.3		0	0	0							0	500	(none)				
Line			road_0028	34.3	34.3	34.3	27	27	27	Lw	34.3		0	0	0							0	500	(none)				
Line			road_0028	34.3	34.3	34.3	27.9	27.9	27.9	Lw	34.3		0	0	0							0	500	(none)				
Line	Conveyor belt			80.1	80.1	80.1	61.9	61.9	61.9	Lw	Conveyor		0	0	0							0		(none)				
Line	Conveyor belt - lower			80.1	80.1	80.1	62	62	62	Lw	Conveyor		0	0	0							0		(none)				

Source Type	Name	M.	ID	L10			Count Data		exact Count Data							Traffic Spe	SCS	Surface	Gradient	
				Day (dBA)	Evening (dBA)	Night (dBA)	Q (Veh/18h)	Str.class.	q Day	Evening	Night	p (%) Day	Evening	Night		(km/h)		Dist.	Type	(%)	
Road	HGV 3 in per hour daytime			56	0	0			3	0	0	100	0	0		20	0	1	0	
Road	HGV 3 out per hour daytime		road_0028	56	0	0			3	0	0	100	0	0		20	0	1	0	
Road	HGV 3 out per hour daytime		road_0028	56	0	0			3	0	0	100	0	0		20	0	1	0	

CADNA Receptor Input Data

Receiver Point Name	Height (m)	Relation to Topography	Coordinates (m)		
			X	Y	Z
Palmerston Drive - Position B	1.5	relative	397865	290811.5	139.46
Whitgreave Street - MP1	1.5	relative	398339.2	291127	139.11
Campbell Bannerman Way - MP2	1.5	relative	397984.3	290851.1	138.79
Portland Drive	1.5	relative	397823.8	291013.7	139.94
Theodore Close	1.5	relative	398243.5	290499.2	138.87
Gaitskell Terrace	1.5	relative	397923.2	290678.8	138.85
Whitgreave Street - Position A	1.5	relative	398320.6	291110.3	139.06

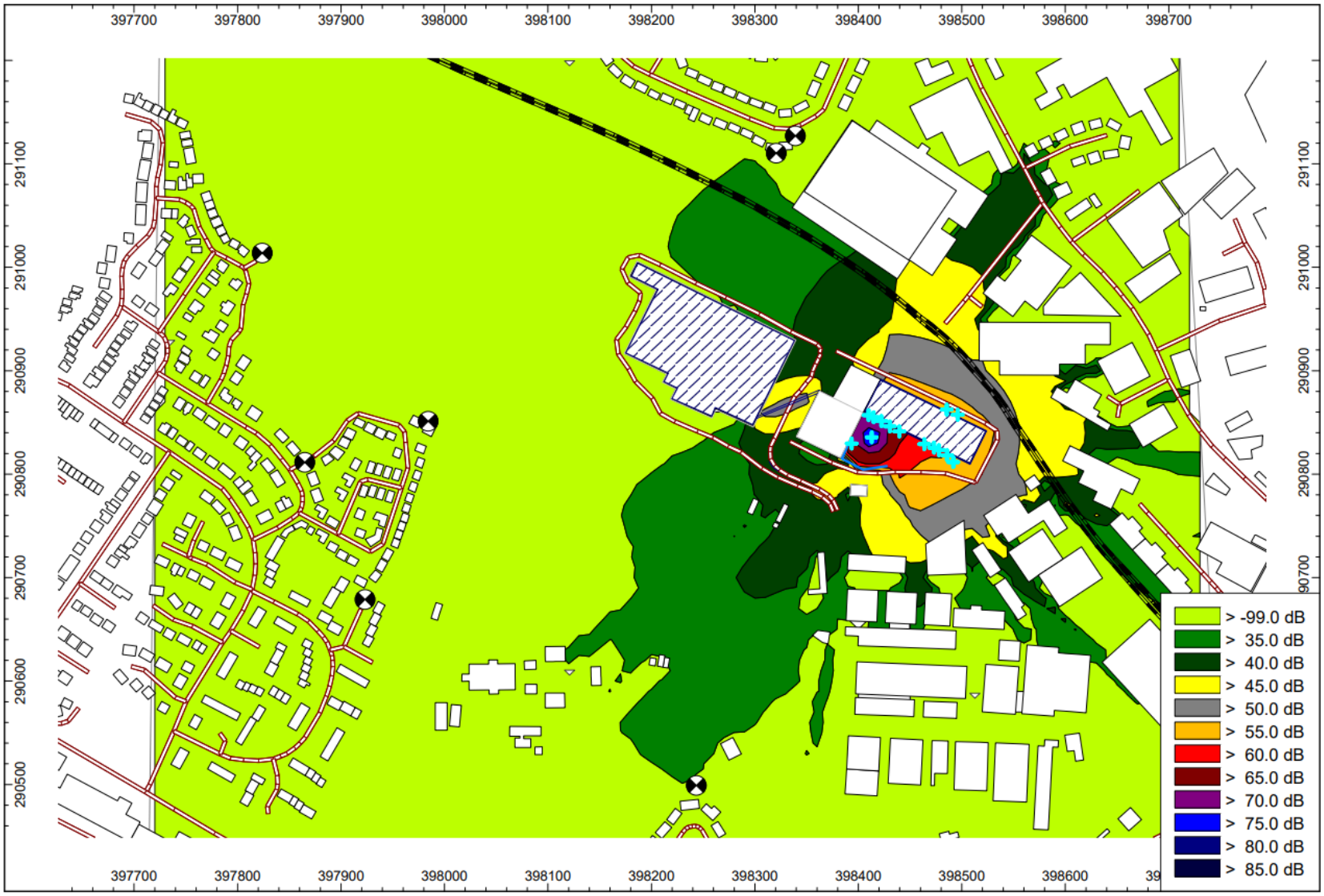
Appendix 3 – Noise Model Outputs

Existing IES Site - Daytime

IES Variation Rev I - Daytime

Existing IES Site - Night time

IES Variation - Night time



Appendix 4 – Noise Management Plan

Appendix 5 - Limitations to This Report

This Report has been prepared by MZA Acoustics Limited for the project specified and should not be used (in whole or part) and relied upon for any other project or body without the written authorisation of MZA Acoustics Ltd.

MZA Acoustics Ltd accepts no responsibility or liability for the consequences of this document if it is used for a purpose other than that for which it was commissioned. Should any person(s) wish to use or rely upon this Report for any other purpose, they must seek written authority to do so from MZA Acoustics Ltd and agree to indemnify the same for any and all loss or damage resulting there from. MZA Acoustics Ltd also accepts no responsibility or liability to any other party other than the person / organisation who commissioned this Report.

The findings and opinions expressed are relevant to the dates of the site works and should not be relied upon to represent conditions at substantially later / other dates. Opinions included therein are based on information gathered during the study and from our experience. If additional information becomes available which may affect our comments, conclusions or recommendations MZA Acoustics Ltd reserve the right to review the information, reassess any new potential concerns and modify our opinions accordingly.

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Noise Management Plan for Innovative Environmental Solutions UK Ltd (IES) (Appendix 4)

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1. INTRODUCTION

1.1 INTRODUCTION

The preparation of this document has been undertaken using the guidance outlines in the Environment Agency Technical Guidance Note H3 (Part 2) – Horizontal Guidance for Noise (part 2), Sector Guidance Note (SGN) IPPC 5.06. The purpose of this Noise Management Plan (NMP) is to describe the measures that have been taken to control noise emissions from the site and procedures that will be followed to control, monitor and rectify any issues identified. The complaints management procedures, including the management responsibilities are also addressed. This NMP outlines the methods by which IES (the Operator) will systematically assess and minimize the potential impacts of noise generated at the facility at Union Road, Oldbury.

- The NMP is a working document with the specific aim of ensuring that:
- Noise impact is considered as part of routine inspections
- Noise is primarily controlled at source by good operational practices including physical and management control measures; and
- All appropriate measures are taken to prevent or, where that is not practicable, to reduce noise emissions from the operations.

Prior to the preparation of this plan, a detailed noise impact assessment has been undertaken in relation to the proposed variation to the existing environmental permit EPR/GP3739VR, report reference 1700698. The report describes the principles of noise measurement and prediction and control of noise by design, by operational and management techniques and abatement technologies already in place at the site, and associated with the proposed variation as summarized below -
The facility is currently permitted for three scheduled activities which are 1. S5.3 Part A(1) (a) (ii); 2. S5.4 Part A(1) (b) (iv) and 3. S5.6 Part A (1) (a). 1 & 2 relate to a single mechanical treatment line processing assorted wastes for the recovery of metal from this waste for recycling (the 'existing mechanical process') whilst 3 relates to the wastes stored prior to and following treatment via activity 1 (also relates to other wastes received for storage only and subsequent collection and disposal which will not change with the variation).

The variation seeks to add two new mechanical treatment lines (the 'new mechanical processes') processing cables for the recovery of metal from this waste for recycling which will also be scheduled activities as per 1 & 2 above. This will also involve the storage of hazardous wastes prior to and following treatment via activity 1 which will be a scheduled activity as per 3 above. The variation will also involve the addition of two new LEV (local extraction ventilation systems) to the existing mechanical process. As such, all three activities (1, 2 & 3) will need to be varied.

The noise impact assessment report concludes that a BS 4142:2014 assessment of the site has been undertaken with a low impact outcome. Furthermore, the proposed variation has been assessed in line with original operating criteria at the nearest noise sensitive receptors, and is found to be below the target values during daytime and overnight, despite the recent encroachment of the residential area to the SW of the site.

1.2 SITE DETAILS

The operator is currently permitted to operate the existing mechanical process that is a processing line for the recovery of metal from the waste feed to this process. The feed to this existing mechanical process is a number of wastes containing non-ferrous metals, particularly copper, that need intensive mechanical processing to liberate and separate the metallic value that they contain. This process is solely mechanical and is dry, with no wet processing. The majority of this process activity is contained within the process buildings with the exception of 5 x externally located vent stack terminus above the roofline. Throughput rate is around 6 tonnes per hour with an annual throughput of up to 30,000 tonnes.

The variation seeks to add two new mechanical treatment lines (the 'new mechanical processes') processing cables for the recovery of metal from this waste for recycling. The variation will also involve the addition of two new LEV (local extraction ventilation systems) to the existing mechanical process.

The core new mechanical processes' equipment equipment will be installed in the area of the IES processing hall where the original incineration line one was installed (the existing mechanical process is already installed in the area where the second incineration line was to be installed). Besides the pre-shredder, all mechanical processing will take place within this building although the two granulation hopper units are loaded outside.

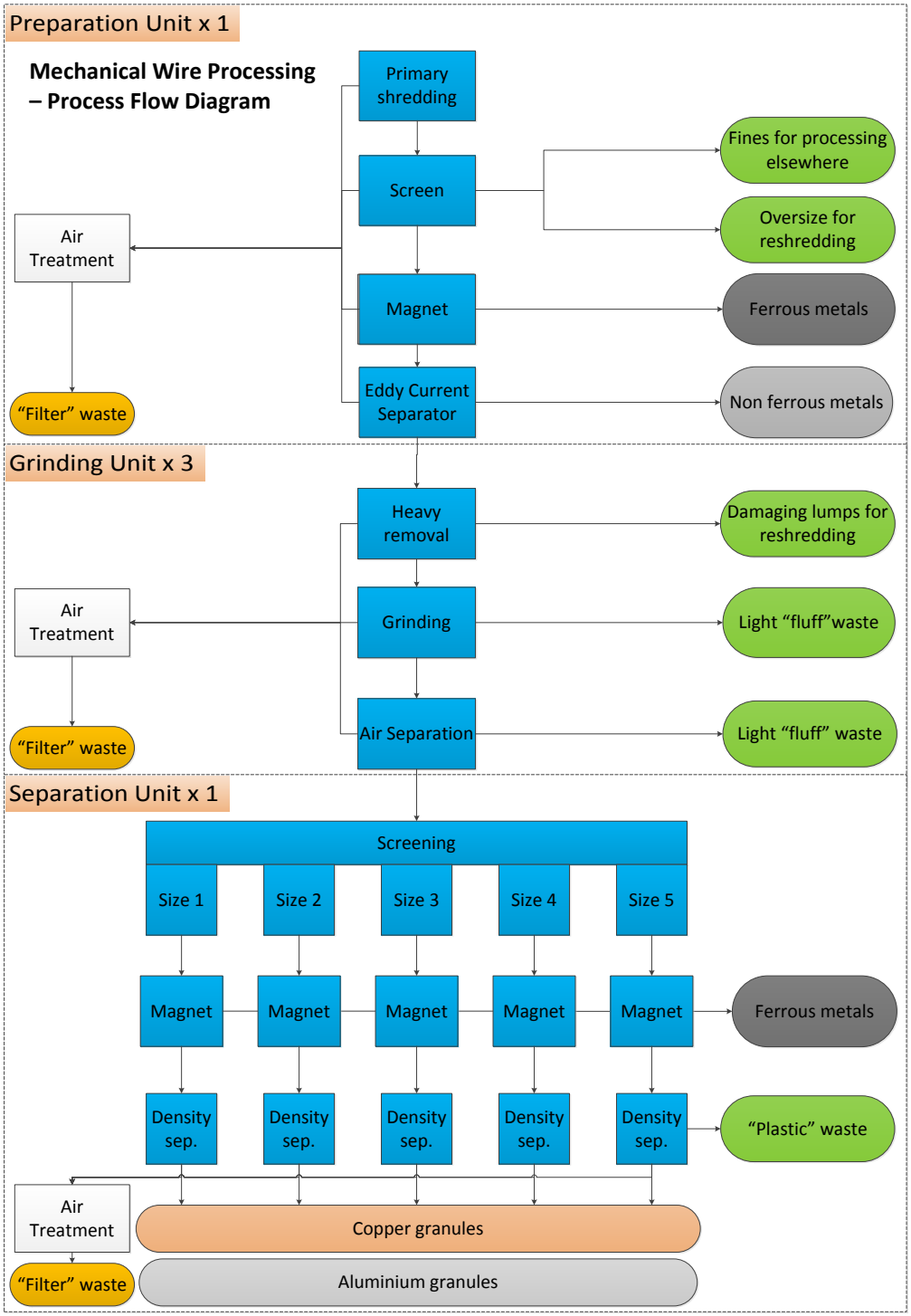
5no. additional high level exhaust stacks will be added as part of this variation (2 for the 2 x new LEVs for the existing mechanical process and 3 for the process air from the new mechanical process). These 5no. additional exhaust stacks are considered potentially significant in terms of noise contribution beyond the site boundary and the potential impact should be assessed.

A new external cable storage area will supply the feed to the two new mechanical treatment lines and no additional HGV deliveries (to those used in the previous assessment) are envisaged to feed the process.

Operating hours for the new mechanical processes are expected to be the same that IES currently operates i.e. 24 x 7 per week. Throughput rate will be around 6 tonnes per hour for each of the 2 x new mechanical processes (around 12 tonnes per hour total) with an annual throughput of up to 42,046 tonnes each (84,091 tonnes total).

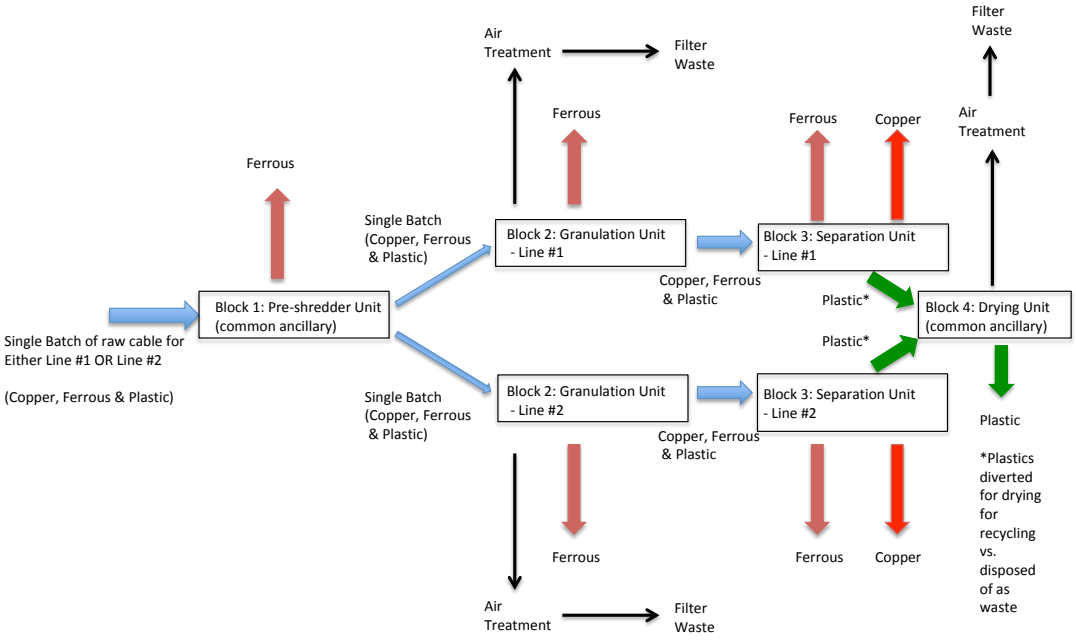
1.3 PROCESS FLOW FOR INCOMING WASTE

Figure 1 - Existing mechanical process – process flow diagram



Note: The proposed variation will add 2 x additional LEV systems to remove any airborne particulate around this existing processing line to improve even further/ensure local workplace air quality.

Figure 2 – New mechanical processes – process flow diagram



2. LEGISLATIVE CONTEXT

2.1 ENVIRONMENTAL PROTECTION ACT 1990

Local Authorities have a duty to inspect their area from time to time to identify any statutory nuisances and where a complaint of a statutory nuisance is made by a person living in the area, to take such steps as are reasonably practical to investigate the complaint.

Where a Local Authority is satisfied that a statutory nuisance exists or is likely to occur or recur in its area, legislation requires that the authority shall serve an abatement notice requiring any of the following:

- the abatement of the nuisance or prohibiting or restricting its occurrence or recurrence, and/or
- the execution of such works and the taking of such other steps as may be necessary for any of these purposes.

It is an offence not to comply with an abatement notice without reasonable excuse. A defence is to prove that the best practicable means were used to prevent or minimise the effects of the nuisance if the nuisance arose from industrial, trade or business premises.

2.2 NOISE & STATUTORY NUISANCE ACT 1993

The 1993 Act amends the Environmental Protection Act 1990 to control statutory nuisances arising from vehicles, machinery and equipment on roads. The Act makes provisions for control of audible intruder alarms that are dealt with by Statutory Nuisance proceedings.

2.3 CONTROL OF NOISE AT WORK REGULATIONS 2005

Exposure to moderate to loud noise levels can cause hearing loss over time because of damage to nerves in the inner ear. The body can generally repair some damage, particularly when caused by short exposures to moderate sound pressures. However, permanent damage is more likely to occur with long-term exposure to hazardous noise levels, or short-term exposure to very high noise levels.

According to Regulation 4, exposure limit values and action values of the HSE Control of Noise at Work Regulations 2005:

The lower exposure action values are –

a) a daily or weekly personal noise exposure of 80 dB (A-weighted); and

b) a peak sound pressure of 135 dB (C-weighted);

The upper exposure action values are –

a) a daily or weekly personal noise exposure of 85 dB (A-weighted); and

b) a peak sound pressure of 137 dB (C-weighted), and;

The exposure limit values are –

a) a daily or weekly personal noise exposure of 87 dB (A-weighted); and

b) a peak sound pressure of 140 dB (C-weighted).

2.4 NOISE ACT 1996

The 1996 Act provides for the control of noise from dwellings at night and for the forfeiture and confiscation of equipment. The only provision relating to industry is section 10 which amends the Environmental Protection Act 1990 by allowing Local Authorities to seize and remove any equipment that appears to be used for the emission of the noise in question.

3. NOISE SOURCES, RELEASES AND IMPACTS

3.1 NOISE AND SOUND

Noise has been defined in various ways, but essentially it is unwanted sounds or sound that is not desired by the recipient. The degree of annoyance and stress that can result from exposure to noise is almost impossible to quantify, since responses may vary widely between individuals.

Sound is the sensation produced in the ear as a result of pressure variations set up in the air by a vibrating source. Such vibrations set up a series of alternate regions of increased and decreased pressure in the surrounding air or other medium. The longitudinal motion of these pressure fronts from source to receiver through a medium (air, ground, buildings, water) takes the form of sound waves.

Whilst the various physical attributes of sound can be quantified, the subjective aspects of noise - the degree of annoyance and stress which can result from exposure - is less easily measured. Annoyance and attitude towards noise varies widely between individuals, hence the apparent effectiveness of control measures may vary according to the individual exposed.

3.2 VIBRATION

Like sound, vibration is the oscillation of a body about a reference point and the number of oscillations or cycles per second gives the frequency of vibration (Hz). What differentiates the sound and vibratory forms of energy is in the way they are perceived - sound can be detected by hearing whilst vibration can be felt as it is transmitted through solid structures.

As with sound, vibration may occur at a single frequency (simple periodic vibration) or more usually there are a number of different frequency components imposed on top of each other and occurring simultaneously; often different parts of a machine will vibrate at different frequencies. A combination of superimposed frequencies can also form a repetitive periodic motion - for example motors and fans. Random vibration occurs where there is a wide range of frequencies present which vary randomly with time. Vibration may also be transient and die away after a period of time such as occurs with the use of heavy presses or the passage of a heavily loaded vehicle.

Vibration is quantified in terms of three parameters: acceleration, velocity or displacement. Displacement is the distance moved from the fixed reference position (amplitude) and may be positive or negative (mm or μm). The velocity is the rate at which displacement varies with time (m/s or mm/s) and acceleration which is the rate of change of velocity over time (m/s2). The latter are generally used for the purpose of determining the various frequencies of vibration and the severity. Displacement is often used to indicate the degree of unbalance in rotating machine parts.

Due to the separation distances presented between the site and the receptors, ground borne vibration effects are not considered to be a matter of concern for the type of activities at the facility. However, localised vibration induced by plant within the process facility may expose operatives to vibrations, and appropriate steps are required to identify and address these.

3.3 NOISE CONTROL PRINCIPLES

Once noise has been generated, there are a number of physical factors involved in determining how the noise is propagated and how much reaches the receiver.

- The amount of noise radiated from a source depends on:
- the sound power level of the source;
- the nature of the building structure;
- gaps in the fabric of the building; and
- the number of sources.

The noise received depends on the degree of attenuation provided between source and receptor which is affected by:

- the type of intervening ground;
- screening by walls, banks or buildings;
- wind direction;
- meteorological conditions; and
- atmospheric absorption.

The strength of any sound or vibration received will depend on:

the strength of the source;

ability of the source to transmit vibration to the ground;

the nature of ground conditions;

distance to the receiver from the sources;

the continuity of the transmission route; and

the ability of the receiver to receive the vibration.

3.4 NOISE CONTROL TECHNIQUES

Control of noise within waste processing facilities can normally be affected at 2 points in the source-receptor pathway:

1. By reducing at source by design or management;

2. By blocking or impeding the transmission paths, control by distance, direction or some form of noise abatement equipment.

In determining the degree of control required, it is usual to calculate or measure the sound pressure level close to the source and, knowing the desired end-point, to calculate:

- the attenuation provided by the environment at the sensitive location;
- the additional attenuation required.

A hierarchy of noise control measures determines the most appropriate solution to control where practicable under any one site-specific scenario.

4. NOISE MANAGEMENT PLAN

4.1 SOURCES

The key external noise sources associated with the existing mechanical process are the vent stacks A04 to A08 as identified in drawing ref. 031-A96. The key external noise sources associated with the new mechanical processes are the vent stacks A09 to A13 also identified in drawing ref. 031-A96 accompanying the variation submission. All 10 x stack vent points are at 3m above ridge height of the main processing building, terminating at a height of 21.5m above ground. Other external noise sources associated with the new mechanical processes include the common pre-shredder & the 2 x granulation unit hoppers. Further details of all associated noise levels can be found in the noise impact assessment report 1700698.

4.2 RECEPTORS

Receptors are as detailed within noise impact assessment report reference 1700698.

4.3 PERSONNEL AND VISITORS

Personnel / operatives working on site are the closest receptors to any noise and vibration produced on site. However, due to consistent working conditions it may be unlikely that operatives would be particularly sensitive to noise and vibration. All operatives should be made aware of the issue of noise and vibration on site and should be fully conversant with the contents of the Noise Management Plan and other relevant documents.

Personal Protective Equipment (PPE) shall be made available where appropriate. It is unlikely that noise and vibration from the facility will cause nuisance or distress to visitors to the site. However, all visitors shall be made aware that the site is a working waste processing facility. PPE shall be made available where appropriate or requested in line with the site induction programme.

4.4 NEIGHBOURS

Neighbouring sites and businesses are likely to be the most sensitive receptors to noise and vibration nuisances, especially those not operating industrial facilities where noisy plant / equipment is used. Good relationships with neighbouring land

owners and businesses are essential to anticipate potential problems and to avoid them, where possible, to avoid any cause for complaint.

The Operator shall ensure that:

- all neighbours know how to contact the site if they consider noise and / or vibration to be a problem (contact details will be clearly visible in the site entrance board along with Environment Agency contact details) and;
- any complaints are recorded and that problems, where possible, are dealt with appropriately and properly.

4.5 SITE MANAGEMENT RESPONSIBILITY

The Operations Manager will have responsibility for ensuring that nuisances and hazards arising from the operations, including noise and / or vibration are minimised and that the measures outlined in this noise management plan are implemented.

4.6 BEST AVAILABLE TECHNIQUES (BAT)

The relevant BAT Conclusion document for the activities undertaken at the IES facilty (unchanged by the proposed variation) (1. S5.3 Part A(1) (a) (ii); 2. S5.4 Part A(1) (b) (iv) and 3. S5.6 Part A (1) (a)) is -

COMMISSION IMPLEMENTING DECISION (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (notified under document C(2018) 5070), L208/38[1].

With regards to noise, then this BAT conclusion document includes the following –

"BAT 17. In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements:

I. a protocol containing appropriate actions and timelines;
II. a protocol for conducting noise and vibration monitoring;
III. a protocol for response to identified noise and vibration events, e.g. complaints;
IV. a noise and vibration reduction programme designed to identify the source(s), to measure/estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and/or reduction measures.

Applicability: The applicability is restricted to cases where a noise or vibration nuisance at sensitive receptors is expected and/or has been substantiated."

Whilst the outcomes of the noise impact assessment indicate that the operations may continue as proposed, with a low impact expected at the nearest receptors, the

[1] *https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018D1147&from=EN*

approach of the Operator should be that of continual improvement and minimisation of noise emissions where practicable.

The following sections provide guidance on the approach to fulfilling the above requirements.

4.7 SOURCE ASSESSMENT AND MITIGATION

As part of the plant design, the following general noise control measures have been identified to mitigate the site-causing nuisance and to manage the potential for noise impact in a proactive manner.

Table 1 – Summary of source assessment and mitigation

Equipment / Process	Contribution to Emissions	Mitigation Measures
General process equipment	Low – primarily continuous broadband sounds at low levels at receptors	The building envelope construction of all process buildings on site have been fabricated such that reverberant noise emissions from process activity are suitably controlled. The fabric of the construction will be regularly checked and maintained such that the acoustic insulation properties of the building envelope are preserved. Additional plant introduced to the buildings will not increase the internal reverberant sound level above current measured levels in order to maintain the performance of the standard wall and roof acoustic performance currently provided. All plant and equipment will be regularly maintained to ensure that no item will produce excessive noise. The control of noise within the process buildings will be managed by the procurement of appropriate low noise options for fixed and mobile plant within the operator's requirements. Where "off the shelf" selections do not meet the power or other operational requirements to maintain the internal sound climate of the process buildings, physical noise control by way of attenuators, enclosures etc. will be introduced to ensure that adequate levels of noise reduction are achieved within

		operational spaces. No routine maintenance work outside of working hours is anticipated to be undertaken. Broadband alarms on conveyor systems to be considered. Non-audible warning systems on conveyor systems such as flashing lights to be considered. Doors to process buildings to remain closed at all times except to receive waste materials. No tipping in process buildings with doors open. Plant room louvres to be regularly inspected and maintained.
External fixed plant	Low - primarily continuous broadband sound at low levels at receptors	Location of external fixed plant maximising shielding from site buildings to provide screening to receptors. All plant and equipment will be regularly maintained to ensure that no item will produce excessive noise. Application of suitable attenuation to external plant including pumps, fans, ductwork, vent stacks etc. including use of appropriate silencers, enclosures and attenuators or other physical means of control.
Manual Handling / equipment	Low - Intermittent sound at low levels at receptors	Tools to be placed on the ground; not dropped. Unloading of imported waste in a suitably controlled manner; controlled release of metal fastenings and couplings as appropriate.
On site cars, vans and HGVs	Low - Intermittent sound at low levels at receptors	HGV deliveries between 07:00 – 23:00 hours only. Avoid slamming doors. Minimise speed and engine revs around site. Stereos /radios off whilst vehicles are on site. Minimise use of vehicle horns to provide warning alert to other vehicles ad pedestrians only – do not use horn to communicate

		with site staff, request weighbridge operative, security staff etc. Switch off engines whilst stationary. Keep site roads well maintained and free of pot holes which may exacerbate body slap in unladen waste container vehicles.
Loading shovel / Front End Loader (FEL)	Low - Intermittent sound at low levels at receptors during operations outside the pre-processing building	Minimise use of loading shovel outside buildings (FEL used for loading 2 x granulation units hoppers but *these are located adjacent to and surrounded by the existing IES buildings that act as noise screens).* No use of the loading shovel / FEL outside buildings during overnight operations (23:00 – 07:00). Switch off engine whilst stationary. Employ broadband reversing alarms on all mobile plant
Reversing Alarms	Low - Intermittent sound at low levels at receptors	Alarm level to be variable relative to the background noise level. Non-audible warning systems such as flashing lights considered. Site access arrangement to minimise need to reverse vehicles (one way system) in place and operative in attendance during reversing onsite considered where reversing is necessary.

5 NOISE MONITORING

5.1 NOISE MONITORING

A detailed noise impact assessment has been undertaken in relation to the proposed variation to the existing environmental permit EPR/GP3739VR, report reference 1700698. This report concluded that:

- a BS 4142:2014 assessment of the site has been undertaken with a low impact outcome.

- the proposed variation has been assessed in line with original operating criteria at the nearest noise sensitive receptors, and is found to be below the target values during daytime and overnight, despite the recent encroachment of the residential area to the SW of the site.

It is therefore proposed that no routine environmental noise monitoring is proposed for the site, as the impact is considered to be typically low at the nearest receptors, and the site operations are fully in context with neighbouring operations and currently well managed.

However, should complaints be received alleging nuisance from noise arising from the site, then instigation of a monitoring programme to further assess the cause of impacts will be considered appropriate.

The existing mechanical process site operations occur primarily within industrial buildings and the proposed variation to add the new mechanical processes does not deviate from this (core operation occurring internally also). The key external noise sources associated with the existing mechanical process are the vent stacks A04 to A08. The vent stacks A09 to A13 also accompany the variation submission. All 10 x stack vent points are at 3m above ridge height of the main processing building, terminating at a height of 21.5m above ground. Other external noise sources associated with the new mechanical processes include the common pre-shredder & the 2 x granulation unit hoppers.

The higher the site of the noise emission source, the more widespread the potential impact at local receptors due to the lack of intervening structures to provide physical interruption to the transmission pathway. The only source of noise control is therefore the appropriate design of the ventilation system, including suitably powered fans, the ductwork layout, stack internal design and consideration of the air velocity within the stack which can generate additional noise to that induced by mechanical sources.

In terms of occupational noise impact, it is likely given the nature of the processes on site and the range of mechanical equipment that noise levels within process buildings may be close to or above the exposure limit values and /or action values of the HSE Control of Noise at Work Regulations 2005. A suitable occupational noise assessment should be undertaken at the appropriate intervals, and in any case where new plant is installed. Where necessary hearing protection zones should be established until additional noise controls can be introduced to minimise the impact on operatives. Hearing protection zones shall be clearly marked using appropriate signage.

6. RECEIPT OF COMPLAINTS

6.1 RESPONSE TO IDENTIFICATION OF ELEVATED NOISE LEVELS

Elevated levels of noise may be identified either by IES operational staff or by receipt of a noise complaint from a third party suggesting that there may be an excessive noise from the operator.

This section details the contingency measures in place to identify the source of elevated noise levels, bring noise levels back under control and minimise their impact.

6.2 RECEIPT OF COMPLAINTS

Members of the public are able to contact the Operator with any noise or vibration complaints about the Facility by the following means:

- By telephone – the contact number 07442 538784 will normally be manned from Monday to Friday between the hours of 07:30 and 18:00, and 07:30 and 13:00 on Saturdays.
- By email to david.doman@emrgroup.com

The emergency contact telephone number will be displayed on the site notice board.

The company contact details are readily available from a simple internet search.

Members of the public are also able to contact the Environment Agency with any noise or vibration complaints about the operator or the facility and the contact details for the Environment Agency will also be displayed on the site notice board.

Once a complaint has been received and the details collected, the complaint will be processed in the manner outlined in the section below.

7. MANAGEMENT OF COMPLAINTS

7.1 COMPLAINT REGISTRATION

The operator will maintain a record of all complaints received. If the operator receives a complaint alleging potential noise nuisance from the Facility then:

- The complaint will be fed into the registration system and;
- The complaint data will be recorded in a systematic way, enabling comparison with standard noise descriptors, with wind direction and site work activities, including unusual or emergency operating conditions on a dedicated form;
- The incidents and complaints summary and tracking sheet will be reviewed on at least a monthly basis by the operations manager to ensure that progress towards resolution of identified preventative and corrective measures is being made.

7.1.1 ROLES AND RESPONSIBILITIES FOR COMPLAINTS MANAGEMENT

It is the duty of all members of staff to receive and record complaints, which will be processed by the operations manager. Complaints will be investigated according to the procedure outlined.

7.1.2 COLLECTING COMPLAINT DETAILS

Wherever possible, the following minimum information will be collected for each complaint:

- The time and date when the offensive noise was observed;
- The location where the offensive noise was observed, (e.g. postal address, grid reference);
- The complainant's description of noise (This should include a subjective description of all the factors necessary to assess the impact of the noise, including intensity, character, relative unpleasantness (pleasant, unpleasant or neutral), frequency and duration);
- The identity of the complainant, if possible, to assess the repeated nature of complaints;
- The residential address of the complainant and;
- Any other information the complainant can offer on activities at the alleged noise source.

It is also necessary to collect (by observation, routine monitoring or further investigation) the following additional information to allow subsequent analysis and collation of complaints:

- Wind direction and speed, and atmospheric stability class at the time of complaint;
- Any process incidents at the time of complaint and;
- Other off-site activities ongoing at the time, such as neighbouring activities.

7.2 INVESTIGATION OF NOISE COMPLAINTS

This response procedure sets out what investigative actions will be taken in response to a complaint. The aim of the investigative actions will be to establish:

- The source of the noise complaint and;
- The impact of the noise.

A series of investigative tools, of increasing sophistication, will be used until these two questions can be satisfactorily answered. This then enables the appropriate noise controls to be applied if the impact is significant and the source is confirmed as the facility.

7.2.1 COMPLAINT SCREENING

The investigation will start with an initial screening of the complaint. If the screening process fails to confirm the noise incident, then the investigation will stop at that point. If the screening process confirms the noise incident, then a more detailed investigation is carried out.

The object of the initial screening is to quickly screen out those noise complaints that are unlikely to be due to the operator, perhaps because they result from some other activities in the area.

The initial screening exercise will consider the following:

- Knowledge of potential sources at the facility (including work activities in progress, any technical problems, etc.);
- Knowledge of potential sources in the locality other than the facility;
- Wind direction at the time of the alleged noise episode and;
- Distance of the complainant from site.

The operator will liaise with local stakeholders (including the complainant) and inform them of the outcome of the assessment of the complaint and whether or not any action is to be taken.

7.2.2 FURTHER INVESTIGATION OF THE COMPLAINT

If the initial screening concludes that the operator could be the source of the noise complaint, then further investigation will be carried out, which will either 'confirm' and 'further characterise' the noise incident as due to the operator, or it will 'fail to confirm' the incident. Further investigation will be by means of a graded response, designed to answer the following questions:

- Can the source of the episode be linked to the operations at the site and;
- What is the scale of the impact.

The operator may use noise monitoring to provide supporting data to answer these questions or provide additional confirmation. The monitoring effort is increased in a graduated way until the data generated is sufficient to answer the relevant questions being asked. If the level of monitoring being carried out at a stage in the graded response cannot answer the question (either at all, or with sufficient confidence to satisfy stakeholders) then monitoring should move to the next level.

As well as monitoring, the operator may be able to obtain more detailed information from operator records about process conditions, observations or inspections at the time of complaint – this would allow noise trends to be identified and reconciled with particular process operations or maintenance.

7.2.2 COMMUNICATION WITH COMPLAINANT

In the case of answer phone messages and complaints submitted by email or by letter, an acknowledgement and initial response will be given by telephone or by email within three working days, provided that telephone or email contact details have been given by the complainant.

The primary reasons for further investigation of complaints are to assess potential nuisance and identify the likely cause and source of the noise so that nuisance can be reduced or stopped. In the case of further investigations, the operator will communicate to the complainant the course of actions likely to be taken to ensure that there is transparency and to establish at the outset clear targets and goals for determining the success of any control measures.

8. PLANT MANAGEMENT

8.1 GENERAL

The operator is committed to managing effectively the impacts of noise from the facility. This commitment extends from policies produced at director level, to the resources available to the competent personnel, to the abilities of the personnel managing noise-critical work tasks. This section describes the responsibility for the management and operation of the site.

The operator conducts their operations according to an Environmental Management System that is designed to ensure that all staff are competent to carry out the tasks that have been designated as their responsibility. Work instructions, job descriptions and procedures will be established for critical areas of the facility's activity and these will be issued to or made available to personnel responsible for undertaking these tasks. Further information on roles and responsibilities is given below:

- The Site Manager reports to the Director;
- Process operational staff on the site are also responsible for making observations on the ground of general process performance during their daily attendance. During carrying out their daily routine duties on the site, staff are instructed to note and observe any unusual noise occurrences and to report these to the Site Manager;
- Non-specialist maintenance / inspection is carried out by site operational staff according to the maintenance plan and procedures and;
- Maintenance provided by specialist contractors who carry out routine preventative maintenance and reactive breakdown maintenance shall have clear terms and conditions, which include response times and requirements for routine inspection and servicing. Contractors should report directly to the Site Manager.

9. TRAINING AND COMPETENCE

9.1 GENERAL PROCESSES FOR TRAINING AND COMPETENCY OF STAFF

Training and competency of staff is controlled by the Operator's Environmental Management System. The Environmental Management System covers training, awareness and competence. The company identifies training requirements of its employees and provides suitable resources to ensure that they have the required knowledge, skills and expertise to carry out their duties. This includes their roles and responsibilities in complying the Environmental Management System and all relevant legislation. This is achieved through induction training for new employees, awareness training for all and specific training as required.

Contractors and all persons performing tasks on behalf of the facility will be made aware of the policy and relevant Environmental Management System requirements and will be competent in the roles undertaken.

All staff at the facility are made fully aware of the need to be constantly vigilant about site noise control and management procedures. To minimise risk of emissions, emphasis will be given to:

- Awareness of their responsibilities for avoiding noise nuisance and;

- Actions to minimise noise emissions during abnormal conditions.

10. DOCUMENT UPDATES AND REVIEW

10.1 DOCUMENT UPDATES AND REVIEW

The operator is committed to an internal auditing process and to developing documented auditing procedures (forms) to record the process.

The updating and review of controlled documents is controlled by the operator's Environmental Management System.

The Environment Agency will be provided access to audit the implementation of the NMP, complaints records and records of the operator's compliance with the NMP.

It is the operator's intent that the change mechanism should provide for improvements in management practice and organisation, to allow the NMP to be a living document, whereby changes to plant, equipment and practices that improve the operation of the facility and do not detract from overall environmental performance, are not unduly delayed or hindered. It is envisaged that the NMP will be reviewed and updated on a regular basis, on the application of any permit variations and as a minimum every four years.