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NOISE ASSESSMENT

PROPOSED VARIATION OF CONDITIONS TO INCREASE THROUGHPUT AND WORKING HOURS FORMER SAXON BRICKWORKS, WHITTLESEY

JOHNSONS AGGREGATES AND RECYCLING LTD

JUNE 2024

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Revision	Prepared By	Date
1.0	L Jephson BEng (Hons) MIOA	21/6/24

CONTENTS

1. Introduction

LF Acoustics Ltd have been appointed by Johnson Aggregates and Recycling Ltd to prepare a noise assessment to support a planning application for operational changes to their current planning permission at their site located at the former Saxon brickworks, Whittlesey (Planning Permission Ref. CCC/21/024/FUL).

A Section 73 application has been submitted to vary Conditions 2, 6, 15, 21 and 25 of the planning permission. The proposals are to:

- Increase the hours of operation of Building 1;
- Increase the number of vehicle movements per day;
- Increase the volumes of IBA and construction & demolition (C&D) waste to be processed at the site; and
- Increase the height of the lego-block storage bays and stockpile heights.

This Noise Assessment has also been suitably prepared to accompany the submission of an application to vary the Applicant's existing Environmental Permit (number EPR/DP3131NM).

The present planning permission allows the crushing and screening of construction and demolition (C&D) waste at the site. The proposals seek to additionally crush and screen IBA/IBAA at the site periodically.

The site has been operational for 2 years. Periodic noise monitoring has been carried out during this time, which has identified further measures to reduce noise above those considered at the time the previous planning application was submitted. Measures implemented to date have reduced noise levels from the operation of the site, which will be retained should planning permission for the extended working hours be granted. In addition, planning permission has recently been granted for an extension to Building 1 to enclose the trommel, which is presently external from the building and noted to be a main source of noise (Application Ref. CCC/23/044/FUL). The building extension would be completed prior to any extended hours commencing.

This report presents an assessment of the noise levels attributable to the proposed day and night-time site operations, based upon the increased throughput and the operation of Building 1 overnight.

Whilst several measures have been implemented to reduce noise levels from the present operations since the site commenced, further measures are proposed and discussed within this report, which will ensure that the noise levels at the surrounding properties do not increase above those presently permitted.

This report has been prepared by L Jephson BEng(Hons) MIOA, Director of LF Acoustics Ltd. He has been an acoustic consultant for over 30 years, specialising in environmental acoustics.

2. Standards and Guidelines

A description of the noise units referred to in this report is provided in Appendix A.

2.1. National Planning Policy Framework

The National Planning Policy Framework (NPPF) revised in December 2023 [1], sets out the Government's planning policies for England and how these should be applied. It provides a framework upon which locally prepared plans for housing and other development can be produced.

The purpose of the planning system is to contribute to the achievement of sustainable development and at the heart of the Framework is a presumption in favour of sustainable development.

With regards to noise, local planning policies and decisions should contribute to and enhance the natural and local environment by:

- preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of noise pollution.
- 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;
- identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

Reference is made within the NPPF to the Noise Policy Statement for England (NPSE) [2] within Footnote 65, which sets out the long-term vision of the Government noise policy. Further information has been provided on the assessment of noise within recent Planning Practice Guidance, updated in July 2019 and available on the Government planning web site (https://www.gov.uk/guidance/noise--2). Whilst this guidance does not provide any objective criteria upon which to base noise assessments, the guidance provides a description of the relevant Effects Levels identified within the NPPF and NPSE and this is reproduced in Table 2.1.

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect (NOEL)	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 (LOAEL)	
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 (SOAEL)	
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 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 acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability 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 2.1 Significance Criteria

The NPPF advises that development should seek to ensure that noise from proposed developments does not give rise to significant impacts, i.e. a level identified as a Significant Observed Adverse Effect (SOAEL), which is at a level where the noise would cause a material change in behaviour.

2.2. British Standard BS 4142

BS 4142 [3] is the British Standard for rating and assessing noise of a commercial or industrial nature and is relevant to the noise associated with the operation of the proposed plant.

BS 4142 is a comparative standard in which the estimated noise levels from the proposed development are compared to the representative / typical background noise level from existing uses.

The initial assessment relates the likelihood of adverse impact to the difference between the Rating Level of the noise being assessed and the background noise level. This assessment can be modified to take account of the context.

The background noise level is the L_{A90} noise level, usually measured in the absence of noise from the source being assessed, but may include other existing industrial or commercial sounds. The background noise levels should generally be obtained from a series of measurements each of not less than 15-minute duration.

The Rating Level of the noise being assessed is defined as its L_{Aeq} noise level (the 'specific noise level'), with the addition of appropriate corrections should the noise exhibit a marked impulsive and/or tonal component or should the noise be irregular enough in character to attract attention. The extent of the correction is dependent upon the degree of tonality or character in the noise and is determined either by subjective professional judgement, where the plant is not operational at present, or by measurements.

Where the noise is tonal in nature, the standard imposes the following character corrections when assessing the rating level based on a subjective assessment:

- 2 dB for a tone which is just perceptible;
- 4 dB where the tone is clearly perceptible; and
- 6 dB where the tone is highly perceptible.

Methods for identifying whether noise is tonal in nature are provided within BS 4142 Section 9.2, Annex C or Annex D.

Where noise exhibits other sound characteristics, the Standard advises a character correction of 3 dB should be applied.

During the daytime, the specified noise levels are determined over a reference time interval of 1 hour, with a 15 minute reference period adopted when assessing night-time noise.

If the Rating Level of the noise being assessed exceeds the background level by 10 dB or more BS 4142 advises that there is likely to be an indication of a significant adverse impact, depending upon context. A difference between background level and Rating Level of around 5 dB is likely to be an indication of an adverse impact, depending upon context. The lower the Rating Level is, relative to the background noise level, the less likely the specific source will have an adverse or significant adverse impact. Where the Rating Level does not exceed the background noise level is an indication of a low impact, depending upon context.

The assessment method outlined above is intended for the assessment of external noise levels and is not intended to assess the extent of impact at internal locations.

Where the initial assessment of impact, based upon and assessment of the external noise levels, needs to be modified due to the context, all pertinent factors should be taken into account, including:

- The absolute level of sound;
- Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night; and

- The sensitivity of the receptor and whether the premises will already incorporate measures to ensure good internal and/or external acoustic conditions.

2.3. Design Manual for Roads and Bridges

The Design Manual for Roads and Bridges [4] provides a methodology for assessing the potential impacts attributable to changes in road traffic noise levels from new or altered roads.

Whilst no changes to the access road are proposed, the guidance is useful to assess the potential impacts associated with the proposed increases to the HGV movements along the access road.

The assessment criteria, obtained from DMRB, based upon long term changes in road traffic, which are applicable, as the increase in traffic would be gradual, are as follows.

Noise Change $L_{A10,\ 18\ Hour}$	**Magnitude of Impact**
Decrease of More than 10	Major Beneficial
Decrease of 5 – 9.9	Moderate Beneficial
Decrease of 3 – 4.9	Minor Beneficial
Decrease of 0.1 – 2.9	Negligible Beneficial (not significant)
0	No Change (not significant)
Increase of 0.1 – 2.9	Negligible Adverse (not significant)
Increase of 3 – 4.9	Minor Adverse
Increase of 5 – 9.9	Moderate Adverse
Increase of More than 10	Major Adverse

Table 2.1 DMRB Assessment Criteria

3. Relevant Planning Conditions

Planning permission is being sought to increase the throughput of the site from 300,000 tonnes per annum to 614,000 tonnes per annum, comprising a mix of IBA and C&D waste.

The increase will require amendments to a number of the current planning conditions, to allow additional operational hours for Building 1, an increase in the number of HGV movements and to allow the crushing and screening of IBA in addition to the C&D waste presently permitted.

The Conditions relevant to noise, where a variation is being sought, are discussed below.

Condition 6 – Hours of Operation

Condition 6 of the extant planning permission restricts the hours of operations to the following:

"No operations, including the delivery and removal of materials shall take place other than

specified below:

- *External crushing and screening of C& D material is permitted to take place between 08:00 – 18:00 Monday to Friday excluding bank and public holidays;*
- *External movement, loading and repositioning of IBA, IBAA and C&D material within the site edged red on the Revised Site Layout Plan by HSP Consulting Ltd Ref C3432-600-P07 dated 19 August 2021 received on 07 January 2022 is permitted to take place between 06:00 - 22:00 Monday to Friday and 08:00 – 18:00 on Saturdays;*
- *The delivery and removal of Incinerator Bottom Ash, Construction and Demolition Waste, recovered metals and Incinerator Bottom Ash Aggregate materials shall only take place between the hours of 06:00 – 18:00 Monday to Friday, 08:00 – 13:00 Saturdays and at no time on Sundays.*
- *Processing of IBA within recycling building 1 as shown on the Revised Site Layout Plan by HSP Consulting Ltd Ref C3432-600-P07 dated 19 August 2021 received on 07 January 2022 is permitted to take place between 06:00 to 22:00 Monday to Friday including bank holidays and 08:00 – 18:00 on Saturday;*
- *Processing of IBA within recycling building 2 as shown on Revised Site Layout Plan by HSP Consulting Ltd Ref C3432-600-P07 dated 19 August 2021 received on 07 January 2022 and use of associated machinery is permitted 24 hours a day, 7 days a week including Sundays and Bank Holidays (except Christmas Day); and*
- *Essential servicing and maintenance of plant of other similar works of an essential nature is permitted 24 hours a day, 7 days a week including Sundays and Bank Holidays (except Christmas Day)."*

It is proposed to vary the first part of the condition to include the crushing and screening of IBA, no changes to the proposed operating hours for the plant are being sought.

The proposed variation to this condition also seeks permission to increase the working hours in Building 1 so that they correlate to those already permitted in Building 2 (i.e. processing of IBA 24 hours a day, 7 days a week including Sundays and Bank Holidays [except Christmas Day]).

Condition 15 – HCV Movements

Condition 15 (Vehicle Movements) of the extant planning permission restricts the Heavy Commercial Vehicles (HCV) movements as follows:

- *The total number of 92 (46 in and 46 out) Heavy Commercial Vehicle (HCV) movements associated with the development hereby permitted shall not be exceeded per day. For the avoidance of doubt an HCV shall have a gross vehicle weight of 7.5 tonnes or more and the arrival at Site and departure from it count as separate movements.*

To enable the increase in throughput at the site, a variation to this condition to allow 332 (166 in and 166 out) movements per day. The additional movements would be during the presently permitted hours specified in Condition 6 and no changes to the operational hours for the vehicle movements are being sought.

Condition 21 – Annual Throughput of Waste

Condition 21 (Annual Throughput of Waste) of the extant planning permission states:

- *No more than 250,000 tonnes of non-hazardous Incinerator Bottom Ash and 50,000 tonnes of Construction and Demolition waste shall be imported to the Site in any 12 month period. The total quantity of imported waste arriving at the site over the preceding 12 months shall be provided in writing to the Waste Planning Authority within 14 days of a written request for that information.*

The Applicant is seeking to increase the permitted capacity of the plant from a total of 300,000 tonnes per year (250,000 tonnes of IBA and 50,000 tonnes of C&D waste) to 614,000 tonnes per year (comprising 460,000 tonnes per year of imported IBA and an increase in the level of C&D waste in to circa 154,000 tonnes per year.

Condition 25 – Storage and Stockpiles of Materials

Condition 25 (Stockpile Heights) of the extant planning permission states:

- *No stockpiles of non-hazardous waste or other material shall be stored outside of the confines of the approved Waste Materials Reception area. No stockpiles of waste materials shall exceed 6 metres in height when measured from the base.*

The proposed increase in throughput of IBA will require the height of the stockpile of waste material to be increased to 6.7 metres when measured from the base. This will require the height of the current lego-block wall located around the stock yard to be increased by 1.6 metres to 7.2 metres.

4. Baseline Conditions

4.1. Introduction

A noise assessment was prepared by Clement Acoustics to accompany the original planning and permit applications for the development in 2021. A copy of the previously agreed noise assessment report is provided in Appendix B.

The report identified the noise sensitive receptors surrounding the application site, along with the results of a baseline noise monitoring exercise, carried out to establish the prevailing noise levels at the surrounding properties.

An assessment of the operational noise levels was made at the receptor locations, which identified that the operation would not result in adverse noise impacts for the hours of operation being sought at the time.

The report was accepted by the Local Authority and the Environment Agency.

As the site is now operational, the noise levels at the surrounding properties are influenced by the plant operating on site. On this basis, for the purposes of the current assessment, it is appropriate to use the previous agreed baseline data to base the current assessment. This approach was agreed with officers at the Environment Agency in January 2024.

4.2. Identification of Noise Sensitive Receptors

The site is located within the former Saxon brickworks site. There are residential properties to the north along Peterborough Road and to the east along Priors Road and Snoots Road, as indicated below.

4.3. Baseline Noise Monitoring

Baseline noise monitoring was carried out by Clement Acoustics in September 2021, to support the original planning application and thus prior to the site becoming operational.

Typical background noise levels were established along the boundaries with Peterborough Road and Snoots Road for the three different operational periods during the day and night-time. Given that the noise environment is now potentially influenced by site operations, it is appropriate to utilise the previously agreed noise levels upon which to base the current assessment, as this will provide worst-case baseline conditions.

The agreed background sound levels are as follows.

Receptor Position	**Typical Background Noise Levels [dB L_{A90}]**		
	Period 1 **06:00 – 18:00**	**Period 2** **06:00 – 22:00**	**Period 3** **24 Hour Use**
Peterborough Road	50	50	34
Snoots Road	42	42	34

Table 4.1 Previously Agreed Background Noise Levels

The proposed variations to the planning conditions relate to operating Period 1 during the daytime, where there would be additional HGV movements and crushing and Screening of IBA and during Period 3, where extended hours for Building 1 are being sought, to enable operations overnight.

5. Current Noise Monitoring / Management

As part of the overall management of noise within the site, noise monitoring has been carried out periodically along the site boundaries since operations commenced in 2022.

Initial noise monitoring carried out in 2022 identified higher noise levels at the surrounding properties than originally calculated and assessed. As a result, a range of noise mitigation and control measures have been implemented on site to reduce noise levels, which have included:

- relocation of the hopper & associated conveyor for the trommel located adjacent to Building 1 to ground level;
- changing the methods of cleaning the yard and all concreted surfaces around site;
- introduction of measures to decrease the drivers practice of tailgate banging when tipping;
- the outdoor fans to the Trennsos being screened at the base with concrete structures;
- the addition of inline duct fan silencers onto the Trennsos installation;
- relocation of the extraction duct to Trennso 3 to the rear of Building 2;
- draping soundproof rubber material to provide partial screening for the outdoor ferrous bay located adjacent to the trommel;
- extending the trommel structural body (outlet), which have been fitted with sound reduction panels; and
- only allowing silent generators on site due to 'buy quiet' strategy.

The measures above have provided a noticeable reduction in noise levels at the surrounding properties.

A noise monitoring exercise carried out in April 2023 [6], indicated that the noise levels attributable to the operation of the site had noticeably reduced, to a level where the operations were not clearly audible at the surrounding residential properties.

An assessment of the measured noise levels against those calculated within the original noise impact assessment prepared by Clement Acoustics indicated a clear reduction in noise levels, as indicated below.

Location	Measured Noise Levels / Difference with Calculated Level Within NIA [dB $L_{Aeq,T}$]		
	Period 1	Period 2	Period 3
Position 1 – Priors Road	39 / -4	34 / -6	< 30 / >-5
Position 2 – Snoots Road (Receptor R02)	45 / 0	40 / 0	<30 / >-4
Position 3 – Peterborough Road (Receptor R19)	50 / -1	45 / -2	33 / -4

Table 5.1 Comparison of Current Noise Levels Against Noise Levels Predicted in NIA

An assessment of the measured noise levels was additionally made against the requirements of BS 4142, which indicated the following.

Description	Time Period		
	Period 1 (Daytime)	**Period 2 (Evening)**	**April 2023**
Noise Level at Dwelling [dB $L_{Aeq, T}$]	39	34	<30
Acoustic Feature Correction	3	3	3
Rating Level [dB $L_{Aeq, 1\ hour}$]	42	37	<33
Background Level [dB L_{A90}] (Assumed Equivalent to Snoots Road)	42	42	34
Excess Over Background	0	-5	-1
Likelihood of Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact

Table 5.2 BS 4142 Assessment – Priors Road

Description	Time Period		
	Period 1 (Daytime)	**Period 2 (Evening)**	**April 2023**
Noise Level at Dwelling [dB $L_{Aeq, T}$]	45	40	<30
Acoustic Feature Correction	3	3	3
Rating Level [dB $L_{Aeq, 1\ hour}$]	48	43	<33
Background Level [dB L_{A90}]	42	42	34
Excess Over Background	+6	+1	-1
Likelihood of Impact	Indication of Adverse Impact	Indication of Low Impact	Indication of Low Impact

Table 5.3 BS 4142 Assessment – Snoots Road

Description	Time Period		
	Period 1 (Daytime)	**Period 2 (Evening)**	**April 2023**
Noise Level at Dwelling [dB $L_{Aeq, T}$]	50	45	32
Acoustic Feature Correction	3	3	3
Rating Level [dB $L_{Aeq, 1\ hour}$]	53	48	35
Background Level [dB L_{A90}]	50	50	34
Excess Over Background	+3	-2	+1
Likelihood of Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact

Table 5.4 BS 4142 Assessment – Peterborough Road

It is clear from the assessments above, that the noise management and control measures implemented since operations commenced on site have resulted in the operation generating low levels of noise at the surrounding properties.

6. Calculation and Assessment of Proposed On-Site Operations

6.1. Proposed Operations

Variations in the planning conditions to operate the site are being sought to increase the throughput of the site and to extend the working hours for Building 1. In addition, it is proposed to utilise the crushing and screening plant, presently permitted for C&D waste to process IBA within the main stock area, which would be carried out during the daytime.

No changes to the current evening operation on site are being sought, which presently permit operations within both Buildings 1 and 2.

There would be no requirement for any additional plant to operate on site compared to that presently working. To reduce noise levels attributable to the night-time loading of the hopper for Building 1, it is proposed to use an electric loader for the operation, such as a Volvo L25. This loader would be fitted with an alternative non audible reversing warning device, which would provide a personal alert to anyone working in the stock bay area overnight.

Prior to any extended working hours, the proposed building to enclose the trommel would be constructed. This building will be of composite steel panel construction with an absorptive inner lining to ensure noise break-out from the operation of the trommel is minimised. Details of the proposed enclosure building are provided within the application documents which accompanied that planning application.

It is also proposed to block off the old ventilation louvre located at high level at the rear of Building 1. Whilst there is low level break-out of noise from this vent, blocking the vent off will provide a small additional reduction in noise levels attributable to the operation within the building.

The increase in height of the lego-block wall around the main stock bays to the east of Building 1 would also be completed prior to any changes in the current operational conditions on the site.

Additional measures are also being implemented around Building 2 to ensure that the overall noise levels from the proposed night-time operations, which would include Building 1, would be acceptable. Measures which are being implemented include an increase in the height of the mitigation around Trennsos 1 and 2, to 2.4 metres, with an absorptive lining to be provided on the inner face, and the fitting of silencers on the exhaust to Trennso 3, located at the rear of the building.

The main changes considered within this assessment are as follows:

Daytime Operations (Period 1)

- Increase in HGV movements from 92 per day to 332 per day;
- Periodic screening and crushing of IBA within the main stock area to the east of Building 1. This would not be additional plant as the screening and crushing plant would be used to process C&D waste as presently permitted *or* IBA. The only change would be the relocation of the plant into the main stock area to the east of Building 1 whilst processing IBA;
- Reduction in noise levels attributable to the operation of Building 2, associated with the additional mitigation measures for Trennsos 1 and 2 and the installation of silencers on the exhaust to Trennso 3.

Evening Operations (Period 2)

- No change, evening operations are not considered or assessed within this report, noting that the additional mitigation measures implemented for Building 2 will reduce noise levels further.

Night-time Operations (Period 3)

- Operation of Building 1 and the trommel, in addition to the presently permitted operations within Building 2;
- Loading shovel loading hopper to Building 1, assuming the use of an electric loader, with a non-audible reversing signal fitted.

6.2. Source Term Noise Monitoring

The source term noise levels used for the previous noise assessment, were based upon monitoring at one of the other sites operated by Johnsons.

As the site is now operational, noise monitoring was carried out during April 2024 to establish the source term noise levels from the operation of the main items of plant within the site.

A site visit was made on 18 April 2024.

A series of measurements were made around the site adjacent to the main items of plant whilst they were operating normally.

The measurements were made using a Rion NL-52 Class 1 Sound Level Analyser, which was calibrated before and after the exercise using a Rion NC-74 Class 1 Acoustic Calibrator. Both instruments had been laboratory calibrated according to National Standards within the previous 12 months.

Measurements were taken at a safe position adjacent to each item of plant and at a location where noise from other surrounding plant was minimised.

The measured data, obtained in terms of either L_{Aeq} or $L_{Amax,F}$ noise level has been subsequently converted into an equivalent Sound Power Level for use within the noise modelling software.

At the time of the survey, no screen or crusher was operational on site. To assess the noise levels attributable to the screening and crushing operations associated with the IBA, source term data obtained from plant operating at a similar site and processing similar waste has been used for the purposes of the current assessment.

The source data obtained and used within the modelling is presented in Appendix C.

6.3. Calculation of Noise Levels

Noise levels attributable to the on-site operations have been calculated using the SoundPlan computer modelling package. The software implements the calculation procedures from ISO 9613-2.

Ground levels for the site and surrounding area have been obtained from LiDAR data available on the Defra website.

Noise levels attributable to the operation of the site have been modelled for the proposed daytime operations, taking account of periods associated with general site operations and during

periods when the crushing and screening plant would operate either processing C&D waste or IBA. Night-time operations have been modelled on the basis of the proposed operations.

For the daytime-operations, the following assumptions have been made:

- Building 1 fully operational;
- Building 2 fully operational;
- Two loading shovels working within the yard, handling materials from the plant and loading HGVs, both operating at 100%;
- Three models prepared on the basis of: general operation; C&D screening and crushing at the rear of Building 1; or IBA screening & crushing within the main stock area, assuming 100% operational over an hourly period;
- 35 HGVs in / 35 HGVs out per hour, to represent the likely worst-case hourly periods.

For the night-time operations, the following assumptions have been made:

- Building 1 fully operational;
- Building 2 fully operational;
- One electric loading shovel operating in the yard loading the hopper for Building 1 operating at 50% (the loader would not need to feed the plant continuously and tends to wait by the hopper between loads);
- No HGV movements;
- No other mobile plant operating externally.

For both the day and night-time modelling, the additional noise mitigation measures described previously have been included within the modelling, which includes:

- Enclosure of the trommel;
- Increase in the height of the wall around the IBA stock area to 7.2 metres;
- Increase in the height of the lego-block mitigation around Trennsos 1 and 2, located to the side of Building 2, to 2.4 metres and lining the inner face with absorptive material;
- Provision of silencers on the exhausts to Trennso 3 located at the rear of Building 2;
- Blocking off of the ventilation louvre at the end of Building 1.

Figure 1 indicates the positions of the plant used within the modelling.

The calculated noise levels are presented on Figures 2 – 5 and detailed in Appendix D, with the results summarised below.

Location	Calculated Noise Levels [dB $L_{Aeq,T}$]	
	Daytime (General / C&D / IBA	Night-time
Priors Road	36 / 38 / 42	29
Snoots Road	38 / 40 / 42	30
Peterborough Road	44 / 47 / 44	35

Table 6.1 Predicted Worst Case Noise Levels

6.4. Assessment

It is clear from the calculated noise level presented in Table 6.1, that the measures taken to date and those proposed have resulted in a clear reduction in the daytime noise levels at the surrounding noise sensitive properties, when compared to the noise levels calculated and assessed previously for the original planning application (ref. Table 5.1). This reduction includes consideration of the additional vehicle movements proposed during the daytime periods.

Whilst not specifically assessed within this report, the mitigation measures implemented will also ensure noise levels are reduced during the evening periods, compared to those accepted previously, providing a clear benefit to the occupants of neighbouring properties.

The additional noise mitigation measures implemented to date and those proposed, will also seek to ensure that the night-time noise levels remain commensurate with those calculated within the previous NIA, which demonstrated that the operation of the site would not result in adverse noise impacts at neighbouring properties.

Based upon observations made since the site became operational has indicated that the noise associated with the operation is not tonal at the surrounding noise sensitive properties, nor impulsive providing the site is managed effectively to ensure HGV drivers do not bang tailgates when unloading. The noise is, however, characteristic, particularly overnight, when background noise levels are lower and, on this basis, a correction of 3 dB has been applied to the calculated noise levels to account for the other character correction, to determine the noise rating levels upon which the BS 4142 assessment has been prepared.

The BS 4142 assessments for the neighbouring properties are presented below.

6.4.1. Assessment of Noise Levels at Properties Along Priors Road

The initial BS 4142 assessment for these properties is provided below.

Description	Time Period			
	Daytime (General)	Daytime (inc C&D processing)	Daytime (inc IBA processing)	Night-time
Noise Level at Dwelling [dB $L_{Aeq, T}$]	36	38	42	29
Acoustic Feature Correction	3	3	3	3
Rating Level [dB $L_{Aeq, 1\ hour}$]	39	41	45	32
Background Level [dB L_{A90}]	42	42	42	34
Excess Over Background	-3	-1	+3	-2
Likelihood of Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact

Table 6.2 BS 4142 Assessment – Priors Road

The assessment above, indicates that the proposed operations would result in a potential for a low impact when assessed against the requirements of BS 4142. This provides a good indication that the proposals would not result in adverse noise impacts at the properties along Priors Road.

Comparing the predicted levels for the proposed operations against those presently permitted and calculated within the NIA which accompanied the original planning application, indicates a reduction in the presently permitted noise levels both during the day and night-time periods.

6.4.2. Assessment of Noise Levels at Properties Along Snoots Road

The initial BS 4142 assessment for these properties is provided below.

Description	Time Period			
	Daytime (General)	Daytime (inc C&D processing)	Daytime (inc IBA processing)	Night-time
Noise Level at Dwelling [dB $L_{Aeq, T}$]	38	40	42	30
Acoustic Feature Correction	3	3	3	3
Rating Level [dB $L_{Aeq, 1\ hour}$]	41	43	45	33
Background Level [dB L_{A90}]	42	42	42	34
Excess Over Background	-1	+1	+3	-1
Likelihood of Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact

Table 6.3 BS 4142 Assessment – Snoots Road

The assessment above, indicates that the proposed operations would result in a potential for a low impact when assessed against the requirements of BS 4142. This provides a good indication that the proposals would not result in adverse noise impacts at the properties along Snoots Road.

Comparing the predicted levels for the proposed operations against those presently permitted and calculated within the NIA which accompanied the original planning application, indicates a

reduction in the presently permitted noise levels of 3 dB(A) during the day and night-time periods. This demonstrates that the continuing and proposed measures being taken to control noise from the site will still provide small benefit at these properties, compared to the operations assessed initially.

6.4.3. Assessment of Noise Levels at Properties Along Peterborough Road

The initial BS 4142 assessment for these properties is provided below.

Description	Time Period			
	Daytime (General)	Daytime (inc C&D processing)	Daytime (inc IBA processing)	Night-time
Noise Level at Dwelling [dB $L_{Aeq, T}$]	40	47	44	35
Acoustic Feature Correction	3	3	3	3
Rating Level [dB $L_{Aeq, 1\ hour}$]	44	50	47	38
Background Level [dB L_{A90}]	50	50	50	34
Excess Over Background	-6	0	-3	+4
Likelihood of Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact

Table 6.4 BS 4142 Assessment – Peterborough Road

The assessment above, indicates that the proposed operations would result in a potential for a low impact when assessed against the requirements of BS 4142. This provides a good indication that the proposals would not result in adverse noise impacts at the properties along Peterborough Road.

The mitigation measures taken to date and those proposed will result in a clear reduction in daytime noise levels at these properties compared to the previously accepted assessment, even taking account of the increased throughput in the site. This clearly demonstrates that the control measures being taken to reduce noise from the site have provided clear benefit in this location.

Overnight, when it is proposed to operate Building 1, the additional measures being taken to further reduce noise levels from Building 2, which presently operates overnight, and the measures to control noise from the night-time yard activities, will ensure that noise levels do not increase above those presently permitted. The assessment for the night-time periods indicates a low potential for adverse impacts at these properties and is thus considered to remain acceptable.

7. Calculation and Assessment of Traffic Movements on Access Road

The increase in throughput of the site will require an increase in vehicles delivering and collecting material from the site and using the site access road from Peterborough Road.

The access is used by both the Applicant's vehicles and vehicles accessing the other businesses on the site, primarily East Midlands Waste Management. Stabilisation works are being carried out by East Midlands Waste Management, presently along the eastern side of the pit, adjacent to Priors Road. These operations require the importation of material by HGV, with regular movements throughout the day.

An assessment of the potential impacts associated with the additional HGV movements along the site access has been made based upon the calculation of the noise change attributable to the presently permitted vehicle movements compared to those proposed, utilising the following formula:

$$Change\ in\ Noise\ Level = 10\ x\ Log\ \left(\frac{Projected\ Traffic\ Flow}{Reference\ Traffic\ Flow}\right)\ \text{dB}$$

The reference traffic flow has been obtained from the previous noise assessment and includes both the permitted vehicles movements associated with the Applicant's vehicles and other vehicles movements.

The traffic flows and calculated change in noise levels are presented in Table 7.1 below.

Reference Traffic Flow	Proposed Traffic Flow	Calculated Change in Traffic Noise Levels Along Access [dB $L_{Aeq,\ T}$]
Applicants Vehicles - 92 Other Vehicles - 180 TOTAL - 272	Applicants Vehicles - 332 Other Vehicles - 180 TOTAL - 512	+ 2.7

Table 7.1 Calculated Change in HGV Noise Levels Along Access Road

The increase in road traffic noise levels associated with the additional vehicle movements would result in a negligible noise impact when assessed against the DMRB criteria.

The noise increase would be less than 3 dB(A), which is normally considered to be the lowest perceptible change in noise levels under normal listening conditions.

On this basis, the increase in traffic would not result in any adverse noise impacts at the properties located along Peterborough Road, close to the access road.

8. Cumulative Noise Assessment

The assessment of noise levels attributable to traffic using the access road presented in Section 7 has considered the potential cumulative impacts associated with the site vehicles and other vehicles accessing the former brickworks site and a cumulative assessment undertaken.

Buttressing and other operations carried out by East Midlands Waste Management within the brickworks site are permitted during the weekday periods between 07:00 and 17:00 hours Mondays to Fridays and between 07:00 – 13:00 hours on Saturdays. Those operations are controlled through other planning permissions / permits, which allow noise levels of up to 55 dB $L_{Aeq,\ 1\ hr}$ at the neighbouring properties.

An assessment of the potential cumulative impacts has therefore been considered for the daytime periods, as only the Applicant's site would be operational at other times of the day.

The noise limits attributable to the other operations is noted to be considerably higher than that associated with the operations within the Applicant's site. The noise levels attributable to the IBA processing and associated operations are at least 5 dB(A) lower than the noise limits associated with the other operations within the former brickworks site. On this basis, the noise associated with the IBA operations is generally unlikely to be clearly audible above that associated with other operations, thus ensuring any potential cumulative impacts and effects are minimised.

A screening opinion has recently been sought for a new science park to be located on land to the west of the JAR site (Ref. F/YR23/0715/SC). The science park would be accessed from a new junction off Peterborough Road and thus the proposals would not result in any changes to the traffic generation or noise levels from vehicles using the existing access. It is not anticipated that the operation of the science park would generate noticeable levels of noise at the surrounding residential properties and would thus not result in any potential for cumulative noise impacts. With regards to the uses within the science park, it is not anticipated that these would be noise sensitive and thus not adversely impacted by noise from the JAR operations.

9. Discussion of Uncertainty

Uncertainty within the calculations and assessment have been minimised.

The baseline noise conditions have been based upon the background noise levels obtained for the initial NIA, which supported the original planning application and agreed with LPA and EA officers at the time. Given the passage of time, it is considered likely that the noise levels in the surrounding area may have increased marginally and thus relying upon previous results will provide worst-case conditions.

Source term noise levels attributable to the operation of the plant on site have been obtained adjacent to that plant presently operational. Where plant is not presently operational, principally the screening and crushing plant, source data has been obtained from similar plant processing similar materials.

The calculations have been made using the SoundPlan computer modelling package, which implements the calculation methodology within ISO 9613-2. This calculation procedure has a general accuracy of ±3dB.

Calculations have been made on the basis of all plant fully operational. Generally, the mobile plant would operate as required, and can be stood for periods of time, particularly the loader loading the hopper. This approach will provide worst-case conditions and thus minimise any potential uncertainty.

10. Noise Management Plan

Noise levels associated with the operation of the site are controlled through a Noise Management Plan.

The noise management plan is reviewed regularly and agreed with the EA.

The noise management plan has been updated to reflect the proposals and will be implemented if approval is granted.

The updated Noise Management Plan has been appended in Appendix E of this report.

11. Summary

LF Acoustics Ltd have been appointed by Johnson Aggregates and Recycling Ltd to prepare a noise assessment to support a planning application for operational changes to their current planning permission at their site located at the former Saxon brickworks, Whittlesey (Planning Permission Ref. CCC/21/024/FUL).

A Section 73 application has been submitted to vary Conditions 2, 6, 15, 21 and 25 of the planning permission. The proposals are to:

- Increase the hours of operation of Building 1;
- Increase the number of vehicle movements per day;
- Increase the volumes of IBA and construction & demolition (C&D) waste to be processed at the site; and
- Increase the height of the lego-block storage bays and stockpile heights.

The present operations being carried out on site generate acceptable levels of noise at the surrounding properties. Noise monitoring has been carried out on several occasions, with measures taken to ensure that the noise levels attributable to the operation do not exceed the noise levels predicted and agreed within the original noise assessment which accompanied the planning application.

Further mitigation and control measures are proposed as part of the Section 73 application, which would further reduce noise levels from the operation of the site throughout the day. The additional measures proposed include:

- Enclosure of the trommel;
- Increase in the height of the wall around the IBA stock area to 7.2 metres;
- Increase in the height of the lego-block mitigation around Trennsos 1 and 2, located to the side of Building 2, to 2.4 metres and lining the inner face with absorptive material;
- Provision of silencers on the exhausts to Trennso 3 located at the rear of Building 2;
- Blocking off of the ventilation louvre at the end of Building 1;
- Restriction of use of mobile plant externally around Building 1 overnight to a single electric loader, which would be fitted with a non-audible reversing signal.

Calculations of the site noise levels have been made for the day and night-time periods, to consider the proposed operational changes.

An assessment of the noise levels has been made, which indicates that the noise levels at the surrounding properties would remain acceptable. Noise levels during the daytime periods would not increase as a result of the additional throughput, with a reduction in noise levels anticipated due to the additional mitigation and control measures to be implemented.

Overnight with Buildings 1 and 2 operational, noise levels would not increase above those accepted for the current application, which considers the operation of Building 2. This demonstrates that the proposed night-time operation would not result in a potential for adverse noise impacts at the neighbouring properties.

References

1. Department for Levelling Up, Housing & Communities. National Planning Policy Framework. December 2023.

2. DEFRA. Noise Policy Statement for England (NPSE). March 2010.

3. British Standards Institute. Methods for Rating and Assessing Industrial and Commercial Sound. BS 4142:2014 +A1:2019.

4. Highways England. Design Manual for Roads and Bridges. LA111. Noise and Vibration. Revision 2. May 2020.

5. Clement Acoustics. Saxon Works, Peterborough Road, Whittlesey. Noise Impact Assessment. Johnsons Aggregates & Recycling. Report 16426-NIA-01 RevI.

6. LF Acoustics Ltd. Saxon Works, Whittlesey. Noise Monitoring and Assessment. April 2023 Exercise. Johnsons Aggregates and Recycling. August 2023.

Figures

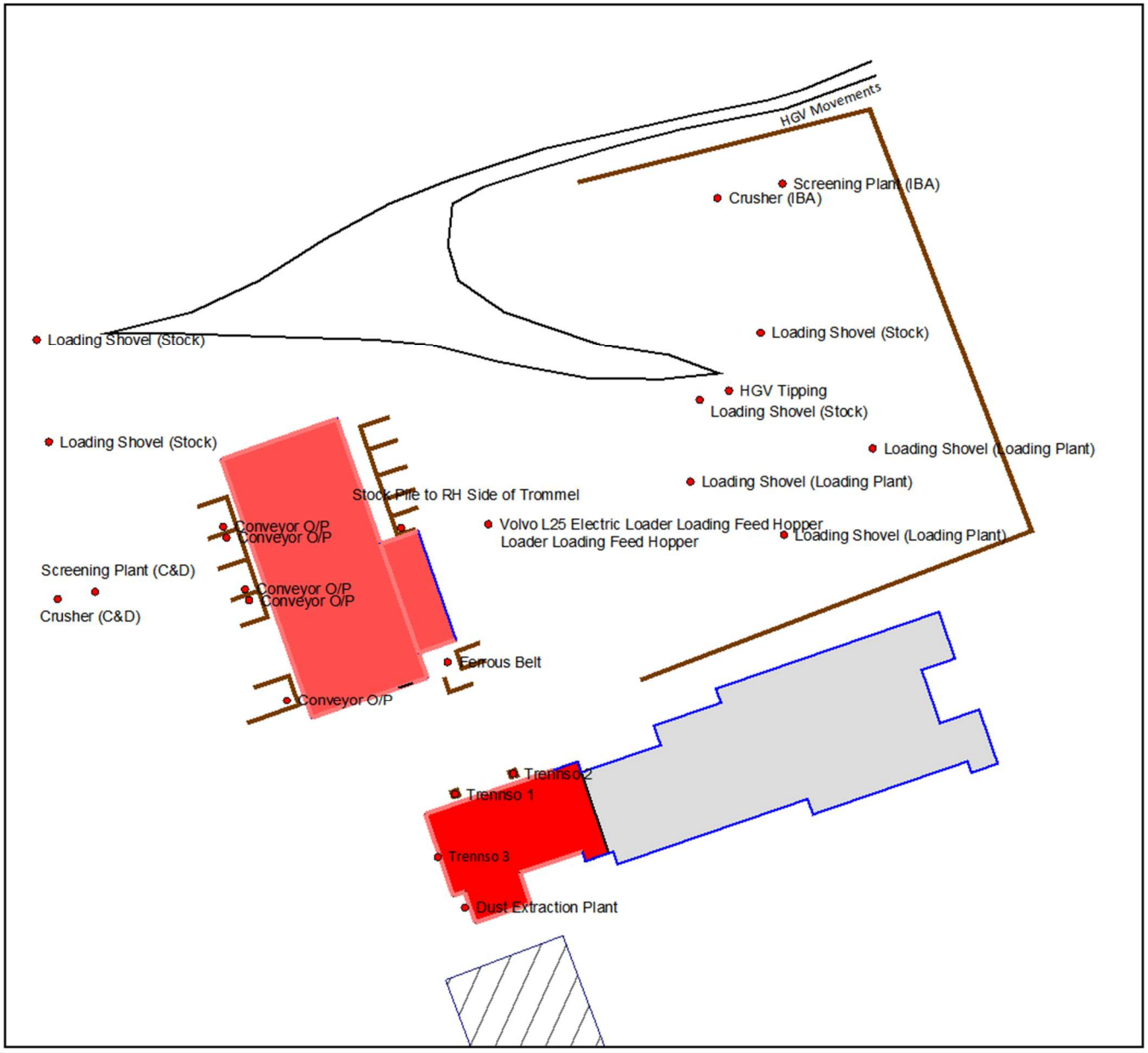
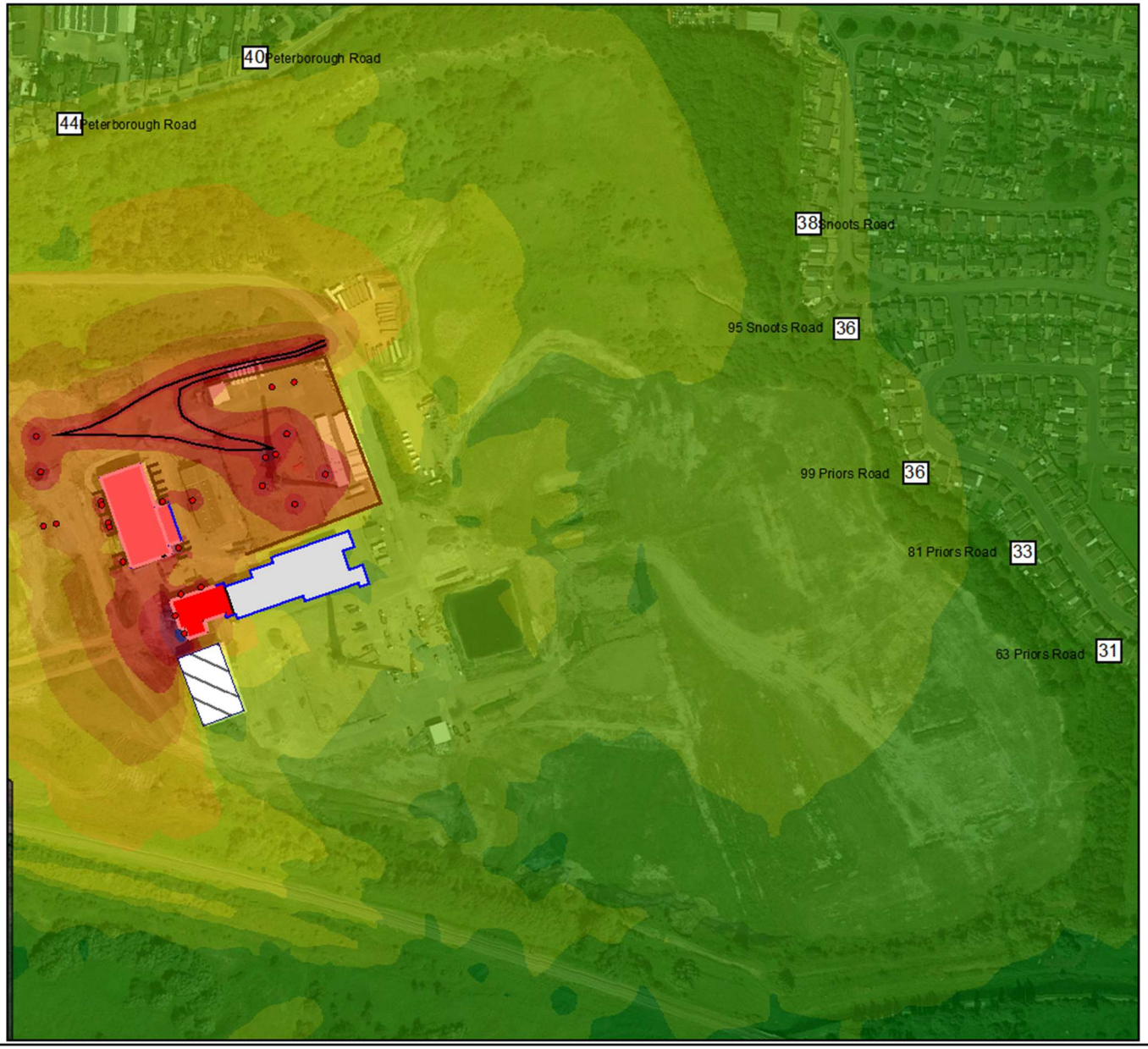


Figure 1
Plant Positions for Noise Model

LFAcoustics
consulting engineers



Noise Level LAeq,T
in dB(A)

	< 30
	30 - 35
	35 - 40
	40 - 45
	45 - 50
	50 - 55
	55 - 60
	60 - 65
	65 - 70
	70 - 75
	75 - 80
	>= 80

Figure 2
Calculated Noise Levels
Daytime Operations
General Operation

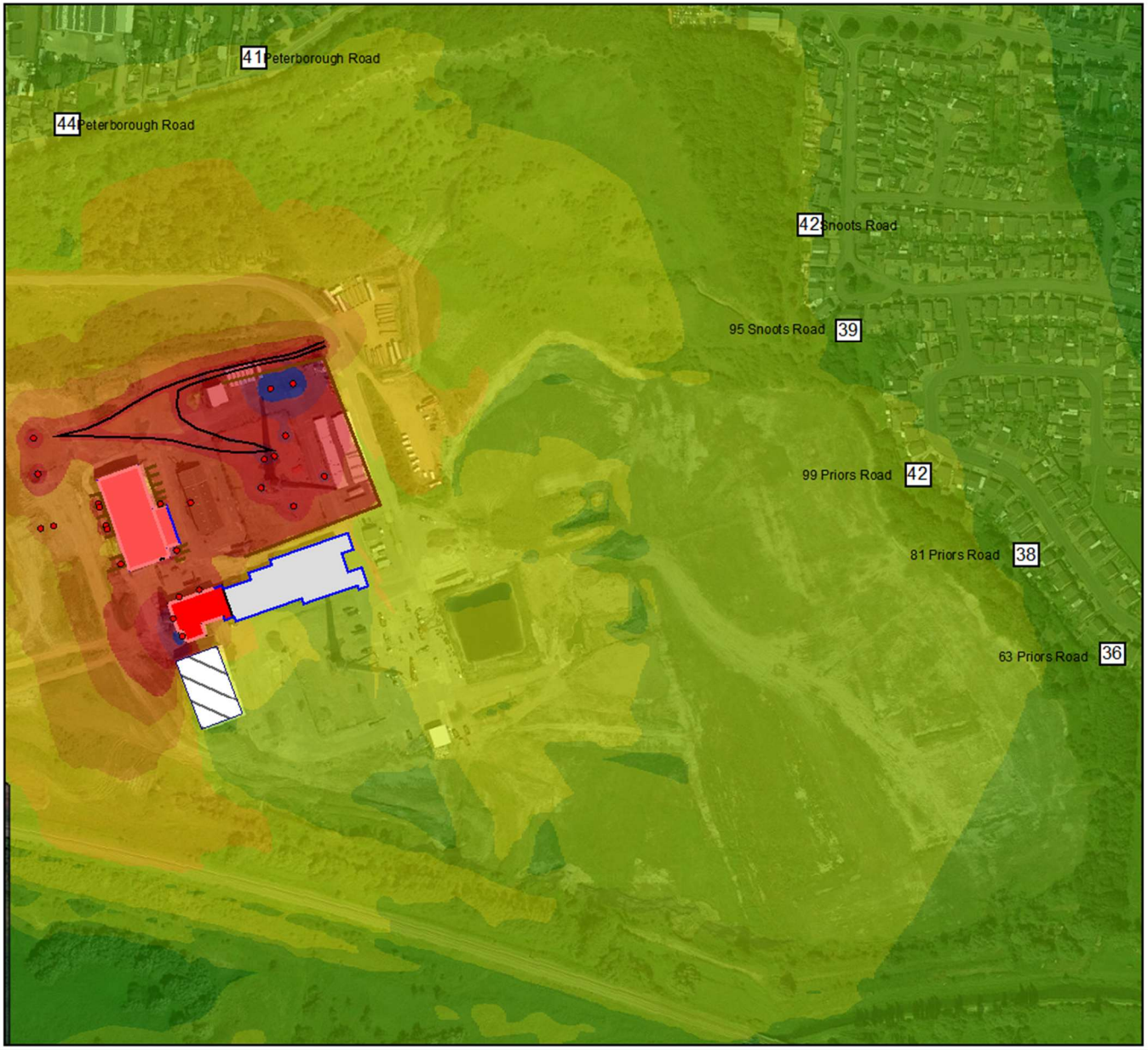
LFAcoustics
consulting engineers

Noise Level LAeq,T
in dB(A)

	< 30
	30 - 35
	35 - 40
	40 - 45
	45 - 50
	50 - 55
	55 - 60
	60 - 65
	65 - 70
	70 - 75
	75 - 80
	>= 80

Figure 3
Calculated Noise Levels
Daytime Operations
Including C&D Crushing
& Screening

LFAcoustics
consulting engineers



Noise Level LAeq,T
in dB(A)

	< 30
	30 - 35
	35 - 40
	40 - 45
	45 - 50
	50 - 55
	55 - 60
	60 - 65
	65 - 70
	70 - 75
	75 - 80
	>= 80

Figure 4
Calculated Noise Levels
Daytime Operations
Including IBA Screening
& Crushing

LFAcoustics
consulting engineers

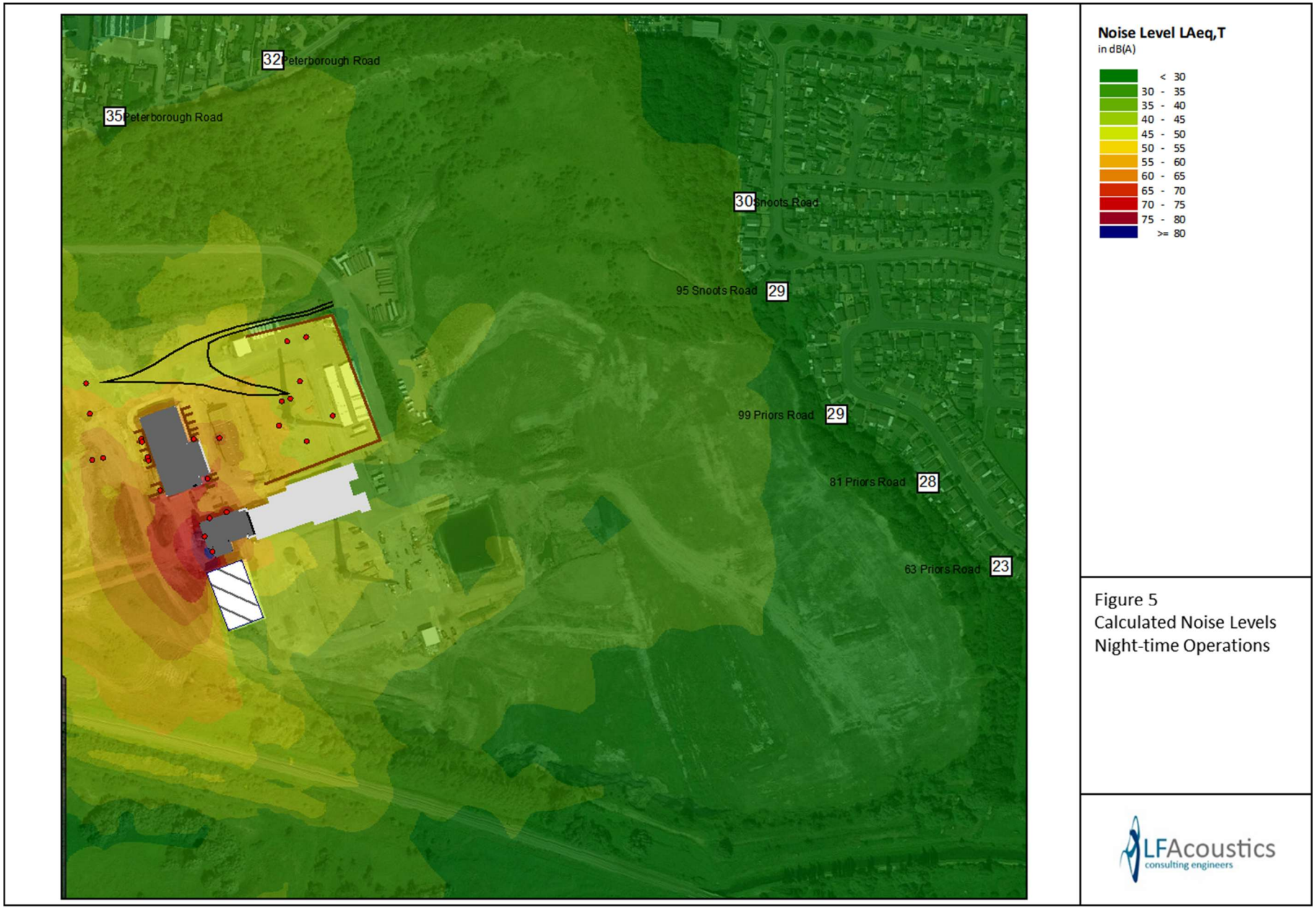


Figure 5
Calculated Noise Levels
Night-time Operations

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Appendix A
Noise Units

Decibels (dB)

Noise can be defined as unwanted sound. Sound in air can be considered as the propagation of energy through the air in the form of oscillatory changes in pressure. The size of the pressure changes in acoustic waves is quantified on a logarithmic decibel (dB) scale firstly because the range of audible sound pressures is very great, and secondly because the loudness function of the human auditory system is approximately logarithmic.

The dynamic range of the auditory system is generally taken to be 0 dB to 140 dB. Generally, the addition of noise from two sources producing the same sound pressure level, will lead to an increase in sound pressure level of 3 dB. A 3 dB noise change is generally considered to be just noticeable and a 10 dB change is generally accepted as leading to the subjective impression of a doubling or halving of loudness. A 5 dB change is generally considered to be clearly discernible.

A-weighting

The bandwidth of the frequency response of the ear is usually taken to be from about 18 Hz to 18,000 Hz. The auditory system is not equally sensitive throughout this frequency range. This is taken into account when making acoustic measurements by the use of A-weighting, a filter circuit which has a frequency response similar to the human auditory system.

Units Used to Describe Noises Which Change Their Level with Time

The Equivalent Continuous A-Weighted Sound Pressure Level ($L_{Aeq,T}$) is the principal measurement index for environmental noise. The $L_{Aeq,T}$ is defined as the A-weighted sound pressure level of the steady sound which contains the same acoustic energy as the noise being assessed over a specific time period, T.

The L_{A90} is the noise level exceeded for 90% of the measurement period. It is generally used to quantify the background noise level, the underlying level of noise which is present even during the quieter parts of the measurement period.

The L_{Amax} is the single maximum value that the A-weighted sound pressure level reaches during a measurement period. $L_{Amax\,F}$, or Fast, is averaged over 0.125 of a second and $L_{Amax\,S}$, or Slow, is averaged over 1 second. The measured L_{Amax} noise levels in this assessment are Fast.

Appendix B
Previous Noise Assessment Report

Attached as a Separate Document

Appendix C
Source Term Noise Levels

Johnsons Whittlesey
Octave spectra of the sources in dB(A) - Daytime IBA 140624

Legend

Name		Source name
Source type		Type of source (point, line, area)
X	m	X-Coordinate
Y	m	Y-Coordinate
Z	m	Z-Coordinate
l or A	m,m²	Size of source (length or area)
Li	dB(A)	Level inside
R'w	dB	Rated transmission loss
L'w	dB(A)	Sound power level per m, m²
Lw	dB(A)	Sound power level per unit
DO-Wall	dB	Correction for directive propagation due to walls
Time histogram		Name of time histogram
63Hz	dB(A)	Sound power level in this frequencyband
125Hz	dB(A)	Sound power level in this frequencyband
250Hz	dB(A)	Sound power level in this frequencyband
500Hz	dB(A)	Sound power level in this frequencyband
1kHz	dB(A)	Sound power level in this frequencyband
2kHz	dB(A)	Sound power level in this frequencyband
4kHz	dB(A)	Sound power level in this frequencyband

Johnsons Whittlesey
Octave spectra of the sources in dB(A) - Daytime IBA 140624

Name	Source type	X	Y	Z	l or A	Li	R'w	L'w	Lw	DO-Wall	Time histogram	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	
		m	m	m	m,m²	dB(A)	dB	dB(A)	dB(A)	dB		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
Building 1-Facade 02	Area	525433.51	297141.93	-15.29	859.38	85.9	23.0	58.9	88.2	0	100%/24h	67.9	75.7	77.8	84.5	83.1	79.2	73.6	
Building 1-Facade 04	Area	525403.31	297131.31	-15.29	859.38	85.9	23.0	58.9	88.2	0	100%/24h	67.9	75.7	77.8	84.5	83.1	79.2	73.6	
Building 1-North Facade	Area	525406.53	297170.40	-14.16	452.72	85.9	23.0	58.9	85.5	0	100%/24h	65.1	72.9	75.0	81.7	80.3	76.4	70.9	
Building 1-Rapid Closing Door	Area	525439.72	297106.15	-19.29	16.00	85.9	0.0	82.6	94.7	3	Rapid Closing Door	65.1	76.7	81.4	85.0	88.1	89.7	89.3	
Building 1-Roof 01	Area	525410.86	297133.96	-7.14	1186.56	85.9	23.0	58.9	89.7	0	100%/24h	69.3	77.1	79.2	85.9	84.5	80.6	75.0	
Building 1-Roof 02	Area	525425.96	297139.27	-7.14	1186.56	85.9	23.0	58.9	89.7	0	100%/24h	69.3	77.1	79.2	85.9	84.5	80.6	75.0	
Building 1-South Facade	Area	525429.94	297102.72	-13.97	436.72	85.9	23.0	58.9	85.3	0	100%/24h	65.0	72.7	74.8	81.5	80.2	76.3	70.7	
Building 2-Building 2 Roof	Area	525468.23	297066.22	-8.90	1101.17	85.5	23.0	59.5	89.9	0	100%/24h	67.7	72.4	80.7	86.8	84.5	80.3	72.6	
Building 2-Facade 01	Area	525465.16	297046.42	-14.90	183.81	85.5	23.0	59.5	82.1	3	100%/24h	60.0	64.6	72.9	79.0	76.7	72.5	64.8	
Building 2-Facade 02	Area	525471.02	297052.93	-14.90	102.18	85.5	23.0	59.5	79.6	3	100%/24h	57.4	62.1	70.4	76.5	74.1	70.0	62.3	
Building 2-Facade 03	Area	525477.84	297059.70	-14.90	207.34	85.5	23.0	59.5	82.6	3	100%/24h	60.5	65.1	73.4	79.6	77.2	73.0	65.3	
Building 2-Facade 24	Area	525461.62	297078.05	-14.90	426.68	85.5	23.0	59.5	85.8	3	100%/24h	63.6	68.3	76.6	82.7	80.3	76.2	68.5	
Building 2-Facade 25	Area	525448.46	297061.62	-14.90	270.63	85.5	23.0	59.5	83.8	3	100%/24h	61.6	66.3	74.6	80.7	78.4	74.2	66.5	
Building 2-Facade 26	Area	525453.64	297051.47	-14.90	38.47	85.5	23.0	59.5	75.3	3	100%/24h	53.2	57.8	66.1	72.3	69.9	65.7	58.0	
Building 2-Facade 27	Area	525456.53	297047.96	-14.90	102.25	85.5	23.0	59.5	79.6	3	100%/24h	57.4	62.1	70.4	76.5	74.1	70.0	62.3	
Building 2-Trennso 3	Point	525448.12	297061.05	-13.90				102.5	102.5	0	100%/24h	66.6	74.9	89.0	102.2	75.2	73.9	67.9	
Conveyor O/P	Point	525391.96	297147.51	-20.00				91.8	91.8	0	Loader Loading Hopper	71.5	72.2	76.2	79.6	80.2	82.5	86.8	
Conveyor O/P	Point	525398.72	297128.31	-19.99				91.8	91.8	0	Loader Loading Hopper	71.5	72.2	76.2	79.6	80.2	82.5	86.8	
Conveyor O/P	Point	525408.61	297102.08	-19.97				91.8	91.8	0	Loader Loading Hopper	71.5	72.2	76.2	79.6	80.2	82.5	86.8	
Conveyor O/P	Point	525397.65	297131.18	-20.00				91.8	91.8	0	Loader Loading Hopper	71.5	72.2	76.2	79.6	80.2	82.5	86.8	
Conveyor O/P	Point	525392.76	297144.69	-20.01				91.8	91.8	0	Loader Loading Hopper	71.5	72.2	76.2	79.6	80.2	82.5	86.8	
Crusher (C&D)	Point	525348.56	297128.66	-14.56				107.7	107.7	0	Processing C&D	86.6	94.4	97.7	102.3	102.7	100.0	96.9	
Crusher (IBA)	Point	525521.38	297233.56	-19.32				107.7	107.7	0	Screening IBA	86.6	94.4	97.7	102.3	102.7	100.0	96.9	
Dust Extraction Plant	Point	525455.19	297047.77	-16.29				104.0	104.0	0	100%/24h	88.6	90.9	97.2	100.5	95.4	92.5	91.9	
Ferrous Belt	Point	525450.70	297112.18	-19.84				93.6	93.6	0	100%/24h	65.4	69.4	77.3	81.6	86.1	88.5	88.5	
HGV Movements	Line	525467.44	297221.76	-19.71	586.55			61.6	89.3	0	HGV Movements	59.2	71.1	73.7	82.7	84.7	83.5	78.7	
HGV Tipping	Point	525524.40	297183.00	-18.88				106.2	106.2	0	HGV Tipping	93.3	85.6	90.7	95.4	99.6	101.8	100.5	
Loader Loading Feed Hopper	Point	525461.34	297148.20	-18.28				94.4	94.4	0	Loader Loading Hopper	75.8	80.9	85.4	87.9	89.0	87.8	83.7	
Loading Shovel (Loading Plant)	Point	525514.29	297159.26	-18.42				101.7	101.7	0	Loading Shovel (Loading Plant)	77.0	83.4	88.8	92.0	97.2	96.5	92.7	

Johnsons Whittlesey
Octave spectra of the sources in dB(A) - Daytime IBA 140624

Name	Source type	X	Y	Z	l or A	Li	R'w	L'w	Lw	DO-Wall	Time histogram	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	
		m	m	m	m,m²	dB(A)	dB	dB(A)	dB(A)	dB		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	
Loading Shovel (Loading Plant)	Point	525562.00	297167.96	-19.19				101.7	101.7	0	Loading Shovel (Loading Plant)	77.0	83.4	88.8	92.0	97.2	96.5	92.7	
Loading Shovel (Loading Plant)	Point	525538.76	297145.40	-18.71				101.7	101.7	0	Loading Shovel (Loading Plant)	77.0	83.4	88.8	92.0	97.2	96.5	92.7	
Loading Shovel (Stock)	Point	525516.74	297180.60	-18.80				101.7	101.7	0	Loading Shovel (Stock)	77.0	83.4	88.8	92.0	97.2	96.5	92.7	
Loading Shovel (Stock)	Point	525343.09	297196.44	-18.40				101.7	101.7	0	Loading Shovel (Stock)	77.0	83.4	88.8	92.0	97.2	96.5	92.7	
Loading Shovel (Stock)	Point	525532.71	297198.34	-19.18				101.7	101.7	0	Loading Shovel (Stock)	77.0	83.4	88.8	92.0	97.2	96.5	92.7	
Loading Shovel (Stock)	Point	525346.29	297169.66	-18.53				101.7	101.7	0	Loading Shovel (Stock)	77.0	83.4	88.8	92.0	97.2	96.5	92.7	
Screening Plant (C&D)	Point	525358.37	297130.55	-16.99				107.9	107.9	0	Processing C&D	82.1	92.7	95.4	102.4	102.5	101.6	98.6	
Screening Plant (IBA)	Point	525538.37	297237.34	-18.37				107.9	107.9	0	Screening IBA	82.1	92.7	95.4	102.4	102.5	101.6	98.6	
Stock Pile to RH Side of Trommel	Point	525438.57	297147.25	-19.86				94.6	94.6	0	Loader Loading Hopper	69.8	80.2	83.5	87.7	88.6	87.8	86.3	
Trennso 1	Point	525452.63	297077.44	-20.33				92.5	92.5	0	100%/24h	69.5	78.4	87.0	86.1	86.6	83.3	81.4	
Trennso 2	Point	525467.86	297082.82	-20.22				93.3	93.3	0	100%/24h	61.1	72.3	88.0	92.2	82.7	78.4	76.1	
Trommel Enclosure-East	Area	525438.09	297128.82	-17.16	246.71	87.8	23.0	62.8	86.7	3	100%/24h	69.2	74.2	75.1	84.1	81.4	75.6	67.4	
Trommel Enclosure-North	Area	525448.00	297116.36	-17.16	85.28	87.8	23.0	62.8	82.1	3	100%/24h	64.6	69.6	70.5	79.5	76.8	71.0	62.8	
Trommel Enclosure-Roof	Area	525443.00	297130.55	-13.06	312.89	87.8	23.0	62.8	87.7	0	100%/24h	70.3	75.2	76.1	85.1	82.4	76.6	68.4	
Trommel Enclosure-South	Area	525438.00	297144.74	-17.16	85.28	87.8	23.0	62.8	82.1	3	100%/24h	64.6	69.6	70.5	79.5	76.8	71.0	62.8	
Volvo L25 Electric Loader Loading Feed Hopper	Point	525461.34	297148.20	-19.28				86.3	86.3	0	Electric Loader	67.7	72.8	77.3	79.9	80.9	79.7	75.7	

Appendix D
Calculation Details

Johnsons Whittlesey
Assessed receiver spectra in dB(A) - Daytime No Screening 140624

Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	
Receiver 63 Priors Road X 526154.94 m Y 297034.75 m Z 6.73 m LAeq,T Day 31.0 dB(A)									
LAeq,T Day	17.4	16.9	18.8	25.6	26.9	22.6	6.5		
Receiver 81 Priors Road X 526089.83 m Y 297108.94 m Z 7.31 m LAeq,T Day 33.2 dB(A)									
LAeq,T Day	20.9	19.0	21.0	27.5	29.1	25.2	10.7		
Receiver 95 Snoots Road X 525956.19 m Y 297277.96 m Z 6.45 m LAeq,T Day 35.8 dB(A)									
LAeq,T Day	21.1	21.1	22.9	29.8	31.8	28.6	15.9	-21.8	
Receiver 99 Priors Road X 526008.32 m Y 297169.16 m Z 6.45 m LAeq,T Day 36.1 dB(A)									
LAeq,T Day	22.2	20.9	22.5	29.5	32.4	29.3	16.3	-22.0	
Receiver Peterborough Road X 525368.43 m Y 297433.10 m Z 9.48 m LAeq,T Day 43.6 dB(A)									
LAeq,T Day	25.5	27.2	28.8	36.7	39.9	37.7	27.9	-0.5	
Receiver Peterborough Road X 525508.41 m Y 297483.17 m Z 8.87 m LAeq,T Day 39.6 dB(A)									
LAeq,T Day	23.8	25.3	27.2	34.1	35.4	32.2	21.2	-9.2	
Receiver Snoots Road X 525927.27 m Y 297357.73 m Z 6.78 m LAeq,T Day 37.8 dB(A)									
LAeq,T Day	21.8	21.8	23.4	30.6	34.4	31.6	19.1	-18.9	

Johnsons Whittlesey
Assessed receiver spectra in dB(A) - Daytime CandD 140624

Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	
Receiver 63 Priors Road LAeq, Day 32.3 dB(A)									
LAeq, Day	20.3	20.8	22.0	27.1	27.6	22.8	6.7		
Receiver 81 Priors Road LAeq, Day 36.4 dB(A)									
LAeq, Day	23.5	24.3	25.8	31.5	31.9	26.9	11.7		
Receiver 95 Snoots Road LAeq, Day 38.2 dB(A)									
LAeq, Day	24.2	25.8	27.2	33.0	33.8	29.6	16.4	-21.8	
Receiver 99 Priors Road LAeq, Day 38.3 dB(A)									
LAeq, Day	24.6	25.5	26.9	32.8	34.1	30.1	16.7	-22.0	
Receiver Peterborough Road LAeq, Day 46.9 dB(A)									
LAeq, Day	29.5	32.5	33.6	41.2	42.9	40.3	30.8	-0.5	
Receiver Peterborough Road LAeq, Day 43.8 dB(A)									
LAeq, Day	27.7	30.5	31.6	38.8	39.5	36.1	25.4	-9.2	
Receiver Snoots Road LAeq, Day 39.5 dB(A)									
LAeq, Day	25.0	26.3	27.5	33.5	35.6	32.2	19.4	-18.9	

Johnsons Whittlesey
Assessed receiver spectra in dB(A) - Daytime IBA 140624

Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	
Receiver 63 Priors Road X 526154.94 m Y 297034.75 m Z 6.73 m LAeq, Day 36.4 dB(A)									
LAeq, Day	22.4	24.3	25.8	32.6	31.5	25.5	9.2		
Receiver 81 Priors Road X 526089.83 m Y 297108.94 m Z 7.31 m LAeq, Day 38.0 dB(A)									
LAeq, Day	24.4	25.7	26.4	34.1	33.3	27.9	13.0		
Receiver 95 Snoots Road X 525956.19 m Y 297277.96 m Z 6.45 m LAeq, Day 39.2 dB(A)									
LAeq, Day	25.8	27.9	28.4	34.5	34.3	30.0	17.2	-21.8	
Receiver 99 Priors Road X 526008.32 m Y 297169.16 m Z 6.45 m LAeq, Day 41.6 dB(A)									
LAeq, Day	26.0	27.9	27.9	37.1	37.4	33.4	20.8	-22.0	
Receiver Peterborough Road X 525368.43 m Y 297433.10 m Z 9.48 m LAeq, Day 44.3 dB(A)									
LAeq, Day	28.3	30.4	31.5	37.8	40.2	37.8	28.0	-0.5	
Receiver Peterborough Road X 525508.41 m Y 297483.17 m Z 8.87 m LAeq, Day 40.8 dB(A)									
LAeq, Day	27.0	29.0	30.0	35.5	36.0	32.5	21.6	-9.2	
Receiver Snoots Road X 525927.27 m Y 297357.73 m Z 6.78 m LAeq, Day 42.1 dB(A)									
LAeq, Day	26.6	29.1	28.6	37.1	38.0	34.4	22.4	-18.9	

Johnsons Whittlesey
Assessed receiver spectra in dB(A) - Night 140624

Time slice	63Hz dB(A)	125Hz dB(A)	250Hz dB(A)	500Hz dB(A)	1kHz dB(A)	2kHz dB(A)	4kHz dB(A)	8kHz dB(A)	
Receiver 63 Priors Road LAeq Night 23.5 dB(A)									
LAeq Night	11.8	11.4	13.7	20.4	17.5	10.9	-6.1		
Receiver 81 Priors Road LAeq Night 27.7 dB(A)									
LAeq Night	18.4	14.9	17.1	23.1	22.0	17.1	3.4		
Receiver 95 Snoots Road LAeq Night 28.6 dB(A)									
LAeq Night	16.5	15.7	18.3	24.4	23.2	19.6	7.8	-30.8	
Receiver 99 Priors Road LAeq Night 29.2 dB(A)									
LAeq Night	19.3	16.4	18.4	24.5	23.9	19.3	7.3		
Receiver Peterborough Road LAeq Night 34.9 dB(A)									
LAeq Night	21.2	21.4	24.9	31.1	29.8	25.8	15.7	-16.2	
Receiver Peterborough Road LAeq Night 32.1 dB(A)									
LAeq Night	17.3	18.6	22.7	28.7	26.6	23.1	13.4	-16.4	
Receiver Snoots Road LAeq Night 30.3 dB(A)									
LAeq Night	17.7	16.4	19.3	25.2	25.4	23.4	12.6	-23.8	

Example Model Output
IBA Processing Daytime

Johnsons Whittlesey
Mean propagation Leq - Daytime IBA 140624

10

Legend

Source		Source name
Source type		Type of source (point, line, area)
L'w	dB(A)	Sound power level per m, m²
Lw	dB(A)	Sound power level per unit
l or A	m,m²	Size of source (length or area)
S	m	Distance source - receiver
Adiv	dB	Mean attenuation due to geometrical spreading
Agr	dB	Mean attenuation due to ground effect
Abar	dB	Mean attenuation due to screening
Aatm	dB	Mean attenuation due to air absorption
Ls	dB(A)	Unassessed sound pressure level at receiver
Ls=Lw+Ko+ADI+Adiv+Agr+Abar+Aatm+Afol_site_house+Awind+dLrefl		
dLw	dB	Correction due to source operation time
Lr	dB(A)	Assessed level of time slice

Johnsons Whittlesey
Mean propagation Leq - Daytime IBA 140624

Source	Source type	L'w	Lw	l or A	S	Adiv	Agr	Abar	Aatm	Ls	dLw	Lr
		dB(A)	dB(A)	m,m²	m	dB	dB	dB	dB	dB(A)	dB	dB(A)
Receiver 63 Priors Road X 526154.94 m Y 297034.75 m Z 6.73 m LAeq, Day 36.4 dB(A)												
Building 1-Facade 02	Area	58.9	88.2	859.4	729.72	-68.3	-1.0	-5.4	-2.1	11.7	0.0	11.7
Building 1-Facade 04	Area	58.9	88.2	859.4	758.20	-68.6	-0.9	-21.5	-1.6	-4.3	0.0	-4.3
Building 1-North Facade	Area	58.9	85.5	452.7	760.79	-68.6	-1.0	-21.1	-1.6	-6.9	0.0	-6.9
Building 1-Rapid Closing Door	Area	82.6	94.7	16.0	719.24	-68.1	1.0	-15.3	-2.9	12.3	-7.0	5.3
Building 1-Roof 01	Area	58.9	89.7	1186.6	750.81	-68.5	-1.5	-8.6	-1.5	9.5	0.0	9.5
Building 1-Roof 02	Area	58.9	89.7	1186.6	736.60	-68.3	-1.6	-3.1	-2.2	14.4	0.0	14.4
Building 1-South Facade	Area	58.9	85.3	436.7	728.39	-68.2	-1.1	-5.0	-2.0	9.0	0.0	9.0
Building 2-Building 2 Roof	Area	59.5	89.9	1101.2	687.37	-67.7	-1.9	-2.9	-1.9	15.5	0.0	15.5
Building 2-Facade 01	Area	59.5	82.1	183.8	690.15	-67.8	-1.3	-3.1	-2.0	10.9	0.0	10.9
Building 2-Facade 02	Area	59.5	79.6	102.2	684.50	-67.7	-1.4	-3.1	-2.0	9.7	0.0	9.7
Building 2-Facade 03	Area	59.5	82.6	207.3	677.86	-67.6	-1.4	-5.6	-1.9	10.0	0.0	10.0
Building 2-Facade 24	Area	59.5	85.8	426.7	694.81	-67.8	-1.4	-20.1	-1.5	-2.0	0.0	-2.0
Building 2-Facade 25	Area	59.5	83.8	270.6	707.35	-68.0	-1.3	-20.2	-1.5	-4.2	0.0	-4.2
Building 2-Facade 26	Area	59.5	75.3	38.5	701.85	-67.9	-1.3	-15.7	-1.7	-8.2	0.0	-8.2
Building 2-Facade 27	Area	59.5	79.6	102.3	698.89	-67.9	-1.4	-20.2	-1.5	-8.3	0.0	-8.3
Building 2-Trennso 3	Point	102.5	102.5		707.62	-68.0	-3.8	-21.0	-1.3	8.4	0.0	8.4
Conveyor O/P	Point	91.8	91.8		771.73	-68.7	1.6	-24.3	-6.7	-6.4	-6.0	-12.4
Conveyor O/P	Point	91.8	91.8		762.46	-68.6	1.6	-24.3	-6.7	-6.3	-6.0	-12.3
Conveyor O/P	Point	91.8	91.8		749.83	-68.5	1.6	-24.4	-6.8	-6.3	-6.0	-12.3
Conveyor O/P	Point	91.8	91.8		763.87	-68.7	1.6	-24.3	-6.7	-6.3	-6.0	-12.3
Conveyor O/P	Point	91.8	91.8		770.54	-68.7	1.6	-24.3	-6.7	-6.4	-6.0	-12.4
Crusher (C&D)	Point	107.7	107.7		812.11	-69.2	0.1	-11.6	-1.7	25.3		
Crusher (IBA)	Point	107.7	107.7		664.53	-67.4	-0.7	-8.5	-1.9	33.0	0.0	33.0
Dust Extraction Plant	Point	104.0	104.0		700.26	-67.9	-0.8	-21.2	-1.1	13.0	0.0	13.0
Ferrous Belt	Point	93.6	93.6		708.99	-68.0	1.3	-21.7	-3.7	8.7	0.0	8.7
HGV Movements	Line	61.6	89.3	586.6	709.25	-68.0	-0.2	-5.5	-3.6	12.0	15.4	27.4
HGV Tipping	Point	106.2	106.2		648.24	-67.2	0.8	-5.8	-4.2	29.7	-14.1	15.6
Loader Loading Feed Hopper	Point	94.4	94.4		703.26	-67.9	0.0	-4.0	-3.1	21.2	-6.0	15.2
Loading Shovel (Loading Plant)	Point	101.7	101.7		653.12	-67.3	0.5	-4.7	-4.0	26.2	-6.0	20.1
Loading Shovel (Loading Plant)	Point	101.7	101.7		608.27	-66.7	0.1	-11.8	-2.3	21.0	-6.0	15.0
Loading Shovel (Loading Plant)	Point	101.7	101.7		626.56	-66.9	0.5	-9.6	-2.7	23.0	-6.0	17.0
Loading Shovel (Stock)	Point	101.7	101.7		655.15	-67.3	0.4	-4.9	-3.9	25.9	-6.0	19.9
Loading Shovel (Stock)	Point	101.7	101.7		828.18	-69.4	0.8	-4.4	-5.0	23.8	-6.0	17.8
Loading Shovel (Stock)	Point	101.7	101.7		643.90	-67.2	0.3	-7.8	-3.1	23.9	-6.0	17.9
Loading Shovel (Stock)	Point	101.7	101.7		820.22	-69.3	1.0	-19.5	-2.5	11.5	-6.0	5.5
Screening Plant (C&D)	Point	107.9	107.9		802.66	-69.1	0.3	-16.8	-2.0	20.4		
Screening Plant (IBA)	Point	107.9	107.9		649.49	-67.2	-1.0	-8.8	-2.0	30.6	0.0	30.6
Stock Pile to RH Side of Trommel	Point	94.6	94.6		725.64	-68.2	0.4	-15.5	-1.8	15.4	-6.0	9.4
Trennso 1	Point	92.5	92.5		704.13	-67.9	-1.2	-22.5	-2.2	-1.3	0.0	-1.3
Trennso 2	Point	93.3	93.3		689.29	-67.8	-3.9	-20.5	-1.3	-0.2	0.0	-0.2
Trommel Enclosure-East	Area	62.8	86.7	246.7	723.39	-68.2	-1.1	-22.4	-1.5	-3.5	0.0	-3.5
Trommel Enclosure-North	Area	62.8	82.1	85.3	712.02	-68.0	-1.3	-6.6	-1.5	7.7	0.0	7.7
Trommel Enclosure-Roof	Area	62.8	87.7	312.9	718.60	-68.1	-1.4	-3.0	-1.8	15.8	0.0	15.8
Trommel Enclosure-South	Area	62.8	82.1	85.3	725.70	-68.2	-1.2	-18.3	-1.2	-2.2	0.0	-2.2
Volvo L25 Electric Loader Loading Feed Hopper	Point	86.3	86.3		703.30	-67.9	0.1	-4.1	-3.1	12.8		
Receiver 81 Priors Road X 526089.83 m Y 297108.94 m Z 7.31 m LAeq, Day 38.0 dB(A)												
Building 1-Facade 02	Area	58.9	88.2	859.4	657.67	-67.4	-1.2	-3.5	-2.2	14.2	0.0	14.2
Building 1-Facade 04	Area	58.9	88.2	859.4	687.41	-67.7	-1.0	-19.8	-1.2	-1.5	0.0	-1.5
Building 1-North Facade	Area	58.9	85.5	452.7	686.27	-67.7	-1.2	-14.5	-1.4	0.7	0.0	0.7
Building 1-Rapid Closing Door	Area	82.6	94.7	16.0	650.65	-67.3	1.0	-7.4	-4.6	19.4	-7.0	12.4
Building 1-Roof 01	Area	58.9	89.7	1186.6	679.68	-67.6	-1.6	-4.8	-1.7	13.9	0.0	13.9
Building 1-Roof 02	Area	58.9	89.7	1186.6	664.82	-67.4	-1.7	-0.1	-2.5	17.9	0.0	17.9
Building 1-South Facade	Area	58.9	85.3	436.7	660.17	-67.4	-1.1	-2.8	-2.2	11.9	0.0	11.9
Building 2-Building 2 Roof	Area	59.5	89.9	1101.2	623.16	-66.9	-1.9	-1.1	-2.2	17.8	0.0	17.8
Building 2-Facade 01	Area	59.5	82.1	183.8	628.10	-67.0	-1.3	-1.5	-2.1	13.3	0.0	13.3
Building 2-Facade 02	Area	59.5	79.6	102.2	621.72	-66.9	-1.4	-1.5	-2.1	11.2	0.0	11.2

Johnsons Whittlesey
Mean propagation Leq - Daytime IBA 140624

Source	Source type	L'w	Lw	l or A	S	Adiv	Agr	Abar	Aatm	Ls	dLw	Lr
		dB(A)	dB(A)	m,m²	m	dB	dB	dB	dB	dB(A)	dB	dB(A)
Building 2-Facade 03	Area	59.5	82.6	207.3	614.31	-66.8	-1.4	-6.7	-1.7	11.7	0.0	11.7
Building 2-Facade 24	Area	59.5	85.8	426.7	629.13	-67.0	-1.4	-15.4	-1.4	3.6	0.0	3.6
Building 2-Facade 25	Area	59.5	83.8	270.6	643.53	-67.2	-1.3	-15.5	-1.5	1.4	0.0	1.4
Building 2-Facade 26	Area	59.5	75.3	38.5	639.17	-67.1	-1.3	-12.5	-1.5	-4.1	0.0	-4.1
Building 2-Facade 27	Area	59.5	79.6	102.3	636.61	-67.1	-1.3	-14.3	-1.4	-1.5	0.0	-1.5
Building 2-Trennso 3	Point	102.5	102.5		643.84	-67.2	-3.8	-15.8	-1.2	14.5	0.0	14.5
Conveyor O/P	Point	91.8	91.8		699.46	-67.9	1.5	-23.5	-4.6	-2.7	-6.0	-8.7
Conveyor O/P	Point	91.8	91.8		691.92	-67.8	1.6	-23.5	-4.6	-2.6	-6.0	-8.6
Conveyor O/P	Point	91.8	91.8		681.79	-67.7	1.6	-23.6	-4.7	-2.5	-6.0	-8.5
Conveyor O/P	Point	91.8	91.8		693.07	-67.8	1.6	-23.5	-4.6	-2.6	-6.0	-8.6
Conveyor O/P	Point	91.8	91.8		698.52	-67.9	1.5	-23.5	-4.5	-2.6	-6.0	-8.6
Crusher (C&D)	Point	107.7	107.7		741.85	-68.4	0.1	-5.1	-2.6	31.7		
Crusher (IBA)	Point	107.7	107.7		582.55	-66.3	-0.7	-6.3	-1.8	34.3	0.0	34.3
Dust Extraction Plant	Point	104.0	104.0		638.02	-67.1	-0.8	-13.1	-0.7	22.2	0.0	22.2
Ferrous Belt	Point	93.6	93.6		639.71	-67.1	1.4	-19.4	-3.3	16.1	0.0	16.1
HGV Movements	Line	61.6	89.3	586.6	630.36	-67.0	-0.2	-5.5	-3.3	13.4	15.4	28.8
HGV Tipping	Point	106.2	106.2		570.85	-66.1	0.8	-5.1	-4.2	31.5	-14.1	17.4
Loader Loading Feed Hopper	Point	94.4	94.4		630.23	-67.0	-0.1	-3.9	-2.9	23.1	-6.0	17.1
Loading Shovel (Loading Plant)	Point	101.7	101.7		578.30	-66.2	0.4	-4.4	-3.8	27.7	-6.0	21.7
Loading Shovel (Loading Plant)	Point	101.7	101.7		531.77	-65.5	0.0	-12.0	-2.0	22.2	-6.0	16.2
Loading Shovel (Loading Plant)	Point	101.7	101.7		552.88	-65.8	0.3	-6.7	-3.0	26.6	-6.0	20.6
Loading Shovel (Stock)	Point	101.7	101.7		578.14	-66.2	0.3	-4.5	-3.8	27.6	-6.0	21.6
Loading Shovel (Stock)	Point	101.7	101.7		752.28	-68.5	0.8	-4.4	-4.6	25.0	-6.0	19.0
Loading Shovel (Stock)	Point	101.7	101.7		564.86	-66.0	0.2	-7.4	-2.9	25.6	-6.0	19.6
Loading Shovel (Stock)	Point	101.7	101.7		746.46	-68.5	0.9	-11.2	-2.9	20.0	-6.0	14.0
Screening Plant (C&D)	Point	107.9	107.9		732.18	-68.3	0.3	-8.6	-2.4	28.9		
Screening Plant (IBA)	Point	107.9	107.9		566.79	-66.1	-1.0	-8.8	-1.8	31.9	0.0	31.9
Stock Pile to RH Side of Trommel	Point	94.6	94.6		652.95	-67.3	0.2	-4.1	-4.1	20.7	-6.0	14.7
Trennso 1	Point	92.5	92.5		638.57	-67.1	-1.1	-21.1	-1.5	3.4	0.0	3.4
Trennso 2	Point	93.3	93.3		623.12	-66.9	-3.8	-19.3	-1.1	4.5	0.0	4.5
Trommel Enclosure-East	Area	62.8	86.7	246.7	652.52	-67.3	-1.2	-19.4	-1.1	0.7	0.0	0.7
Trommel Enclosure-North	Area	62.8	82.1	85.3	642.31	-67.1	-1.3	-3.7	-1.6	11.4	0.0	11.4
Trommel Enclosure-Roof	Area	62.8	87.7	312.9	647.51	-67.2	-1.6	-2.8	-1.7	17.0	0.0	17.0
Trommel Enclosure-South	Area	62.8	82.1	85.3	653.24	-67.3	-1.3	-13.5	-1.2	4.2	0.0	4.2
Volvo L25 Electric Loader Loading Feed Hopper	Point	86.3	86.3		630.27	-67.0	-0.1	-3.9	-2.9	14.9		
Receiver 95 Snoots Road X 525956.19 m Y 297277.96 m Z 6.45 m LAeq, Day 39.2 dB(A)												
Building 1-Facade 02	Area	58.9	88.2	859.4	540.89	-65.7	-1.3	-4.8	-1.6	14.8	0.0	14.8
Building 1-Facade 04	Area	58.9	88.2	859.4	572.78	-66.2	-1.1	-20.2	-1.0	-0.3	0.0	-0.3
Building 1-North Facade	Area	58.9	85.5	452.7	560.10	-66.0	-1.2	-13.8	-1.4	3.1	0.0	3.1
Building 1-Rapid Closing Door	Area	82.6	94.7	16.0	544.91	-65.7	0.9	-5.1	-4.4	23.3	-7.0	16.3
Building 1-Roof 01	Area	58.9	89.7	1186.6	564.48	-66.0	-1.8	-5.3	-1.4	15.2	0.0	15.2
Building 1-Roof 02	Area	58.9	89.7	1186.6	548.53	-65.8	-1.8	-0.1	-2.1	19.9	0.0	19.9
Building 1-South Facade	Area	58.9	85.3	436.7	554.82	-65.9	-1.4	-2.2	-1.9	14.0	0.0	14.0
Building 2-Building 2 Roof	Area	59.5	89.9	1101.2	531.83	-65.5	-2.1	-1.4	-1.8	19.1	0.0	19.1
Building 2-Facade 01	Area	59.5	82.1	183.8	543.21	-65.7	-1.5	-15.3	-1.3	1.4	0.0	1.4
Building 2-Facade 02	Area	59.5	79.6	102.2	535.24	-65.6	-1.6	-9.5	-1.3	4.6	0.0	4.6
Building 2-Facade 03	Area	59.5	82.6	207.3	526.10	-65.4	-1.5	-19.7	-1.2	-2.1	0.0	-2.1
Building 2-Facade 24	Area	59.5	85.8	426.7	533.55	-65.5	-1.7	-5.9	-1.4	14.2	0.0	14.2
Building 2-Facade 25	Area	59.5	83.8	270.6	552.36	-65.8	-1.5	-15.5	-1.3	2.6	0.0	2.6
Building 2-Facade 26	Area	59.5	75.3	38.5	551.65	-65.8	-1.5	-15.2	-1.3	-5.5	0.0	-5.5
Building 2-Facade 27	Area	59.5	79.6	102.3	550.49	-65.8	-1.5	-15.6	-1.3	-1.6	0.0	-1.6
Building 2-Trennso 3	Point	102.5	102.5		552.81	-65.8	-4.0	-15.8	-1.0	15.8	0.0	15.8
Conveyor O/P	Point	91.8	91.8		579.71	-66.3	1.4	-23.6	-4.5	-1.1	-6.0	-7.2
Conveyor O/P	Point	91.8	91.8		577.81	-66.2	1.4	-23.6	-4.5	-1.1	-6.0	-7.1
Conveyor O/P	Point	91.8	91.8		575.73	-66.2	1.5	-23.7	-4.7	-1.3	-6.0	-7.3
Conveyor O/P	Point	91.8	91.8		578.10	-66.2	1.4	-23.6	-4.5	-1.1	-6.0	-7.1
Conveyor O/P	Point	91.8	91.8		579.58	-66.3	1.4	-23.6	-4.5	-1.1	-6.0	-7.1

Source	Source type	L'w	Lw	l or A	S	Adiv	Agr	Abar	Aatm	Ls	dLw	Lr
		dB(A)	dB(A)	m,m²	m	dB	dB	dB	dB	dB(A)	dB	dB(A)
Crusher (C&D)	Point	107.7	107.7		626.05	-66.9	0.0	-5.8	-2.1	32.8		
Crusher (IBA)	Point	107.7	107.7		437.82	-63.8	-0.9	-7.2	-1.3	34.5	0.0	34.5
Dust Extraction Plant	Point	104.0	104.0		551.82	-65.8	-1.0	-16.2	-0.9	20.1	0.0	20.1
Ferrous Belt	Point	93.6	93.6		532.63	-65.5	1.2	-18.7	-3.0	19.9	0.0	19.9
HGV Movements	Line	61.6	89.3	586.6	484.77	-64.7	-0.3	-5.0	-2.6	16.7	15.4	32.1
HGV Tipping	Point	106.2	106.2		442.83	-63.9	0.8	-6.1	-3.2	33.7	-14.1	19.6
Loader Loading Feed Hopper	Point	94.4	94.4		512.17	-65.2	-0.2	-3.9	-2.5	24.7	-6.0	18.7
Loading Shovel (Loading Plant)	Point	101.7	101.7		458.24	-64.2	0.4	-4.4	-3.2	30.3	-6.0	24.3
Loading Shovel (Loading Plant)	Point	101.7	101.7		410.05	-63.2	-0.1	-12.8	-1.6	23.9	-6.0	17.9
Loading Shovel (Loading Plant)	Point	101.7	101.7		438.69	-63.8	0.3	-5.6	-2.7	29.9	-6.0	23.8
Loading Shovel (Stock)	Point	101.7	101.7		450.81	-64.1	0.3	-5.1	-3.0	30.0	-6.0	24.0
Loading Shovel (Stock)	Point	101.7	101.7		618.99	-66.8	0.9	-4.4	-4.0	27.3	-6.0	21.3
Loading Shovel (Stock)	Point	101.7	101.7		431.66	-63.7	0.2	-8.6	-2.2	27.4	-6.0	21.4
Loading Shovel (Stock)	Point	101.7	101.7		619.95	-66.8	0.9	-4.4	-4.1	27.3	-6.0	21.3
Screening Plant (C&D)	Point	107.9	107.9		616.17	-66.8	0.2	-9.9	-1.9	29.5		
Screening Plant (IBA)	Point	107.9	107.9		420.53	-63.5	-1.1	-9.8	-1.3	32.2	0.0	32.2
Stock Pile to RH Side of Trommel	Point	94.6	94.6		534.52	-65.6	0.2	-4.1	-3.6	24.1	-6.0	18.1
Trennso 1	Point	92.5	92.5		542.68	-65.7	-1.3	-17.3	-1.0	8.6	0.0	8.6
Trennso 2	Point	93.3	93.3		526.55	-65.4	-4.0	-15.1	-0.8	9.6	0.0	9.6
Trommel Enclosure-East	Area	62.8	86.7	246.7	539.73	-65.6	-1.3	-22.3	-1.2	-0.8	0.0	-0.8
Trommel Enclosure-North	Area	62.8	82.1	85.3	533.74	-65.5	-1.4	-3.0	-1.4	13.7	0.0	13.7
Trommel Enclosure-Roof	Area	62.8	87.7	312.9	534.32	-65.5	-1.8	-2.8	-1.4	18.6	0.0	18.6
Trommel Enclosure-South	Area	62.8	82.1	85.3	535.52	-65.6	-1.5	-17.7	-0.9	1.0	0.0	1.0
Volvo L25 Electric Loader Loading Feed Hopper	Point	86.3	86.3		512.22	-65.2	-0.1	-4.0	-2.5	16.6		
Receiver 99 Priors Road X 526008.32 m Y 297169.16 m Z 6.45 m LAeq, Day 41.6 dB(A)												
Building 1-Facade 02	Area	58.9	88.2	859.4	576.11	-66.2	-1.2	-2.1	-2.1	16.6	0.0	16.6
Building 1-Facade 04	Area	58.9	88.2	859.4	606.84	-66.7	-1.1	-19.6	-1.1	-0.2	0.0	-0.2
Building 1-North Facade	Area	58.9	85.5	452.7	601.96	-66.6	-1.2	-12.0	-1.3	4.3	0.0	4.3
Building 1-Rapid Closing Door	Area	82.6	94.7	16.0	572.65	-66.1	0.9	-6.2	-4.3	21.9	-7.0	14.9
Building 1-Roof 01	Area	58.9	89.7	1186.6	598.85	-66.5	-1.7	-5.1	-1.5	14.8	0.0	14.8
Building 1-Roof 02	Area	58.9	89.7	1186.6	583.49	-66.3	-1.8	-0.1	-2.3	19.2	0.0	19.2
Building 1-South Facade	Area	58.9	85.3	436.7	582.60	-66.3	-1.2	-1.8	-2.0	13.9	0.0	13.9
Building 2-Building 2 Roof	Area	59.5	89.9	1101.2	549.72	-65.8	-1.9	-0.5	-2.0	19.6	0.0	19.6
Building 2-Facade 01	Area	59.5	82.1	183.8	557.19	-65.9	-1.3	0.0	-2.0	15.9	0.0	15.9
Building 2-Facade 02	Area	59.5	79.6	102.2	550.14	-65.8	-1.4	-1.1	-1.9	12.4	0.0	12.4
Building 2-Facade 03	Area	59.5	82.6	207.3	542.00	-65.7	-1.3	-8.1	-1.4	11.6	0.0	11.6
Building 2-Facade 24	Area	59.5	85.8	426.7	554.37	-65.9	-1.4	-14.1	-1.3	6.1	0.0	6.1
Building 2-Facade 25	Area	59.5	83.8	270.6	570.54	-66.1	-1.3	-15.5	-1.3	2.6	0.0	2.6
Building 2-Facade 26	Area	59.5	75.3	38.5	567.44	-66.1	-1.3	-12.5	-1.4	-2.9	0.0	-2.9
Building 2-Facade 27	Area	59.5	79.6	102.3	565.37	-66.0	-1.3	-14.2	-1.3	-0.2	0.0	-0.2
Building 2-Trennso 3	Point	102.5	102.5		570.90	-66.1	-3.8	-15.7	-1.1	15.8	0.0	15.8
Conveyor O/P	Point	91.8	91.8		617.31	-66.8	1.5	-23.3	-4.3	-1.1	-6.0	-7.2
Conveyor O/P	Point	91.8	91.8		611.54	-66.7	1.5	-23.4	-4.4	-1.3	-6.0	-7.3
Conveyor O/P	Point	91.8	91.8		604.02	-66.6	1.6	-23.5	-4.6	-1.4	-6.0	-7.4
Conveyor O/P	Point	91.8	91.8		612.42	-66.7	1.5	-23.4	-4.4	-1.3	-6.0	-7.3
Conveyor O/P	Point	91.8	91.8		616.61	-66.8	1.5	-23.3	-4.3	-1.2	-6.0	-7.2
Crusher (C&D)	Point	107.7	107.7		661.34	-67.4	0.0	-5.5	-2.3	32.5		
Crusher (IBA)	Point	107.7	107.7		491.85	-64.8	-0.7	-3.8	-2.2	38.2	0.0	38.2
Dust Extraction Plant	Point	104.0	104.0		566.76	-66.1	-0.8	-13.5	-0.7	22.9	0.0	22.9
Ferrous Belt	Point	93.6	93.6		561.14	-66.0	1.3	-16.5	-3.2	17.8	0.0	17.8
HGV Movements	Line	61.6	89.3	586.6	538.97	-65.6	-0.2	-3.6	-3.3	16.6	15.4	32.0
HGV Tipping	Point	106.2	106.2		484.78	-64.7	0.8	-4.5	-4.1	33.6	-14.1	19.5
Loader Loading Feed Hopper	Point	94.4	94.4		547.94	-65.8	-0.2	-1.0	-3.6	26.8	-6.0	20.8
Loading Shovel (Loading Plant)	Point	101.7	101.7		494.75	-64.9	0.4	-4.4	-3.4	29.5	-6.0	23.4
Loading Shovel (Loading Plant)	Point	101.7	101.7		447.05	-64.0	-0.1	-6.4	-2.6	28.7	-6.0	22.7
Loading Shovel (Loading Plant)	Point	101.7	101.7		470.83	-64.4	0.3	-4.4	-3.3	29.9	-6.0	23.9
Loading Shovel (Stock)	Point	101.7	101.7		492.36	-64.8	0.3	-4.4	-3.4	29.5	-6.0	23.5

Johnsons Whittlesey
Mean propagation Leq - Daytime IBA 140624

Source	Source type	L'w	Lw	l or A	S	Adiv	Agr	Abar	Aatm	Ls	dLw	Lr	
		dB(A)	dB(A)	m,m²	m	dB	dB	dB	dB	dB(A)	dB	dB(A)	
Loading Shovel (Stock)	Point	101.7	101.7		666.25	-67.5	0.9	0.0	-4.7	30.4	-6.0	24.4	
Loading Shovel (Stock)	Point	101.7	101.7		477.19	-64.6	0.2	-4.5	-3.3	29.7	-6.0	23.7	
Loading Shovel (Stock)	Point	101.7	101.7		662.50	-67.4	0.9	-9.9	-2.8	22.5	-6.0	16.5	
Screening Plant (C&D)	Point	107.9	107.9		651.52	-67.3	0.2	-9.4	-2.1	29.4			
Screening Plant (IBA)	Point	107.9	107.9		475.52	-64.5	-1.1	-4.4	-2.3	35.7	0.0	35.7	
Stock Pile to RH Side of Trommel	Point	94.6	94.6		570.78	-66.1	0.2	-1.4	-5.3	23.5	-6.0	17.5	
Trennso 1	Point	92.5	92.5		563.85	-66.0	-1.1	-19.9	-1.2	6.1	0.0	6.1	
Trennso 2	Point	93.3	93.3		547.96	-65.8	-3.8	-17.9	-0.9	7.3	0.0	7.3	
Trommel Enclosure-East	Area	62.8	88.7	246.7	572.17	-66.1	-1.3	-19.5	-1.0	1.8	0.0	1.8	
Trommel Enclosure-North	Area	62.8	82.1	85.3	563.27	-66.0	-1.4	-1.6	-1.7	14.5	0.0	14.5	
Trommel Enclosure-Roof	Area	62.8	87.7	312.9	566.98	-66.1	-1.8	-2.6	-1.5	18.4	0.0	18.4	
Trommel Enclosure-South	Area	62.8	82.1	85.3	571.30	-66.1	-1.3	-8.8	-1.1	8.5	0.0	8.5	
Volvo L25 Electric Loader Loading Feed Hopper	Point	86.3	86.3		547.98	-65.8	-0.1	-2.5	-3.4	17.7			
Receiver Peterborough Road X 525368.43 m Y 297433.10 m Z 9.48 m LAeq, Day 44.3 dB(A)													
Building 1-Facade 02	Area	58.9	88.2	859.4	297.22	-60.5	-1.5	-3.3	-1.1	23.6	0.0	23.6	
Building 1-Facade 04	Area	58.9	88.2	859.4	302.59	-60.6	-1.4	-13.0	-0.7	12.5	0.0	12.5	
Building 1-North Facade	Area	58.9	85.5	452.7	266.61	-59.5	-1.7	-1.4	-1.1	21.8	0.0	21.8	
Building 1-Rapid Closing Door	Area	82.6	94.7	16.0	335.88	-61.5	0.9	-19.4	-3.2	25.9	-7.0	19.0	
Building 1-Roof 01	Area	58.9	89.7	1186.6	300.35	-60.5	-1.8	-3.0	-1.0	23.3	0.0	23.3	
Building 1-Roof 02	Area	58.9	89.7	1186.6	298.01	-60.5	-1.8	-0.2	-1.3	25.9	0.0	25.9	
Building 1-South Facade	Area	58.9	85.3	436.7	337.03	-61.5	-1.4	-15.3	-0.8	13.3	0.0	13.3	
Building 2-Building 2 Roof	Area	59.5	89.9	1101.2	380.55	-62.6	-2.1	-1.5	-1.4	22.3	0.0	22.3	
Building 2-Facade 01	Area	59.5	82.1	183.8	399.39	-63.0	-1.4	-15.7	-1.0	4.9	0.0	4.9	
Building 2-Facade 02	Area	59.5	79.6	102.2	394.50	-62.9	-1.3	-11.2	-1.0	8.0	0.0	8.0	
Building 2-Facade 03	Area	59.5	82.6	207.3	389.91	-62.8	-1.4	-15.7	-1.0	4.9	0.0	4.9	
Building 2-Facade 24	Area	59.5	85.8	426.7	368.02	-62.3	-1.6	-1.3	-1.4	22.2	0.0	22.2	
Building 2-Facade 25	Area	59.5	83.8	270.6	380.48	-62.6	-1.4	-15.3	-0.9	6.6	0.0	6.6	
Building 2-Facade 26	Area	59.5	75.3	38.5	391.80	-62.9	-1.4	-15.7	-1.0	-2.5	0.0	-2.5	
Building 2-Facade 27	Area	59.5	79.6	102.3	395.82	-62.9	-1.4	-15.3	-1.0	1.9	0.0	1.9	
Building 2-Trennso 3	Point	102.5	102.5		381.20	-62.6	-4.1	-12.6	-0.7	22.5	0.0	22.5	
Conveyor O/P	Point	91.8	91.8		288.07	-60.2	1.2	-12.3	-2.7	20.7	-6.0	14.7	
Conveyor O/P	Point	91.8	91.8		307.71	-60.8	1.3	-22.0	-2.4	8.0	-6.0	2.0	
Conveyor O/P	Point	91.8	91.8		334.75	-61.5	1.5	-17.9	-3.3	11.8	-6.0	5.8	
Conveyor O/P	Point	91.8	91.8		304.76	-60.7	1.3	-17.8	-3.1	13.0	-6.0	7.0	
Conveyor O/P	Point	91.8	91.8		290.93	-60.3	1.2	-20.4	-1.7	10.7	-6.0	4.7	
Crusher (C&D)	Point	107.7	107.7		306.03	-60.7	-0.3	-3.9	-1.6	41.2			
Crusher (IBA)	Point	107.7	107.7		253.06	-59.1	-1.2	-14.7	-0.5	32.2	0.0	32.2	
Dust Extraction Plant	Point	104.0	104.0		395.82	-62.9	-0.9	-15.0	-0.6	24.5	0.0	24.5	
Ferrous Belt	Point	93.6	93.6		332.59	-61.4	1.3	-19.5	-4.0	23.3	0.0	23.3	
HGV Movements	Line	61.6	89.3	586.6	238.99	-58.6	-0.9	-4.7	-1.4	24.8	15.4	40.3	
HGV Tipping	Point	106.2	106.2		296.11	-60.4	0.9	-4.6	-3.0	39.2	-14.1	25.1	
Loader Loading Feed Hopper	Point	94.4	94.4		300.95	-60.6	-0.3	-4.0	-1.7	27.9	-6.0	21.9	
Loading Shovel (Loading Plant)	Point	101.7	101.7		311.52	-60.9	0.6	-4.4	-2.4	37.9	-6.0	31.9	
Loading Shovel (Loading Plant)	Point	101.7	101.7		329.54	-61.4	0.6	-4.4	-2.5	38.4	-6.0	32.3	
Loading Shovel (Loading Plant)	Point	101.7	101.7		335.53	-61.5	0.7	-4.4	-2.6	38.4	-6.0	32.4	
Loading Shovel (Stock)	Point	101.7	101.7		294.20	-60.4	0.5	-4.4	-2.3	35.1	-6.0	29.1	
Loading Shovel (Stock)	Point	101.7	101.7		239.64	-58.6	-0.2	-5.5	-1.7	35.8	-6.0	29.8	
Loading Shovel (Stock)	Point	101.7	101.7		287.96	-60.2	0.4	-4.4	-2.3	35.2	-6.0	29.2	
Loading Shovel (Stock)	Point	101.7	101.7		265.85	-59.5	0.3	-4.5	-2.1	36.0	-6.0	30.0	
Screening Plant (C&D)	Point	107.9	107.9		303.88	-60.6	-0.2	-4.0	-1.9	41.2			
Screening Plant (IBA)	Point	107.9	107.9		260.73	-59.3	-1.1	-13.5	-0.7	33.3	0.0	33.3	
Stock Pile to RH Side of Trommel	Point	94.6	94.6		295.79	-60.4	0.2	-13.5	-1.0	30.6	-6.0	24.6	
Trennso 1	Point	92.5	92.5		366.70	-62.3	-1.0	-17.5	-0.7	19.3	0.0	19.3	
Trennso 2	Point	93.3	93.3		365.33	-62.2	-3.7	-7.2	-0.5	25.5	0.0	25.5	
Trommel Enclosure-East	Area	62.8	88.7	246.7	312.89	-60.9	-1.5	-19.1	-0.6	7.5	0.0	7.5	
Trommel Enclosure-North	Area	62.8	82.1	85.3	327.69	-61.3	-1.4	-13.4	-0.6	17.6	0.0	17.6	
Trommel Enclosure-Roof	Area	62.8	87.7	312.9	312.15	-60.9	-2.0	-0.5	-1.1	24.8	0.0	24.8	

Source	Source type	L'w	Lw	l or A	S	Adiv	Agr	Abar	Aatm	Ls	dLw	Lr	
		dB(A)	dB(A)	m,m²	m	dB	dB	dB	dB	dB(A)	dB	dB(A)	
Trommel Enclosure-South	Area	62.8	82.1	85.3	297.84	-60.5	-1.7	-2.7	-0.9	20.4	0.0	20.4	
Volvo L25 Electric Loader Loading Feed Hopper	Point	86.3	86.3		301.04	-60.6	-0.1	-4.0	-1.7	19.9			
Receiver Peterborough Road X 525508.41 m Y 297483.17 m Z 8.87 m LAeq, Day 40.8 dB(A)													
Building 1-Facade 02	Area	58.9	88.2	859.4	349.05	-61.8	-1.5	-5.0	-1.1	19.8	0.0	19.8	
Building 1-Facade 04	Area	58.9	88.2	859.4	367.03	-62.3	-1.4	-20.7	-0.9	3.0	0.0	3.0	
Building 1-North Facade	Area	58.9	85.5	452.7	329.47	-61.3	-1.6	-3.4	-1.1	18.0	0.0	18.0	
Building 1-Rapid Closing Door	Area	82.6	94.7	16.0	384.26	-62.7	0.9	-24.5	-3.6	25.1	-7.0	18.1	
Building 1-Roof 01	Area	58.9	89.7	1186.6	361.84	-62.2	-1.9	-6.9	-0.8	17.9	0.0	17.9	
Building 1-Roof 02	Area	58.9	89.7	1186.6	352.82	-61.9	-1.9	-3.0	-1.2	21.7	0.0	21.7	
Building 1-South Facade	Area	58.9	85.3	436.7	389.16	-62.8	-1.3	-20.7	-0.9	12.1	0.0	12.1	
Building 2-Building 2 Roof	Area	59.5	89.9	1101.2	419.02	-63.4	-2.0	-2.8	-1.3	20.4	0.0	20.4	
Building 2-Facade 01	Area	59.5	82.1	183.8	439.56	-63.9	-1.4	-20.3	-1.0	2.2	0.0	2.2	
Building 2-Facade 02	Area	59.5	79.6	102.2	432.49	-63.7	-1.4	-13.8	-1.1	2.5	0.0	2.5	
Building 2-Facade 03	Area	59.5	82.6	207.3	425.30	-63.6	-1.4	-20.3	-1.0	-0.6	0.0	-0.6	
Building 2-Facade 24	Area	59.5	85.8	426.7	408.54	-63.2	-1.5	-3.2	-1.3	19.6	0.0	19.6	
Building 2-Facade 25	Area	59.5	83.8	270.6	426.36	-63.6	-1.4	-20.0	-1.0	0.8	0.0	0.8	
Building 2-Facade 26	Area	59.5	75.3	38.5	435.83	-63.8	-1.4	-20.4	-1.0	-8.2	0.0	-8.2	
Building 2-Facade 27	Area	59.5	79.6	102.3	438.92	-63.8	-1.3	-20.4	-1.0	-4.0	0.0	-4.0	
Building 2-Trennso 3	Point	102.5	102.5		427.01	-63.6	-4.0	-20.7	-0.8	13.3	0.0	13.3	
Conveyor O/P	Point	91.8	91.8		356.45	-62.0	1.2	-24.1	-5.0	1.8	-6.0	-4.2	
Conveyor O/P	Point	91.8	91.8		372.55	-62.4	1.3	-24.1	-5.1	1.5	-6.0	-4.6	
Conveyor O/P	Point	91.8	91.8		395.00	-62.9	1.4	-24.2	-5.3	0.8	-6.0	-5.2	
Conveyor O/P	Point	91.8	91.8		370.13	-62.4	1.3	-24.1	-5.1	1.5	-6.0	-4.5	
Conveyor O/P	Point	91.8	91.8		358.85	-62.1	1.2	-24.1	-5.0	1.8	-6.0	-4.2	
Crusher (C&D)	Point	107.7	107.7		389.59	-62.8	-0.3	-3.9	-1.9	38.8			
Crusher (IBA)	Point	107.7	107.7		251.53	-59.0	-1.3	-15.8	-0.5	31.1	0.0	31.1	
Dust Extraction Plant	Point	104.0	104.0		439.37	-63.8	-0.9	-20.7	-0.7	17.8	0.0	17.8	
Ferrous Belt	Point	93.6	93.6		376.54	-62.5	1.3	-24.5	-4.2	22.8	0.0	22.8	
HGV Movements	Line	61.6	89.3	586.6	265.05	-59.5	-0.9	-8.4	-1.2	20.2	15.4	35.6	
HGV Tipping	Point	106.2	106.2		301.88	-60.6	0.9	-8.4	-2.0	36.1	-14.1	22.0	
Loader Loading Feed Hopper	Point	94.4	94.4		339.34	-61.6	-0.3	-5.2	-1.5	25.8	-6.0	19.8	
Loading Shovel (Loading Plant)	Point	101.7	101.7		325.11	-61.2	0.5	-5.4	-2.2	33.4	-6.0	27.4	
Loading Shovel (Loading Plant)	Point	101.7	101.7		320.96	-61.1	0.5	-7.2	-1.9	34.4	-6.0	28.4	
Loading Shovel (Loading Plant)	Point	101.7	101.7		340.25	-61.6	0.6	-6.5	-2.1	34.9	-6.0	28.8	
Loading Shovel (Stock)	Point	101.7	101.7		303.95	-60.6	0.4	-7.7	-1.7	32.0	-6.0	26.0	
Loading Shovel (Stock)	Point	101.7	101.7		332.10	-61.4	0.0	-7.3	-1.9	31.2	-6.0	25.2	
Loading Shovel (Stock)	Point	101.7	101.7		287.24	-60.2	0.3	-8.8	-1.5	31.6	-6.0	25.6	
Loading Shovel (Stock)	Point	101.7	101.7		354.01	-62.0	0.4	-5.2	-2.4	32.5	-6.0	26.5	
Screening Plant (C&D)	Point	107.9	107.9		384.09	-62.7	-0.2	-4.2	-2.2	38.7			
Screening Plant (IBA)	Point	107.9	107.9		249.15	-58.9	-1.1	-15.4	-0.7	31.8	0.0	31.8	
Stock Pile to RH Side of Trommel	Point	94.6	94.6		344.31	-61.7	0.2	-14.1	-1.1	25.7	-6.0	19.7	
Trennso 1	Point	92.5	92.5		410.58	-63.3	-1.0	-15.7	-0.8	22.1	0.0	22.1	
Trennso 2	Point	93.3	93.3		403.45	-63.1	-3.8	-12.9	-0.6	23.3	0.0	23.3	
Trommel Enclosure-East	Area	62.8	86.7	246.7	361.98	-62.2	-1.5	-22.3	-0.8	2.9	0.0	2.9	
Trommel Enclosure-North	Area	62.8	82.1	85.3	372.66	-62.4	-1.5	-18.7	-0.7	13.8	0.0	13.8	
Trommel Enclosure-Roof	Area	62.8	87.7	312.9	359.37	-62.1	-2.0	-2.8	-0.9	22.6	0.0	22.6	
Trommel Enclosure-South	Area	62.8	82.1	85.3	346.65	-61.8	-1.7	-4.4	-0.9	19.4	0.0	19.4	
Volvo L25 Electric Loader Loading Feed Hopper	Point	86.3	86.3		339.42	-61.6	-0.1	-5.4	-1.5	17.7			
Receiver Snoots Road X 525927.27 m Y 297357.73 m Z 6.78 m LAeq, Day 42.1 dB(A)													
Building 1-Facade 02	Area	58.9	88.2	859.4	539.67	-65.6	-1.3	-1.8	-2.0	17.5	0.0	17.5	
Building 1-Facade 04	Area	58.9	88.2	859.4	571.58	-66.1	-1.1	-19.0	-1.0	0.9	0.0	0.9	
Building 1-North Facade	Area	58.9	85.5	452.7	553.31	-65.9	-1.5	-0.1	-2.2	15.9	0.0	15.9	
Building 1-Rapid Closing Door	Area	82.6	94.7	16.0	549.25	-65.8	0.8	-11.4	-3.8	17.5	-7.0	10.5	
Building 1-Roof 01	Area	58.9	89.7	1186.6	563.27	-66.0	-1.8	-5.3	-1.4	15.2	0.0	15.2	
Building 1-Roof 02	Area	58.9	89.7	1186.6	547.32	-65.8	-1.8	-0.1	-2.1	19.9	0.0	19.9	
Building 1-South Facade	Area	58.9	85.3	436.7	559.44	-65.9	-1.3	-8.5	-1.5	8.1	0.0	8.1	

Source	Source type	L'w	Lw	l or A	S	Adiv	Agr	Abar	Aatm	Ls	dLw	Lr	
		dB(A)	dB(A)	m,m²	m	dB	dB	dB	dB	dB(A)	dB	dB(A)	
Building 2-Building 2 Roof	Area	59.5	89.9	1101.2	543.59	-65.7	-2.1	-1.1	-1.9	19.1	0.0	19.1	
Building 2-Facade 01	Area	59.5	82.1	183.8	557.56	-65.9	-1.5	-14.6	-1.3	1.8	0.0	1.8	
Building 2-Facade 02	Area	59.5	79.6	102.2	549.12	-65.8	-1.6	-8.0	-1.4	5.8	0.0	5.8	
Building 2-Facade 03	Area	59.5	82.6	207.3	539.61	-65.6	-1.6	-15.4	-1.2	1.8	0.0	1.8	
Building 2-Facade 24	Area	59.5	85.8	426.7	545.83	-65.7	-1.7	-0.9	-1.9	18.5	0.0	18.5	
Building 2-Facade 25	Area	59.5	83.8	270.6	563.44	-66.0	-1.5	-14.8	-1.3	3.2	0.0	3.2	
Building 2-Facade 26	Area	59.5	75.3	38.5	564.45	-66.0	-1.5	-15.4	-1.3	-5.9	0.0	-5.9	
Building 2-Facade 27	Area	59.5	79.6	102.3	563.95	-66.0	-1.5	-15.4	-1.3	-1.7	0.0	-1.7	
Building 2-Trennso 3	Point	102.5	102.5		563.94	-66.0	-4.1	-15.1	-1.0	16.2	0.0	16.2	
Conveyor O/P	Point	91.8	91.8		575.73	-66.2	1.4	-23.1	-4.0	0.0	-6.0	-6.0	
Conveyor O/P	Point	91.8	91.8		576.82	-66.2	1.4	-23.4	-4.3	-0.6	-6.0	-6.7	
Conveyor O/P	Point	91.8	91.8		578.86	-66.2	1.4	-23.4	-4.4	-0.8	-6.0	-6.8	
Conveyor O/P	Point	91.8	91.8		576.66	-66.2	1.4	-23.3	-4.2	-0.6	-6.0	-6.6	
Conveyor O/P	Point	91.8	91.8		576.03	-66.2	1.4	-23.2	-4.1	-0.3	-6.0	-6.3	
Crusher (C&D)	Point	107.7	107.7		622.76	-66.9	-0.1	-5.7	-2.1	33.0			
Crusher (IBA)	Point	107.7	107.7		425.26	-63.6	-0.9	-3.9	-1.9	37.4	0.0	37.4	
Dust Extraction Plant	Point	104.0	104.0		565.22	-66.0	-1.0	-15.5	-0.9	20.6	0.0	20.6	
Ferrous Belt	Point	93.6	93.6		536.77	-65.6	1.2	-11.0	-3.6	24.8	0.0	24.8	
HGV Movements	Line	61.6	89.3	586.6	471.15	-64.5	-0.4	-2.3	-3.0	19.3	15.4	34.7	
HGV Tipping	Point	106.2	106.2		439.88	-63.9	0.8	-5.2	-3.5	34.3	-14.1	20.2	
Loader Loading Feed Hopper	Point	94.4	94.4		511.49	-65.2	-0.2	-0.7	-3.3	27.7	-6.0	21.7	
Loading Shovel (Loading Plant)	Point	101.7	101.7		458.89	-64.2	0.4	-4.4	-3.2	30.3	-6.0	24.2	
Loading Shovel (Loading Plant)	Point	101.7	101.7		412.44	-63.3	-0.2	-12.9	-1.6	23.8	-6.0	17.8	
Loading Shovel (Loading Plant)	Point	101.7	101.7		443.48	-63.9	0.3	-4.7	-3.0	30.4	-6.0	24.4	
Loading Shovel (Stock)	Point	101.7	101.7		447.85	-64.0	0.3	-4.4	-3.1	30.5	-6.0	24.4	
Loading Shovel (Stock)	Point	101.7	101.7		606.56	-66.6	0.8	0.0	-4.4	31.5	-6.0	25.5	
Loading Shovel (Stock)	Point	101.7	101.7		426.33	-63.6	0.1	-8.5	-2.1	27.6	-6.0	21.6	
Loading Shovel (Stock)	Point	101.7	101.7		611.19	-66.7	0.9	0.0	-4.4	31.4	-6.0	25.4	
Screening Plant (C&D)	Point	107.9	107.9		613.05	-66.7	0.1	-9.7	-1.9	29.7			
Screening Plant (IBA)	Point	107.9	107.9		407.89	-63.2	-1.2	-4.9	-1.9	36.8	0.0	36.8	
Stock Pile to RH Side of Trommel	Point	94.6	94.6		532.77	-65.5	0.2	-1.0	-5.1	26.0	-6.0	20.0	
Trennso 1	Point	92.5	92.5		551.89	-65.8	-1.3	-15.1	-0.9	13.6	0.0	13.6	
Trennso 2	Point	93.3	93.3		536.06	-65.6	-4.0	-12.3	-0.8	14.0	0.0	14.0	
Trommel Enclosure-East	Area	62.8	86.7	246.7	540.63	-65.7	-1.4	-19.6	-0.9	2.2	0.0	2.2	
Trommel Enclosure-North	Area	62.8	82.1	85.3	537.11	-65.6	-1.4	-5.9	-1.3	11.3	0.0	11.3	
Trommel Enclosure-Roof	Area	62.8	87.7	312.9	535.26	-65.6	-1.8	-2.5	-1.4	19.0	0.0	19.0	
Trommel Enclosure-South	Area	62.8	82.1	85.3	534.11	-65.5	-1.4	-0.6	-1.8	15.7	0.0	15.7	
Volvo L25 Electric Loader Loading Feed Hopper	Point	86.3	86.3		511.54	-65.2	-0.1	-2.0	-3.4	18.7			

Appendix E
Revised Noise Management Plan

Attached as a Separate Document