# Noise Impact Assessment

Site: Rotherham Road, Dinnington
Reference: 51-184-R1-6
Date: February 26

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# EXECUTIVE SUMMARY

| | |
|---|---|
| **Site Address** | Universal Glass, Rotherham Road, Dinnington S25 3RG. |
| **National Grid Reference** | E 451145, N 386652. |
| **Proposed Development** | Standard Rules Permit Application for the processing, crushing and screening of glass. |
| **Background** | E3P have been commissioned to undertake a Noise Impact Assessment to accompany the application for a Standard Rules Permit to the Environment Agency for the above development. |
| **Surveys Completed** | E3P have undertaken attended measurements of all associated plant and operations that are in place at the site and will be operational.<br>Additionally, a background sound survey has been conducted to establish baseline levels of noise at a position representative of the closest receptors to the northeast |
| **Assessments Completed** | A 3D noise model has been constructed to assess proposed industrial/commercial sound upon nearby receptors in accordance with BS 4142:2014+A1:2019 and EA Guidance.<br>The predicted rating levels have been compared to the typical background sound level. |
| **Mitigation Recommendations** | The assessment has found that mitigation measures are required in the form of acoustic barriers and, in order to ensure no adverse impact at surrounding receptors.<br>Advice has been provided on Best Practicable Means and other measures to be implemented as part of the Noise Management Plan |
| **Conclusion and Discussion** | With mitigation measures in place, this assessment has shown that no adverse impact is predicted during the day along with the implementation of Best Practicable Means. |

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# 1. INTRODUCTION

## 1.1. BACKGROUND

E3P were commissioned by Universal Glass to undertake a Noise Impact Assessment to accompany a Standard Rules Permit Application to the Environment Agency for the proposed site at Rotherham Road in Dinnington, to be referred to hereafter as 'the Site'.

This assessment looks to determine the key noise sources associated with the development upon nearby noise-sensitive receptors.

## 1.2. REPORT OBJECTIVES

The objectives of this report are as follows.

- Establish and measure the baseline levels of background sound at nearby receptors.
- Measure source noise levels of all associated plant and equipment that will operate at the site.
- Assess proposed industrial sound in accordance with BS 4142 and EA Guidance.
- Provide advice on mitigation measures, where required.

The report follows current and relevant British Standards in order to provide a robust assessment.

## 1.3. PROPOSED DEVELOPMENT

The client intends to process, crush and screen glass at the development site with the product having multiple uses in construction and other applications. The site is a former commercial/industrial site with hardstanding and buildings. The site is within a mixed use area with residential dwellings to the north west and commercial/industrial premises to the south east, south west and north west.

A snapshot of the site boundary is indicated in Figure 1.

**Figure 1 Site Boundary**

# 2. ASSESSMENT METHODOLOGY

## 2.1. ENVIRONMENT AGENCY (2022) NOISE AND VIBRATION MANAGEMENT: ENVIRONMENTAL PERMITS

Environmental permits have conditions that require operators to control pollution – this includes controlling noise and vibration. E3P note that the following are required competencies and standards required in relation to Noise Assessments submitted as part of an Environmental Permit Application:

> *Noise impact assessments should be carried out to an appropriate standard and by competent personnel, for example, holders of either an Institute of Acoustics:*
>
> - *Diploma in Acoustics and Noise Control*
> - *Certificate of Competence in Environmental Noise Measurement, with relevant experience*
>
> *Monitoring noise in the environment is a specialist field. Monitoring should be carried out by a qualified acoustician who can demonstrate competency in environmental work rather than, for example, occupational health and safety work.*
>
> *You must use 'BS 4142: Methods for rating and assessing industrial and commercial sound' to quantify the level of environmental noise impact from industrial processes. In rare circumstances, other methods may also be appropriate, for example, NANR45 for assessing existing low frequency sound inside a residential property.*
>
> *If you want to assess impact using another method, you should discuss and agree this with your regulator before you start the assessment.*
>
> *Where vibration is an issue, you should contact your regulator for specific advice.*

E3P note from the above and the guidance that the EA require a BS 4142 assessment to be conducted.

## 2.2. BRITISH STANDARD BS 4142: 2014+A1:2019 - METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND

This standard describes methods for rating and assessing sound of an industrial or commercial nature which includes:

- 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 processes or premises, such as that from forklift trucks, or that from train or ship movements on or around an industrial or commercial Site.

The procedure detailed in the standard compares the measured or predicted specific noise level from any of the above with the background sound level at a residential dwelling. The measured background sound level at a receptor should be reliable and should not necessarily ascertain a lowest measured background sound level, but rather to quantify what is typical.

The specific noise level also acknowledges the reference time intervals depending upon whether the noise source operates during daytime (1-hour) or night-time (15-minute) periods.

There are several 'penalties' which can be attributed to the specific sound level depending upon the 'acoustic features' of the sound level under investigation as follows:

***Tonality***

- +2 dB: where the tonality is just perceptible.
- +4 dB: where the tonality is clearly perceptible; and
- +6 dB: where the tonality is highly perceptible.

***Impulsivity***

- +3 dB: where the impulsivity is just perceptible.
- +6 dB: where the impulsivity is clearly perceptible; and
- +9 dB: where the impulsivity is highly perceptible.

***Intermittency***

- +3dB: where the intermittency is readily distinctive against the acoustic environment.

In addition to the above, there is a penalty for 'other sound characteristics' of +3 dB where a sound exhibits characteristics that are neither tonal nor impulsive, though are readily distinctive against the acoustic environment. BS 4142 goes on to state that the rating level is equal to the specific sound level if there are no such features present or expected to be present.

Assessment of the rating level relative to the background sound level can yield the following commentary:

- Typically, the greater this difference (between the rating level and the background sound level), the greater the magnitude of impact.
- 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; and
- 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. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.

# 3. DESCRIPTION OF WORKS AND SOURCES OF NOISE

The proposals are to process, crush and screen glass into a grit/sand to be used in multiple applications.

Figure 2 in the following section is based on site observations as to the locations of the main noise sources. It includes the provision for a screening/crushing area, site access and a separate tipping/storage area.

The plant and processes associated with the above are already on site and were available to measure at the time and, as such, E3P have conducted attended source measurements of all activity on site to inform this assessment.

There are four main sources of noise associated with the site and the measured sound pressure levels are shown in detail in section 4.0:

- Sorting and crushing of material using 2 x power screens and crusher.
- Front loader moving material.
- Noise breakout from bagging plant in south western unit.
- Delivery of material.

# 4. SURVEY RESULTS

E3P undertook an attended noise survey to establish noise levels associated with proposed operations at the Rotherham Road site. An unattended weekday noise survey was conducted to determine background and ambient sound levels at the existing noise sensitive receptors. The unattended survey was conducted at the following location:

**Figure 2 Noise Measurement Position and Areas Of Site Activity***


*The aerial image used is the most recent available, however this image is not representative of the current site layout

## 4.1. UNATTENDED BACKGROUND AND AMBIENT SOUND SURVEY

Unattended monitoring was undertaken in the eastern area of the site in a position considered representative of the closest noise sensitive receptors to the east over a full weekday and weekend time period. However, the site will only operate during weekdays.

The survey was carried out over the following period:

- 11:00 Thursday 9th May to 10:00 Monday 13th May 2024.

The following noise measurement positions were chosen for the Background Sound Survey:

- Noise Measurement Position 1 (NMP1): Located to the west of the site equidistant from Rotherham Road as the noise receptors are to the road. The microphone of the sound level meter was set at a height of 1.5 m above ground level and in free-field conditions. Sound sources consisted of road traffic on the local road network.

Table 2 details the measured background and ambient sound levels during the full weekday time period between the hours of the proposed operation (07:00 to 17:00) during weekdays. The daytime levels correspond to the $L_{A90,1hr}$. Only daytime data is detailed in the table below as the proposed site will only operate during the daytime period and during weekday periods. The full dataset is available in appendix III.

**Table 1 Measured Background and Ambient Sound Pressure Levels – Friday 10th May 2024**

| TIME | MEASURED AMBIENT SOUND LEVELS, $L_{Aeq,T}$ (dB) | MEASURED BACKGROUND SOUND LEVELS, $L_{A90,T}$ (dB) |
|---|---|---|
| 09/05/2024 11:00 | 57.9 | 41.7 |
| 09/05/2024 12:00 | 57.2 | 38.9 |
| 09/05/2024 13:00 | 57.0 | 38.2 |
| 09/05/2024 14:00 | 57.9 | 40.5 |
| 09/05/2024 15:00 | 59.4 | 40.9 |
| 09/05/2024 16:00 | 59.0 | 41.5 |
| 09/05/2024 17:00 | 59.0 | 41.8 |
| 10/05/2024 07:00 | 60.3 | 40.6 |
| 10/05/2024 08:00 | 59.8 | 43.9 |
| 10/05/2024 09:00 | 58.5 | 43.5 |
| 10/05/2024 10:00 | 57.5 | 41.5 |
| 10/05/2024 11:00 | 59.2 | 42.1 |
| 10/05/2024 12:00 | 59.1 | 42.8 |
| 10/05/2024 13:00 | 57.8 | 42.2 |
| 10/05/2024 14:00 | 58.2 | 42.3 |
| 10/05/2024 15:00 | 60.5 | 40.9 |
| 10/05/2024 16:00 | 61.6 | 42.3 |

The typical background sound level is derived by taking the median value across all measured daytime periods. This equates to 42 dB and will be used for the assessment. This is also the modal value across all periods.

## 4.2. ATTENDED SOURCE SOUND SURVEY

E3P have undertaken detailed measurements of worst-case commercial operations that are to take place at the site. The surveys were carried out over the following time periods:

- Thursday 16th May 2024 between 11:00 and 12:00 (HGV tipping fill only).
- Thursday 12th September 2024 between 10:20 and 12:00.
- Monday 24th February 2025 between 14:00 and 15:00.

Noise Measurement were undertaken at the following positions:

- Noise Measurement Position 2 (NMP2) – Located 15 m in front of an HGV tipping fill. The microphone of the sound level meter was located at a height of 1.5 m above local ground level in free-field conditions. Sound sources consisted of HGV tipping its fill. A position closer was not possible due to health and safety concerns.
- Noise Measurement Position 3 (NMP3) – Located 1.5 m from CAT a generator. The microphone of the sound level meter was located at a height of 1.5 m above local ground level in free-field conditions. Sound sources consisted of steady state generator exhaust noise.
- Noise Measurement Position 4 (NMP4) – Located 3 m from front loader pass-by event. The microphone of the sound level meter was located at a height of 1.5 m above local ground level in free-field conditions. Sound sources consisted of wheeled loader movement.
- Noise Measurement Position 5 (NMP5) – Located 4 m from crusher in operation. The microphone of the sound level meter was located at a height of 1.5 m above local ground level in free-field conditions. Sound sources consisted of noise from the crusher and screening operations.
- Noise Measurement Position 6 (NMP6) – Located 2 m from power screener (1). The microphone of the sound level meter was located at a height of 1.5 m above local ground level in free-field conditions. Sound sources consisted of noise from engine/motor of the power screener.
- Noise Measurement Position 7 (NMP7) – Located 0.5 m from power screener (2). The microphone of the sound level meter was located at a height of 1.5 m above local ground level in free-field conditions. Sound sources consisted of noise from engine/motor of the power screener.
- Noise Measurement Position 8 (NMP8) – Located 5m from the open roller shutter on the unit in the south west of the site. The microphone of the sound level meter was located at a height of 1.5 m above local ground level in free-field conditions. Sound sources consisted of noise breakout from within the unit.

Table 2 details the worst-case measured noise levels for measurement position and associated sound sources for the entire measurement periods undertaken. Measurements were completed with a sampling period of 20 ms to allow post analysis of the noise levels.

**Table 2 Measured Source Noise Levels**

| LOCATION | SOURCE | MEASURED NOISE LEVEL, $L_{Aeq,T}$ (dB) | DISTANCE TO SOURCE (m) |
|---|---|---|---|
| NMP2 | HGV tipping fill | 77 | 15 |
| NMP3 | CAT Generator | 79 | 1.5 |
| NMP4 | Front Loader Movement | 85 | 3 |
| NMP5 | Crusher in operation | 78 | 4 |
| NMP6 | Power Screener (1) | 88 | 2 |
| NMP7 | Power Screener (2) – engine bay | 88 | 0.5 |
| NMP8 | South western unit – bagging plant running internally, shutter open. | 66 | 5 (from open shutter) |

The levels in the Table are used to inform the noise model and assessment. Where necessary time correction is applied, and sound power levels derived for use within the noise model.

Weather forecasts were monitored throughout the surveys to ensure no adverse conditions as the location of the Site was not suitable for the installation of an unattended weather station. During the survey, conditions remained dry and wind speeds rarely exceeded 10 mph. E3P consulted BBC weather for forecasts and verified via the closest weather station on Weather Wunderground.

The equipment outlined in Table 3 was used for the noise survey.

**Table 3 Noise Measurement Equipment and Calibration Dates**

| MEASUREMENT POSITION | EQUIPMENT DESCRIPTION | MANUFACTURER & TYPE NUMBER | SERIAL NUMBER | CALIBRATION DUE DATE AT TIME OF SURVEY |
|---|---|---|---|---|
| NMP1 | Sound Level Meter | Cirrus CR:171A | G303884 | 15th September 2025 |
| | Pre-amplifier | Cirrus MV:200F | 12731F | |
| | Microphone | Cirrus MK:224 | 215899D | |
| | Calibrator | Cirrus CR:515 | 99403 | 15th September 2024 |
| NMP2 to NMP7 | Sound Level Meter | Norsonic Nor145 | 14529152 | 13th June 2025 |
| | Pre-amplifier | Norsonic Nor1209 | 22293 | |
| | Microphone | Norsonic Nor1227 | 332220 | |
| | Calibrator | Norsonic Nor1255 | 125525208 | 13th June 2024 |
| NMP8 | Sound Level Meter | Fusion | 14616 | 10th July 2026 |
| | Pre-amplifier | Pre22 | 20951 | |
| | Microphone | 40CD | 494264 | |
| | Calibrator | CR 515 | 99206 | 9th July 2025 |

The sound level meter was field calibrated on site using the above-mentioned calibrator prior to and after noise measurements were taken. No significant drift was witnessed as noted above (drift of 0.1 dB). Calibration certificates are available upon request.

# 5. NOISE IMPACT ASSESSMENT

With regard to assumptions for the assessment, the following has been considered for the full planning application aspects:

- Ground elevations have been taken as existing by way of a 2 m grid Digital Terrain Model (DTM) which contains public sector information licensed under the Open Government License v3.0.
- The daytime period has been assessed between the hours of 07:00 to 17:00. For the assessment, BS 4142:2014+A1:2019 has been used to determine the likelihood of adverse impact within the garden areas over a reference time period of 1 hour.
- Wheeled loader movement sound levels have been calculated from the measured data using the '*Method for mobile plant using a regular well-defined route*' that is set out in BS 5228 1 2009+A1 and inputted into the model as line sources. Four wheeled loader movements per hour have been assumed. Only a single HGV arrives per hour as such HGV paths are not considered here as they do not contribute to the overall sound climate, the tipping of fill is included, however.
- The measured on-time periods for the HGV tipping fill have been corrected to account for the hourly assessment period given in BS 4142:2014+A1:2019. This process of tipping fill only lasts for approximately 120 seconds.
- Noise breakout from the south western unit has been calibrated to measured levels with roller shutters open, to inform a worst case assessment.
- The existing concrete block barrier has been included within the initial model at the current height of 4 m.
- No soft ground attenuation has been applied to inform a worst-case assessment

For the BS 4142:2014+A1:2019 assessments, penalties are applied to the specific sound level in order to provide the rating level. These penalties relate to the acoustic features of the sound source. Accordingly, the following subjective features have been accounted for in the assessment, in accordance with the subjective method detailed in BS 4142:2014+A1:2019, for the development as a whole operation.

**Table 4 Acoustic Penalties**

| SOURCE | CHARACTERISTIC | ATTRIBUTABLE PENALTY | COMMENT |
|---|---|---|---|
| PROPOSED SITE | Tonality | 4 dB | Objective tonality of the screeners was determined to be 6 dB at 1 m. It is assumed that the highly perceptible tone would reduce to clearly perceptible at the receptors due to distance and screening. |
| | Impulsivity | - | No impulsivity detected during on site measurements. |
| | Intermittency | - | No intermittency, dominate noise sources are steady state and tonality applied. |
| | Other Sound Characteristics | - | Other penalties applied. |

## 5.1. DAYTIME ASSESSMENT

Table 5 details the resultant specific noise level at the closest receptors, output from the model. The grid noise map can be seen in Figure 3 of Appendix IV.

**Table 5 BS 4142:2014+A1:2019 Assessment - Daytime**

| RECEPTOR | CALCULATED SPECIFIC NOISE LEVEL, $L_{Aeq,1hr}$ (dB) | ACOUSTIC FEATURE CORRECTION (dB) | RATING LEVEL, $L_{A,r}$ (dB) | BACKGROUND SOUND LEVEL, $L_{A90,1hr}$ (dB) | DIFFERENCE +/- (dB) |
|---|---|---|---|---|---|
| 5 to 25 Rotherham Road | 50 | 4 | 54 | 42 | **+12** |
| 27 to 33 Rotherham Road | 49 | | 53 | | **+11** |
| 39 to 45 Rotherham Road | 51 | | 55 | | **+13** |
| Kieran Close | 50 | | 54 | | **+12** |
| Meadow Street | 48 | | 52 | | **+10** |
| 55 to 59 Rotherham Road | 48 | | 52 | | **+10** |
| 61 to 75 Rotherham Road | 37 | | 41 | | -1 |
| 77 to 81 Rotherham Road | 40 | | 44 | | **+2** |
| 83 to 87 Rotherham Road | 43 | | 47 | | **+5** |
| 89 Rotherham Road | 37 | | 41 | | -1 |

It is found that rating levels are expected to exceed the background sound level at many of the surrounding receptors. As such, mitigation measures are required in order to reduce rating levels at the receptors.

# 6. MITIGATION

## 6.1. DAYTIME ASSESSMENT WITH MITIGATION

An additional grid noise map has been run with the existing Lego brick barrier moved to surround the screeners and crusher and also relocated the generator within this area. The height of this barrier has been increased to 6 m.

Barriers are proposed for both the tipping area and the screening/crushing area. The height of these barriers should be a minimum of 6 m. The location and shape of these barriers are indicated on Figure 4 within the appendix of this report.

The currently used 'lego brick' concrete blocks are a suitable material for the creation of the new barrier and the current barrier can be extended and increased in height by adding additional blocks to achieve the minimum height of 6 m and designed barrier shape as indicated in Figure 4.

Table 6 details the resultant specific noise level at the closest receptors, output from the model. The grid noise map can be seen in Figure 4 of Appendix IV.

**Table 6 BS 4142:2014+A1:2019 Assessment – Daytime with mitigation**

| RECEPTOR | CALCULATED SPECIFIC NOISE LEVEL, $L_{Aeq,1hr}$ (dB) | ACOUSTIC FEATURE CORRECTION (dB) | RATING LEVEL, $L_{A,r}$ (dB) | BACKGROUND SOUND LEVEL, $L_{A90,1hr}$ (dB) | DIFFERENCE +/- (dB) |
|---|---|---|---|---|---|
| 5 to 25 Rotherham Road | 38 | 4 | 42 | 42 | 0 |
| 27 to 33 Rotherham Road | 41 | | 45 | | **+3** |
| 39 to 45 Rotherham Road | 39 | | 43 | | **+1** |
| Kieran Close | 40 | | 44 | | **+2** |
| Meadow Street | 39 | | 43 | | **+1** |
| 55 to 59 Rotherham Road | 36 | | 40 | | -2 |
| 61 to 75 Rotherham Road | 32 | | 36 | | -6 |
| 77 to 81 Rotherham Road | 34 | | 38 | | -4 |
| 83 to 87 Rotherham Road | 36 | | 40 | | -2 |
| 89 Rotherham Road | 35 | | 39 | | -3 |

As can be seen, the exceedance is reduced to at most +3 dB at the worst affected receptors. BS 4142 provides the following advice:

> *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. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.*

It is considered that these minor exceedances are not adverse. Indeed, specific noise levels at facades are no more than 41 dB, with internal noise levels of no more than 28 dB with windows open, well below the 35 dB daytime criteria.

Indeed, residual sound levels at the receptors is high with the average $L_{Aeq,T}$ at NMP1 noted to be 59 dB, some 18 dB above the specific noise level. This is a positive indication that the specific noise level will be mostly masked by road traffic sound, albeit the character of the sound would likely be audible but at a sufficiently low enough level.

A Noise Management Plan has been provided in the next section to ensure noise levels are kept to a minimum and measures are in place to monitor and investigate any potential noise issues

## 6.2. COMMERCIAL SOUND IMPACT CONTEXT AND UNCERTAINTY

In order to determine the final outcome of the assessment, the context must be considered, in accordance with BS 4142:2014+A1:2019, Section 11. The factors to be considered are discussed below:

### THE ABSOLUTE LEVEL OF THE SOUND AND THE CHARACTER AND LEVEL OF THE RESIDUAL SOUND COMPARED TO THE CHARACTER AND LEVEL OF THE SPECIFIC SOUND

Given that the ambient noise levels at the receptors are high due to road traffic along Rotherham Road (approximately 59 dB $L_{Aeq,T}$) and the specific sound at the receptors with proposed mitigation measures in place is at most 41 dB, there is a 18 dB difference between the residual sound and the specific sound. A level difference of 10 dB would indicate the specific noise has little to no influence over the residual noise at the receptors. This is a positive indication that road traffic will likely mask the sound associated the proposed site.

Furthermore, garden noise levels at all surrounding receptors would fall below well below the design range of 50-55 dB as outlined in BS 8233 for relaxation purposes.

As such, with mitigation measures in place adverse impact is not expected.

### THE SENSITIVITY OF THE RECEPTOR AND WHETHER DWELLINGS OR OTHER PREMISES USED FOR RESIDENTIAL PURPOSES WILL ALREADY INCORPORATE DESIGN MEASURES THAT SECURE GOOD INTERNAL AND/OR OUTDOOR ACOUSTIC CONDITIONS.

The receptors are residential and are therefore considered to be sensitive. Given that details of the existing receptors are not known, it is assumed that no design measures are incorporated, i.e. open windows rather than trickle vents are relied upon for ventilation. Based on the absolute noise levels at the façade, and mitigation measures in place, the internal noise levels would be below BS 8233:2014 criteria and would be acceptable when the windows are open.

Given the contextual factors discussed above in accordance with BS 4142:2014+A1:2019, it is concluded that the sound sources proposed are not likely to have an adverse impact during the daytime periods when mitigation measures are in place.

# 7. NOISE MANAGEMENT PLAN

## 7.1. NOISE CONTROL MEASURES

### 7.1.1. GENERAL

The below details physical and management measures which can be included in on-site practices and procedures to control noise at the nearby receptors. These measures are in the form of best practicable means (BPM) with noise generating activities being limited to core working hours to minimise nuisance.

Within the constraints of efficient site working and the requirements of the relevant British Standards, the following noise control measures should be implemented, wherever practicable and considered necessary, during the construction period:

- General induction training for site operatives and specific training for staff having responsibility for particular aspects of controlling noise from the site.
- Use of most environmentally acceptable and quietly operating plant and equipment appropriate to the works with emission levels limited to relevant EC Directive/UK Statutory Instrument levels and levels quoted in BS 5228, wherever possible.
- Plant maintenance operations should be undertaken away from the nearest noise-sensitive properties at all times and wherever practicable.
- Plant not in operation should be shut down, i.e. not left idling.
- Avoid scraping of material using front loader to avoid high noise levels in the storage areas.
- Drivers should ensure that lorry tailgates are shut and locked before leaving tipping or drop off areas.

### 7.1.2. MANAGEMENT CONTROL MEASURES

A comprehensive range of management control measures could be implemented at the site including:

- All plant and equipment should be regularly maintained to ensure that no item will produce excessive noise.
- Traffic movements on Site should be kept within the core working hours to avoid disturbance for receptors along the local road network.
- A speed limit of 10 mph should be in place at the site access and within the site to limit the level of noise and vibration, especially from heavy goods vehicles; and
- Site staff should be made aware that they are working in the immediate vicinity of residential receptors and avoid all unnecessary noise and vibration due to misuse of tools and equipment, and unnecessary shouting and radios. To further enhance this, staff should be trained to operate the equipment and plant without causing excess noise and vibration including measures such as not dropping waste from a height.

If at any time it is necessary to undertake temporary actions that are likely to cause elevated levels of noise, the Site manager should liaise with the Environmental Health Officer (EHO) at the Local Planning Authority (LPA) and/or the Environment Agency and the closest affected dwellings to inform them of the works to take place and the duration the works will last.

## 7.2. PROGRAM OF NOISE MONITORING

Where required following complaints or at the request of the LPA/EA, it is recommended that a programme of noise monitoring is undertaken at a position representative of R1 to determine whether noise from the site is considered adverse.

The purpose of the noise monitoring programme is to facilitate data acquisition to demonstrate to the LPA/EA that the permitted development is operating as expected without elevated noise levels and in such a manner as to minimise the noise impacts at nearby noise-sensitive receptors.

If the guideline noise limits are breached, the noise monitoring scheme will prompt remedial actions to ensure on-going future compliance.

Noise levels shall be measured using a Sound Level Meter conforming to type 1 or better of the latest versions of British Standard EN 61672-1:2003 Electro-acoustics Sound Level Meters, Specifications. The Sound Level Meter shall be field-calibrated before and after monitoring using an acoustic calibrator conforming to the latest version of British Standard EN 60942:2003 Electro-acoustics, Sound Calibrators. The Sound Level Meter shall be calibrated to a traceable standard by a UKAS-accredited laboratory, or equivalent, within a 24-month period before the survey and all acoustic calibrators shall be calibrated to a traceable standard by a UKAS-accredited laboratory, or equivalent, within a 12 month period before the survey.

Noise measurements shall be undertaken by a suitably qualified person at the noise sensitive locations identified above. The noise measurements shall be undertaken during a normal working day, during typical working hours, avoiding meal breaks and times when plant and equipment within the site or on the access road are not operational.

Noise levels shall also be measured during a period when the Site is not operational, for example during a lunch break or shift change, to enable the noise levels attributable to works alone, be determined by decibel subtraction.

The sound level meter shall be positioned such that the microphone is located 1.2 to 1.5 m above local ground level in free-field conditions, i.e. at least 3.5 m from the nearest vertical, reflecting surface, at all survey locations. Noise levels shall be measured over a one-hour period during the normal working day. A note of the prevailing weather conditions shall be made at the time of the survey and the audibility of the site shall be noted at each measurement location during each measurement period. Noise measurements shall only be taken when the wind speed is less than 5 m/s and when there is no rain forecast.

On completion of each noise survey a technical report can be prepared on behalf of the contractor and held on record by the Environment Manager. This report should be suitable for submission to the LPA if requested or following noise complaints.

## 7.3. NOISE CONTINGENCY MEASURES

### 7.3.1. INTRODUCTION

Elevated levels of noise may be identified either by receipt of a complaint from a third party suggesting that there is excessive noise or by detection of a result of the noise monitoring.

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

### 7.3.2. NOISE COMPLAINT INVESTIGATION

A site diary, plus forms to record complaints, should be completed by the Site manager and input into the IMS, or similar.

All complaints from third parties should be forwarded to the Site manager.

The Site manager should ensure that:

- The complaint is investigated to identify the cause, if necessary, this may involve direct communication with the complainant.
- In the event of elevated levels of noise being detected, the presence of 'abnormal' onsite activity is assessed and if necessary preventative action is taken that will prevent a reoccurrence of the same problem. These actions must be documented.
- The Complainant should be contacted and given information on the investigations conducted and actions taken as appropriate.
- Complaints involving a location with Local Authority Contracts will be reported in line with specific Contract requirements and timescales. Local procedures may need to be in place to ensure these are adhered to.
- If the investigation indicates that the complaint has not been justified this should be clearly recorded on the report. All complaints must be logged.

### 7.3.3. ELEVATED NOISE LEVELS

Any elevated levels of noise identified will be mitigated as follows:

- The Site manager will investigate the source of the noise and carry out a range of checks at the identified source of the elevated levels if it is found to be originating from within the site. As part of these checks, the Site manager will consider the need for further monitoring.
- Any noise monitoring will be completed in accordance with BS 4142:2014+A1:2019. Monitoring locations will be agreed with the EHO prior to undertaking monitoring.
- The results of any noise monitoring will determine whether the site is causing an unacceptable impact at the receptor in question.
- The Site manager will then ensure the plant is being operated to the manufacturer's specification and ensure that any improvements required to minimise the noise levels are made.

To further mitigate the elevated levels, the following actions shall also be considered.

- The replacement of equipment identified as generating excess noise.
- Once the improvements identified by the Site manager have been completed, the manager will commission a further set of monitoring to ensure that the improvements have met the required standard. If the levels are still not being met then the manager will repeat the request for improvements and subsequent monitoring until the limits are met.

If operational failings are identified, the retraining of employees should take place to ensure that all employees operate to the required standards. If the failings are identified as part of the operating techniques, then the problem will be raised as part of the review of control measures.

The Site manager will ensure a close liaison with the LPA throughout all stages of the process following an identified elevated noise.

### 7.3.4. REPORTING MEASURES

In the event of elevated levels of noise and/or vibration being identified, the event should be reported into an appropriate management system by a member of operational staff. Upon notification of an Environmental Incident, the TCM (or designated responsible person) should complete an incident reporting form. The completed form should then be distributed throughout the company for review at operational, management and health and safety meetings.

The system should record any actions taken to rectify the issue, ensure that any necessary actions or review are recorded onto the system and ensure that the person reporting the incident is notified.

The Site manager will investigate the performance failure event within 2 hours and, if necessary, will report the event to the LPA. Once the issue has been resolved, the corrective action taken will be entered onto the system and the issue should be closed.

## 7.4. EMERGENCY PLANS

### 7.4.1. GENERAL

This Section considers the potential for accidents (or incidents) which would result in the loss of control of noise emissions and could have an unacceptable short-term impact at the closest receptors.

The measures in place to mitigate any emergency situations will generally be the same as the contingency measures identified in Section 7.

If the situation is considered to be an emergency by the Site manager then the mitigation measures will be immediately implemented, and the manager will consider limiting the hours of operation or immediately suspending the site operations creating the unacceptable levels of noise. These measures will be considered on a case by case basis.

### 7.4.2. BREAKDOWN OF EQUIPMENT AND PLANT

Elevated levels of noise may escape from the site due to the breakdown of any plant items or equipment. Machines not operating to the manufacturer's specification may create unacceptable levels of noise and the failure of control equipment such as damage to acoustic cladding or acoustic barriers may allow unacceptable levels of noise to escape from the site.

In the event of equipment breakdown, the mitigation measures to be undertaken are the same as the contingency mitigation measures detailed in Section 5.

# 8. CONCLUSIONS AND DISCUSSION

E3P were instructed to produce a Noise Impact Assessment and Noise Management Plant to accompany a Standard Rules Permit application for the process, screening and crushing of glass at Rotherham Road un Dinnington.

E3P undertook a full weekday and weekend background sound survey at a position representative of receptors in the vicinity of the development.

Additionally, E3P attended the site to capture measurements of all plant and equipment to be used at the site.

E3P have undertaken 3D noise modelling to determine the rating levels associated with the site at nearby receptors and compared this to the measured background sound levels in accordance with BS 4142.

The assessment has found that mitigation measures are required in the form of acoustic barriers in order to ensure no adverse impact at surrounding receptors.

Advice has been provided on Best Practicable Means and other measures to be implemented as part of the Noise Management Plan.

This assessment has shown that no adverse impact is predicted at the receptors following installation of the mitigation measures and implementation of the Noise Management Plan.

## END OF REPORT

# APPENDIX I
# LIMITATIONS

## GENERAL

1. This report and any associated works (together comprising the "Services") were compiled and carried out by E3P for the client (as present in Section 1) under the E3P “Terms of Business” or with those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.
2. Unless explicitly agreed otherwise, in writing, this report has been prepared under E3P Standard Terms and Business as included within our proposal to the Client.
3. Project-specific appointment documents may be agreed upon at our discretion and a charge may be levied for both the time to review and finalise appointment documents and also for associated changes to the appointment terms. E3P reserves the right to amend the fee should any changes to the appointment terms create an increased risk to E3P.
4. The report needs to be considered in light of the proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

## NOISE AND VIBRATION IMPACT ASSESSMENTS

5. Where a noise or vibration survey is required to inform an assessment, E3P will endeavour to ensure that all noise and vibration measurements taken are robust, representative and reliable in order to inform an accurate assessment.
6. Where mitigation measures are specified in this report, it should be noted that these measures are relative to a specific sound or vibration source, both in terms of the measured sound pressure and vibration level and the character of the sound source. Where either the sound pressure level or the character of the sound varies following completion of the sound survey, E3P cannot be held responsible for any subsequent variations in the proposed mitigation performance.
7. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walkover inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. E3P cannot be held responsible for any disclosures that are provided post-production of our report and will not automatically update our report.
8. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, E3P reserves the right to review such information and, if warranted, to modify the opinions accordingly.
9. E3P does not warrant work/data undertaken/provided by others.

# APPENDIX II
# GLOSSARY

# NOISE

Noise is defined as unwanted sound. Human ears are 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 noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source. The most widely used weighting mechanism that best corresponds to the response of the human ear is the “A”-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or LAeq, LA90 etc., according to the parameter being measured.

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(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions. An indication of the range of sound levels commonly found in the environment is given in the following table.

**Table 7 Typical Sound Pressure Levels**

| SOUND PRESSURE LEVEL | LOCATION/EXAMPLE |
|---|---|
| 0 | Threshold of hearing |
| 20-30 | Quiet bedroom at night |
| 30-40 | Living room during the day |
| 40-50 | Typical office |
| 50-60 | Inside a car |
| 60-70 | Typical high street |
| 70-90 | Inside a factory |
| 100-110 | Burglar alarm at 1 m away |
| 110-130 | Jet aircraft on take off |
| 140 | Threshold of pain |

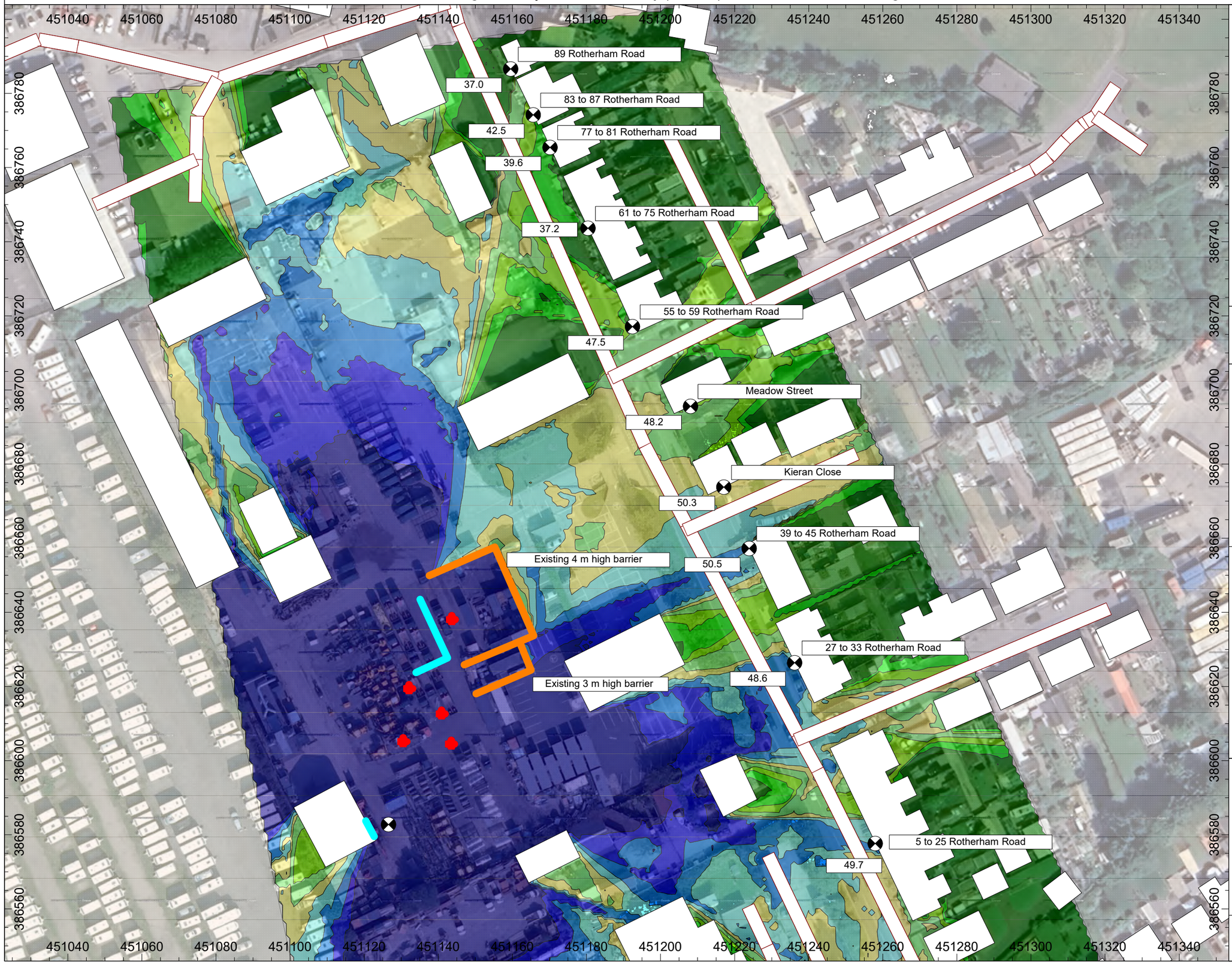
# ACOUSTIC TERMINOLOGY

**Table 8 Terminology**

| DESCRIPTOR | EXPLANATION |
|---|---|
| **dB (decibel)** | The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa). |
| **dB(A)** | A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. "A" weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies. |
| **LAeq, T** | LAeq is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period. |
| **LAmax** | LAmax is the maximum A-weighted sound pressure level recorded over the period stated. LAmax is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the "fast" sound level meter response. |
| **L10 and L90** | If a non-steady noise is to be described, it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L10 is the level exceeded for 10% of the time and as such can be regarded as the "average maximum level". Similarly, L90 is the "average minimum level" and is often used to describe the background noise. It is common practice to use the L10 index to describe traffic noise. |
| **Free-field Level** | A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and away from buildings. |
| **Fast** | A time weighting used in the root-mean-square section of a sound level meter with a 125-millisecond time constant. |
| **Slow** | A time weighting used in the root-mean-square section of a sound level meter with a 1000-millisecond time constant. |
| **dB (decibel)** | The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa). |
| **dB(A)** | A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. "A" weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies. |

# APPENDIX III
# FIGURES

## Figure 3 - Daytime Grid Noise Map (BS 4142) - Calculation at 1.5 m above ground level




**Project:**
**Rotherham Road, Dinnington**

**Project-No:**
**51-184**

**Client:**
**Universal Glass Limited**

**Daytime Noise Level, LAr (dB)**

- ... <= 38
- 38 < ... <= 40
- 40 < ... <= 42
- 42 < ... <= 45
- 45 < ... <= 48
- 48 < ... <= 50
- 50 < ... <= 52
- 52 < ... <= 55
- 55 < ...

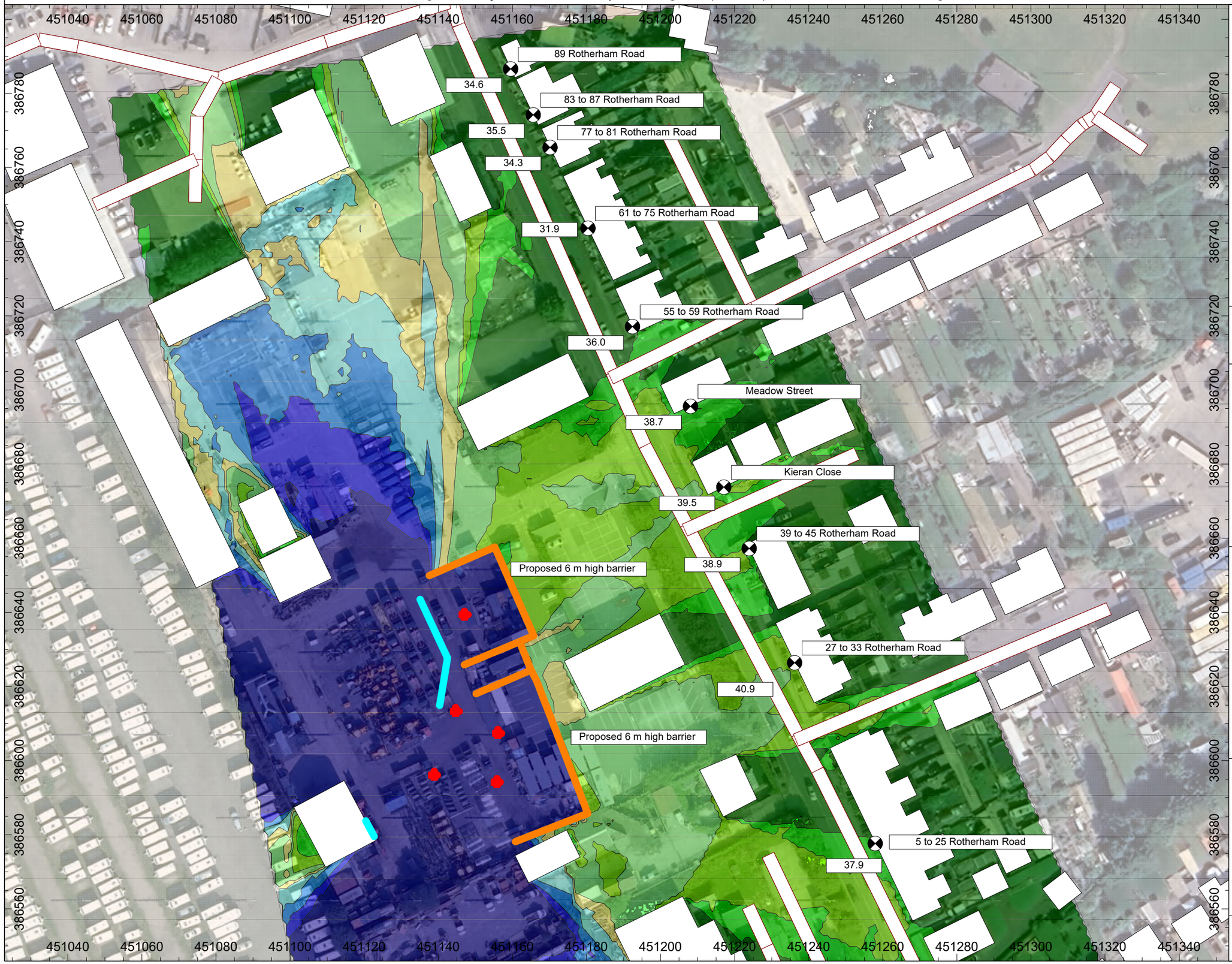
**Noise Map Objects**

- Point Source
- Line Source
- vert. Area Source
- Road
- Railway
- Building
- Barrier
- Receiver
- Calculation Area

e3p

Project Engineer: Melissa Bailey
Date: 27/02/2025

**Figure 4 - Daytime Grid Noise Map with mitigation (BS 4142) - Calculation at 1.5 m above ground level**

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- 52 < ... <= 55
- 55 < ...

**Noise Map Objects**

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