

A Noise Assessment For Plot H4, Heywood Distribution Park, Heywood

On behalf of Indurent Management Limited

May 2025



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Report Reference: RA00875 – Report I



Resound Acoustics Limited is a
Member of the Association of Noise Consultants

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I INTRODUCTION

- I.1 Resound Acoustics Limited has been appointed by Indurent Management Limited to undertake a noise assessment for Plot H4 at Heywood Distribution Park, Heywood, Rochdale.
- I.2 Outline planning permission for development of the site for E(g)(iii) (industrial processes), B2 (general industrial) and B8 (storage and distribution) uses was granted by Rochdale Borough Council in May 2025 under planning reference 24/00805/OUT.
- I.3 Indurent Management Limited is seeking reserved matters approval for a single employment unit with its service yard on the western edge of the site and a separate open storage area on the northern and eastern sides of the site. It is understood that no specific occupier has been identified, so to provide a worst-case assessment, it has been assumed that a refrigerated trailer fleet will operate at the site.
- I.4 Condition 14 of the outline planning permission states that any reserved matters application shall be accompanied by a noise assessment to confirm the need for and extent of noise mitigation measures.
- I.5 Outline planning permission 24/00805/OUT also includes Condition 13, which requires fixed building service plant to meet the noise limits recommended in the noise report that accompanied the outline planning application.
- I.6 This report sets out an assessment of potential noise impacts resulting from the use of the proposed development, taking account of the existing sound climate in the area, the potential noise emissions from the site, and the requirements of the planning conditions. Where required, mitigation measures are recommended so that the planning conditions can be discharged.
- I.7 Whilst reasonable efforts have been made to produce a report that is easy to understand, it is technical in nature. To assist the reader, an introduction to noise and an explanation of the terminology used in this report are contained in Appendix A.

2 SITE DESCRIPTION

Existing Site Conditions

- 2.1 The site is located on the south-western edge of Heywood, Rochdale, and forms part of Heywood Distribution Park. The site is located in the centre of the distribution park and is bounded by other employment units to the east, south and west, and by an access road to the north.
- 2.2 The eastern half of the site is currently in use as an HGV trailer park, with the western half of the site being scrubland.
- 2.3 The topography of the site slopes gently down from north to south, levelling off towards the southern edge of the site.
- 2.4 A site location plan is shown in Figure B.1 in Appendix B.
- 2.5 The noise-sensitive receptors closest to the site are:
- residential properties on Kelty Grove, Galloway Close, Greenock Drive, Glencoe Close, Dunbar Grove, and Dunrobin Close to the north-west, north and north-east of the site, beyond the East Lancashire Railway, which forms the northern boundary of Heywood Distribution Park. The closest properties are approximately 125 metres from the site boundary;
 - a small group residential properties at Coal Pits Farm, approximately 425 metres to the south of the site boundary.
- 2.6 Planning permission to demolish a former public house and construct a new public house with an ancillary first floor residential flat at the corner of Moss Hall Road and Pilsworth Road was granted by Rochdale Borough Council on 25th August 2022 (Rochdale Borough Council planning reference 22/00462/FUL). The old public house has been demolished, however the new development, which will be approximately 230 metres to the south of the site, is yet to be constructed.

Proposed Site Conditions

- 2.7 Indurent Management Limited is seeking reserved matters approval for a single employment unit with its service yard on the western edge of the site and a separate open storage area on the northern and eastern sides of the site. It is understood that no specific occupier has been identified, so to provide a worst-case assessment, it has been assumed that a refrigerated trailer fleet will operate at the site.
- 2.8 The proposed layout is shown in the UMC architects' drawing *Site Plan* (reference 25007-UMC-0100-SI-DR-A 0601 Rev P06, dated 22nd May 2025), which is included as Figure B.2 in Appendix B.
- 2.9 The proposed layout shows 4.5 metre high acoustic fences along the northern and eastern edges of the open storage area.

Previous Noise Report

- 2.10 The application that led to outline planning permission 24/00805/OUT was accompanied by a noise assessment produced by Resound Acoustics titled *A Noise Assessment for Plot H4, Heywood Distribution Park, Heywood* (reference RA00839 – Report I Rev0, dated 30th July 2024) and referred to in this report as ‘the July 2024 noise report’.
- 2.11 The July 2024 noise report included the results of baseline sound level measurements undertaken at locations representative of receptors around the site; for clarity the measurement locations are shown in Figure C.1 in Appendix C, with full details of the baseline sound survey set out in the July 2024 noise report.
- 2.12 The representative background sound levels used in the July 2024 noise report are set out in Table 2.1.

Table 2.1: Representative background sound levels in July 2024 noise report, free-field dB

Locations	Period	Existing Background Sound L_{A90}
Receptors to the south	Day (07:00 – 23:00)	45
	Early-night (23:00 – 05:00)	35
	Late-night (05:00 – 07:00)	45
Receptors to the north	Day (07:00 – 23:00)	42
	Early-night (23:00 – 05:00)	36
	Late-night (05:00 – 07:00)	43

- 2.13 The July 2024 noise report set out an assessment in accordance with British Standard 4142: 2014+AI: 2019; this concluded that with appropriate mitigation, which would be linked to the final site layout adopted and therefore would be determined at Reserved Matters stage, no adverse impacts were predicted.
- 2.14 Appropriate mitigation would also result in night-time maximum noise levels achieving the requirements of the World Health Organisation’s *Guidelines for Community Noise*.
- 2.15 The July 2024 noise report set out noise limits for fixed building services plant; these are shown in Table 2.2, which repeats Table 5.8 in the July 2024 noise report.

Table 2.2: Recommended noise limits for fixed building services plant, free-field dB

Position	Period	Measured Background Sound Level, L_{A90}	Proposed Noise Limit $L_{A,T}^{(1)(2)}$
Receptors to the south	Daytime (07:00-23:00)	45	35
	Early night-time (23:00-05:00)	35	25
	Late night-time (05:00-07:00)	45	35
Receptors to the north	Daytime (07:00-23:00)	42	32
	Early night-time (23:00-05:00)	36	26
	Late night-time (05:00-07:00)	43	33

Notes:

(1) The proposed noise limit is a free-field value at the façade of the property.

(2) T is one hour for daytime, and 15 minutes for night-time.

- 2.16 The July 2024 noise report stated that the recommended noise limits were rating levels, and the design and specification of plant should take into account any acoustic characteristics, as might be experienced at the receptors.
- 2.17 The limits were deemed to apply to the total plant noise emission levels from the whole development, so individual plant items may need to be designed to a lower limit to consider the cumulative effects of noise.

3 GUIDANCE

Planning Conditions

- 3.1 Condition 14 of planning permission 24/00805/OUT requires that any reserved matters application pursuant to that permission is accompanied by a noise assessment, stating:

“14. The submission of any reserved matters application for any phase shall be accompanied by a noise assessment to confirm the need for and extent of noise mitigation measures in that phase. The approved mitigation measures for each phase shall be installed prior to the first use of the development within that phase and maintained thereafter, unless agreed otherwise in writing by the local planning authority.”

Reason: To safeguard the living conditions of nearby occupants and residents in accordance with Core Strategy Policy G9 and the National Planning Policy Framework.”

- 3.2 Condition 13 requires noise from fixed building services plant at the development to not exceed the values in Table 5.8 of the July 2024 noise report:

“13. Total cumulative noise from fixed building services plant serving the development hereby approved, to include any corrections for acoustic features, shall not exceed the values set out in table 5.8 of the submitted Noise Assessment reference RA00839 – Report I dated 30th July 2024.”

Reason: To safeguard the living conditions of nearby occupants and residents in accordance with Core Strategy Policy G9 and the National Planning Policy Framework.”

- 3.3 The noise limits in Table 5.8 of the July 2024 noise report are repeated in Table 2.2 of this report.

British Standard 4142

- 3.4 British Standard (BS) 4142: 2014 + A1: 2019 *Methods for rating and assessing industrial and commercial sound* describes a method 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 premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

- 3.5 In a BS 4142: 2014 + A1: 2019 assessment, the industrial or commercial sound is assessed outside a dwelling or premises used for residential purposes. The procedure is to quantify the “*specific sound level*”, which is the measured or predicted level of sound from the source in question over a one-hour period for the daytime and a 15-minute period for the

night-time. Daytime and night-time are not stipulated in the standard, but it notes that daytime is typically 07:00 to 23:00 hours, and night-time 23:00 to 07:00 hours.

- 3.6 The preferred method for determining the specific sound level is measurement. However, where it is not possible to determine the specific sound by measurement alone, for example because the specific source does not yet exist, the standard allows for a calculated approach in clause 7.3.6:

“Determine the specific sound level by calculation alone if measurement is not practicable, for example if the source is not yet in operation. In such cases, report the method of calculation in detail and give the reason for using it.”

- 3.7 Once established, the specific sound level is converted to a rating level by adding penalties on a sliding scale to account for either potentially tonal or impulsive elements, using subjective judgement. The standard also sets out objective methods for determining the presence of tones or impulsive elements using measurements; however, the standard notes that these should be used where the subjective method is not sufficient and, in any event, it is not possible to use them where the sources do not yet exist in the acoustic climate in which they are assessed.

- 3.8 The penalty for tonal elements is between 0 dB and 6 dB, and the standard notes:

“Subjectively, this can be converted to a penalty of 2 dB for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.”

- 3.9 The penalty for impulsive elements is between 0 dB and 9 dB, and the standard notes:

“Subjectively, this can be converted to a penalty of 3 dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible.”

- 3.10 The standard also states that if a source has identifiable on/off conditions, a penalty may be applied for intermittency. The penalty for sources that have intermittent elements is stated as:

“If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.”

- 3.11 Where the specific sound features acoustic characteristics that are distinctive against the residual acoustic climate, but are not tonal, impulsive or intermittent in nature, a penalty of +3 dB may be applied.

- 3.12 The background sound level is the L_{A90} of the residual sound, which is itself the sound remaining at the assessment location when the specific sound source being assessed is suppressed to such a degree that it does not contribute to the ambient sound.

- 3.13 The standard notes that the background sound level can include industrial and/or commercial sound in some circumstances:

“Since the intention is to determine a background sound level in the absence of the specific sound that is under consideration, it is necessary to understand that the

background sound level can in some circumstances legitimately include industrial and/or commercial sounds that are present as separate to the specific sound.”

- 3.14 The standard states that the background sound level should be measured over a period of sufficient length to obtain a representative value. This should not normally be less than 15-minute intervals. The standard states that:

“A representative level ought to account for the range of background sound levels and ought not automatically to be assumed to be either the minimum or modal value.”

- 3.15 The initial assessment outcome results from a comparison of the rating level with the background sound level. The standard states:

- “a) Typically, the greater this difference, the greater the magnitude of the impact.*
- b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
- d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.*

NOTE 2 Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.”

- 3.16 BS 4142: 2014+A1: 2019 states that relevant contextual matters should be considered before reaching a final position on the assessment outcome. It is stated as important because:

“An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.”

- 3.17 BS 4142: 2014+A1: 2019 lists some of the contextual matters that might influence the assessment outcome:

“1) The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low.

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.

Where residual sound levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse.

2) *The character and level of the residual sound compared to the character and level of the specific sound. Consider whether it would be beneficial to compare the frequency spectrum and temporal variation of the specific sound with that of the ambient or residual sound to assess the degree to which the specific sound source is likely to be distinguishable and will represent an incongruous sound by comparison to the acoustic environment that would occur in the absence of the specific sound. Any sound parameters, sampling periods and averaging time periods used to undertake character comparisons should reflect the way in which sound of an industrial and/ or commercial nature is likely to be perceived and how people react to it.*

NOTE 3 Consideration should be given to evidence on human response to sound and, in particular, industrial and/or commercial sound where it is available. A number of studies are listed in the “Effects on humans of industrial and commercial sound” portion of the “Further reading” list in the Bibliography.

3) *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, such as:*

- i) facade insulation treatment;*
- ii) ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and*
- iii) acoustic screening.”*

3.18 In terms of the first of these contextual considerations, BS 4142: 2014 + A1: 2019 does not indicate how the initial estimate of impact should be adjusted when background and rating levels are low. However, it is considered that in this situation, the absolute levels may suggest a more acceptable outcome than would otherwise be suggested by the difference between the values.

3.19 BS 4142: 2014 + A1: 2019 does not define ‘low’ in the context of background sound levels nor rating levels. The note to the Scope of the 1997 version of BS4142 defined very low background sound levels as being less than about 30 dB L_{A90}, and very low rating levels as being less than about 35 dB L_{Af}. It is considered that these definitions provide a reasonable reference point for the definition of ‘low’ in the context of the current version of the standard.

3.20 It is also noted that the consideration of absolute noise levels is not necessarily limited to those situations where background and rating levels are low, there is nothing in BS 4142: 2014 + A1: 2019 that precludes consideration of absolute sound levels in a wider sense.

3.21 BS 4142: 2014 + A1: 2019 is clear that the level of sound within a property can be taken into account as part of the contextual element of the assessment.

3.22 Other contextual matters that might be relevant, include:

- character of a particular neighbourhood;
- former uses at or close to a site;

- legitimacy of the industrial use, e.g. planning permissions or environmental permits;
- implementation of best practicable means for a given process or activity; or
- local convention or perceptions.

- 3.23 BS 4142: 2014 + A1: 2019 requires uncertainties in data and associated calculations to be considered, with the level and potential effects of uncertainty reported. Where the uncertainty is likely to affect the outcome of the assessment, steps should be taken to reduce the uncertainty.

World Health Organisation Guidelines

- 3.24 The WHO published their *Environmental Noise Guidelines for the European Region* in 2018. The WHO states that the 2018 document supersedes the 1999 *Guidelines for Community Noise*; however, it advises that the indoor guideline values in the 1999 document, and any values in the 1999 document not covered by the 2018 document, such as industrial noise, remain valid.

- 3.25 The *Guidelines for Community Noise* (1999) set out guidance on suitable internal and external maximum noise levels in and around residential properties. The WHO guidelines state:

“For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{AFmax} more than 10-15 times per night.”

- 3.26 The internal target noise level of 45 dB L_{AFmax} translates to an external target façade noise level of 60 dB L_{AFmax} when a correction of 15 dB is taken into account, which is the correction that the WHO guidance states is the inside to outside level difference of a façade with an open window.

ISO 9613

- 3.27 The noise levels generated by the operation of the proposed development have been calculated in accordance with the noise prediction framework set out in ISO 9613-2: 1996 *Acoustics – Attenuation of sound during propagation outdoors – Part 2 General method of calculation*.
- 3.28 ISO 9613-2 was revised in 2024; however, the 1996 version of the document has been retained in this assessment so that there is consistency with the July 2024 noise report which used the 1996 version. At the time of issuing the July 2024 noise report, the noise modelling software used to calculate noise emissions from the site had not yet released a stable version fully implementing the 2024 version of ISO 9613-2, hence the use of the 1996 version.
- 3.29 The noise calculations are based on individual noise sources acting as either point sources, where the noise level reduces by 6 dB for every doubling of distance, as line sources, where the noise level reduces by 3 dB for every doubling of distance or plane sources, where the noise level reduces by between 0 and 6 dB for every doubling of distance, depending on the dimensions of the plane source and the proximity of the receptor.

- 3.30 The calculations take into account the distance between the sources and the receptors and the amount of attenuation due to atmospheric absorption. The model assumes downwind propagation, i.e. a wind direction that assists the propagation of noise from the source to all receptors.
- 3.31 The inherent uncertainty in ISO 9613-2: 1996 is stated in the standard as being accurate to ± 1 dB for distances of up to 100 metres, or ± 3 dB for distances of between 100 metres and 1 km, with an average height of propagation of up to 30 metres.

4 ASSESSMENT

Calculation Parameters

- 4.1 The same noise model described in the July 2024 noise report has been used, updated based on the proposed site layout shown in Figure B.2 in Appendix B, which shows the detailed development proposals being sought by the reserved matters application.
- 4.2 Developments of the type proposed are, to a large degree, predictable in terms of their likely noise emissions. Noise from vehicle movements is generally similar and provided the traffic volumes are known, the overall noise emissions can be calculated and assessed.
- 4.3 A database of typical vehicle noise emission levels is shown in Table 4.1. These values have been taken from similar but unrelated developments.

Table 4.1: Summary of vehicle source noise data, free-field dB

Source	Distance (metres)	L _{AE}	L _{AFmax}
HGV ⁽¹⁾ air brakes	10	77	81
HGV start up and pull away	10	76	74
HGV reversing alarm	10	82	73
HGV dropping off trailer	10	79	85
HGV picking up trailer	10	84	86
HGV pass-by	10	80	71
Diesel-powered refrigerated trailer	-	96 ⁽³⁾	-
Shunter pass-by with trailer	10	80	78
Shunter pass-by without trailer	10	79	72
Shunter dropping off trailer	10	75	77
Shunter picking up trailer	10	87	92
Forklift load/unload ⁽²⁾	10	82	70
Forklift pass-by ⁽²⁾	10	77	69
Car door slam	10	65	72
Car engine starting	10	62	66
Car pulling away	10	67	64
Car pass-by	10	70	63

Notes:

⁽¹⁾ HGV = heavy goods vehicle

⁽²⁾ Gas-powered forklift

⁽³⁾ Stated value is SWL, not L_{AE}

- 4.4 The traffic movements likely to be generated at the proposed development have been confirmed by the traffic consultant for the project, PJA. The peak hourly vehicle movements in each of the periods used in the assessment are shown in Table 4.2.

Table 4.2: Peak hourly two-way vehicle movements

Period	Vehicle Movements (peak hour flows)	
	Car	HGV
Daytime (07:00-23:00)	249	63
Early Night-time (23:00-05:00)	40	18
Late Night-time (05:00-07:00)	202	72

- 4.5 Each of the vehicle movements is assumed to give rise to each of the relevant noise-generating events set out in Table 4.1, to derive the overall vehicle noise emissions.
- 4.6 The assessment periods are taken to be one hour for the daytime, and 15 minutes for the early and late night-time periods, which is consistent with the approach recommended in BS 4142: 2014+A1: 2019. It has been assumed that the 15-minute night-time periods contain one quarter of the peak hourly vehicle movements, rounded up to a whole number where a fraction results.
- 4.7 The vehicle movements in Table 4.2 are for the whole site; it has been assumed that two-thirds of the HGVs at the site will access the main service yard of the employment unit, and one-third will access the open storage area, based on the proportional size of these two elements of the development. All car movements are assumed to access the car park.
- 4.8 The number of forklift truck movements assumes that a proportion of HGVs accessing the employment unit will use the level access doors, determined according to the ratio of level access doors to dock levellers, as shown on the site layout. Based on experience of other similar sites, 20 no. forklift movements are assumed per lorry.
- 4.9 Shunters have been assumed to operate at the site, on a one-to-one basis with HGV movements.
- 4.10 It is understood that no specific occupier has been identified, so to provide a worst-case assessment, it has been assumed that a refrigerated trailer fleet will operate at the site; it has been assumed that 50% of HGV movements will result in a refrigerated trailer idling at the site, rounded up to a whole number where a fraction results. Based on experience of operators who utilise refrigerated trailers, only a proportion of HGVs parked at a site will have the refrigeration unit on the trailer running at any one time. The refrigerated trailers idling during each assessment period are assumed to idle at full duty for the duration of that period.
- 4.11 In addition to the vehicle movements, it has been assumed that activities within the warehouse area of the employment unit generate reverberant noise levels of 80dB(A), which is the lower exposure action value set out in the *Control of Noise at Work Regulations 2005*.
- 4.12 It is understood that the warehouse area will be constructed using a *Euroclad Elite PLUS 51/55/58* built-up cladding system. Manufacturer's data for these systems show they provide a sound reduction performance of at least 40 dB R_w and therefore, this level of sound reduction performance has been assumed for proposed units.
- 4.13 For the roof, the effect of rooflights has been considered, resulting in a lower overall composite sound reduction performance of 31 dB $R_{w,1}$, based on rooflights covering 15% of the roof area and manufacturers' data showing that the proposed *Zenon GRP* rooflights have a sound reduction performance of at least 23 dB $R_{w,1}$.
- 4.14 The effect of opening the doors of the warehouse has also been considered, to test the sensitivity of the assessment outcome to the status of the doors. The doors that are modelled as open are level access doors, which are assumed to have a sound reduction of 0 dB when open.
- 4.15 The noise levels generated by the activities have been calculated using the prediction framework set out in ISO 9613 as implemented by the noise modelling software

- CADNA/A. The predicted noise levels from each source have been logarithmically summed to derive the overall noise levels from the site.
- 4.16 The vehicle activities at the application site have been modelled as acoustic point or line sources, with the source heights set to match the item being modelled. The sources have been located around the site based on the site layout. No self-screening is assumed for vehicle sources, for example, as might occur from HGV trailer bodies.
- 4.17 Activities within the proposed warehouse have been modelled using acoustic area sources to represent the façades of the building, with the dimensions set to match the façade element being modelled.
- 4.18 The topography on and around the site has been modelled using OS mapping, LIDAR data obtained from the DEFRA data services platform⁽¹⁾, and topographical information for the proposed development provided by the client.
- 4.19 The acoustic absorbency of service yards, car parks, roads and paths and other areas of hardstanding at the site has been modelled as 100% acoustically hard, and the acoustic absorbency of other areas at and around the site has been modelled as 75% acoustically soft/25% acoustically hard ground. All buildings have been modelled as approximately 70% acoustically reflective.
- 4.20 The 4.5 metre high acoustic barriers around the northern and eastern edges of the open storage area, as shown on the proposed site layout in Figure B.2 in Appendix B, have been included in the calculations.

BS 4142 Assessment

- 4.21 The sound levels due to the proposed development have been calculated at the following locations, which are a representative sample of the noise-sensitive receptors closest to the site:
- Kelty Grove;
 - Glencoe Close;
 - Greenock Drive;
 - Galloway Close;
 - Dunbar Grove;
 - Dunrobin Close;
 - Moss Hall Road; and
 - Coal Pits Farm.
- 4.22 The exact assessment locations are shown in Figure C.2 in Appendix C.
- 4.23 The receptor Moss Hall Road represents a future residential receptor in the form of an ancillary first floor flat associated with a proposed new public house at the corner of Moss Hall Road and Pilsworth Road. Although the new building has yet to be constructed, the planning permission for the development (RBC planning reference 22/00462/FUL) has been partly implemented with the demolition of the previous building at the site.

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- 4.24 The predictions have been undertaken at 4 metres above local ground level to represent a bedroom window or an upper storey. To be consistent with the measured background sound levels, the predictions are free-field values at the façade of the property.
- 4.25 The predicted values have been rounded to the nearest whole number to obtain predicted specific sound levels, as required by BS 4142: 2014+AI: 2019; these are shown in Table 4.3.

Table 4.3: Predicted specific sound levels, free-field dB

Location	Assessment Period	Specific Sound Level ($L_{Aeq,T}^{(1)}$)
Kelty Grove	Daytime (07:00-23:00)	33
	Early night-time (23:00-05:00)	28
	Late night-time (05:00-07:00)	34
Glencoe Close	Daytime (07:00-23:00)	38
	Early night-time (23:00-05:00)	33
	Late night-time (05:00-07:00)	38
Greenock Drive	Daytime (07:00-23:00)	43
	Early night-time (23:00-05:00)	38
	Late night-time (05:00-07:00)	43
Galloway Close	Daytime (07:00-23:00)	42
	Early night-time (23:00-05:00)	37
	Late night-time (05:00-07:00)	42
Dunbar Grove	Daytime (07:00-23:00)	42
	Early night-time (23:00-05:00)	37
	Late night-time (05:00-07:00)	42
Dunrobin Close	Daytime (07:00-23:00)	40
	Early night-time (23:00-05:00)	35
	Late night-time (05:00-07:00)	41
Moss Hall Road	Daytime (07:00-23:00)	26
	Early night-time (23:00-05:00)	21
	Late night-time (05:00-07:00)	27
Coal Pits Farm	Daytime (07:00-23:00)	39
	Early night-time (23:00-05:00)	34
	Late night-time (05:00-07:00)	39

Notes:

⁽¹⁾ - T is 1 hour for daytime and 15 minutes for night-time.

- 4.26 The specific sound levels from the proposed development have been assessed using the method set out in BS 4142: 2014+AI: 2019; this requires the specific sound levels to be corrected to account for distinctive acoustic characteristics that may be perceptible at receptors above the residual acoustic climate.
- 4.27 The receptors to the north of the site on Kelty Grove, Glencoe Close, Greenock Drive, Galloway Close, Dunbar Grove and Dunrobin Close are between approximately 125 and 400 metres from the site. The receptors to the south of the site at Moss Hall Road and Coal Pits Farm are between approximately 230 and 425 metres from the site respectively. Based on these distances, it is considered unlikely that distinctive acoustic characteristics that may be associated with activities at the proposed development, such as tonal reversing alarms, will be clearly perceptible at receptors.

- 4.28 The site is also within an existing industrial/commercial area, and therefore any potentially distinctive characteristics may be less perceptible against the residual acoustic climate, since it already includes sound of similar character.
- 4.29 However, to adopt a precautionary approach, it is considered appropriate to apply an acoustic character correction of +2 dB to account for tonal elements such as reversing alarms that may just be perceptible above the residual acoustic climate, and to apply an acoustic character correction of +3 dB to account for impulsive elements such as HGVs or shunters connecting to trailers that may just be perceptible above the residual acoustic climate.
- 4.30 The total acoustic character correction of +5 dB has been added to the specific sound levels to obtain rating levels, which have been compared with the representative background sound levels set out in Table 2.1 of this report.
- 4.31 The resulting initial numerical BS 4142 assessment outcomes are shown in Table 4.4.

Table 4.4: Initial BS 4142 numerical assessment, free-field dB

Receptor	Period	Background Sound Level, L_{A90}	Rating Level, $L_{Ar,Tr}^{(1)(2)}$
Kelty Grove	Daytime (07:00-23:00)	42	38 (-4)
	Early night-time (23:00-05:00)	36	33 (-3)
	Late night-time (05:00-07:00)	43	39 (-4)
Glencoe Close	Daytime (07:00-23:00)	42	43 (+1)
	Early night-time (23:00-05:00)	36	38 (+2)
	Late night-time (05:00-07:00)	43	43 (0)
Greenock Drive	Daytime (07:00-23:00)	42	48 (+6)
	Early night-time (23:00-05:00)	36	43 (+7)
	Late night-time (05:00-07:00)	43	48 (+5)
Galloway Close	Daytime (07:00-23:00)	42	47 (+5)
	Early night-time (23:00-05:00)	36	42 (+6)
	Late night-time (05:00-07:00)	43	47 (+4)
Dunbar Grove	Daytime (07:00-23:00)	42	47 (+5)
	Early night-time (23:00-05:00)	36	42 (+6)
	Late night-time (05:00-07:00)	43	47 (+4)
Dunrobin Close	Daytime (07:00-23:00)	42	45 (+3)
	Early night-time (23:00-05:00)	36	40 (+4)
	Late night-time (05:00-07:00)	43	46 (+3)
Moss Hall Road	Daytime (07:00-23:00)	45	31 (-14)
	Early night-time (23:00-05:00)	35	26 (-9)
	Late night-time (05:00-07:00)	45	32 (-13)
Coal Pits Farm	Daytime (07:00-23:00)	45	44 (-1)
	Early night-time (23:00-05:00)	35	39 (+4)
	Late night-time (05:00-07:00)	45	44 (-1)

Notes:

⁽¹⁾ T is 1 hour for daytime and 15 minutes for night-time.

⁽²⁾ Values shown are the rating levels for each period for each receptor, with the difference between the rating level and the background sound level in brackets.

- 4.32 It can be seen from Table 4.4 that the initial numerical outcomes are predicted to be:
- low impacts at Kelty Grove and Moss Hall Road, where the rating levels are predicted to be no higher than the background sound levels;
 - adverse impacts at Greenock Drive, Galloway Close and Dunbar Grove where the rating levels are predicted to be *'around 5dB above the background sound level'*; and
 - between a low impact and an adverse impact at Glencoe Close, Dunrobin Close and Coal Pits Farm.
- 4.33 BS 4142 is clear that the numerical outcomes only provide the initial assessment, and the standard requires relevant contextual matters to be considered before reaching a conclusion on the potential impact. In this instance, the relevant contextual matters are:
- the assessment considers several worst-case assumptions:
 - all level access doors open at all times;
 - peak hourly traffic flows for cars and HGVs occurring in every assessment period;
 - the use of shunters across the site at a one-to-one ratio with HGV movements;
 - the calculations assume downwind propagation from the site to all receptors, whereas wind directions will vary and therefore downwind propagation will not occur to a particular receptor at all times, nor to every receptor at the same time;
 - no self-screening, for example, due to HGV trailer bodies, is assumed for vehicle sources, which is likely to result in higher noise levels at receptors than may be the case otherwise.
 - the residual acoustic climate is dominated by road traffic noise from Pilsworth Road, Moss Hall Road and the M66 motorway, with industrial/commercial sound from other parts of Heywood Distribution Park also audible. This is similar in character to key noise sources likely to operate at the proposed development, i.e. vehicle movements and HGV loading/unloading activities in service yards, and they are likely to mask sound from the proposed development to some degree;
 - part of the site is currently used as a HGV trailer park, and therefore there is existing industrial/commercial uses at the site.
- 4.34 Taking into account all of these contextual factors, it is considered that the initial numerical assessment outcomes, do not underestimate the potential impacts, and may overestimate them.
- 4.35 Notwithstanding this, it is considered that adverse impacts could still occur at some receptors and mitigation measures to reduce potential impacts are considered in Section 6 of this report.
- 4.36 BS 4142: 2014+A1: 2019 requires consideration of uncertainty in data and associated calculations, with the steps taken to reduce uncertainty reported.
- 4.37 There is some uncertainty in the background sound level data as it was not possible to measure directly at the receptors. However, it is considered that the selected measurement locations were suitable proxy locations, as they were a similar distance from the local road traffic network as the receptors, and road traffic is the dominant component of the residual acoustic climate in the area.

- 4.38 Uncertainty in the background sound level measurements was reduced by measuring over an extended period, including a weekend, to capture background sound levels at the most sensitive times. The analysis of the background sound level data also excluded any periods where weather conditions were not suitable for noise measurement, with these periods established from meteorological data recorded contemporaneously with the sound level data.
- 4.39 There is uncertainty in the calculations as the source being assessed does not yet exist at the site. However, uncertainty has been reduced by using source data gathered at a range of similar but unrelated developments to the type proposed at this site, and by using an established prediction framework, i.e. ISO 9613-2.
- 4.40 Overall, it is considered that any uncertainty in the measurement data and calculations is unlikely to adversely affect the assessment outcomes and that those outcomes are considered to be robust.

Night-time Maximum Noise Levels

- 4.41 The highest or noisiest short duration noise events due to the use of the site, in the form of night-time L_{AFmax} maximum noise levels, are likely to relate to shunters or HGVs picking up trailers in service yards, or slamming vehicle doors in car parks. The highest maximum noise levels associated with these events are likely to be in the region of 92 dB for a shunter connecting to a trailer, 86 dB for HGVs connecting to trailers, and 72 dB for a vehicle door slam, all measured at a distance of 10 metres.
- 4.42 The noise model described previously has been used to calculate the maximum noise levels likely to occur at the surrounding receptors; the calculated maximum sound levels have been adjusted by +3 dB to convert from free-field to façade values, as the 60dB night-time maximum noise level criterion set out in the WHO guidelines is a façade value.
- 4.43 The calculated maximum noise levels for each of the five assessed layouts are shown in Table 4.5; the noise levels have been rounded to the nearest whole number.

Table 4.5: Night-time maximum noise level assessment, dB façade

Receptor	Noise Level (L_{AFmax})
Kelty Grove	46
Glencoe Close	53
Greenock Drive	59
Galloway Close	60
Dunbar Grove	58
Dunrobin Close	56
Moss Hall Road	39
Coal Pits Farm	51

- 4.44 It can be seen from Table 4.5 that the calculated maximum noise levels are predicted to meet the 60dB criterion set out in the World Health Organisation's *Guidelines for Community Noise* at all receptors. On this basis, no adverse impacts are considered likely at these receptors as a result of maximum noise levels.

Fixed Plant Noise

- 4.45 Condition 13 of planning permission 24/00805/OUT requires noise from fixed building services plant to meet the noise limits set out in Table 5.8 in the July 2024 noise report; these limits are replicated in Table 2.2 of this report.
- 4.46 At this stage, no details of fixed building services plant are known, as the design of the building services plant is typically left until the design and build stage.
- 4.47 As and when details of fixed building services plant are known, their noise emissions should be tested against the noise limits set out in Table 2.2 of this report, and where required, mitigation incorporated so the total cumulative noise from all fixed building services plant meets the limits.

5 MITIGATION

- 5.1 An assessment in accordance with BS 4142: 2014+A1: 2019 has shown that without mitigation measures in place, overall, adverse impacts could occur due to the operation of the site.
- 5.2 There are typically three opportunities to reduce noise at a site such as this; at source, between a source and receptor, and at a receptor.
- 5.3 In this instance, the receptors are existing residential properties, or in the case of the receptor Moss Hall Road, a property that has planning permission but has not yet been constructed, and Indurent Management Limited has no control over them; no consideration is therefore given to any mitigation that might be applied at the receptor.
- 5.4 Reducing noise between a source and receptor is typically achieved by using acoustic barriers; the proposed layout already incorporates acoustic barriers around the northern and eastern edges of the open storage area. Acoustic barriers erected at the site should be imperforate, sealed at the base, and have a superficial minimum density of at least 20 kg/sq.m.
- 5.5 Reducing noise at source typically involves substitution or modification of noise sources, and is considered the most effective strategy to reduce noise from refrigerated trailers, which are the key sources affecting receptors, by using electric hook-ups which remove the need for the trailer to be powered by its own internal diesel engine. Electric hook-ups typically reduce noise emissions from refrigerated trailers by approximately 5 dB.

Assessment With Mitigation

- 5.6 The noise emissions from the site have been re-calculated, taking account of a 5 dB reduction in refrigerated trailer noise to account for electric hook-ups.
- 5.7 The updated BS 4142 initial numerical assessments are set out in Table 5.1.

Table 5.1: Updated initial BS 4142 numerical assessments with mitigation, free-field dB

Receptor	Period	Background Sound Level, L_{A90}	Rating Level, $L_{A,rTr}^{(1)(2)}$
Kelty Grove	Daytime (07:00-23:00)	42	35 (-7)
	Early night-time (23:00-05:00)	36	30 (-6)
	Late night-time (05:00-07:00)	43	35 (-8)
Glencoe Close	Daytime (07:00-23:00)	42	40 (-2)
	Early night-time (23:00-05:00)	36	35 (-1)
	Late night-time (05:00-07:00)	43	40 (-3)
Greenock Drive	Daytime (07:00-23:00)	42	44 (+2)
	Early night-time (23:00-05:00)	36	40 (+4)
	Late night-time (05:00-07:00)	43	45 (+2)
Galloway Close	Daytime (07:00-23:00)	42	43 (+1)
	Early night-time (23:00-05:00)	36	39 (+3)
	Late night-time (05:00-07:00)	43	44 (+1)

Receptor	Period	Background Sound Level, L_{A90}	Rating Level, $L_{A_r,Tr}^{(1)(2)}$
Dunbar Grove	Daytime (07:00-23:00)	42	44 (+2)
	Early night-time (23:00-05:00)	36	39 (+3)
	Late night-time (05:00-07:00)	43	44 (+1)
Dunrobin Close	Daytime (07:00-23:00)	42	42 (0)
	Early night-time (23:00-05:00)	36	38 (+2)
	Late night-time (05:00-07:00)	43	43 (0)
Moss Hall Road	Daytime (07:00-23:00)	45	28 (-17)
	Early night-time (23:00-05:00)	35	23 (-12)
	Late night-time (05:00-07:00)	45	29 (-16)
Coal Pits Farm	Daytime (07:00-23:00)	45	41 (-4)
	Early night-time (23:00-05:00)	35	36 (+1)
	Late night-time (05:00-07:00)	45	41 (-4)

Notes:

⁽¹⁾ T is 1 hour for daytime and 15 minutes for night-time.

⁽²⁾ Value in brackets is the difference between the rating level and the background sound level.

5.8 It can be seen from Table 5.1 that the updated initial numerical outcomes are predicted to be:

- low impacts at Kelty Grove, Glencoe Close and Moss Hall Road;
- between a low impact and an adverse impact at Greenock Drive, Galloway Close, Dunbar Grove, Dunrobin Close and Coal Pits Farm.

5.9 As noted previously, the numerical outcomes only provide the initial assessment outcomes, and BS 4142 requires relevant contextual matters to be considered before reaching a final conclusion on the potential impacts. In this instance, the same contextual factors previously identified remain relevant, namely:

- the assessment considers several worst-case assumptions:
 - all level access doors open at all times;
 - peak hourly traffic flows for cars and HGVs occurring in every assessment period;
 - the use of shunters across the site at a one-to-one ratio with HGV movements;
 - the calculations assume downwind propagation from the site to all receptors, whereas wind directions will vary and therefore downwind propagation will not occur to a particular receptor at all times, nor to every receptor at the same time;
 - no self-screening, for example, due to HGV trailer bodies, is assumed for vehicle sources, which is likely to result in higher noise levels at receptors than may be the case otherwise;
- the residual acoustic climate is dominated by road traffic noise from Pilsworth Road, Moss Hall Road and the M66 motorway, with industrial/commercial sound from other parts of Heywood Distribution Park also audible. This is similar in character to key noise sources likely to operate at the proposed development, i.e. vehicle movements and HGV loading/unloading activities in service yards, and they are likely to mask sound from the proposed development to some degree;

- part of the site is currently used as a HGV trailer park, and therefore there is existing industrial/commercial uses at the site.

- 5.10 Taking into account all of these contextual factors, it is considered that the initial numerical assessment outcomes do not underestimate the potential impacts, and are likely to overestimate them to some degree.
- 5.11 On balance, it is therefore concluded that providing electric hook-ups are installed at the site for refrigerated trailers, adverse impacts are unlikely.
- 5.12 If it is not possible to install electric hook-up points in the open storage area, then parking idling refrigerated trailers in this area should be avoided.

6 CONCLUSION

- 6.1 Resound Acoustics Limited has been appointed by Indurent Management Limited to undertake a noise assessment for Plot H4 at Heywood Distribution Park, Heywood, Rochdale.
- 6.2 Outline planning permission for development of the site for E(g)(iii) (industrial processes), B2 (general industrial) and B8 (storage and distribution) uses was granted by Rochdale Borough Council in May 2025 under planning reference 24/00805/OUT.
- 6.3 Indurent Management Limited is seeking reserved matters approval for a single employment unit with its service yard on the western edge of the site and a separate open storage area on the northern and eastern sides of the site. It is understood that no specific occupier has been identified, so to provide a worst-case assessment, it has been assumed that a refrigerated trailer fleet will operate at the site.
- 6.4 Condition 14 of the outline planning permission states that any reserved matters application shall be accompanied by a noise assessment to confirm the need for and extent of noise mitigation measures.
- 6.5 Outline planning permission 24/00805/OUT also includes Condition 13, which requires noise from fixed building service plant to meet the noise limits recommended in the noise report that accompanied the outline planning application.
- 6.6 An assessment in accordance with British Standard 4142: 2014+A1: 2019 has shown that providing additional mitigation in the form of electric hook-ups for idling refrigerated trailers is incorporated into the development, the operation of the site is unlikely to lead to adverse impacts at the receptors around the site.
- 6.7 Night-time maximum noise levels are predicted to meet the requirements of the World Health Organisation's *Guidelines for Community Noise*.
- 6.8 On the basis of this report, providing electric hook-ups are installed, Condition 14 of the outline planning permission can be discharged.
- 6.9 At this stage, no details of fixed building services plant are known, as the design of the building services plant is typically left until the design and build stage.
- 6.10 As and when details of fixed building services plant are known, their noise emissions should be tested against the noise limits set out in Table 2.2 of this report, and where required, mitigation incorporated so the total cumulative noise from all fixed building services plant meets the limits. Demonstrating compliance with the noise limits will meet the requirements of Condition 13 of the outline planning permission.

Appendices

Appendix A – Introduction to Noise and Glossary of Terminology

Noise is defined as unwanted sound. The human ear is able to respond to sound in the frequency range 18 Hz (deep bass) to 18,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the onset 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 (filtering) mechanism is used. This reduces the importance of lower and higher frequencies, approximating the response of the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. Noise can be perceived to be louder or more noticeable if the source of the noise is observed; e.g. roads, trains, factories, building sites etc. 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 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. Various noise indices have been derived to describe the fluctuation of noise levels that vary over time. Usually, these noise indices relate to specific types of noise, and as such different noise indices are used to describe road traffic noise, background noise, construction noise, etc.

The 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 L_{Aeq} , L_{A10} , etc, according to the parameter being measured.

Noise is measured on the decibel scale, which is logarithmic rather than linear. As a result of this, 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. Table A.1 sets out examples of noise levels typically experienced during everyday activities. Table A.2 sets out an explanation of the terminology used in this report.

Table A.1: Typical sound levels found in the environment

Sound Level	Location
0 to 10 dB(A)	Threshold of hearing
10 to 20 dB(A)	Broadcasting studio
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a car
60 to 70 dB(A)	Typical high street
70 to 90 dB(A)	Inside a factory or noisy pub
100 to 110 dB(A)	Burglar Alarm at 1m
110 to 130 dB(A)	Pneumatic drill at 1m away
140 dB(A)	Threshold of Pain

Table A.2: Terminology relating to noise

Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure.
Sound Pressure Level (Sound Level)	The sound level is the sound pressure relative to a standard reference pressure of $20\mu\text{Pa}$ (20×10^{-6} Pascals) on a decibel scale.
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s_1 and s_2 is given by $20 \log_{10} (s_1/s_2)$. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is $20\mu\text{Pa}$.
A-weighting, dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary to consider an average or statistical noise level. This can be done in several ways, so a number of different noise indices have been defined, according to how the averaging or statistics are carried out.
L_w	The L_w , or sound power level, is a measure of the total noise energy of a source.
$L_{Aeq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level during the period T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
$L_{90,T}$ or Background Noise Level	A noise level index. The noise level exceeded for 90% of the time over the period T. L_{90} can be considered to be the "average minimum" noise level and is often used to describe the background noise.
$L_{10,T}$	A noise level index. The noise level exceeded for 10% of the time over the period T. L_{10} can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise.
Free-field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5 metres
Façade	At a distance of 1 metre in front of a large sound reflecting object such as a building façade.
Fast Time Weighting	An averaging time used in sound level meters. Defined in BS EN 61672.

Figure B.2: Proposed layout

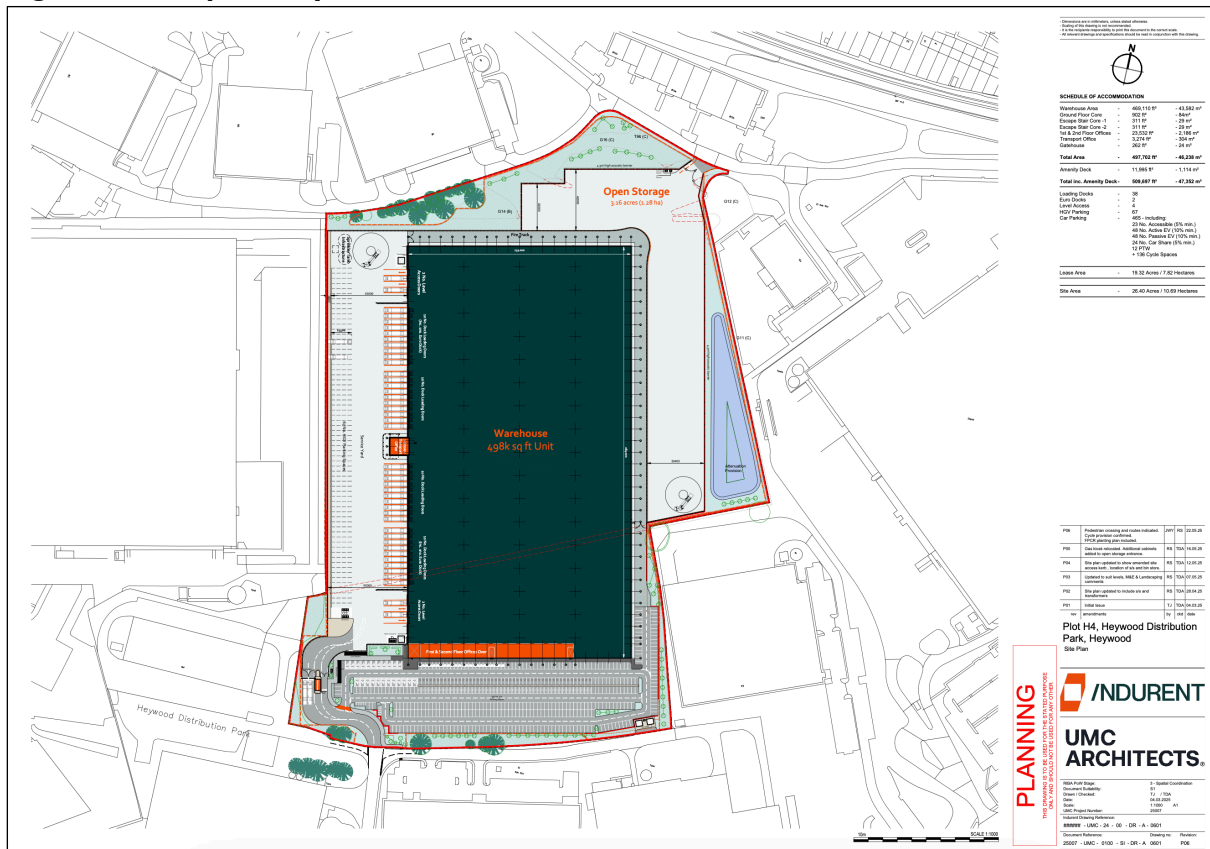
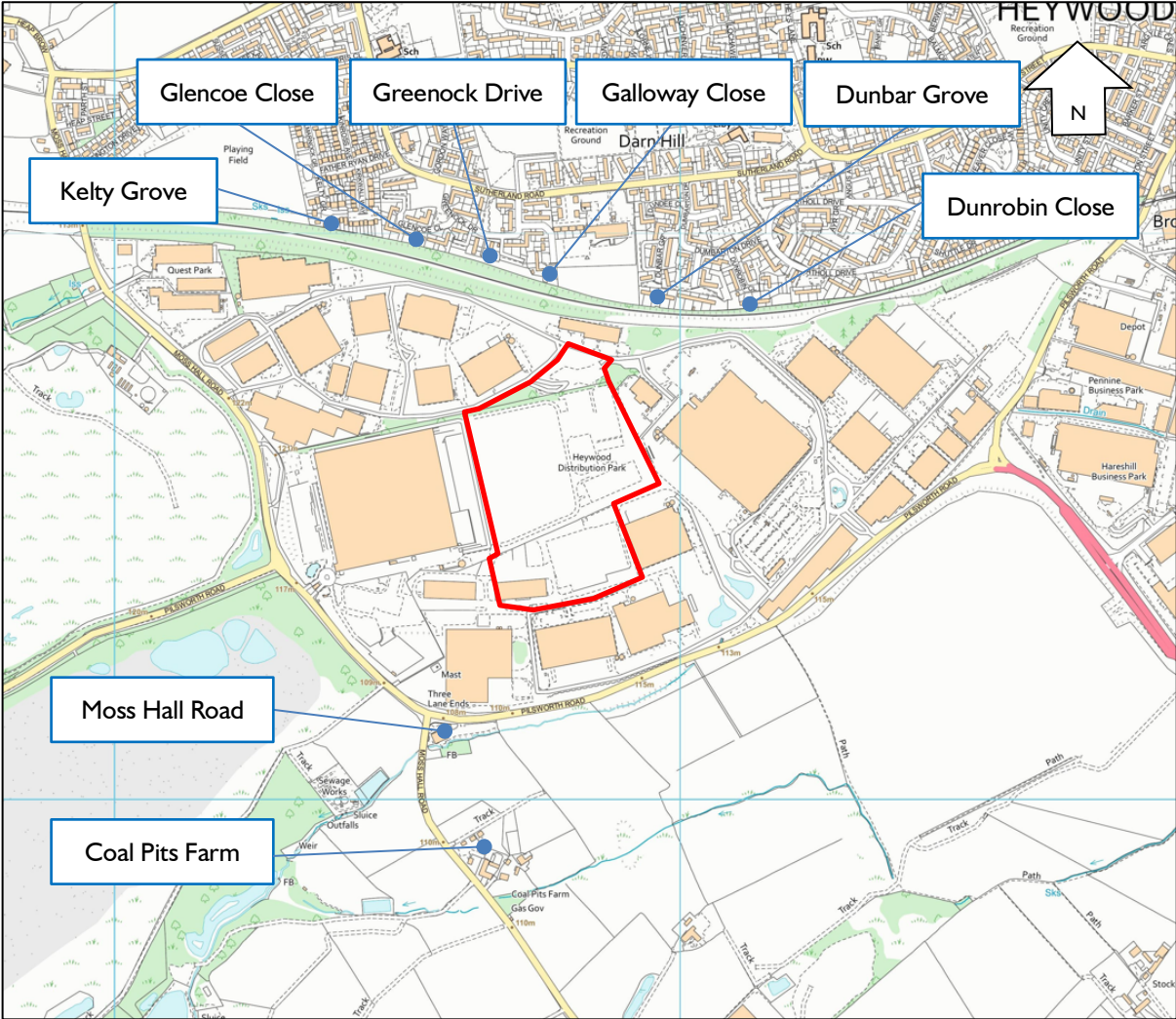


Figure C.2: Assessment locations





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