

Ashbrook Point Heald Green

Industrial Noise Impact Assessment Report

29207/NIA

27 September 2021

For:

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Document Control

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1.0 Introduction

Planning permission is sought for the erection of a new commercial development comprising 4No units intended for B8 use at Ashbrook Point, Heald Green.

Hann Tucker Associates has been commissioned to undertake an industrial noise impact assessment. An environmental noise survey has been undertaken to inform an assessments of the site covering:

- Internal operational activities;
- Delivery vehicle movements;
- Car park usage; and
- Fixed items of building services plant.

This report presents the methodology and findings of our noise survey, and a summary of the findings of our indicative assessment of potential industrial noise impacts.

2.0 Objectives

Establish, by means of fully automated noise monitoring, the prevailing noise levels at a selected position around the site over weekday and weekend periods.

Based on the above and the guidance of the Local Planning Authority, to assess potential industrial noise impacts in accordance with appropriate standards (including BS 4142) and comment upon the suitability of the proposed site for industrial uses.

If deemed necessary, to provide guidance on potential noise mitigation measures consistent with reducing noise impacts associated with industrial activities.

3.0 Acoustic Terminology

Please refer to Appendix A for an explanation of acoustic terminology used herein.

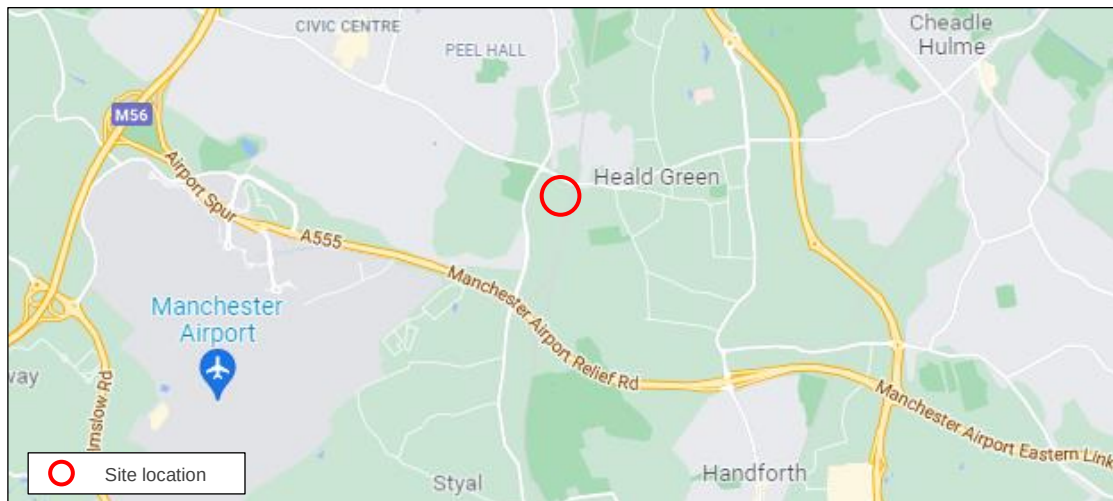


4.0 Site Description

4.1 Location

The proposed development is to be located on a currently unused plot of the at the end of Longstone Road, Heald Green, Manchester. The site lies to the north east of Manchester Airport and falls under the jurisdiction of Manchester City Council.

The site location shown in relation to the wider area is shown in the site plan below.



Site Location (© maps.google.co.uk)

4.2 Site Description

The site is located approximately 1500m to the north east of Manchester Airport and the wider surrounding area has numerous surface car parks associated with the Airport.

The immediate surrounding area consists of residential premises located along Irvin Drive and a Premier Inn located to the north east of the site. A pub, the Heald Green Beefeater, is located to the north of the site with a gym located to the east of the site. The south of the site contains existing commercial units.

The nearest noise sensitive premises are considered to be the residential premises on Irvin Drive and the Premier Inn. The site plan overleaf shows the site in relation to its surroundings.



Site Plan (© Google Earth Pro)

5.0 Proposals

The proposed development is to be located on a currently unused plot of land in Heald Green, Manchester. The proposals are to provide 4No units providing a total of 1438 m² new floor space comprising 1066 m² of B8 use (ie storage/distribution) and 372 m² of office floor space associated with each unit.

As noted, we understand that the units are to be used for storage and distribution. As such, the key site activities in terms of noise emissions are likely to comprise:

- HGV deliveries and collections
- Operational activities from within the units themselves
- Noise from fixed building services plant
- Car park activities.

A site plan showing the site layout is provided below.



Proposed Site Plan (c/o Calerpeel Architects)

6.0 Planning Policy, Standards & Guidance

6.1 National Planning Policy

6.1.1 National Planning Policy Framework (NPPF)

The National Planning Policy Framework (NPPF) was first published in 2012, replacing the existing Planning Policy Guidance Note 24 (PPG24) "Planning and Noise", and sets out the government's planning policies for England and how these are expected to be applied.

The latest revision of the NPPF (July 2021) states that planning system should contribute to, and enhance, the natural and local environment by (amongst others) *"preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, water or noise pollution or land stability."*

NPPF advises that planning policies and decisions should ensure:

"...new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development." [In doing so they should] "mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life" and "identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason."



“...new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.”

The NPPF makes reference to the Noise Policy Statement for England.

6.1.2 Noise Policy Statement for England (NPSE)

The Noise Policy Statement for England (NPSE) was published in March 2010 (i.e. before the NPPF). The NPSE is the overarching statement of noise policy for England and applies to all forms of noise other than occupational noise, setting out the long term vision of Government noise policy which is to *“Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.”*

That vision is supported by the following NPSE noise policy aims which are reflected in three of the four aims of planning policies and decisions in the NPPF as below:

“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life.”*

The Explanatory Note to the NPSE has three concepts for the assessment of noise in this country:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected and below which there is no detectable effect on health and quality of life due to noise.

LOAEL – Lowest Observable Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.



None of these three levels are defined numerically and for the SOAEL the NPSE makes it clear that the noise level is likely to vary depending upon the noise source, the receptor and the time of day/day of the week, etc. The need for more research to investigate what may represent an SOAEL for noise is acknowledged in the NPSE and the NPSE asserts that not stating specific SOAEL levels provides policy flexibility in the period until there is further evidence and guidance.

The NPSE concludes by explaining in a little more detail how the LOAEL and SOAEL relate to the three NPSE noise policy aims listed above. It starts with the aim of avoiding significant adverse effects on health and quality of life, then addresses the situation where the noise impact falls between the LOAEL and the SOAEL when *“all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development.”* The final aim envisages pro-active management of noise to improve health and quality of life, again taking into account the guiding principles of sustainable development which include the need to minimise travel distance between housing and employment uses in an area.

6.2 Local Authority Requirements

6.2.1 Commercial Noise

The Manchester City Council requirements for noise are contained in the Planning & Noise Technical Guidance dated December 2015.

With regards to industrial/commercial proposals Section 3.6.1.5 states that:

“BS 4142 should be used to assess the likely impact of noise from industrial and commercial sources at noise sensitive premises and that the development should be designed so as to achieve a rating level of 5 dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.

Where this criterion cannot be achieved, the various noise control measures considered as part of the assessment should be fully explained (i.e. relocation of noise sources, use of quieter equipment, enclosures, screening, restriction of the hours of operation) and the achievable noise level should be identified.”

6.2.2 Plant Noise Emission

The Manchester City Council requirements for noise are contained in the Planning & Noise Technical Guidance dated December 2015.



Section 3.6.1.5.1 outlines that the noise assessment for fixed plant should be based on BS 4142:2014 and the assessment must demonstrate that:

“Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme so as to achieve a rating level of 5 dB (L_{Aeq}) below the typical background (LA_{90}) level at the nearest noise sensitive location.”

6.3 Standards & Guides

6.3.1 BS 4142:2014

BS 4142: 2014 describes methods for rating and assessing the effects of outdoor sound levels, of an industrial and/or a commercial nature, “on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident”.

The impact of a specific sound is indicated by subtracting the existing background noise level from the rating level (i.e. noise level from the proposed items of plant/machinery/etc plus any acoustic feature corrections). The standard states that:

- “a difference of around +10dB or more is likely to be an indication of a significant adverse impact”;
- “a difference of around +5dB is of marginal significance is likely to be an indication of 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”.

The noise from the new development is expressed in terms of a rating level and given as a $L_{Aeq, T}$ noise level. The existing background noise level is expressed in terms of a $LA_{90, T}$ noise level. T is the assessment time interval, which is 1-hour for operations during daytime hours (07:00 to 23:00) and 15-minutes for operations during night-time hours (23:00 to 07:00).

BS 4142:2014 states that if a noise source contains an ‘acoustic feature’, such as tonality, intermittency or impulsiveness, an appropriate penalty should be applied.

7.0 Baseline Noise Survey

7.1 Procedure

Unattended noise monitoring was undertaken from 13:00 hours on Friday 10 September 2021 to 16:00 hours on Monday 13 September 2021 to establish the prevailing noise climate over typical weekday and weekend periods.



Supplementary manned measurements were obtained on Friday 10 September 2021 and Monday 13 September 2021 to establish how the noise levels vary across the wider site.

All measurements undertaken obtained the L_{90} , L_{01} , L_{eq} and L_{Fmax} sound pressure levels over discrete 15 minute periods. Measurements were undertaken in general accordance with BS 7445-1:2003 Description and Measurement of Environmental Noise.

7.2 Measurement Positions

Unattended noise measurements were undertaken at the nearest noise sensitive receptor. The measurement locations are as illustrated in the table/figure below.

Position	Description
A	Unattended monitoring located on Irvin Drive. The microphone was located approximately 3m above local ground level at least 3m from any other reflective surface. The noise levels measured in this location are free-field noise levels.
1	Attended measurement position chosen to be representative of the south side of the Premier Inn. The microphone was mounted on a tripod at least 1.5m above local ground level and at least 3m from any other reflective surface. The noise levels measured in this location are free-field noise levels.
2	Attended measurement position chosen to be representative of the east side of the premises on Irvin Drive. The microphone was mounted on a tripod at least 1.5m above local ground level and at least 3m from any other reflective surface. The noise levels measured in this location are free-field noise levels.



Site Location showing measurement positions (© maps.google.co.uk)

7.3 Instrumentation

The instrumentation used during the survey is presented in the table below.



Position	Description	Manufacturer	Type	Serial Number	Calibration
A	Sound Level Meter	Larson Davis	LxT	4086	15/07/2021
1&2	Sound Level Meter	Larson Davis	LxT	5104	15/07/2021
All	Calibrator	Larson Davis	CAL200	3083	06/05/2021

The sound level meters were mounted on a tripod with the microphone fitted with a windshield. All equipment was calibrated prior to and on completion of the survey. No significant deviations occurred (no more than 0.3 dB).

7.4 Weather Conditions

For the unattended survey between 10 September 2021 and 13 September 2021, local weather reports indicated no notable periods of prolonged or heavy rainfall, with temperatures ranging from 13 °C (night) 21 °C (day).

During our time on site to undertake the manned surveys, skies were overcast with patchy cloud cover, wind conditions were calm and road surfaces were largely dry.

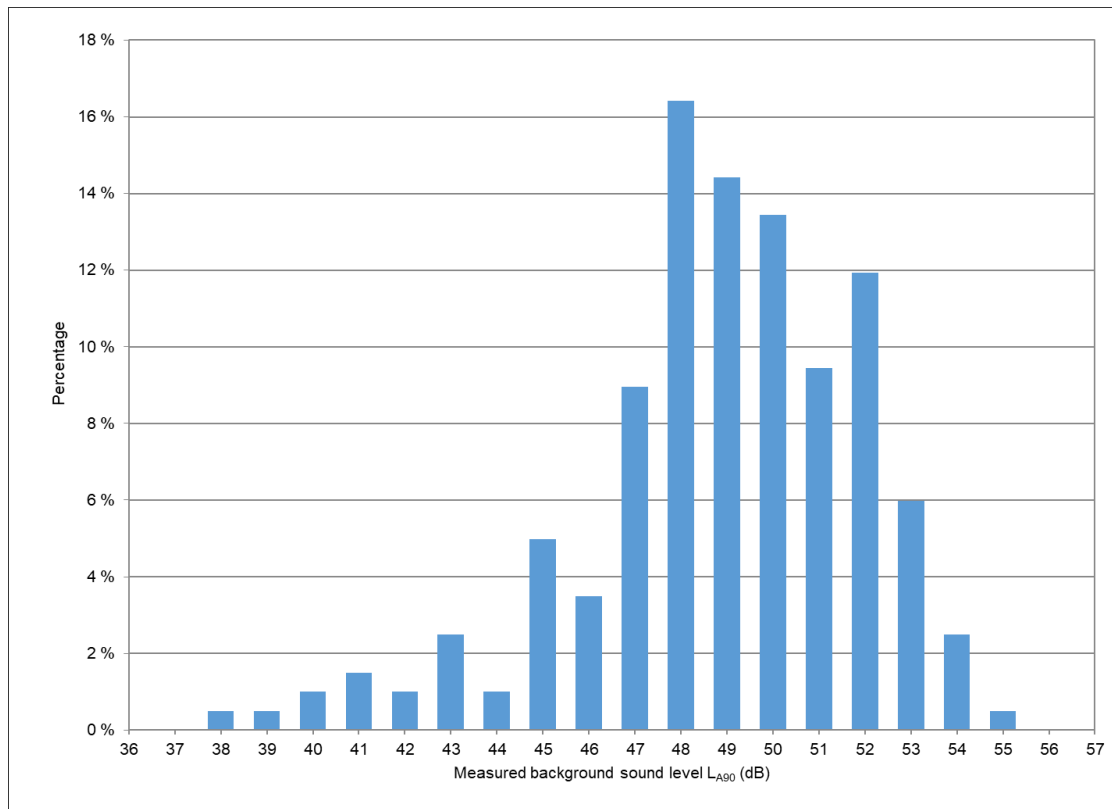
Weather conditions were deemed suitable for obtaining representative noise readings.

7.5 Measurement Results

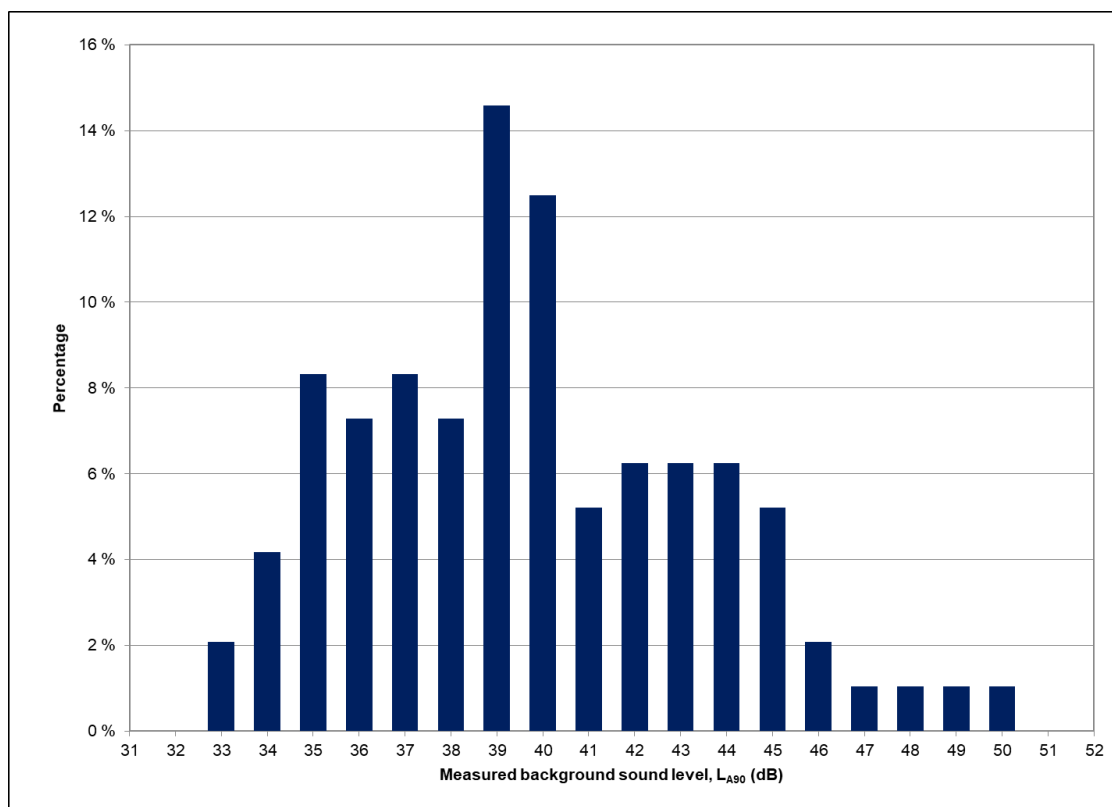
7.5.1 Unattended Results

The results of the unattended noise survey have been plotted on Time History Graph 29207/TH1. This graph presents the 15 minute A-weighted L_{90} , L_{eq} and L_{max} levels throughout the duration of the survey.

BS 4142 states that “the background sound level must be reliable and suitably represent the particular circumstances and periods of interest. For this purpose, the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods.” Taking this into account, the following histograms have been created which display the occurrence of each sound level (L_{90}) as a percentage for the day and night-time periods.



[MP1] Statistical analysis of daytime background noise levels (07:00-23:00)



[MP1] Statistical analysis of night-time background noise levels (07:00-23:00)



A summary of the results from the environmental noise survey, as used to inform subsequent assessments of environmental noise impact, are presented in the table below as free-field levels.

Pos	Daytime (07:00 – 23:00 hrs)				Night-time (23:00 – 07:00 hrs)			
	L _{Aeq,16h}	Typical L _{A90,15min}	L _{AFmax,15min}	L _{A01,15min}	L _{Aeq,8h}	Typical L _{A90,15min}	L _{AFmax,15min}	L _{A01,15min}
A	68	48	90 – 97 ¹	85 – 87 ¹	64	39	88 – 92 ¹	75 – 85 ¹

¹L_{AFmax} and L_{A01} noise levels given as a range from the 10th highest in the period to the absolute highest.

7.5.2 Attended Results

The following table summarises noise levels recorded at each of the manned measurement positions and also the noise levels measured in the unattended measurement location during the same time period.

Position	Date	Period	Sound Pressure Level (dB)			
			L _{Aeq,T}	L _{A90,T}	L _{Amax,T}	L _{A01}
1	10/09/2021	13:15 – 13:30	64	49	88	72
	13/09/2021	15:15 – 15:30	66	47	85	81
2	10/09/2021	13:30 – 14:00	66	46	85	81
	13/09/2021	15:30 – 15:45	67	46	87	83
A	10/09/2021	13:15 – 13:30	72	50	95	86
		13:30 – 14:00	70	49	90	86
	13/09/2021	15:15 – 15:30	68	49	89	82
		15:30 – 15:45	67	49	88	82

7.6 Discussion of Noise Climate

Due to the nature of the survey (ie unattended) it is not possible to establish the specific noise sources over the whole duration of the survey. However, based on the on-site observations the dominant noise sources affecting the site are frequent aircraft flyovers. To a lesser extent birdsong and existing plant noise associated with the adjacent gym affecting the manned measurements.

From analysis of the measured noise levels we consider that the background noise level at the most affected receptors could be up to 3 dB lower than the typical background noise levels measured in Position A.



Therefore, to provide a robust assessment a 3 dB correction has been applied to the typical background noise levels measured in Position A to estimate the free-field background noise level at the most affected receptor in the table below:

Period	Calculated Typical Background Noise Level, L_{A90} (dB)
Daytime (07:00-23:00)	45 dBA
Night-time (23:00-07:00)	37 dBA

8.0 Noise Emission Limits

Based on the aforementioned acoustic standards and Local Authority guidance, and on the results of our noise survey, the following noise emission criteria are proposed to be achieved at 1 m from the worst affected noise sensitive residential window. These limits are presented as façade noise levels (ie include a +3 dB correction for the presence of a building façade as would be present at the assessment location).

Period	Cumulative Noise Emission Limit (BS 4142:2014 Rating Level)
Daytime (07:00-23:00)	43 dBA
Night-time (23:00-07:00)	35 dBA

The above limits should be achieved with all industrial units operating simultaneously including all fixed building services plant and site operations. As more than one industrial is proposed the noise emission limit imposed on each individual unit would be lower than the limits set out above.

Based on the above, the table overleaf provides suggested apportioned limits for each unit based on its location and respective distance to each off-site receptor, as well as with consideration to the unit sizes. These suggested limits are based on achieving the cumulative noise emission limit set out above when all units are in operation without imposing undue restrictions on any specific unit.

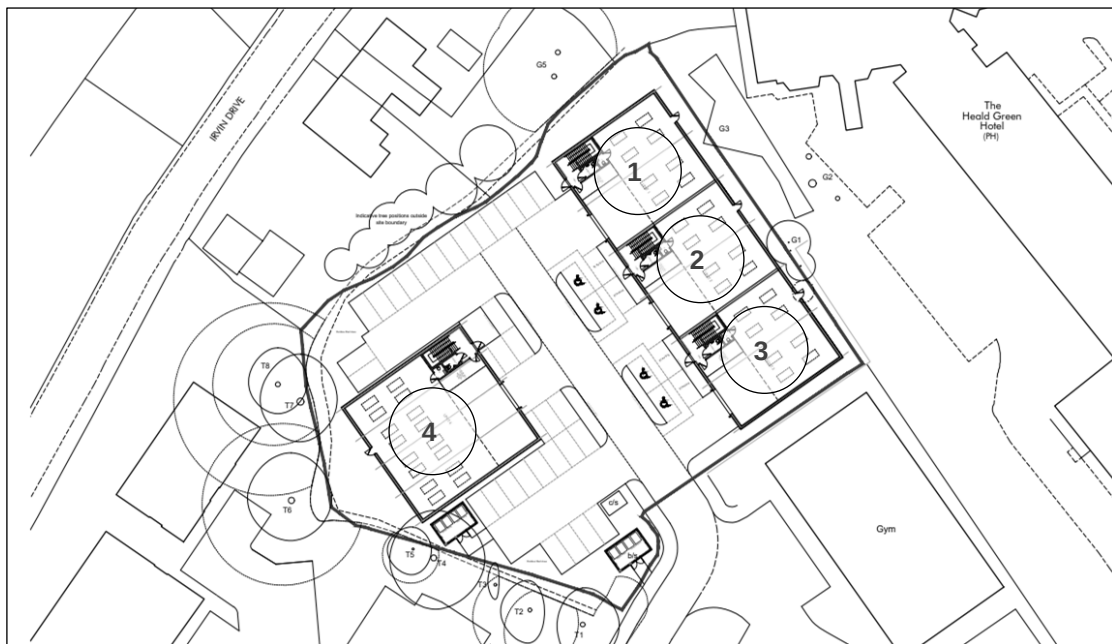
As the design progresses, and more information is known on future tenants and their respective operations, noise egress shall be assessed in accordance with BS 4142: 2014 with corrections made for any attention catching characteristics. This could be secured through a sensibly worded condition.



Receptor	Unit	Noise Emission Limit Per Unit (BS 4142:2014 Rating Level)	
		Day	Night ¹
Irvin Lane	1	39	31
	2	37	29
	3	33	25
	4	38	30
Premier Inn	1	38	30
	2	38	30
	3	38	30
	4	34	26

¹Night-time limits may not be practical when considering night-time HGV deliveries. Please see Section 10.4.2.

For clarity the location of each unit noted above is highlighted below:



Mark-up showing unit references (1 to 4)



9.0 Assessment Overview

The following sections present the findings of our indicative assessment of industrial noise.

Noise Emission Limits: Specifying noise emission criteria in which future industrial units should be designed to achieved;

Operational Activities Noise Assessment: The control of noise egress to proposed residential properties from internal noise sources;

Delivery Noise Impact Assessment: The noise impact of potential goods vehicle movements and loading/unloading service yard activities;

Car Park Noise Impact Assessment: The noise impact of private vehicle arriving, manoeuvring and leaving the proposed car park plots.

10.0 Delivery Vehicle Noise Impact Assessment

10.1 Assessment Overview

In the absence of any specific information regarding the potential goods vehicle movements or loading/unloading service yard activities, we have calculated the maximum permissible number of delivery events consistent with achieving MCC requirements for commercial noise egress.

Our assessment has been based on historic noise level data for similar units and the proposed site plan to judge the significance of potential noise impacts on nearby dwellings.

10.2 Source Noise Data

Historical noise levels measured from goods vehicle movements undertaken by Hann Tucker Associates are presented in the table below. These are considered to be representative of 'worst-case' noise levels.

Event	Duration (Seconds)	Specific Sound Level (dBA) at 5m*
HGV entering/departing site	20	72
HGV manoeuvring, reversing & door slam	30	70
HGV departing site	20	72
Loading/unloading	Up to 900	58

*Corrected for prevailing background noise levels at time of measurement

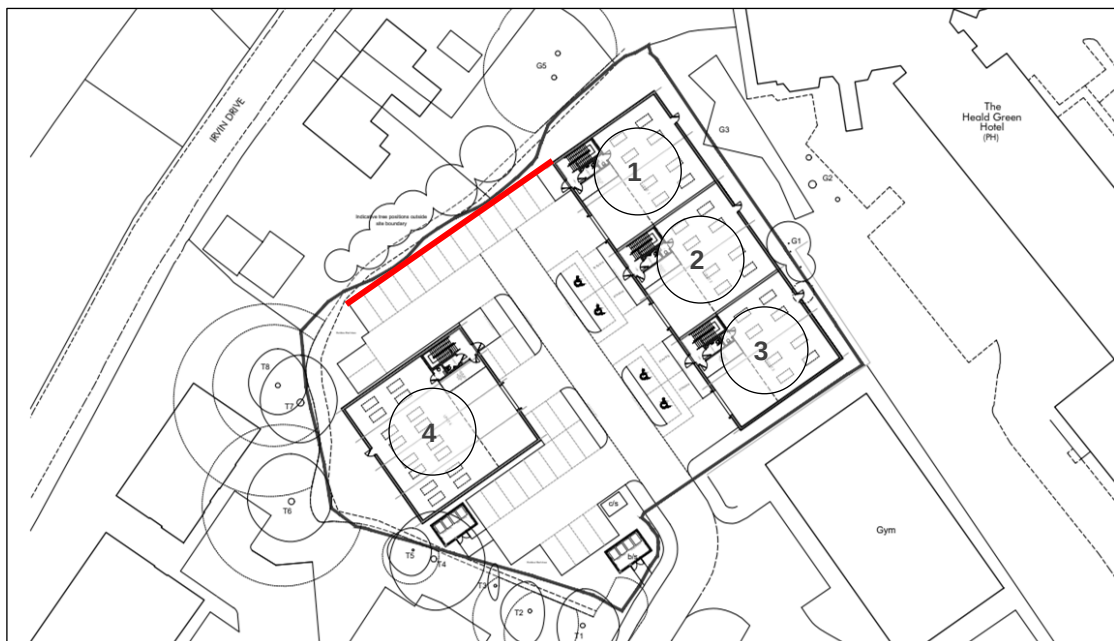


10.3 Assessment Assumptions

Due to the relatively short distances between the proposed units and the nearby receptors, an initial assessment highlighted that noise egress levels associated with HGV deliveries would likely exceed the criteria set out in Section 8.0 without any mitigation measures. As such, our assessment will consider the provision of solid screening in the location highlighted in red below.

The intention of the solid screening to break the line of sight between the loading bay of Unit 3 and the upper most window associated with the properties on Irvin Drive. Our calculations indicate that the barrier would need to be circa 3.5m high to break the line of sight.

The screen itself should be imperforate with a minimum surface mass of 10 kg/m².



Mark-up showing suggested 3.5m high acoustic screen location and unit references (1 to 4)

Our assessment has also been based on the following assumptions:-

- For daytime (07:00-23:00), we have determined the maximum permissible delivery “events” that can occur within a single one-hour assessment period before the limits for each unit are likely to be exceeded at either of the 2No receptors identified.
- For night-time (23:00-07:00), we have considered the maximum permissible delivery “events” that can occur within a single 15-minute assessment period before the cumulative limits are likely to be exceeded at either of the 2No receptors identified.
- A delivery “event” would comprise an HGV arriving onto site, manoeuvring/reversing into the service yard, loading/unloading activities and the HGV departing site.



- Given the context of the site (ie dominated by aircraft flyovers), any acoustic features are expected to be indistinguishable over the residual noise climate.

10.4 Delivery Noise Assessment

10.4.1 Daytime Assessment

Based on our assessment of the site, noise rating levels from delivery vehicle activities would be expected to achieve the criteria set out in Section 8.0 for each individual unit providing that the number of events does not exceed the following for each proposed unit.

Unit	Time Period	Maximum No of Events (Per Period)
1	1 Hour Period During the Daytime	4
2	1 Hour Period During the Daytime	4
3	1 Hour Period During the Daytime	4
4	1 Hour Period During the Daytime	6

Based on the above, Units 1, 2 and 3 could accept 4No deliveries an hour during the day and Unit 4, which is slightly larger, could accept 6No deliveries in an hour during the day. Calculations show that these deliveries could occur simultaneously (ie within the same 1 hour period) without the MCC requirements being exceeded.

Please note that the above relates to any 1 hour period during the daytime rather than the whole daytime period itself. Therefore, the site could accept up to 288 deliveries during the day depending on the timings in which any/each unit accepts a delivery.

10.4.2 Night-time Assessment

The assessment of night-time deliveries has shown that the proposed apportioned criteria set out in Section 8.0 for each individual unit cannot be achieved. Notwithstanding, these apportioned limits have been suggested to try and facilitate simultaneous events at each unit, therefore it is not to say that night-time deliveries are not permissible.

It is important to bear in mind that the cumulative limit (ie the limit for the site as a whole) can be achieved during the night-time provided that no more than 2no deliveries occur simultaneously at either Unit 2, 3 or 4 in any 15 minute night-time period.

Furthermore, due to the proximity of Unit 1 to the receptor on Irvin Drive, a delivery to this unit would elevate noise levels such that no more deliveries may be permitted across the site at other units during the same 15 minute night-time period.



The table below presents all possible delivery 'scenarios' that are likely to result in the cumulative night-time noise limit being achieved.

Scenario	Maximum Number of Deliveries Per 15 Minute Night-time Period			
	Unit 1	Unit 2	Unit 3	Unit 4
A	1	0	0	0
B	0	1	1	0
C	0	0	1	1
D	0	1	0	1

Based on the above a management plan would likely be required to schedule the number of deliveries during the night in line with the above. Please note that the above table relates to any 15 minute period during the night rather than the whole night-time period itself. Therefore, the site could accept a total of between 32 and 64 deliveries during the night depending on the timings in which any/each unit accepts a delivery.

11.0 Operational Activities Noise Impact Assessment

11.1 Assessment Overview

In the absence of any specific information regarding the exact operational time and activities of each unit, we have carried out a noise assessment of 'worst-case' daytime and night-time internal operational activities based on the proposed layout.

11.2 Source Noise Data

We understand that units will be Class B8 use. Based on previous measurements within similar commercial units, internal reverberant noise levels are unlikely to exceed **75 dB L_{Aeq,1hr}** within these unit types.

11.3 Assessment Assumptions

We have assessed internal activity noise breakout from the proposed industrial units to the nearest residential dwellings based on the following assumptions:

- The proposed screening as noted in Section 10.3 being provided.
- Noise will be dominated by general reverberant noises within each unit, rather than specific activities or machinery operating close to the unit walls/roof.



- All units operating simultaneously, day and night.
- The units are assumed to be constructed from typical thermally-insulated lightweight metal cladding with masonry walls at low level.
- At the front of the units, large roller shutter doors will be included to allow goods deliveries. Our assessment will consider these are closed (normal use).
- Given the context of the site (ie dominated by aircraft flyovers), any acoustic features are expected to be indistinguishable over the residual noise climate.

11.4 Operational Assessment

Based the proposed site layout, considering the proposed screening and shortest reasonable distance between each unit and the receptor receptors, cumulative rating noise levels from internal operational activities are likely to be as detailed below:

Receptor	Calculated Noise Level (dB, BS 4142 Rating Level)	Cumulative Noise Rating Limit (dB)	Excess Over/Under Limit (dB)
Irvin Drive	30	Day 43 ^[1]	-13
		Night 35 ^[1]	-5
Premier Inn	34	Day 43 ^[1]	-13
		Night 35 ^[1]	-5

Note 1 The limits presented above have not been apportioned and are therefore presented as for the entire development.

The above indicates that rating noise levels from internal operational activities are likely to be below the cumulative criteria set out in Section 8.0 during the daytime and night-time periods. This is an indication that additional consideration above and beyond normal good practice measures will not likely be required in the scheme design to mitigate noise from operational activities within units.

12.0 Car Park Noise Impact Assessment

12.1 Assessment Overview

In the absence of any specific information regarding the potential number of vehicles using the car parks associated with the proposed development, we have calculated the maximum permissible number of events consistent with maintaining a noise rating level equal to or less than the prevailing background sound level.

Our assessment has been based on historic noise level data for similar industrial units to judge the significance of potential noise impacts on nearby dwellings.



12.2 Source Noise Data

Historical noise levels measured of private vehicle movements in an open air car park undertaken by Hann Tucker Associates are presented in the table below. Whilst some vehicles will be of a different class (vans, motorcycles) cars will undoubtedly dominate the vehicle count.

Event	Duration (Seconds)	Specific Sound Level (dBA) at 5m*
Car entering car park	10	56
Car manoeuvring into space	15	54
Car exiting car park	10	56

12.3 Assessment Assumptions

Our assessment of noise impact from the proposed industrial units has been based on the following assumptions:-

- For daytime (07:00-23:00), we have determined the maximum permissible parking “events” that can occur within a single one-hour assessment period before the limits are likely to be exceeded.
- For night-time (23:00-07:00), we have considered the maximum permissible parking “events” that can occur within a single 15-minute assessment period before the limits are likely to be exceeded.
- A parking “event” would comprise a car arriving onto site and manoeuvring/reversing into the parking space.
- Given the context of the site (ie dominated by aircraft flyovers), any acoustic features will not be distinguishable over the residual noise climate.
- The 3.5m high acoustic fence will be installed in the location highlighted in Section 10.3.

12.4 Assessment

The results of our calculations are summarised in the table below which show that 2500 individual parking events would be permissible with an hour period during the day and 100 individual parking events would be permissible during any 15 minute period during the night.

Time Period	No of Events (Per assessment period)	Calculated Noise Level (dB, BS 4142 Rating Level)	Noise Rating Limit	Excess Over/Under Limit (dB)
1 Hour Period During the Daytime	2500	42	43	-1
15 Minute Period During the Night	100	34	35	-1



The table above indicates that a significant amount of parking events would be required to exceed the proposed limits set out in Section 8.0. Given that the proposed site has circa 40 parking spaces it is unlikely that the maximum possible number of events would be exceeded and therefore, carpark use should not be problematic for this site.

13.0 Best Practice Guidance

The following best practice management measures should be employed in order to ensure that noise impact from the operation of the site are minimised.

- Vehicle reversing alarms should be set to the minimum required for safe and efficient operations (white-noise alerts preferred to beeps).
- Vehicle engines should be turned off whilst stationary for prolonged periods.
- Restrict drop heights during loading to the minimum required for safe and efficient operations.
- Care should be taken to ensure the surface of the site used by vehicles is as smooth as possible. E.g. no raised manhole covers, maintenance of surface to ensure no pot holes or similar steep changes in surface level.
- Playing of radios and undue shouting in the service yard should be prohibited.

14.0 Conclusion

The acoustic requirements of national/local policies, current industry guidelines and other relevant documentation have been reviewed and used to inform an assessment of potential industrial impacts associated with the proposed development.

Noise egress assessments have been carried out to demonstrate that acceptable noise levels at existing noise sensitive receptors can practically be achieved. Our assessments indicate the following regarding potential industrial impacts:

- An acoustic screen will be required to the west of the site to break the line of sight between the furthest loading bay (Unit 3) and protect the premises on Irvin Drive and based on this;
- It is considered that noise break-out from internal operations can achieve a noise rating level below the Local Authority Criteria for daytime and night-time operation, assuming typical construction build-ups for the potential buildings;
- Noise levels associated with the use of the delivery vehicle movements during both daytime and night-time periods can achieve a noise rating level less than the Local Authority Criteria, up to the maximum permissible number of events presented within this report;



- Noise levels associated with the use of the proposed car park during both daytime and night-time periods can achieve a noise rating level less than the Local Authority Criteria, up to the maximum permissible number of events presented within this report.

As the design progresses, and more information is known on future tenants and their respective operations, noise egress should be assessed in accordance with BS 4142: 2014 and the proposed noise egress limits. This could be secured through a suitably worded condition.

Appendix A – Acoustic Terminology

The acoustic terms used in this report are defined as follows:

dB	Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form. The relationships between Decibel levels do not work in the same way that non-logarithmic (linear) numbers work (e.g. 30dB + 30dB = 33dB, not 60dB).
dBA	The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The _A subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted It should be noted that levels in dBA do not have a linear relationship to each other; for similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.
L _{90,T}	L ₉₀ is the noise level exceeded for 90% of the period <i>T</i> (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.
L _{eq,T}	L _{eq,T} is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time period, <i>T</i> .
L _{max}	L _{max} is the maximum sound pressure level recorded over the period stated. L _{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L _{eq} noise level.
L _p	Sound Pressure Level (SPL) is the sound pressure relative to a standard reference pressure of 2×10^{-5} Pa. This level varies for a given source according to a number of factors (including but not limited to: distance from the source; positioning; screening and meteorological effects).
L _w	Sound Power Level (SWL) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).

Appendix B – Time History Graph

Ashbrook Point

Position A

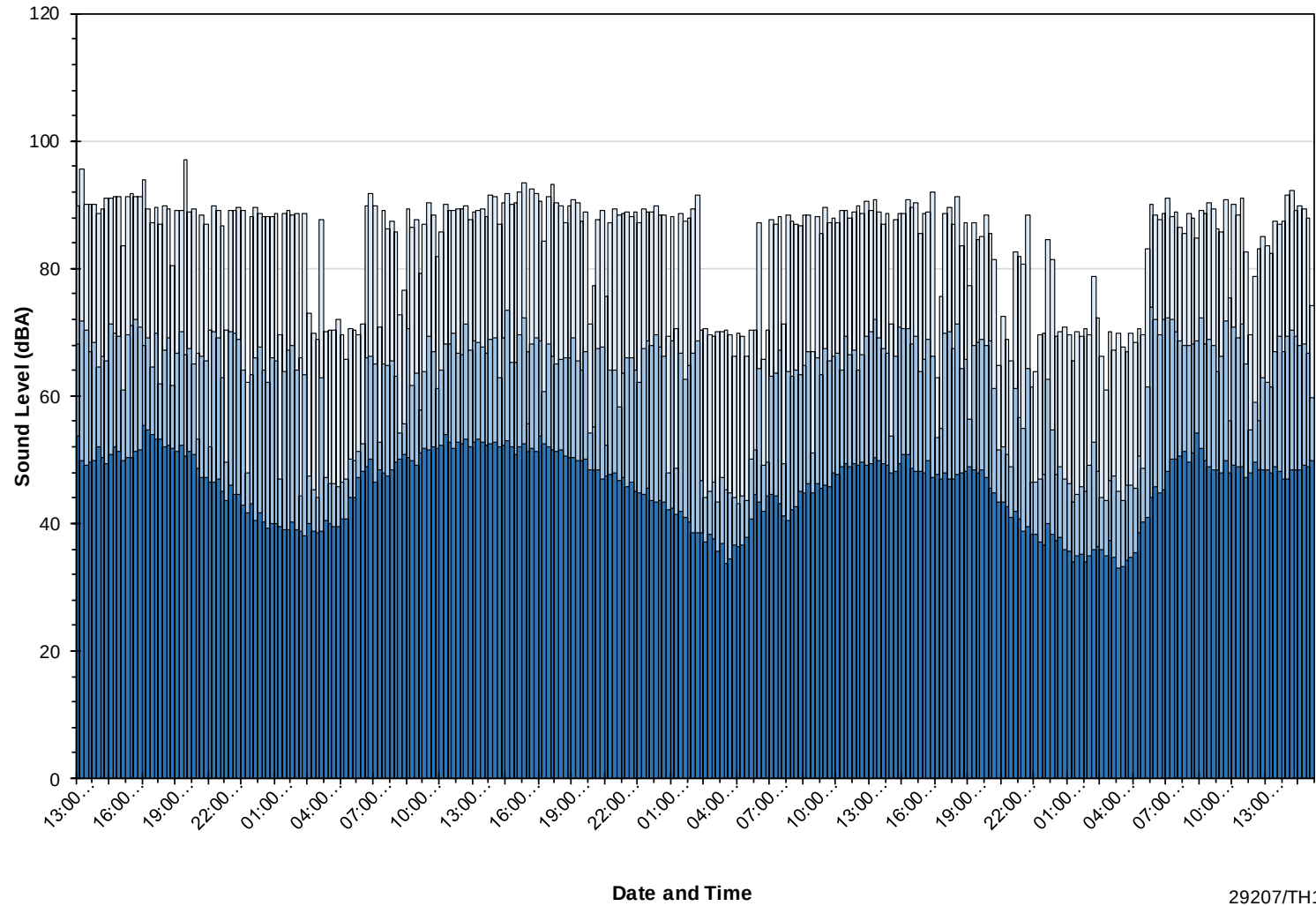
L_{eq} , L_{max} and L_{90} Noise Levels

Friday 10 September 2021 to Tuesday 14 September 2021

□ L_{Amax}

▒ L_{Aeq}

■ L_{A90}



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