ACOUSTIC DESIGN TECHNOLOGY
Noise and Vibration Consultants

ADT 3392

19 October 2022

Aldi Stores Ltd
Tamworth Road
SAWLEY
DE72 2HP

ALDI HOLBEACH

ENVIRONMENTAL NOISE IMPACT ASSESSMENT

ACOUSTIC CONSULTANCY REPORT ADT 3392/ENIA

Revision	Date	Issued By	Checked by	Revision Notes
-	19 August 2022	Joe Mosley	Chris Middleton	first issue
A	07 October 2022	Joe Mosley	Chris Middleton	revised fence layout
B	11 October 2022	Joe Mosley	Chris Middleton	updated client address
C	19 October 2022	Chris Middleton	-	minor revisions

ACOUSTIC DESIGN TECHNOLOGY LIMITED
CROSSLAND GRANGE, GREENWAYS, CHESTERFIELD, DERBYSHIRE S40 3HF
Telephone: 01246 554841 Facsimile: 01246 550141 Website: www.acousticdesign.co.uk E-mail: mail@acousticdesign.co.uk
Company Registered in England No. 4528227
V.A.T. Registration No. 593 7456 92

1.0 SUMMARY

The proposal is to redevelop the site to construct an Aldi store with associated access, car parking and landscaping as indicated on the application drawings. Acoustic screening is to be provided around the perimeter of the site to mitigate the noise from servicing operations.

Acoustic Design Technology Limited have undertaken an environmental noise survey to determine the currently prevailing noise levels in the vicinity of the surrounding noise sensitive areas.

BS 4142:2014 rating level limits have been proposed for the new fixed plant installations, set on a par with the otherwise prevailing background noise levels, defined as a 'low impact' in BS 4142, and equating to 'no observed effect' using the Planning Practice Guidance.

A BS 4142 assessment of the noise from servicing operations has been undertaken, with an initial assessment of a significant adverse impact during both the day and night. These are simply the result of the fact that there is currently only limited activity on the site. This is modified to a low impact when the context is taken into account. The residual impact equates to 'no observed adverse effect' using the Planning Practice Guidance.

2.0 BASIS OF ASSESSMENT

2.1 Site Location

The site is located off Fleet Street (B1515) in Holbeach. The site currently houses a storage building, a boxing club, a car parking area, and a single storey outhouse building. The surrounding area comprises mainly residential properties with some commercial developments interspersed.

The site is bounded by houses in all directions, with two storey houses on Rathkenny Close to the west, two storey houses on Fishpond Lane to the south, bungalows on Allison Avenue and Mattimore Drive to the east and two storey houses on Fleet Street to the north. On the opposite side of Fleet Street is a row of two storey houses and a care home. Also on the eastern boundary is a single storey weight training club on Allison Avenue.

2.2 Proposed Development

The proposal is to redevelop the site to create a new Aldi store, with associated access, car parking and landscaping as indicated on the application drawings and the attached site plan 3392/SP2. Proposed opening and delivery hours for the Aldi store are as follows:

	Proposed hours
Opening hours Monday to Saturday	07:00 - 23:00
Opening hours Sunday	10:00 - 16:00
Delivery hours Monday to Saturday	06:00 - 23:00
Deliveries Sundays	08:00 - 18:00

A single delivery bay is proposed, with in the region of 3 deliveries per day. Servicing activities would therefore be on a substantially smaller scale than larger supermarkets who usually require more deliveries from their main logistics depot, and various third party deliveries of milk and bread for example.

2.3 Planning Policy

The National Planning Policy Framework (NPPF) sets out the general terms of reference for sustainable development, including noise. Section 180 of the February 2019 edition states that:

> *Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*
>
> *a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*

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

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

For this development the key principle to be applied from the NPPF is to protect existing residents from noise generated by the development.

The Noise Policy Statement for England (NPSE) published in March 2010 establishes the No Observed Effect Level (NOEL), Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL), although these are not linked to objective criteria, as Section 2.22 of the NPSE states:

It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times.

The Ministry of Housing, Communities and Local Government guidance on planning and noise as of July 2019 includes a noise exposure hierarchy table to help determine the NOEL, NOAEL and SOAEL. This is provided in Appendix A.

2.4 Assessment Criteria

The main environmental noise sources associated with retail premises are the noise from deliveries / servicing operations and the noise from fixed plant installations.

The appropriate assessment method is BS 4142:2014+A1:2019 (hereafter referred to in the short form BS 4142), as both of the above sources are specifically mentioned in the scope of the standard.

The assessment involves comparing the *rating* level of the sound source with the typical *background* levels for the period of interest to derive an initial estimate of the impact, which then has to be considered in context. Please refer to Appendix D for an explanation of the technical terms defined in the Standard.

It is important to note that the significant criteria in Section 11 of BS 4142 are all defined as 'initial assessments of impact' and with the proviso 'depending on the context'. BS 4142 indicates that contextual factors could include the following:

i. the absolute level of sound
ii. the character and level of the residual sound compared to the character and level of the specific sound
iii. the sensitivity of the receptor and whether it has sound insulation measures that would secure good acoustic conditions

There is no definitive guidance in BS 4142 as to the extent to which these factors might change the initial assessment of impact, although there are several references to BS 8233:2014 in the examples provided in the standard, and it is therefore reasonable to assume that it can be used in the discussion of context.

The relevant acoustic criteria for residential buildings from Section 7 of BS 8233 are summarised in the following table.

Location	$L_{Aeq,\,T}$ dB
Bedrooms, night (23:00 – 07:00)	30
Living rooms and bedrooms, day (07:00 – 23:00)	35
Outdoor living areas day (07:00 – 23:00)	50

These are specifically defined as applicable to steady, anonymous noise sources such as road traffic which normally controls the residual sound levels in residential areas. For noise with a specific character, BS 8233 advises that 'lower noise limits might be appropriate', although the required reduction is not quantified.

2.5 Nearest Noise Sensitive Properties

The noise sensitive properties in the surrounding area have been grouped into four noise sensitive areas (NSA), as described below and as indicated on the attached site plan 3392/SP1.

NSA	Location	Direction	Approximate distance from proposed store (metres)
1	houses on Rathkenny Close	west	25
2	houses on Fishpond Lane	south	45
3	Houses on Allison Avenue	east	25
4	houses on Fleet Street and Mattimore Drive	north	35

The above noise sensitive areas represent the closest noise sensitive properties, with others located further from the site and in some cases screened by the intervening buildings. A satisfactory noise impact at the defined noise sensitive areas should therefore ensure a satisfactory noise impact at other noise sensitive areas.

2.6 Strategy for Noise Impact Assessment

Based on the information in Sections 2.1 to 2.5 above, the strategy for the noise impact assessment has been broken down into the following stages:

i. undertake an environmental noise survey to obtain baseline noise data, as described in Section 3.0 below
ii. propose rating limits for new fixed plant installations as described in Section 4.0 below
iii. assess the impact of noise from servicing operations, as described in Section 5.0 below

3.0 ENVIRONMENTAL NOISE SURVEY

3.1 Purpose

The purpose of the survey was to determine the existing ambient noise levels at a location representative of the surrounding noise sensitive areas, over the proposed weekday and weekend operating periods.

3.2 Scope of Survey

A programme of automatic noise monitoring was undertaken between 16:30 on Thursday 21 July 2022 and 13:30 on Monday 25 July 2022.

3.3 Instrumentation

The instrumentation used, and the field calibration values before and after the survey are detailed in Appendix B of this report.

3.4 Procedure

A single measurement position was selected as indicated on the attached site plan 3392/SP1. The microphone was extended through the first floor window of the storage building on a boom, approximately 1 metre from the building façade.

The noise levels were logged continuously for the duration of the survey period, using a 01dB Solo sound level meter set to store the octave band and 'A' weighted 100ms short-term Leq for subsequent post processing.

3.5 Weather Conditions

As the survey was unattended it is not possible to provide a detailed description of the weather conditions throughout the entire survey period. However, at the start of the survey, it was fine and dry with no more than a light breeze and on the collection visit, the wind speed had increased. Reference to published weather data reveals that there was some wind from around 00:00 on Sunday 24 July, and this continued until after the collection visit on Monday 25 July. This may explain the relatively high levels of noise observed on the Sunday night in comparison to the other nights.

3.6 Description of Existing Acoustic Environment

As the survey was primarily unattended it is not possible to provide a detailed description of the noise climate throughout the entire survey period. Based on observations during site visits and analysis of periodic audio samples, the background levels were generally controlled by distant traffic noise throughout the survey period. On Friday 22nd and Monday 25th, there was occasional noise from vehicles on the site, although this had little effect on the measured background levels.

Reference to the attached time history graph shows that over the course of the survey, the noise levels followed a diurnal pattern typical of an environment dominated by traffic noise, with the exception of the Sunday night, where the measured levels were affected by the wind.

3.7 Results

The logged data from measurement position 1 has been post processed to determine $L_{Aeq,T}$ $L_{A90,T}$ and L_{Amax} levels for each 15 minute period, and these have been plotted on the attached time history graph 3392/TH1. Typical day-time and night-time background noise levels for position 1 have been processed based on statistical analysis of the measured levels as suggested in Section 8.1.4 of BS 4142.

The typical background level during the daytime Sunday delivery period (08:00 to 18:00) was equal to the typical background level over the course of the rest of the day (44dB $L_{A90,1hour}$). The typical background level measured during the daytime periods on the other days (07:00 to 23:00) was 38dB $L_{A90,1hour.}$ For simplicity, and a conservative approach, the lower value of 38dB $L_{A90,1hour}$ has been taken as the typical background level for all daytime periods.

The typical background level during the Sunday nighttime delivery period (06:00 to 07:00) was 38 dB $L_{A90,15mins}$. The typical level measured during the nighttime delivery periods on the other days (06:00 to 07:00) was 42dB $L_{A90,\ 15\ mins}$. Again, for simplicity, the lower value of 38 dB $L_{A90,15mins}$ has been taken as the typical level for all nighttime delivery periods.

For the avoidance of confusion, it should be noted that the "Sunday nighttime delivery period" of 06:00 to 07:00 would, under common parlance, be referred to as "Monday morning". However, as "nighttime" is defined as the period between 23:00 and 07:00, the first 7 hours of a given day technically fall into the "nighttime period" of the previous day.

For the purposes of setting rating limits for plant noise, the typical nighttime background level over the entire measurement period has been processed, resulting in a level of 33dB $L_{A90,15mins}$. This remains the same even when the data from Sunday night is excluded from the analysis. The background levels are therefore summarised as shown in the table below:

Position	Typical background levels (dB)			
	Daytime Mon - Sun (07:00 - 23:00)	Nighttime Mon - Sun (23:00 - 07:00)	Daytime delivery periods Mon - Sat (07:00 - 23:00) Sun (08:00 - 18:00)	Nighttime delivery periods Sun - Fri (06:00 - 07:00)
	$L_{A90,1hour}$	$L_{A90,15mins}$	$L_{A90,1hour}$	$L_{A90,15mins}$
1	38	33	38	38

Please refer to Appendix C for an explanation of the noise units and the A-weighting term used in this report.

4.0 NOISE IMPACT ASSESSMENT (NEW FIXED PLANT)

4.1 Basis of Assessment

At this stage none of the major fixed plant installations have been selected, so it is not possible to undertake a noise impact assessment of specific equipment. Environmental noise limits have therefore been proposed, which can then be used in the future selection of plant and any associated attenuation.

4.2 Noise Limits

As described in Section 2.4 above, it is proposed that plant noise is assessed using the BS 4142 method, and a rating level on a par with the typically prevailing background level is defined as a 'low impact'. Proposed noise limits for fixed plant are therefore as follows:

Recommended BS 4142:2014+A1:2019 rating level limits for fixed plant		
Location	Day (07:00 - 23:00) $L_{Ar,\ 1\ hour}$ dB	Night (23:00 - 07:00) $L_{Ar,\ 15\ mins}$ dB
All NSA	38	33

Following selection of the new plant, cumulative noise levels can be calculated at the various noise sensitive areas and checked against the above limits. According to the planning guidance, this should equate to 'no observed effect'.

5.0 NOISE IMPACT ASSESMENT (SERVICING OPERATIONS)

5.1 Source Data

The normal operating procedure for an Aldi delivery is understood to be as follows:

i. the lorry approaches the service bay, turns and reverses up to the delivery bay, with rubber surrounds for the trailer. It is understood that for noise sensitive areas, the vehicle mounted refrigeration unit will be switched off on approach to the store and on again after rejoining the road network, and that reversing bleepers would not be used.

ii. approximately 25 minutes to unload fresh goods off trailer directly into the store and load the empty trolleys back onto the trailer. This is a fully internal process, with no unloading outdoors.

iii. the lorry engine and refrigeration unit are turned off during the unloading. The driver starts the engine, with typically 30 seconds idling as they prepare to leave.

iv. the lorry sets off in a forward gear and rejoins the road network.

There is not expected to be any other significant activity outside the building, with unpacking, sorting, waste compaction and wrapping all taking place internally.

Typical noise data for the principal noise sources associated with servicing operations (sources i) to iii) above) is set out in Appendix E.

Noise from waste collections has not been specifically included in the assessment as it occurs relatively infrequently and the noise varies considerably according to the type of waste collected. For most retail developments in noise sensitive locations it would be normal to schedule waste collection for non-sensitive day-time hours only.

5.2 Initial Assessment of Impact

Based on the information set out in Section 5.1 above, specific sound levels have been calculated at the surrounding noise sensitive areas using Cadna/A 2022 environmental noise mapping software, with first order reflections and ground absorption applied where appropriate.

The HGV manoeuvres have been modelled as moving point sources based on the vehicle track shown on the application drawings with a speed of 5 km/h for the forward components and 3 km/h for the reverse component. The vehicle engine has been assumed to be running with the vehicle stationary for 30 seconds before departing.

The delivery noise is not tonal or intermittent, although there is an impulsive character. A correction of + 3 dB has been applied to the specific sound levels to account for the perceptible impulsivity of the sound, on the basis that it would be just perceptible at the noise sensitive areas.

Representative background levels during the delivery periods for each noise sensitive area are set out in the table shown below:

Location	Typical background levels dB	
	Daytime delivery periods Mon-Sat (23:00-07:00) Sun (08:00 – 18:00) $L_{A90,1hour}$	Nighttime delivery periods Sun - Fri (06:00 - 07:00) $L_{A90,15mins}$
All NSA	38	38

The initial assessment of impact for the day time period (07:00 -23:00 hours) is set out in the following table:

Initial assessment of impact – day time period				
	NSA1 - houses on Rathkenny Close	NSA2 - houses on Fishpond Lane	NSA3 - houses on Allison Avenue	NSA4 - houses on Fleet Street and Mattimore Drive
Specific Sound Level $L_{Aeq,\ 1\ hour}$ (dB)	46	44	47	46
Character correction (dB)	+ 3	+ 3	+ 3	+ 3
Predicted Rating Level $L_{Ar,1\ hour}$ (dB)	49	47	50	49
Background level $L_{A90,1\ hour}$ (dB)	38	38	38	38
Excess of rating level over background sound level (dB)	+11	+9	+12	+11
Initial assessment of impact	significant adverse	adverse	significant adverse	significant adverse

The initial assessment of impact for the night time period (06:00 – 07:00 hours) is set out in the following table. As the delivery process effectively covers two consecutive 15 minute periods, both have been calculated and the higher of the two specific sound levels has been presented.

Initial assessment of impact – night time period				
	NSA1 - houses on Rathkenny Close	NSA2 - houses on Fishpond Lane	NSA3 - houses on Allison Avenue	NSA4 - houses on Fleet Street and Mattimore Drive
Specific Sound Level $L_{Aeq,\ 1\ hour}$ (dB)	50	49	50	49
Character correction (dB)	+ 3	+ 3	+ 3	+ 3
Predicted Rating Level $L_{Ar,1\ hour}$ (dB)	53	52	53	52
Background level $L_{A90,15mins}$ (dB)	38	38	38	38
Excess of rating level over background sound level (dB)	+15	+14	+15	+14
Initial assessment of impact	significant adverse	significant adverse	significant adverse	significant adverse

On that basis there are initial assessments of adverse / significant adverse impacts during the day and night. While this can appear alarming, the specific sound levels are relatively low, and the adverse / significant adverse initial assessments are simply the result of the fact that the background sound levels are low in this location, and there is currently no significant activity on the site.

5.3 Assessment of Context

As described in Section 2.4 above, BS 4142 notes that the impact may need to be modified to take account of factors including the absolute level of sound, the character and level of the residual sound compared with that of the specific sound, and the sensitivity of the receptor.

Noise from deliveries to a supermarket is almost always audible above the background sound level beyond the site boundary, which yields the significant adverse initial assessment of impact.

The question is whether these initial assessments over emphasises the significance of the noise. BS4142 advises that the following factors are taken into account.

5.3.1 The Absolute Level of Sound

Although the rating level exceeds the background level while the deliveries are taking place, it should be noted that these deliveries will be relatively infrequent, with no more than 3 deliveries taking place per day and only one during the most sensitive period of 06:00 to 07:00 hours. When the absolute level of sound is considered over the full daytime/nighttime periods, the noise levels are more benign.

During the daytime, the specific sound level of 47 dB $L_{Aeq,1hour}$ incident on the nearest dwellings during the daytime would translate to 40 dB $L_{Aeq,16hour}$ when three 30 minute deliveries are averaged over the whole day time period, and 25 dB $L_{Aeq,16hour}$ inside the dwelling, assuming that the windows are open for ventilation. That is well below the BS 8233 recommended limit of 35 dB $L_{Aeq,16hour}$, a reasonable margin even considering that the criterion is defined for anonymous noise such as regular road traffic.

It is considered extremely unlikely that more than one delivery would take place during the nighttime delivery period (06:00 to 07:00). The specific sound level of 50 dB $L_{Aeq,15mins}$ translates to 38 dB $L_{Aeq,8hour}$ when a single 30 minute delivery is averaged over the full night time period, with an internal level of 23 dB $L_{Aeq,8hour}$, which is well below the BS 8233 recommended limit of 30 dB $L_{Aeq,8hour}$.

It should also be noted that the assessments have been undertaken at the 1st floor windows of the surrounding houses. At the ground floor rooms and in the gardens the impacts would be substantially lower, as the benefits of the acoustic screening would be fully realised.

5.3.2 The Character and Level of the Specific and Residual Sound

The specific sound levels presented in Section 5.2 above are largely controlled by the sound of the lorry driving across the site and manoeuvring into the delivery bay, rather than the unloading itself.

As the site has historically been open from 05:30 onwards, with trucks moving in and out of the site, the sound of an Aldi delivery vehicle entering the site and manoeuvring into the delivery bay from 06:00 onwards would not be out of character in this environment. As noted in Section 5.1 above, it is Aldi policy to suppress the use of refrigeration units and reversing bleepers on noise sensitive sites, which would otherwise be distinctive.

Also, the specific sound levels from deliveries are relatively low (44 to 47 dB $L_{Aeq,1hour}$ during the day and 49 dB to 50 dB $L_{Aeq,15mins}$ during the night). This is similar to the measured $L_{Aeq,T}$ from general road traffic noise (around 40 to 50 dB $L_{Aeq,1hour}$ during the daytime delivery periods and 41 to 47 dB during the nighttime delivery periods (06:00 to 07:00). The character and level of the specific and residual sound is therefore indicative of a lower impact than that shown in the initial assessment of impact.

5.3.3 The Sensitivity of the Receptor

The identified NSA appear to be made up of regular one and two storey houses, so there is nothing to suggest that the receptors would be any more or less sensitive to noise than usual, and no specific sound insulation measures or acoustic screening are present. On that basis it is not considered necessary to adjust the impact for the sensitivity of the receptor.

5.4 Conclusion

Taking these contextual factors into account, it would be reasonable to conclude that the impact would be less than that indicated by the initial assessment, and applying the principles in the planning guidance, the conclusion would be that the noise would be audible but unlikely to have any significant effect on behaviour or attitude, equating to 'no observed adverse effect'.



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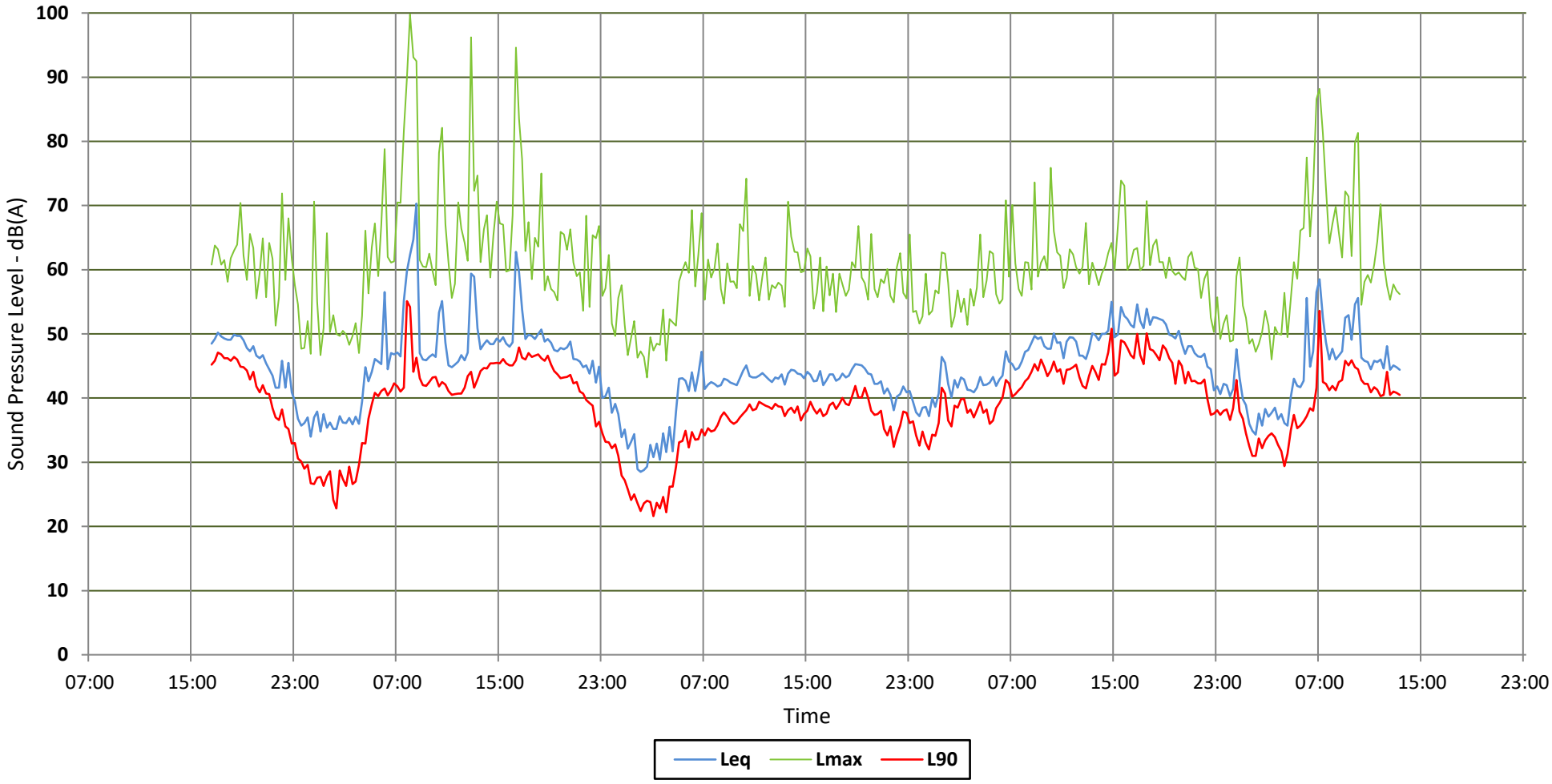


Notes	**Description** Proposed Site Plan Showing Noise Monitoring Locations and Noise Sensitive Areas		ADT Acoustic Design Technology Noise and Vibration Consultants
	Project Aldi Holbeach		
	Date 19 October 2022	**Drawing No.** 3392/SP1	



Notes	**Description** Proposed Plan for the Aldi store	
	Project Aldi Holbeach	
	Date 19 October 2022	**Drawing No.** 3392/SP2

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Notes	Description	
	Time History Graph - Measurement Position 1	
	Project	
	Aldi Holbeach	
	Survey Date	**Drawing No.**
	21 to 25 July 2022	3392/TH1

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APPENDIX A

NOISE EXPOSURE HIERARCHY TABLE

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

APPENDIX B - INSTRUMENTATION

Manufacturer	Type and / or Model	Serial Number	Last Laboratory Calibration	Calibrator Output (dB)	Free Field Correction (dB)	Initial reading (dB)	Final reading (dB)
01dB	(Blue) Solo Class 1 Sound Level Meter	60320	July 2021				
01dB	PRE 21 S Pre-Amplifier	16866	July 2021		-0.1	113.9	114.0
01dB	MCE 212 ½ inch Microphone	90549	July 2021				
Norsonic	Nor1251 Calibrator (Cal 5)	34220	February 2022	114.00			

APPENDIX C

Acoustic Terminology

The annoyance produced by noise is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and any variations in its level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

A-weighting — The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the A-weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average person. It is also possible to calculate the A-weighted noise level by applying certain corrections to an un-weighted spectrum.

When the noise being measured has variable amplitude, such as traffic noise, it is necessary to qualify the basic dB unit. This may be done using a statistical index L_n dB, where n is any value between 0 and 100, and is the percentage of the sample time for which the stated level is exceeded. In defining the use of the index, both the value of n and the length of the sample period must be stated.

L_{10} — L_{10}, being the level exceeded for 10% of the time, has been shown to be a good indicator for traffic noise intrusion, and is used in assessing the effect of traffic noise on residential or commercial premises.

L_{90} — L_{90} is the level exceeded for 90% of the time, and is used as a measure of background noise level, as it excludes the effects of occasional transient levels, such as individual passing cars or aircraft.

In addition to the statistical noise indices defined above, the following noise units are also used to define variable amplitude noise sources:

$L_{eq,T}$ — $L_{eq,T}$ is defined as the notional steady sound pressure level which, over a stated period of time, would contain the same amount of acoustical energy as the actual fluctuating sound measured over the same period. In other words, it is a measure of the "average" noise level

L_{max} — L_{max} is the maximum time-weighted sound pressure level recorded over the stated time period

APPENDIX D

Definitions from BS 4142 : 2014

reference time interval, T_r

specified interval over which the specific sound level is determined (1 h during the day, and 15 min during the night)

specific sound level, $L_{Aeq,Tr}$

equivalent continuous A-weighted sound pressure level produced by the specific source at the assessment position produced over a given reference time interval, T_r

rating level, $L_{At,Tr}$

specific sound level plus any adjustment for the characteristic features of the sound

background noise level, $L_{A90,T}$

see Appendix C

APPENDIX E

Service Yard Noise Data

	Noise data: $L_{eq,T}$ at 5m								
	63	125	250	500	1k	2k	4k	8k	A-wt
	$L_{eq,T}$ at 5m								
Unloading - lorry backed up to rubber surrounds (source at 2m height)	69	63	60	57	54	54	53	46	61
HGV manoeuvring (source at 1.25m height)	80	71	66	69	70	69	62	53	74
HGV start and idle (source at 1.25m height)	82	72	69	69	69	70	66	64	75
	L_{max} at 5m								
Unloading	85	74	74	71	66	67	70	64	75
HGV manoeuvring	87	79	80	78	77	78	72	64	83