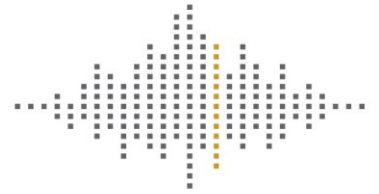


SHARPS REDMORE

ACOUSTIC CONSULTANTS



Report

**Aldi Stores Limited, 11
Parkhouse Court, Hatfield**

Environmental Noise Report
– Variation of delivery hours

Prepared by
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Project No 1515356



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1.0 Introduction

- 1.1 Sharps Redmore (SR) has been instructed by Aldi Stores Ltd to undertake a noise assessment of the delivery arrangements at the Aldi store, at 11 Parkhouse Court, Hatfield.
- 1.2 Planning permission has been granted for a mixed use development to form a new district centre which included a new Aldi store located at the ground floor level. Deliveries to the store are currently restricted to the following:
 - Monday to Saturday – 0700 – 2300 hours
 - Sunday – 0900 – 1900 hours on Sunday
- 1.3 Planning permission is being sought to vary delivery hours to enable deliveries to be received from 0600 to 2300 Monday to Saturday. No variation of Sunday delivery hours is being sought.
- 1.4 The nearest noise sensitive properties to the service yard area are those immediately above the store, which form part of the same mixed use development. Condition 1 of the planning consent for the residential properties (Ref: S6/2005/675/DE) stated the following:

“No development shall take place until a noise assessment report of the effects of the commercial uses and bus interchange within the site, including servicing and traffic noise, on the flats and hotel has been carried out and a scheme for mitigating the effects of such noise has been submitted to and approved in writing by the Local Planning Authority. All works that form part of the scheme shall be completed before any residential buildings are occupied and retained thereafter.”
- 1.5 The purpose of this assessment is to determine the impact of variation of delivery hours on the nearest noise sensitive properties to the loading bay. The study considers the noise levels against current national guidelines, taking into account the context of the site, existing noise levels and mitigation measures that may have been incorporated into the design of the residential properties directly above the store i.e. alternative means of ventilation to enable windows to be kept closed.
- 1.6 Section 3.0 of this report contains details of the environmental noise survey. Section 4.0 of the report contains an assessment of the impact of noise from deliveries on the surrounding residential properties.
- 1.7 A guide to the acoustic terminology used within the report is included in Appendix A.

2.0 Assessment Methodology and Criteria

National Policy

2.1 The National Planning Policy Framework (NPPF), March 2012, sets out the Government’s planning policies for England and “these policies articulate the Government’s vision of sustainable development.” In respect of noise, Paragraph 123 of the NPPF states the following:

“Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and*
- *Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.”*

2.2 Guidance on the interpretation of the policy aims contained within the NPPF is contained within National Planning Policy Guidance (NPPG). The NPPG introduces the concept of a noise exposure hierarchy based on likely average response. The guidance contained in the NPPG is summarised in the table below:

Table 2.1: Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
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	

Perception	Examples of Outcomes	Increasing Effect Level	Action
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

2.3 The NPPF and NPPG reinforce the March 2010 DEFRA publication, “Noise Policy Statement for England” (NPSE), which states three policy aims, as follows:

“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.”*

2.4 Together, the first two aims require that no significant adverse impact should occur and that, where a noise level which falls between a level which represents the lowest observable adverse effect and a level which represents a significant observed adverse effect, then according to the explanatory notes in the statement:

“... all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.”

2.5 Taking an overview of national policy aims and guidance it is clear that when considering the impact of noise from a development one must consider the significance of any impact.

2.6 It is possible to apply objective standards to the assessment of noise and the effect produced by the introduction of a certain noise source may be determined by several methods, as follows:

- i) The effect may be determined by reference to guideline noise values. British Standard (BS) 8233:2014 and World Health Organisation “Guidelines for Community Noise” contain such guidelines.

- ii) Alternatively, the impact may be determined by considering the change in noise level that would result from the proposal, in an appropriate noise index for the characteristic of the noise in question. There are various criteria linking change in noise level to effect. This is the method that is suited to, for example, the assessment of noise from road traffic because it is capable of displaying impact to all properties adjacent to a road link irrespective of their distance from the road.
- iii) Another method is to compare the resultant noise level against the background noise level (L_{A90}) of the area. This is the method employed by' British Standard 4142. Since the original application was submitted a new version of BS 4142 has been issued which now includes within its scope sound from unloading and unloading of goods and materials at industrial and/or commercial premises.

Guideline noise values

- 2.7 There are a number of guidance documents that contain recommended guideline noise values. These are discussed below.
- 2.8 British Standard 8233:2014 is principally intended to assist in the design of new dwellings; however, the Standard does state that it may be used in the assessment of noise from new sources being brought to existing dwellings.
- 2.9 BS 8233 was based on the advice contained in the draft World Health Organisation document "Guidelines for Community Noise". This document was released in final form in 2000. The World Health Organisation guidance is referenced in the NPSE.
- 2.10 The WHO advice is the most useful, comprehensive, and pertinent advice in this case, because it is not specific to the circumstances of the assessment. Instead, it provides guidance on acceptable limits in, for example, schools, dwellings and offices.
- 2.11 The WHO guideline values are appropriate to what are termed "critical health effects". This means that the limits are at the lowest noise level that would result in any psychological, physiological or sociological effect. They are, as defined by NPSE, set at the Lowest Observed Adverse Effect Level (LOAEL), but do not define the level above which effects may be considered significant (SOAEL). Compliance with the LOAEL should, therefore, be seen as a robust aim.
- 2.12 The WHO LOAEL guideline values are summarised in the following table:

Value	Guidance	Location
$L_{AeqT} = 55$ dB	Few seriously annoyed, Daytime and evening	Continuous noise, outdoor living areas
$L_{AeqT} = 50$ dB	Few moderately annoyed, Daytime and evening	Continuous noise, outdoor living areas
$L_{AeqT} = 35$ dB	Acceptable level to avoid speech disturbance interference, daytime and evening	Continuous noise, dwellings, indoors
$L_{AeqT} = 45$ dB	To avoid sleep disturbance, window open at night	Continuous noise, outside bedrooms, outdoor values
$L_{AeqT} = 30$ dB	To avoid sleep disturbance	Continuous noise, bedrooms, indoors

Value	Guidance	Location
$L_{Amax} = 60$ dB	To avoid sleep disturbance, window open at night	Noise peaks, outside bedrooms, outdoor values
$L_{Amax} = 45$ dB	To avoid sleep disturbance at night	Noise peaks, bedrooms, indoors

2.13 For L_{AeqT} criteria the time base (T) given in the document is 16 hours for daytime limits and 8 hours for night time limits. When assessing impact, this has the tendency to smooth out the hourly variations in noise level. As such, our calculations are carried out to a 1 hour time base, which is more stringent assessment than is given in the guidance but is reflective of the actual duration of the delivery process.

Changes in noise level

2.14 Changes in noise levels of less than 3 dBA are not perceptible under normal conditions and changes of 10 dB are equivalent to a doubling of loudness. This guidance has been accepted by Inspectors, at Inquiry, to encompass changes in noise levels in the index $L_{Aeq,T}$.

2.15 The following table shows the response to changes in noise level (known as the Semantic Scale).

Change in noise level L_{AeqT} dB	Response	Impact
<3	Imperceptible	None
3 - 5	Perceptible	Slight
6 - 10	Up to a doubling	Significant
11 – 15	More than a doubling	Substantial
> 15	-	Severe

BS 4142:2014

2.16 BS 4142:2014 describes a method for rating and assessing sound of industrial and/or commercial nature, including unloading of goods, according to the following summary process:

- i) Determine the background sound levels, in terms of L_{A90} , at the receptor locations of interest.
- ii) Determine the specific sound level of the source being assessed, in terms of L_{AeqT} level (T = 1 hour for day or 15 minutes at night), at the receptor locations.
- iii) Apply a rating level acoustic feature correction if the source sound has tonal, impulsive, intermittent or other characteristic which attract attention.
- iv) Compare the rating sound level against the background noise level; the greater the difference between the two, the higher the likelihood of complaints of the noise.

iv) Differences (rating – background) of around +10 dB is likely to be an indication of significant adverse impact (SOAEL) depending on context; a difference of +5 dB is likely to be an indication of adverse impact, depending on context. 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 upon context.

2.17 The general intent of the planning system is to ensure that a development does not result in 'significant adverse impacts on health and quality of life' (NPPF para 123). BS 4142:2014 considers that the threshold of 'significant adverse impact' is likely to be around 10 dB or more... **depending on upon the context.** (SR emphasis)

2.18 As can be seen above the significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound exceeds the background sound level and the context in which it is placed. There are many contextual points to consider when considering an assessment of sound impact including the following:

- The absolute level of sound;
- The character and level of the specific sound compared to the existing noise climate;
- The sensitivity of the receptors;
- The time and duration that the specific sound occurs;
- The conclusions of assessments undertaken using alternative assessment methods, for example WHO guideline noise values or change in noise level;
- The ability to mitigate the specific sound through various methods.

2.19 It is therefore entirely possible that whilst the numerical outcome of a BS 4142 assessment is indicative of adverse or even significant adverse impact, when the proposal is considered in context the significance of the impact is reduced to an acceptable level.

3.0 Noise Assessment

3.1 A noise survey was undertaken at the site on 16th June 2015 between 0600 and 0700 hours at the location as shown in Fig 1 below. 3.2 The microphone was located on a mast at about 4 metres high to represent the first floor properties directly adjacent to the loading bay.

Fig 1: Monitoring Locations



3.2 Noise measurements were taken using Norsonic 118 Type 1 precision sound level meters which were calibrated before and after each survey. The weather conditions during the surveys were suitable for taking noise measurements, being dry and with light winds. The equipment used, the measurement procedures employed, complied with the requirements of BS 4142:2014.

3.3 Measurements were taken at 15 minute intervals throughout the survey period and included the equivalent steady noise level, L_{AeqT} the maximum noise level, L_{Amax} and background noise levels, $L_{A90,T}$ as defined below:

- L_{AeqT} : The equivalent continuous sound level in dBA. This unit may be described as "the notional steady noise level that would provide, over a period, the same energy as the intermittent noise". In other words, the energy average level. This unit is now used to measure a wide variety of different types of noise of an industrial or commercial nature, as well as aircraft and trains.
- $L_{A90,T}$: The sound level (in dBA) exceeded for 90% of the time. This level gives an indication of the sound level during the quieter periods of time in any given sample. It is used to describe the "background sound level" of an area and for reference in the BS 4142:2014 assessment detailed in section 2.0 of this report.
- L_{AMAX} : The maximum level of sound measured in any given period. This unit sometimes known as peak level is used to measure and assess transient noises, such as individual vehicle movements, crashes from pallets being moved around.

3.4 The results of the survey are shown in Table 3.1 below including details of observations made during the survey.

Table 3.1: Survey Results — 16th June 2015

Start time	Sound Pressure Level dB			Observations
	$L_{Aeq15min}$	$L_{Af(max)}$	$L_{Af(90),15mins}$	
0600 hrs	59.2	76.9	49.9	Existing noise climate consists of distant road traffic with localised activity such as door slams, vehicles starting up. Noise from commercial plant clearly audible
0615 hrs	54.8	66.5	51.4	
0630 hrs	54.9	65.0	52.6	
0645 hrs	54.5	65.4	51.8	
0700 hrs	55.0	74.8	51.9	

3.5 BS 4142:2014 requires that the background noise level should be representative of the particular circumstances and the period of interest, which in this case is 0600 – 0700. Using the data above the typical background noise level and ambient noise level between 0600 – 0700 hours is as follows:

- Existing background Noise Level $L_{A90,1hr} = 51$ dB
- Existing ambient Noise Level $L_{Aeqq1hr} = 56$ dB

4.0 Noise Assessment

4.1 The loading bay is located at the rear of the store and is partially enclosed by a canopy roof which screens the unloading activity from the residential apartments above. The nearest noise sensitive properties to the loading bay are those directly behind the loading bay as shown in Fig 2 below.

Fig 2: Loading Bay



4.2 Sharps Redmore have previously measured noise levels from delivery activity at many Aldi stores and at the regional distribution centre in Chelmsford. Based on these observations the following issues in relation to noise have been identified:

- Unlike other retail stores, Aldi deliveries are received on pallets rather than cages this reduces the rattling sound of empty and full cages.
- Aldi vehicle trailers are rigid rather than curtained like those previously measured previously.
- For deliveries outside trading hours it is standard practice at Aldi stores for deliveries not to use reversing alarms and ensure that refrigeration units are switched off.

4.3 Based on these surveys at Aldi stores, the following maximum noise levels have been measured:

Table 4.1: Delivery noise levels (10m)

Event Noise Level						
Arrival		Unloading		Departure		Overall
Duration (Mins)	L _{AeqT} (dB)	Duration (Mins)	L _{AeqT} (dB)	Duration (Mins)	L _{AeqT} (dB)	L _{AMAX} (dB) Arrival-departure/Unloading
2	66	40	58	0.5	72	75 /79

- 4.4 The following table 4.2 shows the calculated specific noise levels of service activity including arrival, unloading and departure at the residential properties directly above and behind the loading bay. For unloading activities it has been assumed that the canopy will provide approximately 10 dB of screening. Full details of the calculations are shown in Appendix B.
- 4.5 For the night time period, BS 4142:2014 uses a 15 minute reference period. For the purposes of the assessment it has been assumed that a vehicle arrives which takes 2 minutes immediately followed by 13 mins of unloading. In practice this will overestimate the noise level as after arrival there is a period during which the driver prepares to unload the vehicle.

Table 4.2: Predicted noise levels

Overall Predicted Service Yard Noise Level dB		
0600 – 0700 hours		
$L_{Aeq,1hr}$	$L_{Aeq,15min}$	L_{Amax} Arrival & departure/unloading
44	46	62/63

- 4.6 Using the above calculations an assessment of delivery activity noise levels between 0600 and 0700 hours using the methodology in BS 4142:2014 are presented in Appendix C1. Background noise levels used in the assessment are based on para. 3.6 above. Table 4.3 below summarises the rating level of delivery noise.

Table 4.3 – BS 4142:2014 Assessment Results

Background Level	Rating Sound Level ¹	Difference	BS 4142 guidance ²
51 dB L_{A901hr}	49 dB $L_{Aeq15min}$	-2 dB	Indicative of low impact

¹Includes character correction

²Subject to context

- 4.7 The guidance in BS 4142:2014, Section 11, 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".
- 4.8 In numerical terms the impact of deliveries between 0600 – 0700 hrs will have a low impact on local residents.

- 4.9 As explained in section 2.0 of this report, Section 11 of BS 4142:2014 explains “*The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs.*”
- 4.10 The BS 4142 assessment at Appendix C summarises the key contextual considerations in this instance. The first is how the predicted delivery activity noise levels compare to the WHO guideline noise values; Table 4.4 below shows this comparison.

Table 4.4: Comparison of predicted delivery event noise levels with the WHO guideline noise values

Predicted delivery activity noise level		WHO guideline value	
L _{Aeq1hr}	L _{Amax} arrival & departure/unloading	L _{Aeq(period)}	L _{Amax}
44 dB	62/63 dB	45 L _{Aeq8hr}	60 dB

- 4.11 Predicted noise levels from delivery activity at apartments directly behind the loading bay will be within the night time ambient guideline values but will slightly exceed the peak noise guideline for sleep disturbance
- 4.12 In terms of impact, as discussed in section 2.0, the guideline values are considered the lowest observed adverse effect level (LOAEL). This means that the guideline values are set at the lowest noise level below which the impact can be considered negligible. Exceedances of the WHO guidelines do not necessarily imply significant noise impact and indeed, the Significant Observed Adverse Effect Level (SOAEL) may do not occur until much higher degrees of noise exposure are reached. Therefore although the WHO is employed as a benchmark it should also be considered in context of the existing noise climate and character of the area. This approach was upheld in the recent Planning Inspectorate decision (Ref: APP/D1590/W/14/30014589) in relation to the Aldi store at Westcliff. A copy of the decision is attached as Appendix D to this report. The character and level of the existing noise climate are also referred to as a contextual consideration in BS 4142:2014
- 4.13 Table 4.5 below shows the comparison of the predicted noise level against the existing ambient noise level measured between 0600 and 0700, these being the additional hour sought.

Table 4.5: Comparison of predicted delivery event noise levels against existing ambient noise levels

Existing Ambient Noise Level L _{Aeq,1hr}	Predicted delivery activity noise level L _{Aeq1hr}	Overall noise level (existing + delivery)	Change in noise level dB
56 dB	44 dB	56 dB	No change

- 4.14 There will be no change in overall noise levels.

- 4.15 In terms of impact the main noise will be peak noise levels, L_{Amax} resulting from the vehicle manoeuvring into the service bay and unloading activity. Peak noise levels from unloading activity will be similar to existing peak noise levels measured between 0600 – 0700 hrs and therefore in the context of the existing noise climate the impact from deliveries will be low.
- 4.16 It is SR's experience that the main cause of complaints in relation to vehicle arrivals are the use of reversing alarms, the operation of refrigeration units and engines left idling when the vehicle is stationary.
- 4.17 Unlike many food retailers, Aldi do not have a service yard in which empty cages are moved around and equipment such as compactors are operated. Therefore the main activity in terms of noise is the vehicle arriving and departing and goods being rolled off into the warehouse. To reduce the impact of these types of noises, all deliveries received outside normal trading hours will be controlled by a delivery noise management plan which will include the following measures:
- No goods pallets to be moved in open areas
 - No reversing beepers to be used
 - Refrigeration units to be switched off when the vehicle is at the loading bay
 - Delivery scheduling to ensure that no more than one delivery will be present in service yard
 - Procedures for complaint handling and review of management plan.
- 4.18 Such schemes have been used at many retail stores to reduce the impact of delivery activity at noise sensitive periods and have been accepted by the Planning Inspectorate in the Appeal decision referred to above.
- 4.19 The final contextual matter to be considered is the ability to mitigate the specific sound through various methods. Whilst the above delivery management plan will reduce noise levels at source, as referred to in paragraph 1.4 the residential apartments have been constructed to take into account the noise impact from the commercial premises on ground floor level, including the Aldi store.
- 4.20 For this purpose it is noted that all apartments have trickle vents installed which enable windows to be kept closed if desired as a measure to control noise levels including from Aldi deliveries.
- 4.21 Taking into the contextual considerations above, it is concluded that noise from delivery activity at the store between 0600 and 0700 hours will not cause a significant adverse impact on local residents in accordance with national policy aims.

5.0 Summary and Conclusions

5.1 Sharps Redmore has undertaken an environmental noise assessment for the variation of delivery hours at the proposed Aldi store, Parkhouse Court, Hatfield to permit deliveries as follows:

- Monday to Saturday: 0600 – 2300 hours
- Sunday and Bank Holidays: 0800 – 2200 hours (no change)

5.2 The noise impact of the additional delivery hours has been assessed against national and local policy aims, the assessment methods in BS 4142:2014 and also the context of the existing noise climate. In terms of noise the following matters are relevant.

- The additional hours are being sought to allow more flexibility to receive deliveries. There will be no increase in the overall number of deliveries received by the store.
- In terms of numerical assessment under BS 4142:2014 noise levels from delivery activity will have a low impact on the residential apartments adjacent to the loading bay.
- In terms of context noise levels will be below both the existing ambient and peak noise levels between 0600 – 0700 as measured at the nearest noise sensitive properties to the site.
- Noise from deliveries outside trading hours will be controlled by a noise management plan which will prevent the use of reversing alarms, operation of refrigeration units, and any external activity, which subjectively are the main cause of complaints relating to servicing activity.
- The residential apartments have been designed to protect against noise from the commercial premises beneath and it was noted that all windows included acoustic trickle vents to enable windows to be kept closed, if desired.

5.3 Taking into account the above and having assessed the main noise impacts from the development against national standards, and taking into account the existing noise climate and extant use of the site, it is concluded that the delivery hours can be varied as proposed without causing significant impact or disturbance to local residents as advised by the National Planning Policy Framework.

5.4 If granted the proposed development will not compromise the Governments' noise policy vision, as stated in the Noise Policy Statement for England.

APPENDIX A

ACOUSTIC TERMINOLOGY

Acoustic Terminology

- A1 Noise, defined as unwanted sound, is measured in units of decibels, dB. The range of audible sounds is from 0 dB to 140 dB. Two equal sources of sound, if added together will result in an increase in level of 3 dB, i.e. $50 \text{ dB} + 50 \text{ dB} = 53 \text{ dB}$. Increases in continuous sound are perceived in the following manner:
- 1 dB increase - barely perceptible.
 - 3 dB increase - just noticeable.
 - 10 dB increase - perceived as twice as loud.
- A2 Frequency (or pitch) of sound is measured in units of Hertz. 1 Hertz (Hz) = 1 cycle/second. The range of frequencies audible to the human ear is around 20Hz to 18000Hz (or 18kHz). The capability of a person to hear higher frequencies will reduce with age. The ear is more sensitive to medium frequency than high or low frequencies.
- A3 To take account of the varying sensitivity of people to different frequencies a weighting scale has been universally adopted called "A-weighting". The measuring equipment has the ability automatically to weight (or filter) a sound to this A scale so that the sound level it measures best correlates to the subjective response of a person. The unit of measurement thus becomes dBA (decibel, A-weighted).
- A4 The second important characteristic of sound is amplitude or level. Two units are used to express level, a) sound power level - L_w and b) sound pressure level - L_p . Sound power level is an inherent property of a source whilst sound pressure level is dependent on surroundings/distance/directivity, etc. The sound level that is measured on a meter is the sound pressure level, L_p .
- A5 External sound levels are rarely steady but rise or fall in response to the activity in the area - cars, voices, planes, birdsong, etc. A person's subjective response to different noises has been found to vary dependent on the type and temporal distribution of a particular type of noise. A set of statistical indices have been developed for the subjective response to these different noise sources.
- A6 The main noise indices in use in the UK are:
- L_{A90} : The sound level (in dBA) exceeded for 90% of the time. This level gives an indication of the sound level during the quieter periods of time in any given sample. It is used to describe the "background sound level" of an area.
 - L_{Aeq} : The equivalent continuous sound level in dBA. This unit may be described as "the notional steady noise level that would provide, over a period, the same energy as the intermittent noise". In other words, the energy average level. This unit is now used to measure a wide variety of different types of noise of an industrial or commercial nature, as well as aircraft and trains.

L_{A10} : The sound level (in dBA) exceeded for 10% of the time. This level gives an indication of the sound level during the noisier periods of time in any given sample. It has been used over many years to measure and assess road traffic noise.

L_{AMAX} The maximum level of sound measured in any given period. This unit is used to measure and assess transient noises, i.e. gun shots, individual vehicles, etc.

A7 The sound energy of a transient event may be described by a term SEL - Sound Exposure Level. This is the L_{Aeq} level normalised to one second. That is the constant level in dBA which lasting for one second has the same amount of acoustic energy as a given A weighted noise event lasting for a period of time. The use of this unit allows the prediction of the L_{Aeq} level over any period and for any number of events using the equation;

$$L_{AeqT} = SEL + 10 \log n - 10 \log T \text{ dB.}$$

Where

n = Number of events in time period T.

T = Total sample period in seconds.

A8 In the open, known as free field, sound attenuates at a rate of 6 dB per each doubling of distance. This is known as geometric spreading or sometimes referred to as the Inverse Square Law. As noise is measured on a Logarithmic scale, this attenuation in distance = $20 \log$ (ratio of distances), e.g. for a noise level of 60 dB at ten metres, the corresponding level at 160 metres is:

$$60 - 20 \log \frac{160}{10} = 60 - 24 = 36 \text{ dB}$$

APPENDIX B

NOISE FROM DELIVERY - CALCULATIONS

TABLE B1: Predicted delivery event noise – Flats above loading bay

Activity	Resultant noise level (dB)
Arrival	
Baseline level	$L_{Aeq,2\text{ mins}} = 66$
Distance attenuation to 45 metres ¹ = $20 \log^{10}/_{45} = -13$	$L_{Aeq,2\text{ mins}} = 53$
Screening loss = n/a	$L_{Aeq,2\text{ mins}} = 53$
Convert to 1 hour = $10 \log^2/_{60} = -15$	$L_{Aeq,1\text{ hour}} = 38$
Unloading	
Baseline level	$L_{Aeq,40\text{ mins}} = 58$
Distance attenuation to 20 metres ² = $20 \log^{10}/_{20} = -6$	$L_{Aeq,40\text{ mins}} = 52$
Screening loss = -10 dB ³	$L_{Aeq,40\text{ mins}} = 42$
Convert to 1 hour = $10 \log^4/_{60} = -2$	$L_{Aeq,1\text{ hour}} = 40$
Departure	
Baseline level	$L_{Aeq,0.5\text{ mins}} = 72$
Distance attenuation to 45 metres = $20 \log^{10}/_{45} = -13$	$L_{Aeq,0.5\text{ mins}} = 59$
Screening loss = n/a	$L_{Aeq,0.5\text{ mins}} = 59$
Convert to 1 hour = $10 \log^{0.5}/_{60} = -21$	$L_{Aeq,1\text{ hour}} = 38$
Overall = 38+40+38	$L_{Aeq,1\text{ hour}} = 44\text{ dB}$
WHO DAYTIME CRITERION ($L_{Aeq,16hr}$)	55 dB
WHO NIGHT TIME CRITERION ($L_{Aeq,8hr}$)	45 dB
Peak noise – arrival and departure	
Baseline level	$L_{Amax} = 75$
Distance attenuation to 45 metres = $20 \log^{10}/_{45} = -13$	$L_{Amax} = 62$
Screening loss = n/a	$L_{Amax} = 62$
Peak noise – unloading	
Baseline level	$L_{Amax} = 79$
Distance attenuation to 20 metres = $20 \log^{10}/_{20} = -6$	$L_{Amax} = 73$
Screening loss = -10 dB	$L_{Amax} = 63$
WHO guideline night time criterion (L_{Amax})	$L_{Amax} = 60$

¹Based on distance to store entrance

²Based on distance to loading bay

³Assumed screening loss provided by building and canopy

APPENDIX C

BS 4142:2014 ASSESSMENT

APPENDIX C1: Assessment of delivery activity noise using BS 4142:2014: 0600 - 0700 hrs

Results	Receptor location	Relevant clause	Commentary
	6/8 Coronation Road		
Background sound level: daytime	51 dB $L_{A90,2.5\text{hours}}$	8.1 8.1.3	The typical daytime sound level was derived from data measured by SR on 16 th June 2015.
Specific sound level	46 dB $L_{Aeq15\text{min}}$		Predicted levels from delivery sound source measurements taken measurements at existing Aldi stores.- Appendix B
Acoustic feature correction	+3 dB	9.2	The main noise activity is from vehicle arriving/departing the site. The noise sensitive location is inside with windows closed. It is considered that the noise will be just perceptible internally and therefore a 3 dB has been applied.
Rating level	49 dB	9.2	
Background level: 0600-0700hrs	51 dB	8.1 8.1.3	Based on measurements
Excess of rating level over background level	49 - 51 = -2dB	11	
Assessment indicates likelihood of low impact subject to context	<p>Relevant clause 11</p> <p>The context is:</p> <ol style="list-style-type: none"> 1. Predicted delivery event noise levels L_{Aeq1hr} are below the WHO night time guideline value of 45 dB $L_{Aeq 16\text{hour}}$. 2. How do the predicted delivery activity sound levels compare to the existing ambient ($L_{Aeq T}$) noise climate? Predicted delivery activity sound levels L_{Aeq1hr} are at least 10 dB below the existing ambient noise climate measured between 0600 – 0700 hrs. The overall change in noise level will be imperceptible. 3. The character of the existing noise climate. The existing noise climate is contributed to by local (and distant) road traffic and noise from mechanical plant. 		
Uncertainty of the assessment	<p>Relevant clause 10</p> <p>It was not possible to measure directly at the nearest residential property however representative location used. Any uncertainty will not have an impact on the overall assessment level.</p>		

APPENDIX D

PLANNING INSPECTORATE DECISION

REF APP/D1590/W/14/3001589



Appeal Decision

Site visit made on 8 April 2015

by Simon Warder MA BSc(Hons) DipUD(Dist) MRTPI

an Inspector appointed by the Secretary of State for Communities and Local Government

Decision date: 22 April 2015

Appeal Ref: APP/D1590/W/14/3001589

Aldi Foodstore, 666-686 London Road, Westcliff on Sea, Essex, SS0 9HQ

- The appeal is made under section 78 of the Town and Country Planning Act 1990 against a refusal to grant planning permission under section 73 of the Town and Country Planning Act 1990 for the development of land without complying with conditions subject to which a previous planning permission was granted.
 - The appeal is made by Aldi Stores Ltd against the decision of Southend on Sea Borough Council.
 - The application Ref 14/00912/FULM, dated 10 June 2014, was refused by notice dated 14 August 2014.
 - The application sought planning permission to demolish buildings and erect a two storey building incorporating foodstore (Class A1) ground floor and offices (Class B1) at first floor with 78 car parking spaces without complying with a condition attached to planning permission Ref 08/01078/FULM, dated 31 December 2008 (as amended by permission references SOS/09/00710/FUL, dated 17 June 2009, and 13/01540/FULM, dated 8 January 2014).
 - The condition in dispute is No 15 which states that: *'Loading or unloading of goods or materials shall not take place on the land before 0700-2100 hours Monday to Saturday and 0800-1700 hours Sundays.'*
 - The reason given for the condition is: *'To protect residential amenity and general environmental quality in accordance with DPD1 (Core Strategy) 2007 policy KP2 and CP4 and Borough Local Plan 1994 policy H5, E5 and U2.'*
-

Decision

1. The appeal is allowed and planning permission is granted to demolish buildings and erect a two storey building incorporating foodstore (Class A1) ground floor and offices (Class B1) at first floor with 78 car parking spaces at Aldi Foodstore, 666-686 London Road, Westcliff on Sea, Essex, SS0 9HQ in accordance with the application Ref 14/00912/FULM, dated 10 June 2014, without compliance with condition number 15 previously imposed on planning permission Ref 08/01078/FULM, dated 31 December 2008 (as amended by permission references SOS/09/00710/FUL, dated 17 June 2009, and 13/01540/FULM, dated 8 January 2014) but subject to the other conditions imposed therein, so far as the same are still subsisting and capable of taking effect and subject to the following new conditions:
 - 1) Loading and unloading of goods and materials shall not take place outside the hours of 0600-0000 Mondays to Saturdays and 0800-1700 on Sundays and Bank Holidays.
-

- 2) The refrigeration units of all delivery/collection vehicles shall be switched off prior to arrival at the store between the hours of 2200 and 0700.
- 3) The reversing alarms and all other beepers/alarms of all delivery/collection vehicles shall be switched off whilst at the store between the hours of 2200 and 0700.
- 4) The engines of all delivery/collection vehicles shall be switched off when not manoeuvring and no horns sounded or radios used (except in an emergency) between the hours of 2200 and 0700.

Application for Costs

2. An application for costs was made by Aldi Stores Ltd against Southend on Sea Borough Council. This application is the subject of a separate decision.

Preliminary Matter

3. Planning permission was originally granted for the food store under planning permission reference 08/01078/FULM. Condition 15 of that permission prevented deliveries outside the hours of 0900-1700 on any day. Permission reference SOS/09/00710/FUL amended the condition to prevent deliveries outside the hours of 0700-2100 Monday to Saturday and 0800-1700 on Sundays. That is the condition currently in force and in dispute in this appeal. Permission reference 13/01540/FULM amended certain other conditions, but left unchanged the condition now in dispute.

Main Issue

4. The main issue in this case is the effect of changing of the permitted hours of delivery to the food store on the living conditions of neighbouring residential occupiers, with particular regard to noise.

Reasons

5. The appeal property is a food store with a ramped service bay to the rear. Access to the service bay is from London Road and is shared with the customer car park. Residential properties back onto the western and southern boundaries of the car park and the noise assessment¹ prepared on behalf of the appellant identifies 10 and 12 Chalkwell Avenue as the properties most affected by the proposal. The Council's evidence also refers to the flat at 688A London Road. However, the corner of the food store building sits between this flat and the service bay and would provide a noise screening effect. The flat is also closer to the agreed main source of background noise in the area, namely the traffic on London Road.
6. As such, I am satisfied that the noise assessment should be based on the effect of the proposal on 10 and 12 Chalkwell Avenue. The assessment finds that, whilst the proposed extension of delivery hours would result in the predicted noise levels at these properties exceeding World Health Organisation guidelines, the level of increase would be imperceptible. Neither the Council or third parties have produced technical noise evidence.

¹ Sharps Redmore Appeal Statement dated 6 October 2014 including Noise Assessment dated 27 May 2014

7. The Council questions the use of predicted, rather than measured, noise levels for deliveries at the site. However, the predicted levels are based on delivery vehicles with their engines running and refrigeration units and beepers in operation. I also note that concern has been expressed locally regarding the effect of these noise sources. I will impose conditions to control these noise generators whilst vehicles are on the site between the hours of 2200 and 0700. The resulting reduction in actual noise should ensure that the predicted levels used in the noise assessment are robust.
8. The Council also considers that the assessment does not adequately take into account the sharp and infrequent nature of the noise generated by deliveries, thereby making it more perceptible than the aggregated average noise level used in the noise assessment. The Council refers to a delivery event peak noise level of 80dB (L_{Amax}) at a point 10m from the service yard (Noise Assessment Appendix C) and to a predicted delivery event peak noise level of 66dB. However, the facades of the properties at 10 and 12 Chalkwall Avenue are some 46m from the service yard and there is an acoustic fence on the property boundary. These factors would reduce the impact of the peak noise event at the property facades.
9. The noise assessment's predicted noise levels for deliveries also takes into account individual noise events. Moreover, the noise survey (Noise Assessment Appendix B) shows one peak noise level at the property boundary of 81dB (L_{Afmmax}) and a number of others in excess of 66dB in the periods 0600-0700 and 2200-0000 hours. As such, I am not persuaded that deliveries during the proposed hours would give rise to individual noise events whose character or infrequent nature would be significantly different from existing background noise levels.
10. Consequently, I find that the proposal would not have a harmful effect on the living conditions of neighbouring residential occupiers by reason of noise disturbance. It would not, therefore, conflict with policy CP4 of the Council's Core Strategy or policies E5 and U2 of the Southend on Sea Borough Local Plan insofar as they seek to safeguard residential amenity and prevent noise pollution. Nor would it conflict with the National Planning Policy Framework (the Framework) to the extent that it has similar aims.

Other Matters

11. Concern has been expressed locally that the store has not been operated in accordance with previously imposed planning conditions. There is no substantive evidence to suggest that those conditions are unenforceable and it for the local planning authority to ensure that proper monitoring and enforcement takes place.
12. Reference has also been made to the history of the development of the food store at the appeal site. I have had regard to the characteristics of the store, its operation and surroundings. However, my decision is based on the planning merits of the current proposal and it is not for me to reconsider previous decisions.
13. The use of the written representations procedure for the appeal has also been questioned. However, there is nothing to indicate that the required neighbour consultations have not been carried out at the application and appeal stages.

Nor is there anything to suggest that alternative appeal procedures (that is, a hearing or inquiry) would have encouraged greater participation by elderly local residents.

14. There is nothing to indicate that the development plan policies referred to above are in conflict with the Framework.

Conditions

15. The Council has suggested a list of seven conditions. The terms of my decision in paragraph 1 above require the conditions imposed on previous permissions which still subsist and are capable of taking effect to remain. Therefore is it unnecessary to re-impose suggested conditions 01 (customer opening times), 03 (parking) or 04 (amplified music).
16. When amendments for clarity, I find that the other suggested conditions meet the tests set out in the Planning Practice Guidance. I have already referred to the need for conditions to control delivery vehicle refrigeration units, alarms and beepers and engines in order to safeguard the living conditions of neighbouring occupiers. The revised delivery hours condition is necessary for the same reason.

Conclusion

17. For the reasons outlined above, the appeal should be allowed.

Simon Warder

INSPECTOR