



KR06815

Darfield Retail Units
Section 73 Application
Variation of Delivery Hours

Noise Impact Assessment...

Standard: British Standard 4142: 2014

Site: Darfield Retail Units

Address: Units 1, 2 and 3
Nanny Marr Road
Darfield
Barnsley

Postcode: S73 9AB

Issue: Version 1.2

Date: 31st March 2021

Status: Current Document

KR Associates (UK) Ltd

Quietly confident...

Revisions...

KR06815		Project	Darfield Retail Units		
		Title	Noise Impact Assessment - Section 73 Application		
		Standard	British Standard 4142: 2014 + A1: 2019		
Issue	Date	Details of Revision			
v1_2	31/03/2021	Description	Report issue for submission to Local Authority		
		Signature			
		Name	Mr. R. Scrivener	Miss N Truman	Mr R Scrivener
		Position	Technical Director	Project Manager	Technical Director

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KR Associates...

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1. Executive Summary....

1.1. Instruction

KR Associates (UK) Ltd have been instructed to undertake an environmental noise survey at the proposed retail units currently being constructed at Nanny Marr Road in Darfield, Barnsley to determine if the variation of the agreed delivery hours will have a significant adverse impact in terms of noise on the local noise sensitive properties.

1.2. Planning Permission

Barnsley Metropolitan Borough Council granted planning permission under reference 2020/0429 on 12th January 2021 for the *“Erection of three retail units (Use Class E) with associated access and parking”* with condition 7 relating to the operating and delivery times.

“7

The use hereby permitted shall be carried on only between the hours of 07.00 to 23.00 (everyday). Deliveries shall be carried out only between 08.00 to 18.00 Mondays to Fridays and 09.00 to 14.00 on Saturdays and at no time on Sundays or Bank Holidays.

Reason: In the interests of the amenities of local residents and in accordance with Local Plan Policies GD1 General Development Policy and POLL1 Pollution Control and Protection.”

1.3. Local Plan

The Barnsley Metropolitan Borough Council Local Plan was fully adopted in January 2019 including Policy POLL1 entitled *“Pollution Control and Protection.”*

“Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in.... noise, ... vibration, light or other pollution which would unacceptably affect or cause a nuisance to the natural and built environment or to people....

Developers will be expected to minimise the effects of any possible pollution and provide mitigation measures where appropriate. ”

1.4. Scope of Report

Due to the size of retail units and the likely ratio of storage to sales floor, the applicant is submitting a section 73 application to vary condition 7 only insofar as the delivery hours are concerned.

“Deliveries shall be carried out only between 08.00 to 18.00 Mondays to Fridays and 09:00 to 14:00 on Saturdays, Sundays or Bank Holidays.”

The report will determine the impact of the deliveries in terms of noise on Sundays and Bank Holidays and the reduction of impact on Saturdays.

1.5. Premise of Section 73 Application

The current restrictions within condition 7 of application 2020/0429 allow the retail units to open 7-days per week but on a bank holiday weekend, when most retail units are likely to be operating at capacity, they must deliver only between 09:00 and 14:00 on Saturday to cover the whole of Saturday, Sunday and Monday. If one of the units was to be used with the currently approved use as a food store on a Christmas weekend they could be in a position of having to deliver food between 09:00 and 14:00 on a Saturday to cover opening on a Sunday, Christmas day on a Monday and Boxing Day on Tuesday and the early part of opening on the Wednesday which would not be acceptable for many operators. It is not possible to deliver fresh produce on Saturday morning that in this case would still be fresh on Wednesday morning prior to the next delivery being unloaded and transferred to the shop floor shelves. The section 73 application therefore aims to remove the significant possibility of the intensified impact of the currently approved deliveries within a 5-hour period on a Saturday by spreading the deliveries out over Saturday, Sunday and occasionally Bank Holidays.

1.6. Executive Summary

1.6.1 Assessment Position (section 2)

There are residential dwellings to the rear of the three retail units and to the side of the loading bay adjacent to unit 1. It is proposed to install a solid timber fence along the rear and side boundaries.

1.6.2 Background Noise Measurements (section 3)

The following are the background noise levels between 08:00 and 09:00 Monday to Friday, 10:00 to 11:00 on a Saturday and 09:00 to 11:00 at all other times.

BS 4142: 2014 +A1 :2019	Weekday 08:00 to 09:00	Saturday 09:00 to 11:00	All other Times 09:00 to 11:00
Background Noise Levels	LA90,1 hours 40 dB	LA90,1 hours 43 dB	LA90, 15 minutes 40 dB

1.6.3 Criterion (section 4)

It would be recommended that the delivery noise should be assessed in accordance with British Standard 4142: 2014 + A1: 2019 and should be below the level as to not cause a significant adverse impact i.e., less than +10 dB.

1.6.4 Calculations, Assessment and Conclusions (section 5)

The noise levels from the deliveries are calculated at the nearest noise sensitive properties in accordance with British Standard 4142: 2014 + A1: 2019 over the most sensitive hour during each day i.e. 08:00 and 09:00 Monday to Friday, 09:00 to 10:00 on a Saturday and 09:00 to 11:00 at all other times not to cause a significant adverse impact.

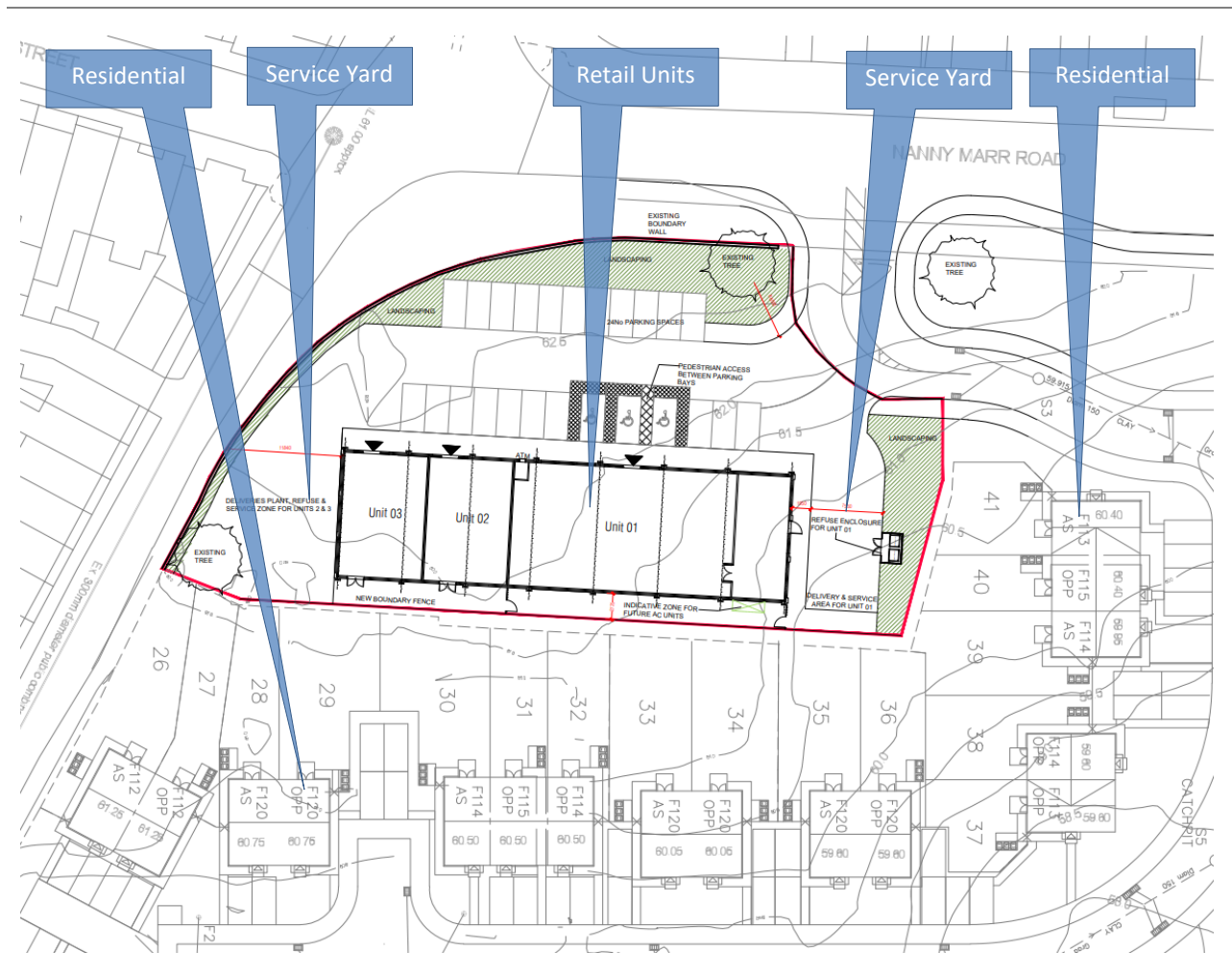
1.6.5 Emerging Delivery and Servicing Plan

It would be recommended that the emerging delivery and servicing plan makes specific reference to ensuring deliveries are undertaken as quietly as possible.

2. Site Location...

2.1. General Location of Site

The three retail units are located at the junction of Nanny Marr Road and Barnsley Road. The site has a shared entrance off Nanny Marr Road with a car park at the front and a small, shared service yard at the side of unit 1 and unit 3. There are residential dwellings to the side of the service yard generally at the rear of the site and on the opposite side of Barnsley Road.



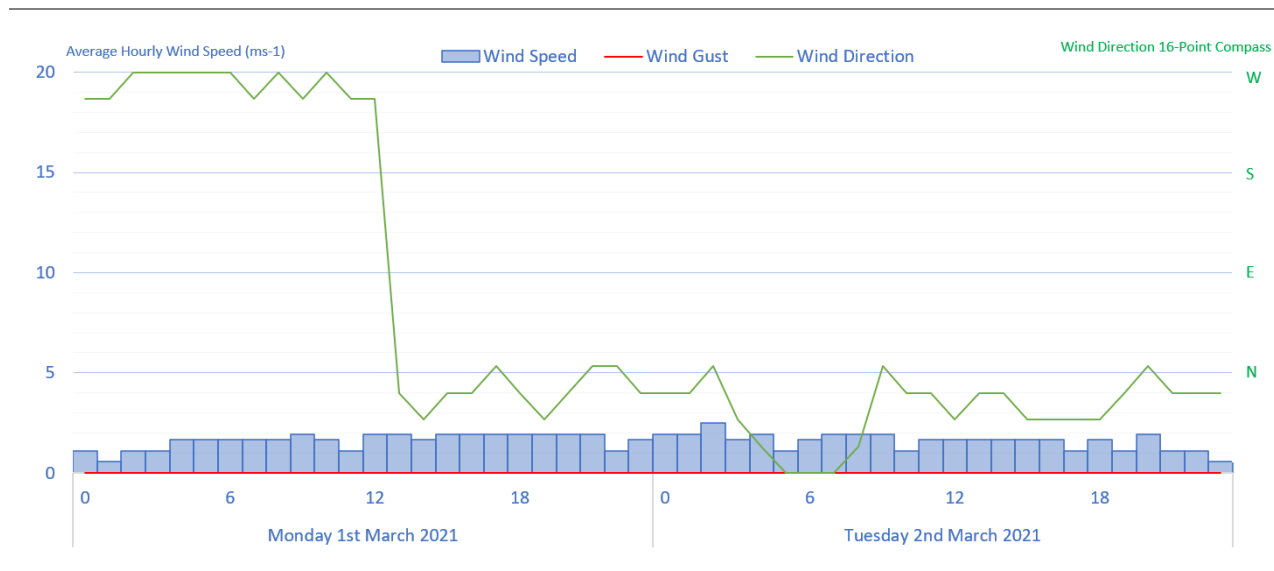
2.2. Proposed Use of Retail Units

To ensure the long-term viability of the development it will be necessary to ensure that the units are attractive to a wide range of clients. However, currently condition 7 of planning permission 2020/0429 allows for operation of the units 7-days per week between 07:00 and 23:00 but does not allow for restricted deliveries on Saturday and not on Sunday or Bank Holidays. Due to the size of the units, it is expected that each unit will have approximately 2/3 of the space for selling goods and 1/3 of the space for storage of goods and back of house. The current restrictions will mean that operators will have to on a bank holiday weekend cram deliveries for 3 days trading into a 5-hour period on a Saturday. Future tenants are concerned that this intense delivery activity on a Saturday will lead to complaints from the residents which could in turn lead to the removal of Saturday deliveries making the sites un-economical from a commercial perspective.

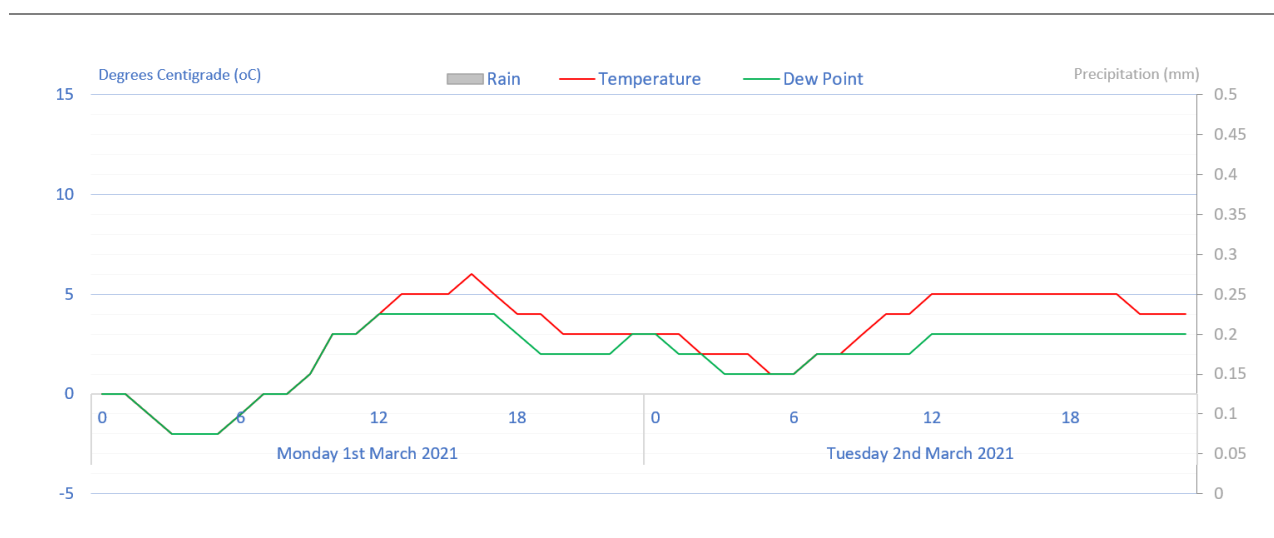
3. Background Noise Levels...

3.1. Weather During Survey

3.1.1 Wind Speed, Gust and Direction



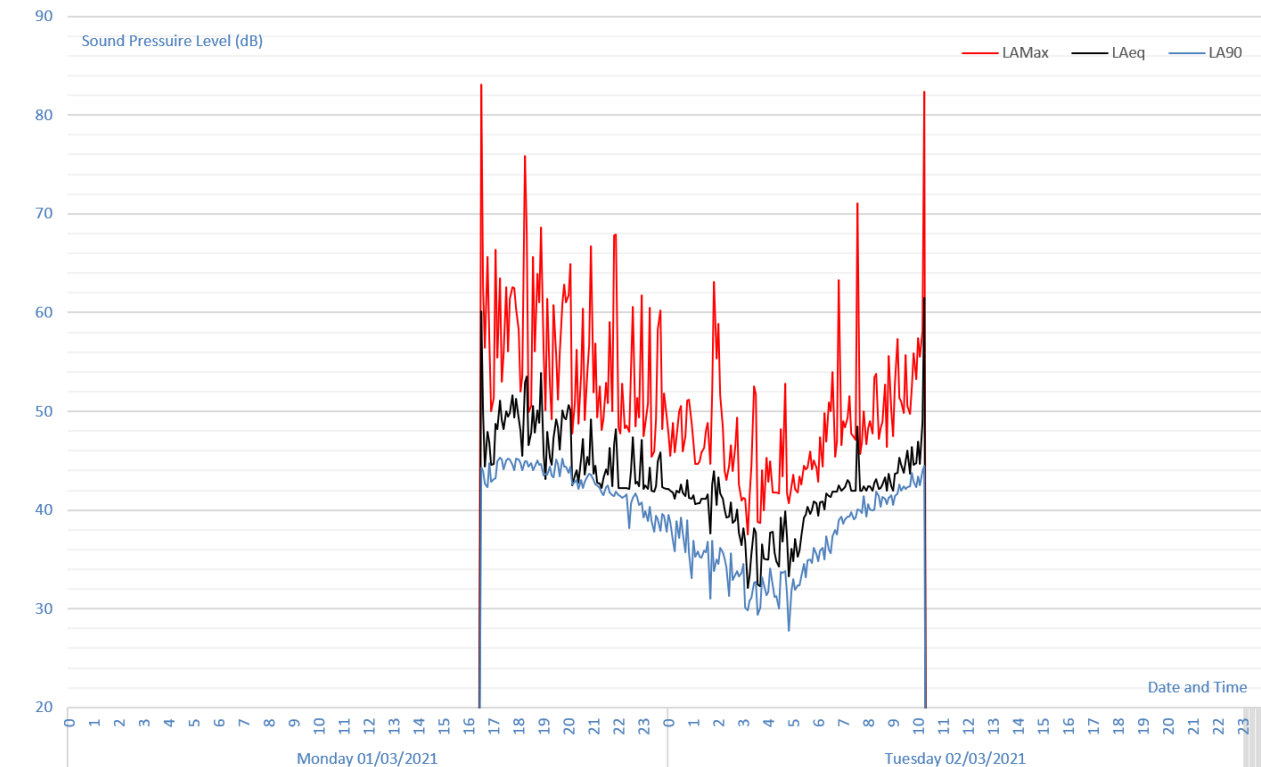
3.1.2 Rainfall, Temperature and Dew Point



3.1.3 Impact of Weather

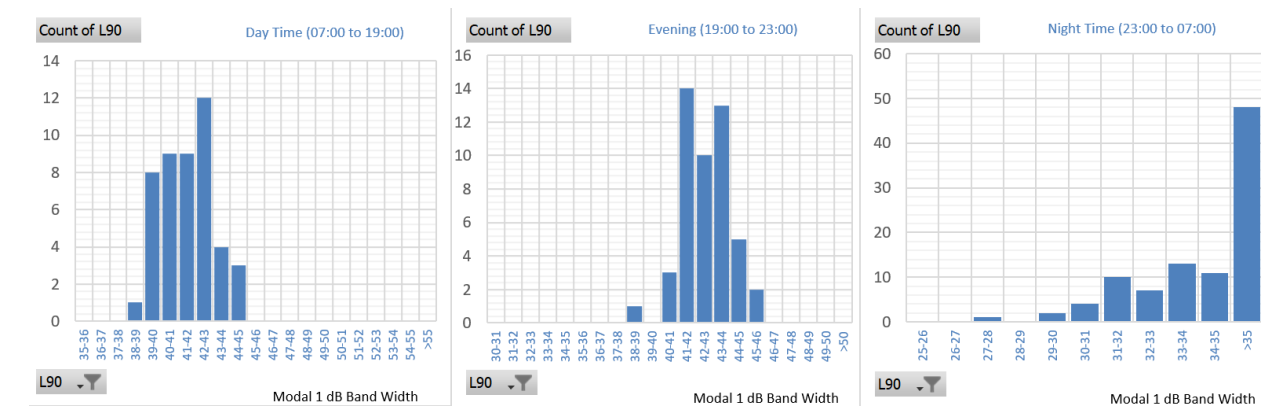
An analysis of the background data recorded on site indicates that the prevailing weather did not adversely impact the results. In particular the wind speed was on average below 5.0ms⁻¹ and there was no precipitation during the survey period.

3.2. 24-hour Background Measurements



Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
L _{Amax,1h}	L _{Aeq,1h}	L _{A90,1h}	L _{Amax,1h}	L _{Aeq,1h}	L _{A90,1h}	L _{Amax,15m}	L _{Aeq,15m}	L _{A90,15m}
46 - 83 dB	42 - 62 dB	39 - 45 dB	48 - 68 dB	42 - 51 dB	38 - 45 dB	38 - 63 dB	32 - 46 dB	28 - 40 dB

3.3. Modal Analysis of Background Data

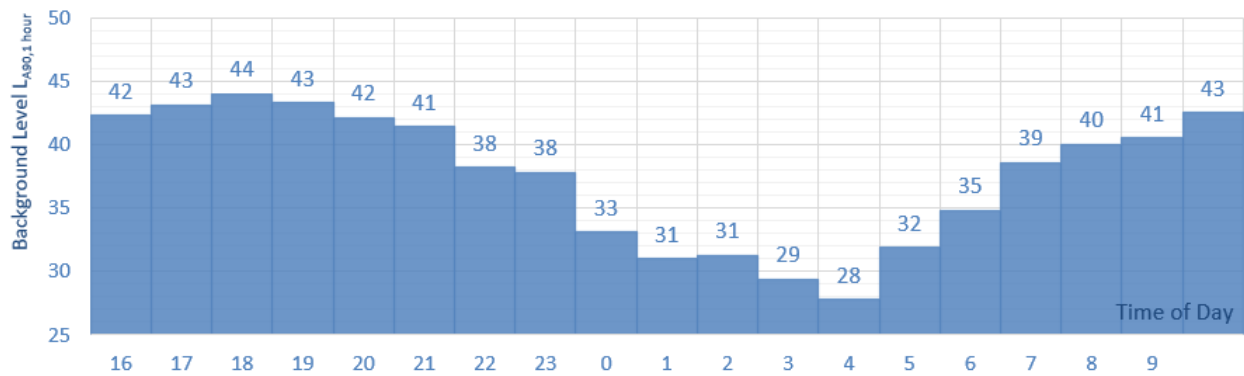


Day Time (07:00 to 19:00)		Evening (19:00 to 23:00)		Night Time (23:00 to 07:00)	
Standard Deviation (σ)	2.02	Standard Deviation (σ)	1.36	Standard Deviation (σ)	2.87
Geometric Average	43 dB	Geometric Average	43 dB	Geometric Average	35 dB
Modal Value	42 dB	Modal Value	41 dB	Modal Value	31 dB

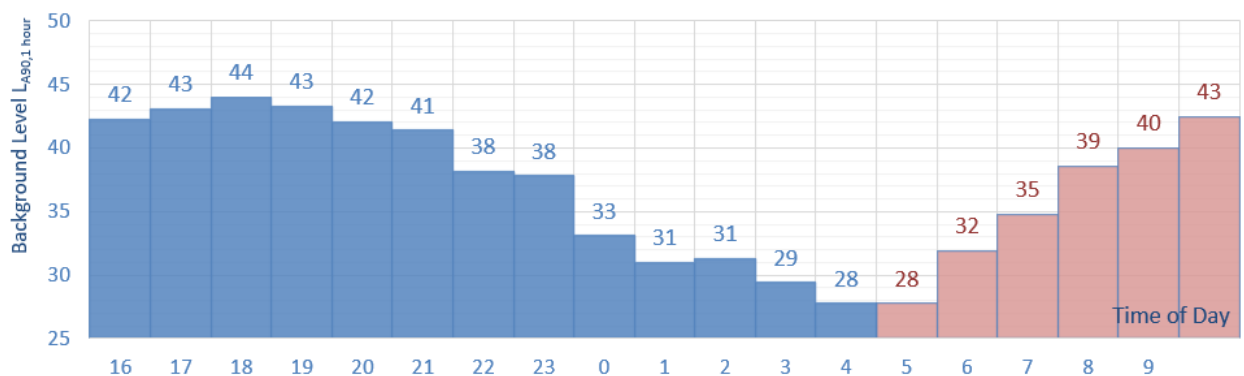
3.4. Typical Background Noise Levels

3.4.1 Weekday Background Measurements

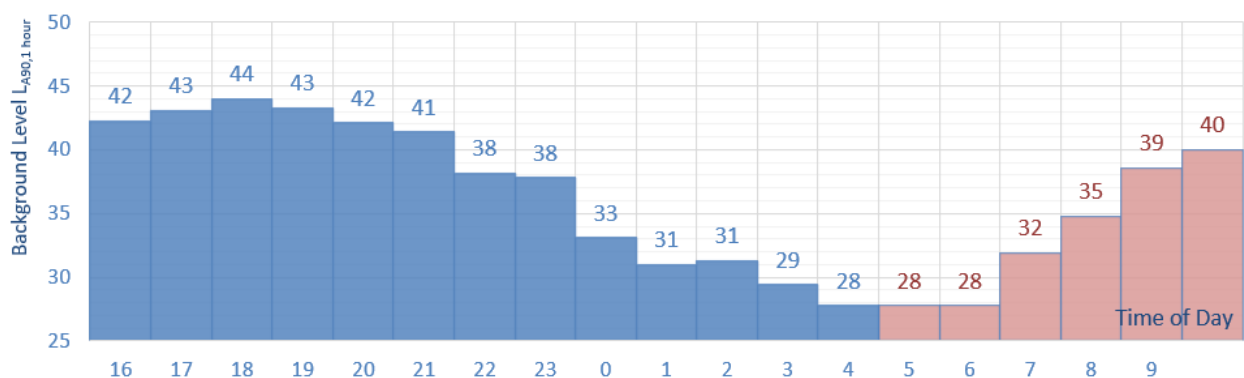
The background measurements has been undertaken on a weekday which resulted in the following background noise levels.



3.4.2 Saturday Background Noise Levels



3.4.3 Sunday Background Noise Levels



4. Criterion...

4.1. National Planning Policy Framework 2019

4.1.1 Scope of Standard

The revised National Planning Policy Framework published in 2019 provides an assumption in favour of sustainable development that meets the three overarching objectives: economic, social, and environmental. Paragraph 11 provides guidance for decision makers:

"For decision-taking this means:...

c) approving development proposals that accord with an up-to-date development plan without delay; or

d) ...granting permission unless...

i) the application of policies in this Framework... provides a clear reason for refusing development proposed; or

ii) any adverse impacts of doing so would significantly and demonstrably outweigh the benefits."

4.1.2 Conserving and Enhancing the Natural Environment

Paragraph 170 of the NPPF provides the following guidance on noise:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of ...noise pollution..."

4.1.3 Appropriate Development

Paragraph 180 of the NPPF requires the development to be appropriate for its location:

"Planning... decisions should also ensure that new development is appropriate for its location..."

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 quality of life ⁶⁰

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for the recreational and amenity value...

60 See Explanatory Note to the Noise Policy Statement for England: 2010"

4.2. Noise Policy Statement for England: 2010

4.2.1 Scope of Standard

The Noise Policy Statement for England was published in 2010 defines three aims:

*"**Avoid** significant adverse impact on health and the quality of life.*

***Mitigate** and minimise adverse impacts on health and quality of life; and*

***Contribute** to the improvement of health and the quality of life."*

4.2.2 Criterion

The NPSE defines significant adverse and adverse impact in terms of noise:

“LOAEL – Lowest Observed 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.”

4.3. Night Noise Guidelines (“NNG”)

The European Union and the World Health Organisation published the document “Night Noise Guidelines for Europe” in 2009.

4.3.1 Recommendation for Health Protection

“Below the level of 30 dB $L_{night, outside}$ no effects on sleep are observed except for a slight increase in the frequency of body movements during sleep due to night noise.

.... 40 dB $L_{night, outside}$ is equivalent to the lowest observed adverse effect level (LOAEL) for night noise.

Above 55 dB the cardiovascular effects become the major public health concern.”

For reference the $L_{night, outside}$ is the average outside noise level calculated over an 8-hour period (EU: 2002/49/EC).

4.3.2 Description of Effect of Change in Noise Level

Noise Level Change (dB)	Subjective Response	Significance
0.1 – 2.9	Barely perceptible	Minor Impact
3.0 – 5.9	Noticeable	Moderate Impact
6.0 – 9.9	Up to a doubling of loudness	Substantial Impact
10.0 or more	More than a doubling of loudness	Major Impact

4.4. British Standard 4142: 2014 + A1: 2019

4.4.1 Testing Standard...

British Standard 4142: 2014 + A1: 2019 provides a method for assessing the likely effects of sound from industrial or commercial nature on “people who might be inside or outside a dwelling used for residential purposes”.

4.4.2 Criterion

The standard provides 3-levels of impact based on the calculated Rating Levels:

“A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

A difference of around +5dB is likely to be an indication of an adverse impact, depending on the 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 on the context.”

4.4.3 Feature Correction

It is appropriate to add a character correction where there is a new source that cannot be measured in line with British Standard 4142: 2014 + A1: 2019. The 3 methods for approaching this are the subjective, objective, and reference methods. In this report the subjective method is used.

Section 9.2 Subjective Method	Perceptibility to noise sensitive façades	Correction
Tonality Ranging from not tonal to prominently tonal	Not tonal	+0
	Just perceptible	+2
	Clearly perceptible	+4
	Highly perceptible	+6
Impulsivity Considering both the rapidity and any overall change in sound levels	Not impulsive	+0
	Just impulsive	+3
	Clearly impulsive	+6
	Highly impulsive	+9
Readily Distinctive Characteristic is neither tonal nor impulsive	Is not present	+0
	Is present	+3
Intermittency Identifiable “on/off” conditions	Is not present	+0
	Is present	+3

4.5. Local Authority Requirements

4.5.1 Local Plan

The Barnsley Metropolitan Borough Council Local Plan was fully adopted in January 2019 including Policy Poll1 entitled “Pollution Control and Protection.”

“Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in.... noise, ... vibration, light or other pollution which would unacceptably affect or cause a nuisance to the natural and built environment or to people.

We will not allow development of new housing or other environmentally sensitive development where existing noise, ... vibration, light or other pollution levels are unacceptable and there is no reasonable prospect that these can be mitigated against.

Developers will be expected to minimise the effects of any possible pollution and provide mitigation measures where appropriate. ”

4.5.2 Proposed Criterion

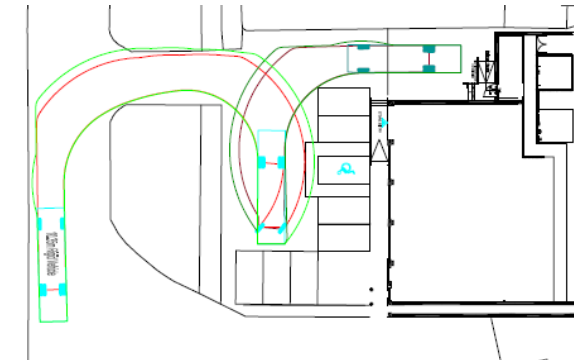
In terms of the delivery noise the noise levels should not cause a significant adverse impact and therefore should not exceed more than 10 dB(A) above the background noise levels. Furthermore, the maximum noise levels from the delivery should not exceed $L_{A_{Max}}$ 60 dB.

5. Calculation and Assessment...

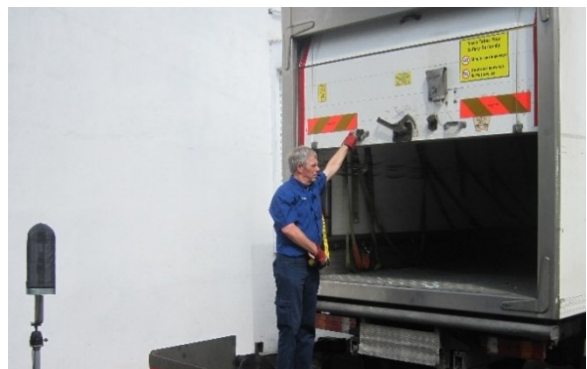
5.1. Calculation Methodology

A delivery was undertaken at a vacant site using a rigid 14m lorry to establish the noise emissions from the individual events that make up a typical delivery. The results were then used to create a noise map of the delivery and establish sources that could be used to assess the delivery at the proposed site. The overall delivery took 30 minutes.

5.1.1 Measurement of Truck Arriving / Departing



5.1.2 Measurement of Delivery Events



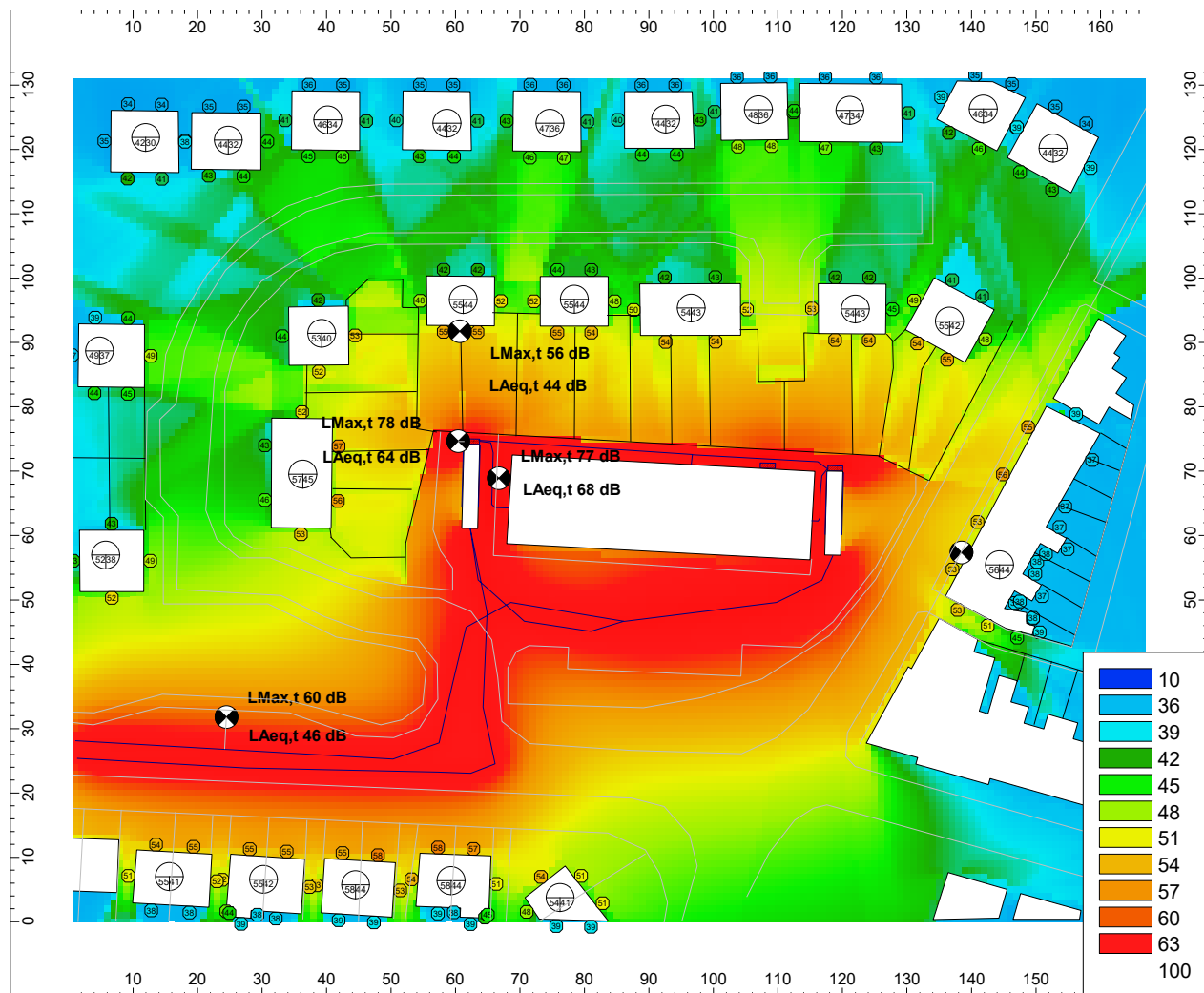
5.1.3 Individual Delivery Events

Delivery Event	Duration of Single Event	L_{Aeq} 30 minutes (Average Level)	$L_{Amax, t}$ (Maximum Level)
Truck Arriving and Departing @ 5m	168 Seconds	44 dB	58 dB
Operation of Tail Lift @ 1m	43 seconds	65 dB	76 dB
Operation of Rear Roller Shutter @ 1m	12 seconds	69 dB	73 dB
Movement of Roll Cage on Lorry @1m	34 seconds	64 dB	71 dB
Dropping Tail Flap onto Pavement @1m	3 seconds	68 dB	78 dB
Movement of Roll Cage on Pavement @1m	56 seconds	67 dB	76 dB

5.2. 3D Noise Maps of Delivery

Using the measurements undertaken at a similar site and the standard data within the Cadna A Noise Mapping platform the following noise map was created to predict the maximum and average noise levels at all the surrounding residential dwellings as a result of a 30-minute delivery with the activities described in section 6.1.3. above taking place.

5.2.1 3D Noise Map



5.2.2 Discussion of Results

The noise map has been created assuming the boundary fence running along the back of the retail unit and up the side of the yard is 2.4m high and constructed from solid timber.

The results indicate that a continuous delivery will result in the following noise levels.

- | | | |
|-------------------------|------------------------|-------------------------|
| - Maximum Noise Levels: | LMax, 30 minutes 57 dB | Movement of Roll Cages. |
| - Average Noise Levels: | LAeq, 30 minutes 45 dB | Complete Delivery. |

5.3. Assessment of Average Delivery Noise Levels (BS 4142: 2014 + A1: 2019)

The following assessment is based on the current version of British Standard 4142: 2014 + A1: 2019 to determine the impact of the proposed deliveries on the most sensitive residential dwellings.

BS 4142: 2014 +A1 :2019	Weekday 08:00 to 09:00	Saturday 09:00	Sunday 09:00
Residual Noise Levels	$L_{Aeq,1 \text{ hours}}$ 46 dB	$L_{Aeq,1 \text{ hours}}$ 45 dB	$L_{Aeq,15 \text{ minutes}}$ 40 dB
Specific Noise Levels	$L_{Aeq,1 \text{ hours}}$ 45 dB	$L_{Aeq,1 \text{ hours}}$ 45 dB	$L_{Aeq, 15 \text{ minutes}}$ 45 dB
Impulsivity Feature	+3 dB	+3 dB	+3 dB
Tonality Feature	+0 dB	+0 dB	+0 dB
Rating Noise Levels	$L_{Aeq,1 \text{ hours}}$ 48 dB	$L_{Aeq,1 \text{ hours}}$ 48 dB	$L_{Aeq, 15 \text{ minutes}}$ 48 dB
Background Noise Levels	$L_{A90,1 \text{ hours}}$ 40 dB	$L_{A90,1 \text{ hours}}$ 43 dB	$L_{A90, 15 \text{ minutes}}$ 40 dB
BS 4142 Assessment	+8 dB	+5 dB	+8 dB
Uncertainty (95% Confidence, k=2)	+/- 1.80 dB	+/- 1.74 dB	+/- 1.89 dB

5.4. Conclusions

The assessments indicate that undertaking deliveries to the proposed retail units will not have a significant adverse impact when assessed in accordance with British Standard 4142: 2014 + A1: 2019. Furthermore, allowing the Sunday and Bank Holiday deliveries at times that will not cause a significant adverse impact will ensure that on Saturdays there is not an increase in delivery activity to cover the days when deliveries are currently not allowed.

5.5. Emerging Delivery and Servicing Plan

It would be recommended that the emerging delivery and servicing plan makes specific reference to ensuring deliveries are undertaken as quietly as possible.

5.6. Covid-19 Pandemic

The background noise levels have been recorded within a period of lockdown, but reasonable care has been taken to ensure that the levels were representative.

6. Appendix A - BS 4142:2014 + A1: 2019 Information to Be Reported...

6.1. a) Competency

	Name	Role	Competency
1)	Mr. R. Scrivener	Director	Master of Science Degree in Acoustics and Noise Control (MSc) Member of the Institute of Acoustics (MIOA)

6.2. b) Source Under Investigation

	Source Number	Description		
1)	Source 1	Deliveries to 3 No Retail Units		
	Description of Source	Source Location	Hours of Operation	Mode of Operation
	Source 1	Side of Store	08:00 to 18:00 Monday to Friday 09:00 to 14:00 All Other Times	Continuous
2)	Description of Operation	Period	Conditions	Load
3)				
4)				
5)	Source 1	1 hour	Standard Delivery	Full
	Description of Premises	3 new retail units are to be located in a small parade with a shared dedicated car park at the junction of Nanny Marr Road and Barnsley Road.		

6.3. c) Subjective Impression of Source at Assessment Position

1)	Dominance	Source will not be dominant at residential facade
	Audibility	Source will not be audible at residential facade
2)	Residual Noise Sources	Residual noise due to local road traffic

6.4. d) Existing Contexts

	Type of Receptor	Period	Sensitivity	Description
1)	Residential	Day Time (07:00 to 19:00)	Low	Noise can disturb outside amenity space and internal living space
		Evening (19:00 to 23:00)	Moderate	Noise can interrupt people trying to get to sleep
		Night Time (23:00 to 07:00)	High	Noise can disturb sleeping

6.5. e) Relative Positions

1)	Assessment Position	Residential dwellings at the rear of the site		
		BS 4142:2014 Criteria	Details	Compliance with Criteria
		Section 6	1.0m from façade (external)	Position is valid
2)	Source Measurement	The source levels were measured at a different location		
	Justification	The client supplied the noise levels for the proposed plant.		
3)	Background Position	Adjacent to the rear of plot 27 adjacent to Barnsley Road		
	Justification	BS 4142:2014 Criteria	Details	Compliance with Criteria
		Section 6.2	3.5m to any reflecting surface	Complies
		Section 6.2	Height 1.2m to 1.5m	Complies
		Section 6.2	1 st floor 1m to facade	Not applicable
		Section 6.2	Measurement Height	3.5m
			Distance to Reflecting Surface	1.0m
		To record remote background levels, the noise meter had to be left in a secure position. The position represented the assessment position within the constraints of the site.		
4)	Topography, surfaces etc.	Hard and Flat		
5)	Relative Distances	The delivery area is located approximately 17.0 m from the assessment position.		
6)	Dimensioned sketch	See maps and images.		

6.6. f) Noise Measurement Equipment Calibration

1)	Type	Sound Level Meter	Microphone	Calibrator
		KRE/05 - CEL 633.C1	KRE/05 - CEL 251	KRE/05 - CEL 120/1
2)	Manufacturer	Casella	Casella	Casella
3)	Serial Number	2145360	00709	5231047
4)	Certificate Number	Certificate: U36894	Certificate: U36894	Certificate: U36892
	Calibration Date=	27th January 2021	27th January 2021	27th January 2021

6.7. g) Noise Measurement Equipment Operation Test

1)	Ref. Level of Calibrator	94 dB
2)	Meter Reading Before	94 dB – Meter operation checked. Meter in good working order.
	Meter Reading After	94 dB - Meter operation checked. Meter in good working order.

6.8. h) Weather Conditions

1)	Wind Speed	See weather information
	Wind Direction	
2)	Temperature Inversion	Unlikely to have occurred
3)	Precipitation	None – See Appendix B
4)	Fog	None
5)	Wet Ground	Not within the measurement period – See Appendix B
6)	Frozen Ground or Snow	Not within the measurement period – See Appendix B
7)	Temperature	See Appendix B
8)	Cloud Cover	Partly Cloudy

6.9. i) Date of Measurements

1)	Source Measurements	Unknown
	Background Measurements	01/03/2021

6.10. j) Measurement Time Interval

1)	Source Measurements	$T_m = 15$ minutes	
	Background Measurements	Day Time (07:00 to 19:00)	$T_m = 12$ hours
		Evening (19:00 to 23:00)	$T_m = 4$ hours
		Night Time (23:00 to 07:00)	$T_m = 8$ hours

6.11. k) Reference Time Interval

1)	Reference Time Interval	Day Time (07:00 to 19:00)	$T_r = 1$ hour
		Evening (19:00 to 23:00)	$T_r = 1$ hour
		Night Time (23:00 to 07:00)	$T_r = 15$ minutes

6.12. l) Specific Noise / m) Background Noise / n) Rating / o) Assessment / p) Conclusions

These details are all included within the body of the report and are not replicated within this section.

END OF REPORT (1st and last page not numbered)

KR Associates (UK) Ltd

Quietly **confident...**



Southampton: 02380 55 04 55