Sainsbury's Superstore

Lyons Farm
Downland Business Park
Worthing
BN14 9LA

Noise Management Plan

On behalf of

Sainsbury's

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T: 01252 519881
W: noisesolutions.co.uk
E: hello@noisesolutions.co.uk
Noise Solutions Ltd, 5 Oriel Court, Omega Park, Alton, GU34 2YT Reg no. 3483481

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	Name	Qualifications	Initials	Date
Prepared by:	Adam Meakins	AMIOA	ACM	20th March 2023
Reviewed and approved by:	Nigel Chandler	BSc(Hons), MIOA	NAC	21st March 2023
For and on behalf of Noise Solutions Ltd				

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Reg no. 3483481 Trading office, 5 Oriel Court, Omega Park, Alton, GU34 2YT

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1.0 Introduction

1.1. Noise Solutions Ltd (NSL) has been commissioned by Base Build Services to provide a noise management plan for the GOL Distribution Hub at the existing store along Lyons Way in Worthing.

1.2. This report contains recommendations based on national guidance and good practice to minimise the effects of noise impact on the store's neighbours.

1.3. To assist with the understanding of this report a glossary of acoustic terms can be found in **Appendix A**. An in-depth glossary of acoustic terms can be viewed online at www.acoustic-glossary.co.uk.

2.0 Details of development proposals

2.1. The GOL Distribution Hub is located to the east of the store. Access will be through the entrance along the east elevation of the building.

2.2. It is understood that the distribution hub will be active between 06:00 hours and 23:00 hours with delivery vehicle activity between 06:30 hours and 22:00 hours. There will be 11 vans making a maximum of 3 trips each per day resulting in a maximum of 33 return van trips.

2.3. The vans will access the Distribution Hub from Lyons Way via the existing delivery service yard.

3.0 Nearest noise sensitive receptors

3.1. The area surrounding the site is mainly commercial in nature. The nearest residential windows to the Distribution Hub belong to the residential dwelling along Pines Avenue (Receptor R1) approximately 120m from the nearest plant. This receptor will be screened from the GOL activities by the store building envelope.

3.2. A site plan showing the site and surrounding area, the nearest noise sensitive properties and noise monitoring location used in this assessment is presented in **Appendix B**.

4.0 Noise guidance

4.1. A guide to noise-related planning guidance and Standards is given in **Appendix C**.

4.2. In summary, the National Planning Policy Framework states that planning policies and decisions should aim to "mitigate and reduce to a minimum ... adverse impacts ... arising from noise". The Noise Policy Statement for England states that "all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life".

5.0 GOL Distribution Hub noise

Details of proposed activities

5.1. The proposed GOL Distribution Hub opening hours are 06.00 to 23:00 hours with delivery vehicle activity between 06:30 hours and 22:00 hours.

5.2. There are expected to be up to 33 return trips in any day.

5.3. The vans will access the Distribution Hub from Lyons Way via the existing delivery service yard. Goods will be loaded from the GOL Distribution Hub at the east of the store.

Recommendations for minimisation of adverse noise impact from GOL Distribution Hub activities

5.4. In order to minimise the potential for adverse noise impacts at the nearest noise-sensitive properties, it is recommended that the following practices outlined in this section are followed.

5.5. Where possible, vans should be able to drive directly into the GOL Distribution Hub area without waiting on Lyons Way.

5.6. Noise generated during unloading must be kept to a minimum. Particular sources of noise include noise from the engine and refrigeration units, doors slamming and trollies moving over uneven surfaces. Therefore:

- Engines, and refrigeration units where possible, should be switched off on arrival;
- The radio in the van cabin is switched off / muted in the GOL Distribution Hub area;
- Avoid van and store access doors slamming;
- Store doors to be maintained such that no excess noise is produced during operation;
- Drivers and store employees should talk in hushed voices where possible;
- All employees avoid going over drains and loose paving when moving trollies.

5.7. Vehicles should be able to leave the site as promptly as possible after loading, with the minimum of manoeuvring. Reversing in particular should be minimised, as should excessive revving of the vehicle engine.

5.8. In addition, there is a general requirement for all drivers to minimise noise at all times. This will include keeping acceleration and speed to the minimum practical, and ensuring that all items on the vehicle are properly fastened to minimise rattles and bangs.

5.9. It is recommended that a set of guidelines is provided to store staff, describing how to deal with any complaints that may be made by neighbours. This will include details of the member of staff/management who will record and investigate complaints.

5.10. A summary of the above recommendations is given in **Appendix D**, for ease of reference.

6.0 Summary

6.1. Noise Solutions Ltd (NSL) has been commissioned by Base Build Services to provide a noise management plan for the GOL Distribution Hub at the existing store along Lyons Way in Worthing.

6.2. Recommendations have been made on practical ways to minimise the noise generated by deliveries, and a noise management plan has been provided.

Appendix A Acoustic terminology

Parameter	Description
Ambient Noise Level	The totally encompassing sound in a given situation at a given time, usually composed of a sound from many sources both distant and near ($L_{Aeq,T}$).
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s1 and s2 is given by 20 $\log_{10}$ (s1/s2). The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20μPa. The threshold of normal hearing is in the region of 0 dB and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.
dB(A), L_{Ax}	Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).
Fast Time Weighting	Setting on sound level meter, denoted by a subscript F, that determines the speed at which the instrument responds to changes in the amplitude of any measured signal. The fast time weighting can lead to higher values than the slow time weighting when rapidly changing signals are measured. The average time constant for the fast response setting is 0.125 (1/8) seconds.
Free-field	Sound pressure level measured outside, far away from reflecting surfaces (except the ground), usually taken to mean at least 3.5 metres
Façade	Sound pressure level measured at a distance of 1 metre in front of a large sound reflecting object such as a building façade.
$L_{Aeq,T}$	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level recorded during a noise event with a period T. L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
$L_{10,T}$	A noise level index. The noise level exceeded for 10% of the time over the period T. L_{10} can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise. $L_{A10,18h}$ is the A –weighted arithmetic average of the 18 hourly $L_{A10,1h}$ values from 06:00-24:00.
$L_{90,T}$	A noise level index. The noise level that is exceeded for 90% of the measurement time interval, T. It gives an indication of the lower levels of fluctuating noise. It is often used to describe the background noise level and can be considered to be the "average minimum" noise level and is a term used to describe the level to which non-specific noise falls during quiet spells, when there is lull in passing traffic for example

Appendix B Aerial photograph of site showing areas of interest



Appendix C Noise policy and guidance

National Planning Policy Framework

C.1 A new edition of NPPF was published in July 2021 and came into effect immediately. The original National Planning Policy Framework (NPPF[1]) was published in March 2012, with revisions in July 2018 and February 2019 - this document replaced the existing Planning Policy Guidance Note 24 (PPG 24) "Planning and Noise." The 2021 revised edition contains no new directions or guidance with respect to noise, and hence, all previous references remain extant. The paragraph references quoted below relate to the July 2021 edition.

C.2 Paragraph 174 of the NPPF states that the planning system should contribute to and enhance the natural and local environment by, (amongst others) *"preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, water or noise pollution or land stability."*

C.3 The NPPF goes on to state in Paragraph 185:

"planning policies and decisions 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 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 …*

C.4 The NPPF document does not refer to any other documents or British Standards regarding noise other than the Noise Policy Statement for England (NPSE[2]).

C.5 Paragraph 2 of the NPPF states that *"planning law requires that applications for planning permission must be determined in accordance with the development plan unless material considerations indicate otherwise."*

C.6 Paragraph 12 of the NPPF states that *"The presumption in favour of sustainable development does not change the statutory status of the development plan as the starting point for decision making. Where a planning application conflicts with an up-to-date development plan (including any neighbourhood plans that form part of the development plan), permission*

[1] National Planning Policy Framework, DCLG, March 2012

[2] Noise Policy Statement for England, DEFRA, March 2010

should not usually be granted. Local planning authorities may take decisions that depart from an up-to-date development plan, but only if material considerations in a particular case indicate that the plan should not be followed".

C.7 Paragraph 119 states that "*Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or 'brownfield' land".*

Noise Policy Statement for England

C.8 The Noise Policy Statement for England (NPSE[3]), published in March 2010, sets out the long-term vision of Government noise policy. The Noise Policy aims, as presented in this document, are: "*Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*

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

C.9 The NPSE makes reference to the concepts of NOEL (No Observed Effect Level) and LOAEL (Lowest Observed Adverse Effect Level) as used in toxicology but applied to noise impacts. It also introduces the concept of SOAEL (Significant Observed Adverse Effect Level) which is described as the level above which significant adverse effects on health and quality of life occur.

C.10 The first aim of the NPSE is to avoid significant adverse effects, taking into account the guiding principles of sustainable development (as referenced in Section 1.8 of the NPSE). The second aim seeks to provide guidance on the situation that exists when the potential noise impact falls between the LOAEL and the SOAEL, in which case: *"…all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development."*

C.11 Importantly, the NPSE goes on to state that: "This does not mean that such adverse effects cannot occur."

[3] Noise Policy Statement for England, Defra, March 2010

C.12 The NPSE does not provide a noise-based measure to define SOAEL, acknowledging that the SOAEL is likely to vary *depending* on the noise source, the receptor and the time in question. NPSE advises that: *"Not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."*

C.13 It is therefore likely that other guidance will need to be referenced when applying objective standards for the assessment of noise, particularly in reference to the SOAEL, whilst also taking into account the specific circumstances of a proposed development.

Planning Practice Guidance – Noise

6.3. An updated Planning Practice Guidance (PPG[4]) for noise was published on 22 July 2019 and provides additional guidance and elaboration on the NPPF. It advises that when plan-making and decision-taking, the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard of amenity can be achieved.

6.4. This guidance introduced the concepts of NOAEL (No Observed Adverse Effect Level), and UAEL (Unacceptable Adverse Effect Level). NOAEL differs from NOEL in that it represents a situation where the acoustic character of an area can be slightly affected (but not such that there is a perceived change in the quality of life). UAEL represents a situation where noise is 'very disruptive' and should be 'prevented' (as opposed to SOAEL, which represents a situation where noise is 'disruptive', and should be 'avoided').

6.5. As exposure increases above the LOAEL, the noise begins to have an adverse effect and consideration needs to be given to mitigating and minimising those effects, taking account of the economic and social benefits being derived from the activity causing the noise. As the noise exposure increases, it will then at some point cross the SOAEL boundary.

6.6. The LOAEL is described in PPG[5] as the level above which *"noise starts to cause small changes in behaviour and attitude, for example, having to turn up the volume on the television or needing to speak more loudly to be heard"*.

[4] Planning Practice Guidance – Noise, https://www.gov.uk/guidance/noise--2, 22 July 2019
[5] Paragraph: 005 Reference ID: 30-005-20190722

6.7. PPG identifies the SOAEL as the level above which *"noise causes a material change in behaviour such as keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present."*

6.8. In line with the Explanatory Note of the NPSE, the PPG goes on to reference the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG[6] acknowledges that *"...the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation."*

C.14 The relevant guidance in the PPG in relation to the adverse effect levels is summarized below:

Response	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not Present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not Intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. 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			
Present and Intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, 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 small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum

[6] Paragraph: 006 Reference ID: 30-006-20190722

Response	Examples of Outcomes	Increasing Effect Level	Action
Significant Observed Adverse Effect Level			
Present and Disruptive	The noise causes a material change in behaviour, attitude or other physiological response, 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
Present and very Disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

6.9. The Planning Practice Guidance[11] states the following in relation to mitigation measures:

> *"For noise sensitive developments, mitigation measures can include avoiding noisy locations in the first place; designing the development to reduce the impact of noise from adjoining activities or the local environment; incorporating noise barriers; and optimising the sound insulation provided by the building envelope."*

[11] Paragraph: 010 Reference ID: 30-010-20190722

Appendix D Delivery noise management plan

- Delivery vans are to enter and leave the GOL Distribution Hub area in forward gear, to minimise the time spent manoeuvring in reverse gear;
- Delivery doors, gates and shutters are well maintained to minimise noise when opening / closing;
- GOL Distribution Hub area surface is smooth and well maintained to minimise trolley wheel noise;
- All employees avoid going over drains and loose paving when moving trollies.
- Van engine and refrigeration is turned off as soon as practicable and they are not left running during loading;
- The radio in the lorry cabin is switched off / muted before arrival;
- All employees speak in hushed voices;
- There is a general requirement for all drivers to minimise noise at all times;
- Delivery vehicles are driven around the area in a considerate manner, e.g. speed and acceleration being kept to a practical minimum and all items properly fastened in order to ensure rattles and bangs are kept to a minimum;
- If a complaint arises, employees will follow a set of guidelines which set out how to deal with complaints quickly and effectively and to address any issues raised. This will include details of who is responsible for recording and investigating complaints.