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Arnold Clark Automobiles Limited
Arnold Clark, Knowsley Lane
Liverpool

**Noise Impact Assessment
Validation Report**

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EXECUTIVE SUMMARY

BWB Consulting has been instructed by Arnold Clark Automobiles Limited to undertake a Noise Impact Assessment (NIA) in support of a planning application for a proposed car showroom development off Knowsley Lane, Knowsley.

This Validation Report confirms the methodology and scope of the assessment to ensure compliance with relevant standards. A detailed assessment will follow, with a revised report submitted during the determination period outlining the assessment and findings.

A baseline noise survey will be conducted at locations representative of nearby Noise Sensitive Receptors (NSRs) to determine the baseline noise levels at the Site.

The detailed assessment will compare predicted noise levels from proposed operations against the results of the baseline noise survey in accordance with BS 4142: 2014 +A1: 2019, and any criteria agreed with the Local Authority. Appropriate noise level limits will be set for fixed plant items at nearby NSRs.

If required, mitigation measures will be recommended to reduce noise impacts at existing NSRs.

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1. INTRODUCTION

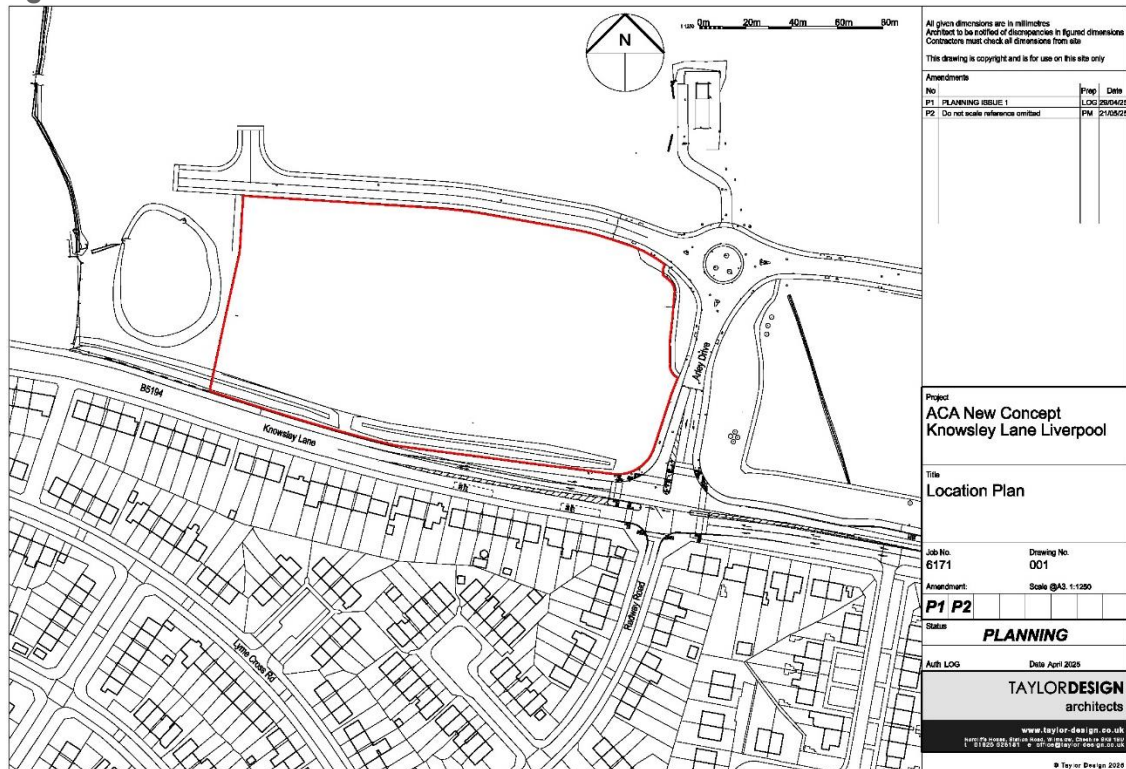
Appointment and Background

- 1.1 BWB Consulting (BWB) was instructed by Arnold Clark Automobiles Limited ("the Client") to undertake a Noise Impact Assessment Validation Report in support of a planning application for the development of a car showroom at Knowsley Lane, Knowsley.
- 1.2 This assessment will be undertaken based on the results of a baseline noise survey which will be undertaken at the Site. The results of the survey will be assessed in accordance with current standards and guidance, following consultation with Knowsley Metropolitan Borough Council (KMBC).
- 1.3 Where appropriate, consideration will be given to noise mitigation measures to demonstrate how an appropriate level of protection could be afforded to existing Noise Sensitive Receptors (NSRs) within the vicinity of the Site.
- 1.4 This report is necessarily technical in nature, so to assist the reader, a glossary of acoustic terminology can be found in **Appendix A**.

Site Setting

- 1.5 The Site is located to the north of Knowsley Lane, Knowsley, and is within the administrative area of Knowsley Council (KC). The Site currently comprises rough grassland. The Site is bound by Knowsley Lane to the south with residential development beyond, Arley Drive to the East, and grassland to the north and west. The M57 is located approximately 150 m to the north. The Site location is shown in **Figure 1.1**.

Figure 1.1: Site Location



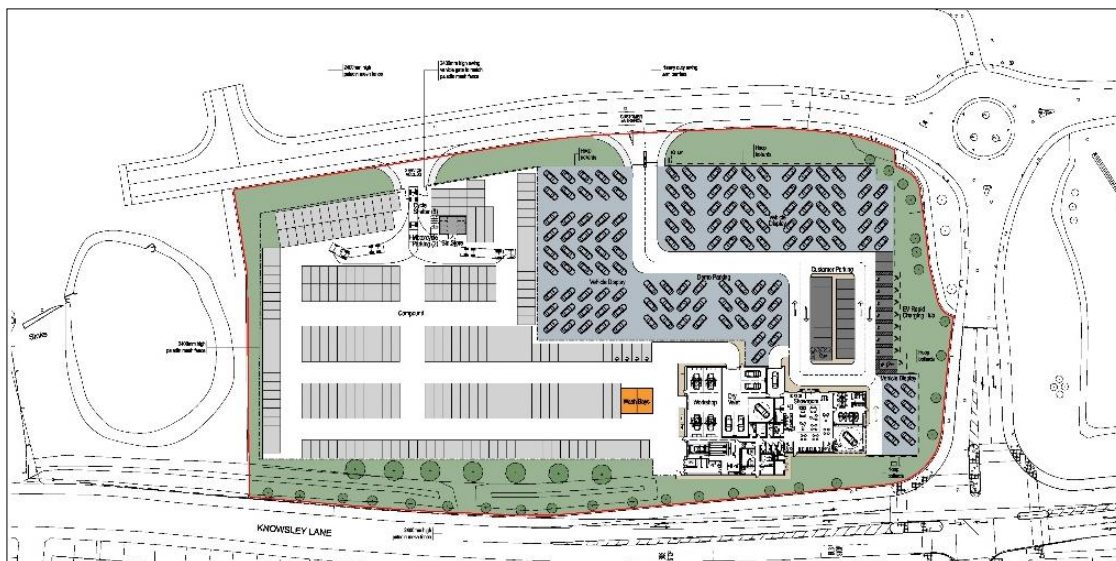
Drawing by Taylor Design Architects. Drawing No. 001 Amendment: P2

- 1.6 Principal noise sources in the vicinity of the Site include road traffic noise along Knowsley Lane to the south and the M57 to the north of the Site. Noise sources also include the motorway services to the east and commercial units to the north-east.

Proposed Development

- 1.7 The Proposed Development comprises a car showroom, and the Proposed Site Plan is shown in **Figure 1.2**.

Figure 1.2: Proposed Site Plan



Drawing by Taylor Design Architects. Drawing No. 101 Amendment: P3

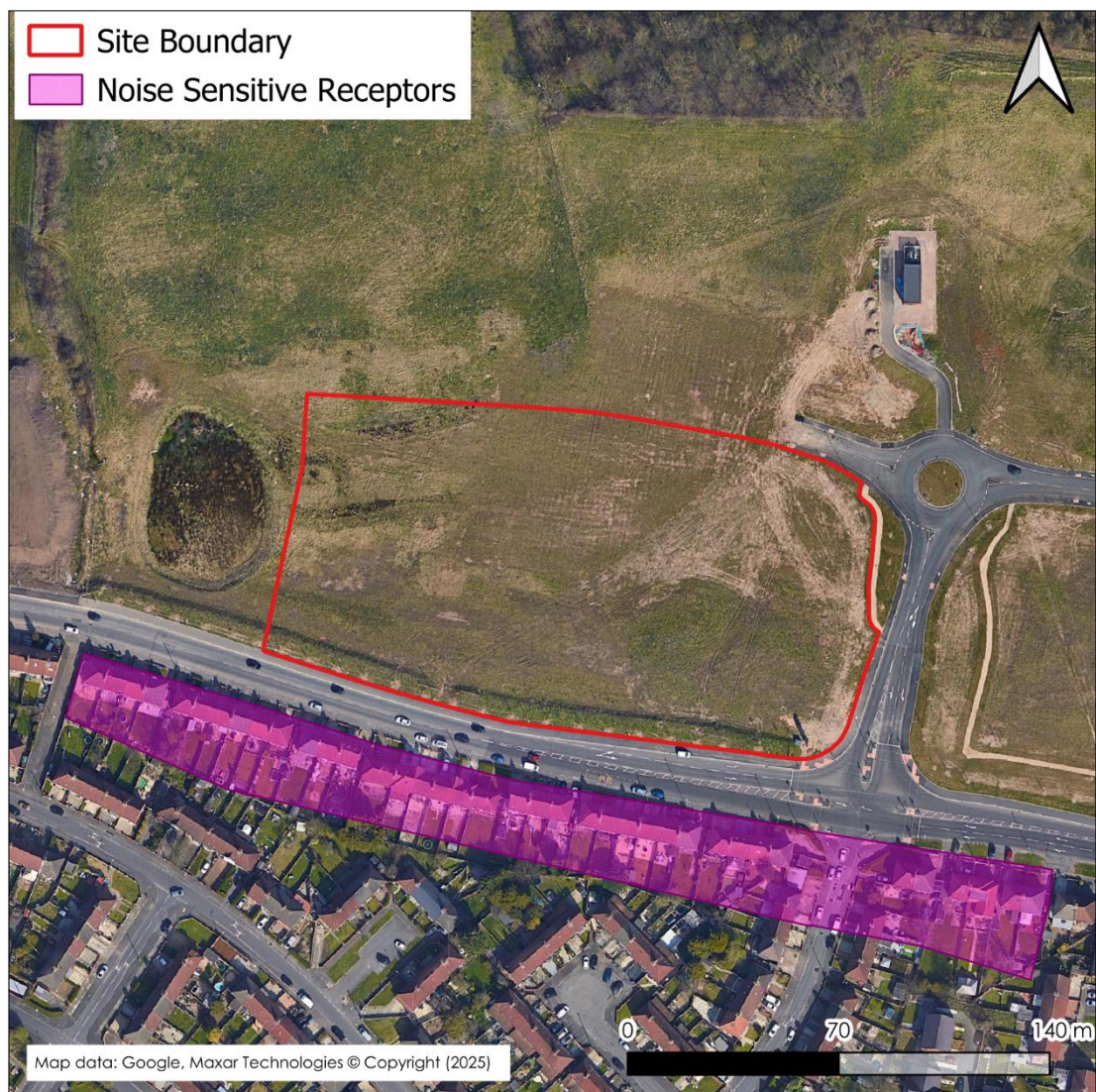
Existing Noise Sensitive Receptors

- 1.8 Noise from the proposed car showroom will be assessed at nearby existing Noise Sensitive Receptors (NSRs). The nearest NSRs are dwellings to the south on Knowsley Lane, and these are detailed in **Table 1.1** below and shown in **Figure 1.3**. Noise may be perceptible at other NSRs, however likely lesser than the NSRs described below.

Table 1.1: Noise Sensitive Receptors

Description	Grid Reference		Bearing from Site	Distance from Site Boundary
	Easting	Northing		
Residential Housing	344786	392641	South	22 metres

Figure 1.3: Noise Sensitive Receptors



2. STANDARDS AND GUIDANCE

National Planning policy Framework (NPPF)

- 2.1 Published in December 2024, this document sets out the Government's planning policies for England. It makes the following reference to noise in the section entitled Conserving and enhancing the natural environment:

"187. 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 soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans."

- 2.2 It also makes the following references to noise in the Section entitled Ground conditions and pollution:

"198. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the Site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life⁷²;

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.

⁷² See Explanatory Note to the Noise Policy Statement for England (Department for Environment, Food & Rural Affairs, 2010)."

BS 8233:2014: Guidance on Sound Insulation and Noise Reduction for Buildings

- 2.3 This standard provides guidance for the control of noise in and around buildings. The guidance provided within the document is applicable to the design of new buildings, or refurbished buildings undergoing a change of use, but does not provide guidance on assessing the effects of changes in the external noise levels to occupants of an existing building.

- 2.4 The guidance provided includes appropriate internal and external noise level criteria which are applicable to dwellings and office for steady external noise sources. It is stated that it is desirable that the internal ambient noise level does not exceed the following criteria set out in **Table 2.1** below:

Table 2.1: Summary of Internal Ambient Noise Levels to be Achieved in Habitable Rooms

Activity	Location	Internal noise level criteria ($L_{Aeq,T}$, dB)	
		Daytime (07:00 – 23:00hrs)	Night-time (23:00 – 07:00hrs)
Resting	Living room	35	-
Dining	Dining room/area	40	-
Sleeping (daytime resting)	Bedroom	35	30

- 2.5 Whilst BS 8233:2014 recognises that a guideline value may be set in terms of sound exposure level (SEL) or $L_{A_{fmax}}$ for the assessment of regular individual noise events that can cause sleep disturbance during the night-time, a specific criterion is not stipulated. Accordingly, reference has been made in this assessment to the World Health Organisation (WHO) 1999: Guidelines for Community Noise.
- 2.6 With respect to external amenity space such as gardens and patios it is stated that it is desirable that the noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. It is then confirmed that higher external noise criteria may be appropriate under certain circumstances such as within city centres urban areas, and locations adjoining the strategic transportation network, where it may be necessary to compromise between elevated noise levels and other factors such as convenience of living, and efficient use of land resource.

World Health Organisation (WHO) 1999: Guidelines for Community Noise

- 2.7 The World Health Organisation (WHO) guidance: 1999: Guidelines for Community Noise includes guidance for individual maximum noise events during the night-time. This document draws upon guidance from Vallet and Vernay, which states:

“For good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB $L_{A_{fmax}}$ more than 10-15 times per night.”

BS 4142:2014+A1:2019 – ‘Methods for Rating and Assessing Industrial and Commercial Sound’

- 2.8 The BS 4142 Standard describes methods for rating and assessing the following:
- Sound from industrial and manufacturing processes;
 - Sound from fixed installations which comprise mechanical and electrical plant and equipment;
 - Sound from the loading and unloading of goods and materials at industrial and / or commercial premises; and

- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train movements on or around an industrial and / or commercial Site.
- 2.9 The methods use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident. The Standard advises the purpose of the methodology includes the assessment of sound from any plant and activities associated with existing industrial and/or commercial uses at proposed residential dwellings.
- 2.10 If appropriate, the specific sound level of the source ($L_{Aeq,T}$) is corrected, by the application of one or more corrections for acoustic features such as tonal qualities and/or distinct impulses, to give a 'rating' level ($L_{A,r,Tr}$). The Standard effectively compares and rates the difference between the rating level of the specific sound and the typical background sound level ($L_{A90,T}$) in the absence of the specific sound.
- 2.11 The Standard advises that the time interval ('T') of the background sound measurement should be sufficient to obtain a representative or typical value of the background sound level at the time(s) the source in question operates or is proposed to operate in the future.
- 2.12 Comparing the rating level with the background sound level, BS 4142 states:

"Typically, the greater this difference, the greater the magnitude of impact.

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

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."

Knowsley Metropolitan Borough Council Local Policy

- 2.13 The local plan for Knowsley Metropolitan Borough Council (KMBC) contains the following regarding noise:

"Policy CS2

"New development in Knowsley and the preparation of subsequent stages of the local plan will be expected to support the following development principles:

...

Principle 4: *Recognise environmental limits, protect and enhance environmental assets, enhance local character and promote quality of place by:*

...

(j) Minimising negative impact upon flood risk, air quality, water quality, land quality, soil quality, and noise or vibration levels and ensuring any negative impacts are appropriately mitigated."

And

"The design of new development should avoid unacceptable impacts which affect the amenity and living conditions of occupiers of buildings. Such effects can include generation of noise, light and air pollution and harmful overbearing and loss of privacy through overlooking."

Consultation with Knowsley Metropolitan Borough Council

2.14 Consultation was undertaken with KMBC on the 2nd June 2025 via email detailing the methodology of the noise impact assessment in order to agree the assessment approach.

2.15 The following methodology was proposed:

- Undertake a baseline noise survey over a weekday and weekend period to determine the existing background noise levels at the existing noise sensitive receptors (NSRs);
- Assess noise associated with the proposed car dealership including HGV movements, unloading/loading activities, car parking, and fixed plant items in accordance with BS4142:2014+A1:2019 and BS8233:2014 at existing NSRs. Where required, a context assessment in accordance with BS4142:2014+A1:2019 and BS8233:2014 will be undertaken to determine the final impact; and
- Where appropriate, noise mitigation measures will be considered to reduce noise to within acceptable levels at existing NSRs;

2.16 At the time of this report, no formal response has been received.

3. BASELINE NOISE MONITORING

- 3.1 A baseline noise survey will be undertaken over a weekday and weekend period to determine the existing background noise levels at existing NSRs.
- 3.2 The detailed results of the survey, including measured background noise levels will be provided. These results will be analysed to determine representative noise levels at NSRs and to provide suitable noise limits based on the recommendations of the local authority.

4. ASSESSMENT

- 4.1 The detailed assessment will compare predicted noise levels from proposed operations to the results of the baseline noise survey in accordance with relevant standards and any criteria agreed with KMBC. Appropriate noise level limits will be set at nearby NSRs to ensure that adverse impacts are not experienced.

5. MITIGATION

- 5.1 Following the completion of the noise assessment, it may be deemed necessary to consider mitigation measures to attenuate noise levels from operations at the Proposed Development. If so, this section will detail the measures that may be implemented at the Site to ensure that NSRs are not subject to adverse noise impacts.
- 5.2 If the initial assessment finds that the Proposed Development is not predicted to generate adverse noise impacts, such that mitigation shall not need to be considered, this section will be removed.

6. CONCLUSION

- 6.1 BWB Consulting has been instructed by Arnold Clark Automobiles Limited to undertake a Noise Impact Assessment (NIA) in support of a planning application for a proposed car showroom development off Knowsley Lane, Knowsley.
- 6.2 This Validation Report confirms the methodology and scope of the assessment to ensure compliance with relevant standards. A detailed assessment will follow, with a revised report submitted during the determination period outlining the findings.
- 6.3 A baseline noise survey will be conducted at locations representative of nearby Noise Sensitive Receptors (NSRs) to determine the baseline noise levels at the Site.
- 6.4 The detailed assessment will compare predicted noise levels from proposed operations to the results of the baseline noise survey in accordance with BS 4142: 2014 +A1: 2019, and any criteria agreed with KMBC. Appropriate noise level limits for fixed plant items will be set at nearby NSRs.
- 6.5 If required, mitigation measures will be recommended to prevent noise affecting existing NSRs

APPENDICES

APPENDIX A: Glossary of Terms

Noise

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or L_{Aeq} , L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

Acoustic Terminology

Term	Description
dB (decibel)	The scale on which sound pressure level is expressed. Sound pressure level is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2×10^{-5} Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e., 'A' - weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
$L_{Aeq, T}$	L_{Aeq} is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A - weighted fluctuating sound measured over that period.
L_{Amax}	L_{Amax} is the maximum A - weighted sound pressure level recorded over the period stated. L_{Amax} is sometimes used in assessing environmental noise where occasional loud noises occur, 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} and L_{90}	If a non-steady noise is to be described, it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L_{10} is the level exceeded for 10% of the time, and the L_{90} is the level exceeded for 90% of the time.
Free-field Level	A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and away from buildings.
Façade Level	A sound field determined at a distance of 1 m in front of a large sound reflecting object such as a building façade.

