

LAND NORTH OF NORMANDY WAY, HINCKLEY

TECHNICAL NOTE

Project	Land North of Normandy Way, Hinckley		
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Author	Sarah Cook BSc (Hons) AMIOA	Status	S2
Checked	Sam Ellwood BSc (Hons) MIOA	Revision	P01
Approved	Darren Harvey BEng (Hons)	Date	22/08/2025

1. Introduction

- 1.1 The purpose of this Technical Note is to provide an update on the noise assessment that supported the outline application, to understand the impact of the proposed roundabout along Normandy Way onto existing residential receptors.
- 1.2 Traffic data for the proposed roundabout has been provided by the Transport Consultant. This data has been used to predict the impact and change in noise level at the closest residential receptors.

2. Site Setting

- 2.1 The Site currently comprises several existing structures amongst open farmlands. The Site is bound by Normandy Way to the south with existing commercial and residential premises situated beyond. To the west the Site is bordered by Phase 1 of the development with Stoke Road beyond. To the north-west lies an existing farm with an existing residential building. To the north, the Site is bordered by open farmland with Hinckley and Bosworth Community Hospital to the north-east. To the east, the Site is bordered by residential dwellings off Ashby Road.
- 2.2 The location of the Site is shown in **Figure 1**.

Figure 1: Site Location



3. Relevant Guidance

Department for Transport – Calculation of Road Traffic Noise (CRTN), 1988

- 3.1 CRTN provides a calculation methodology for using road traffic flow data to calculate road traffic noise levels. This methodology produces noise levels in terms of L_{A10} , either over a 1-hour or an 18-hour period.
- 3.2 The factors which may influence road traffic noise levels at source can be divided into two groups:
- road related factors - gradient and surface type; and
 - traffic related factors - flow, speed and the proportion of heavy-duty vehicles.
- 3.3 The propagation of noise is also covered in CRTN and can influence the noise levels at receptor locations.

The Design Manual for Roads and Bridges (DMRB): LA111 Noise and Vibration (Revision 2)

- 3.4 This document sets out procedures for undertaking the environmental assessment of new road schemes, including the assessment of noise impacts from road traffic. In particular, it describes a method for assessing the severity of a noise impact, in terms of the number of people who will be bothered by any noise increases/decreases due to a new road scheme. When undertaking a DMRB assessment, the methodology CRTN should be used to calculate levels of road traffic noise.
- 3.5 Although the DMRB strictly applies to new road schemes, the principles of the approach contained within the document can also be applied to the assessment of noise from road traffic in general. The Proposed Development has the potential to affect road traffic noise levels along existing roads, hence there is a need for such an assessment.
- 3.6 DMRB LA111 states that the Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Levels (SOAEL) shall be set for all noise-sensitive receptors within the Study Area, for time periods when they are in use. LOAEL and SOAEL considered in this assessment are defined in **Table 1** below, reproduced from Table 3.49.1 of DMRB LA111:

Table 1: LOAEL and SOAEL Levels

Time Period	LOAEL	SOAEL
Day (06:00 – 24:00)	55 dB $L_{A10,18hr}$ (façade)	68 dB $L_{A10,18hr}$ (façade)
Night (23:00-07:00)	40 dB L_{night} , outside (free-field)	55 dB L_{night} , outside (free-field)

- 3.7 The DMRB assessment methodology suggests that the magnitude of noise changes from a project should be classified into levels of impact. LA111 considers how the magnitude of change can be affected by whether a noise level change occurs in the short term (e.g., as a result of a sudden opening of a scheme), or in the long term (e.g., gradually over time, such as that associated with natural traffic growth).
- 3.8 The example classification scale for short term changes, are presented below:

Table 2: Classification of Magnitude of Noise Impacts in the Short Term

Noise Change, dB $L_{A10, 18h}$	Magnitude of Impact
Less than 1.0	Negligible
1.0 to 2.9	Minor
3.0 to 4.9	Moderate
5.0+	Major

4. Assessment

- 4.1 A detailed noise model has been generated in order to calculate the impact of the proposed roundabout onto existing residential dwellings from road traffic.
- The noise model was set up to apply the noise prediction methodology set out in the 1988 Department of Transport and the Welsh Office document Calculation of Road Traffic Noise for road traffic noise sources;
 - Mapping of the Site and the surrounding area was calibrated into the noise model based on known Ordinance Survey grid reference points;
 - Ground topography was approximated using publicly available Lidar Data from DEFRA;
 - Off-site buildings which would provide screening to the Site have been incorporated as reflective façades;
 - To reflect the local ground cover, ground absorption was set to $G = 0.5$ (50% acoustically absorptive ground);
 - The model was set to include second order reflected noise from solid structures;
- 4.2 Traffic data has been received from the Transport Consultant for the A47 (Normandy Way) which has been utilised to create the noise model. Two scenarios have been modelled – with and without the proposed roundabout – with the following scenarios:
- 2028 Opening year with Committed
 - 2028 Opening year with Committed and Development
- 4.3 Average speed and HGV percentages have also been provided for these scenarios, which have been incorporated into the model.
- 4.4 **Figures 2 and 3** present the noise contour grids for these scenarios, for with and without the proposed roundabout.

Figure 2: Noise Contours LA10,18h – 2028 Opening Year with Committed

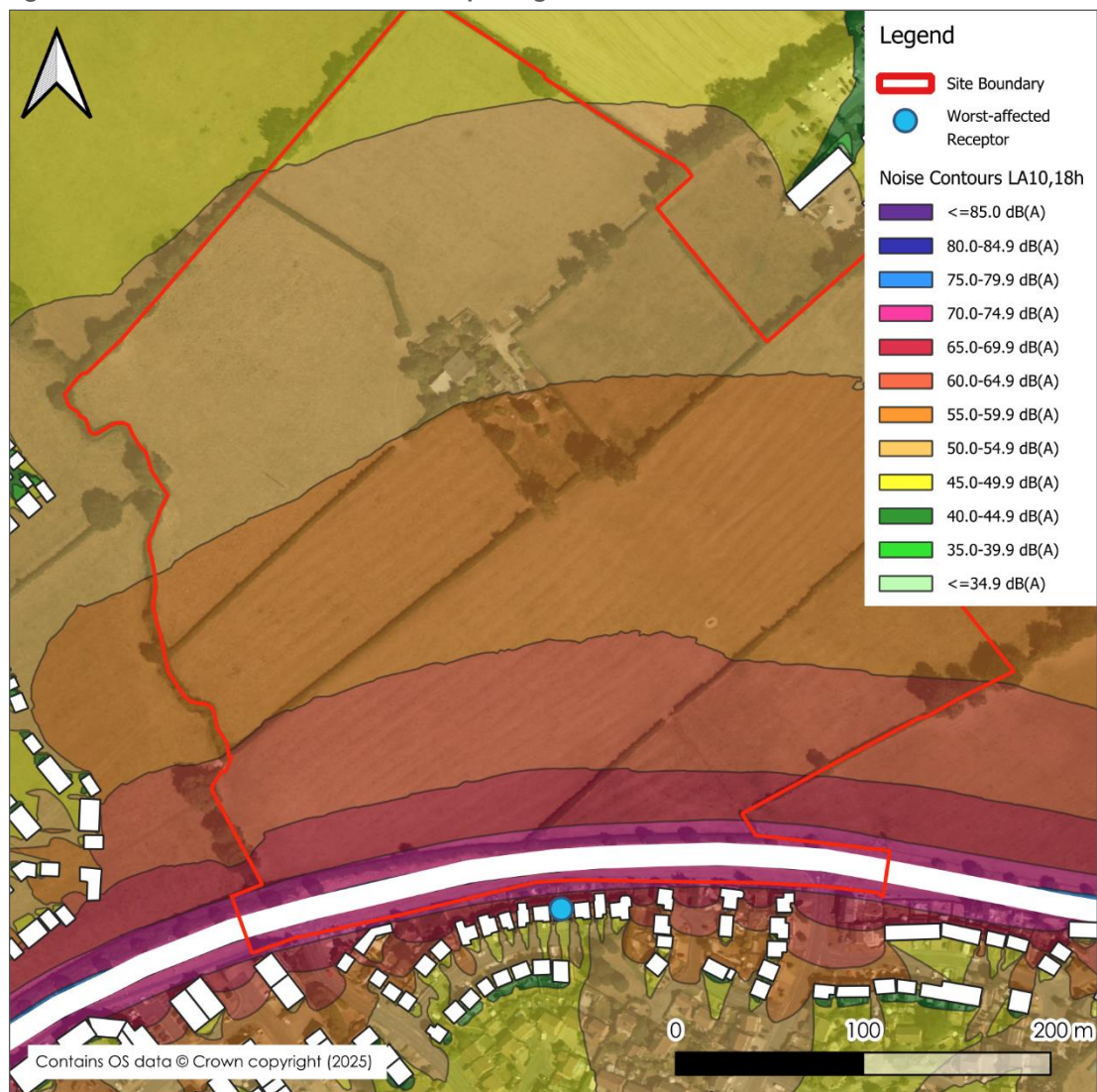
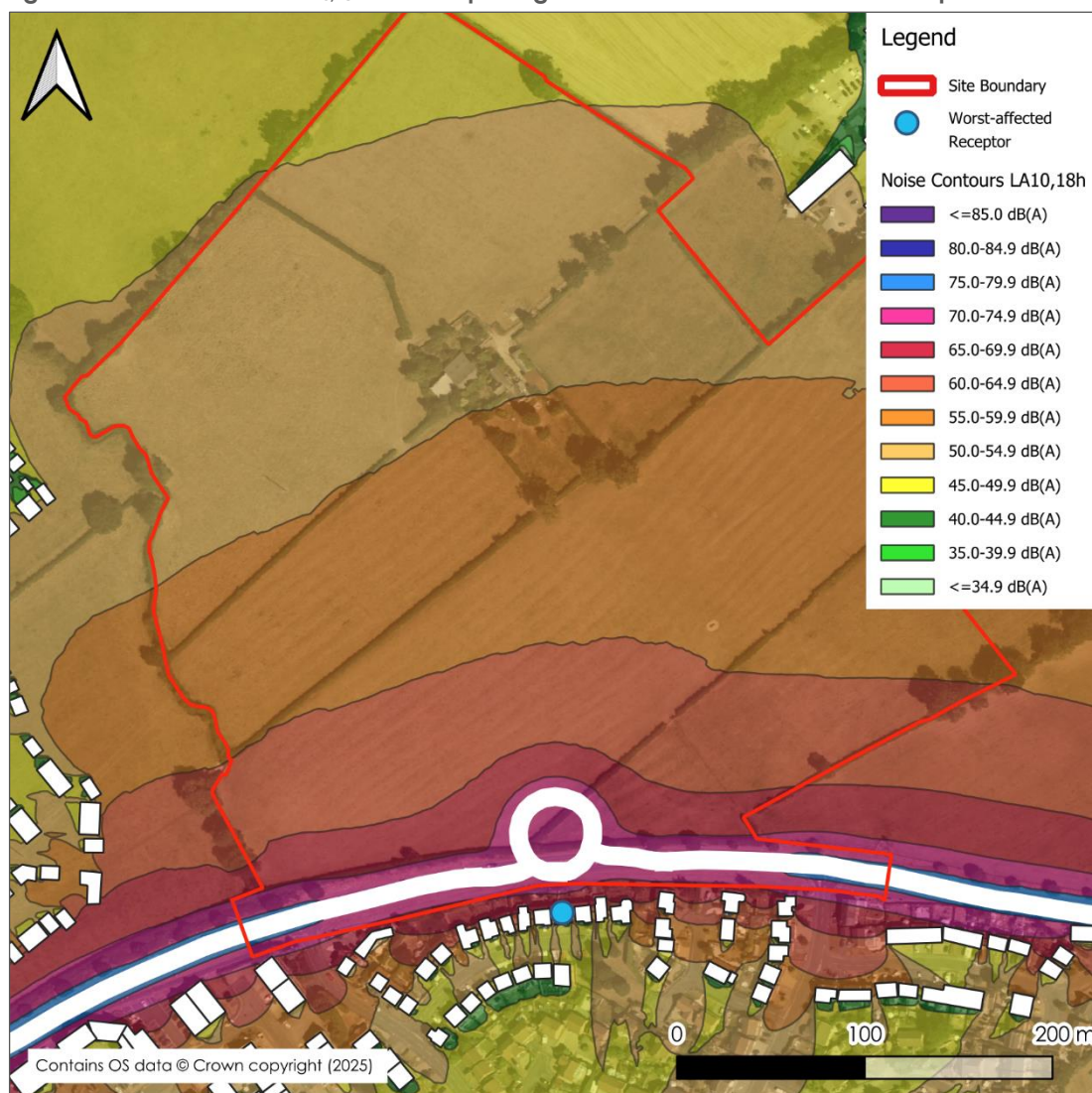


Figure 3: Noise Contours LA_{10,18h} – 2028 Opening Year with Committed and Development



4.5 To assess the impact that the proposed roundabout would have on existing residential dwellings, as a worst case the closest receptor to the proposed roundabout will be assessed (identified in the above figures as the blue dot).

4.6 **Table 3** below presents the results of the modelling.

Table 3: Modelling Results

Scenario	Noise Level at Worst-Affected Receptor (dB LA _{10,18h})
2028 Opening Year with Committed	68.3
2028 Opening Year with Committed and Development	67.3

- 4.7 As can be seen from **Table 3**, the introduction of the roundabout reduces the noise levels at the worst-affected receptor by 1 dB. In line with the relevant guidance and Table 2, the magnitude of impact is characterised as 'Minor' beneficial.
- 4.8 The reduction in noise level at the worst-case receptor is due to reduction in the road traffic speed. In the existing scenario, Normandy Way is a 40-mph road. However, once the roundabout is introduced, the average road traffic speed will be reduced to approximately 20-mph as traffic would start to slow down approximately 100m in advance of the give-way lines at the junction. The reduction in speed at the proposed roundabout, results in a lower noise level at the closest receptors.
- 4.9 Therefore, it is considered that no further mitigation, or consideration is required for the impact of the proposed roundabout onto existing dwellings.

5. Summary

- 5.1 A further assessment has been undertaken to understand the impact of the proposed roundabout onto existing dwellings.
- 5.2 Traffic data has been provided by the Transport Consultant and modelled to present the existing and proposed scenarios. The modelling indicates that the introduction of the roundabout results in a 1 dB decrease in noise level at the worst-affected receptor.
- 5.3 Therefore, it is considered that mitigation is not required, and further consideration is not necessary.