



Bloor Homes, Barwood Land, and Jelson Homes

EARL SHILTON

Environmental Statement Addendum





Bloor Homes, Barwood Land, and Jelson Homes

EARL SHILTON

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1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1. The Site extends to approximately 66 hectares (ha) and forms most of the land allocated as Earl Shilton Sustainable Urban Extension (SUE) in the Hinckley & Bosworth Borough Council (HBBC) Core Strategy Policy document¹. This Earl Shilton SUE is also subject to an Area Action Plan. The total extent of the SUE includes the Site, plus an additional agricultural field to the north-west of the Wastewater Treatment Works (WwTW) owned by HBBC, and three fields between Mill Lane and Thurlaston Lane which are the subject of a separate detailed planning application by Persimmon for 81 dwellings. The overall SUE site allocation requirements are a minimum of 1,600 new dwellings and 4.5 ha of employment along with other mixed uses.
- 1.1.2. Two separate, but aligned, outline planning applications were submitted on this SUE and referred to herein as Applications A and B. Both applications were designed to technically work in combination for the Environmental Statement, to jointly deliver up to 1,500 new dwellings and up to 5.3 ha of employment land, a new community hub that will comprise a two-form entry primary school and local retail facilities as well as improved sports provision, new play areas, and strategic infrastructure including public open space, landscaping, access and drainage.
- 1.1.3. The description for planning application A (reference number 23/00330/OUT) – submitted by Barwood Land in March 2023 is as follows:
- 1.1.4. *“Outline application to include up to 500 dwellings (C3), a primary school/education uses (F1), retail floor space (E) as part of a mixed-use local centre/community hub (E/F1/F2/C3), hot food takeaway (sui generis), one vehicular access from Mill Lane, one vehicular access from Astley Road, and strategic infrastructure including; public open space, SUDs, landscaping, the provision of associated infrastructure and ancillary works. Detailed approval is sought for the two means of strategic access, with all other matters reserved for future determination.”*
- 1.1.5. The description for planning application B (reference number 21/01511/OUT) – submitted in December 2021 by Bloor Homes / Jelson Homes is as follows:
- 1.1.6. *“Outline application to include up to 1,000 dwellings (C3), up to 5.3 hectares for employment uses comprising a mix of B2, B8 and E(g) uses, a primary school/education uses (F1), retail floor space (E) and hot food takeaway (sui generis) as part of a mixed-use local centre/community hub (E/F1/F2/C3), two vehicular accesses from the A47, limited vehicular access from Breach Lane, vehicular access from Mill Lane, public open space including Sustainable Drainage Systems and the provision of associated infrastructure and ancillary works and demolition of former Girl Guide building. Detailed approval is sought for the four means of access, with all other matters reserved for future determination.”*

¹ Hinckley and Bosworth Borough Council (2009). Hinckley and Bosworth Borough Council Local Development Framework Core Strategy (online) available at: https://www.hinckley-bosworth.gov.uk/downloads/file/487/core_strategy_adopted_document (Accessed 1 November 2023).

- 1.1.7. The Proposed Development across both applications comprises up to 1,500 dwellings, with up to 5.3 ha of space for business uses (Class B8, B2, and E(g)2, local centre (including use classes E and hot food takeaway) a primary school, together with strategic infrastructure including green-space, with all other Matters Reserved apart from strategic vehicular access.

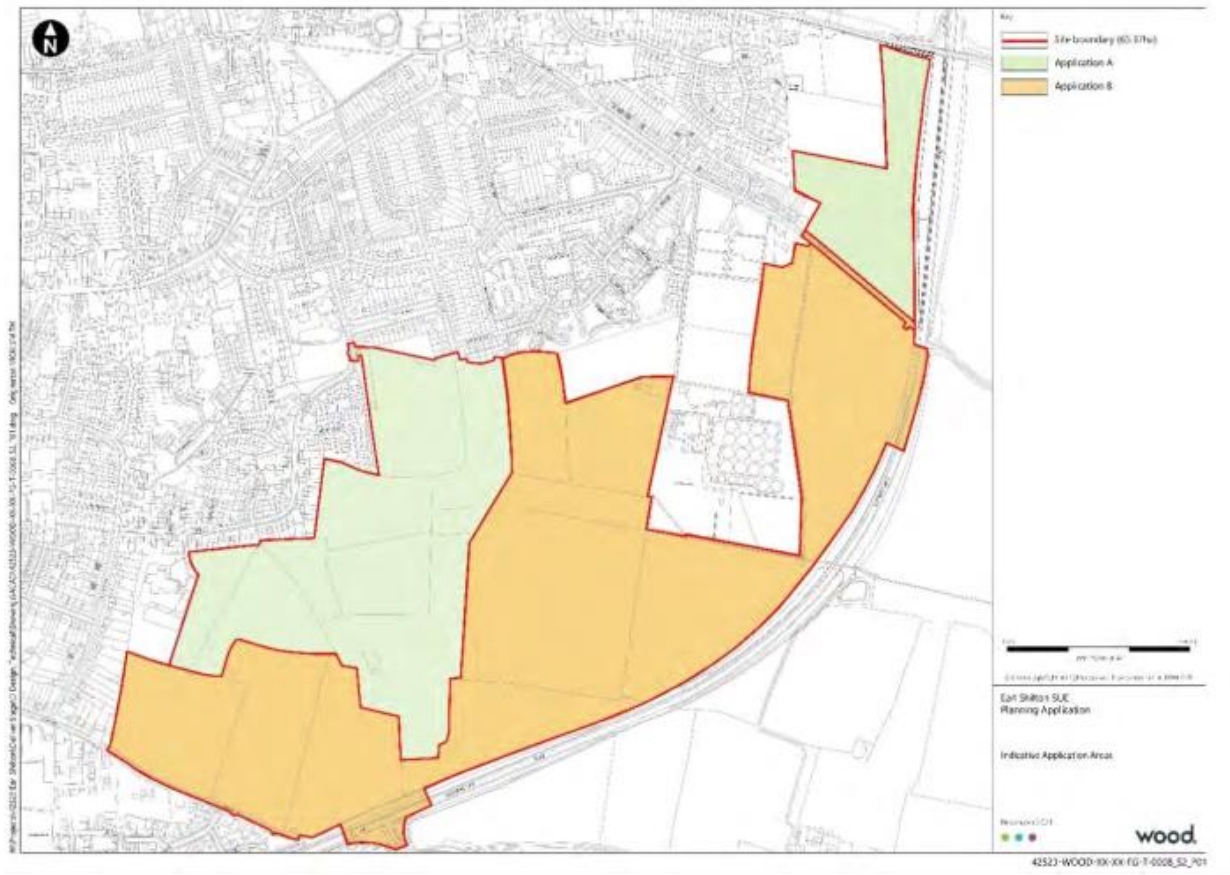


Figure 1-1 - Indicative Planning Application Boundaries for Applications A & B

- 1.1.8. A joint Environmental Statement (ES) was prepared in December 2021 for submission with both applications. An EIA is required because the Proposed Development meets the criteria for EIA development under The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017 No. 571)]3 (here after referred to as the 'EIA Regulations'). Specifically, the Proposed Development requires EIA because it falls within Schedule 2, regulation 10(b) of the EIA Regulations (urban development projects) as the development comprises more than 150 dwellings and the overall development exceeds 5 ha in area.

1.2 PROPOSED SCHEME CHANGES

- 1.2.1. A Design and Access Statement (DAS) Addendum was submitted in December 2022 to HBBC to supplement the original DAS and to provide further information in support of planning applications A and B.
- 1.2.2. Following a period of consultation and assessment, a number of minor amendments have been made to the proposals and an updated illustrative masterplan submitted as shown in Appendix 1A.

These amendments respond to and address consultee comments. These minor amendments primarily relate to:

- Minor changes to the illustrative layout to retain more trees, including minor changes to the internal spine road alignment and to the road to the northwest of the proposed school site;
- Minor changes to the housing layout that is located east of Wastewater Treatment Works (WWTW) to move it further from it;
- Removing employment buildings from the area immediately north of WWTW and ensuring that only car parking is located in this area;
- Addition of new Sustainable Drainage Systems (SuDS) ponds based on updated drainage strategy; and
- Some changes to design of the access junctions (5 junctions in total) in response to LCC Highways and RSA comments.

1.2.3. These proposed changes are considered to be minor in the context of the overall proposed development and are therefore considered unlikely to have a material impact upon the findings of the original ES. To confirm this is the case the ES has been reviewed in light of the proposed changes.

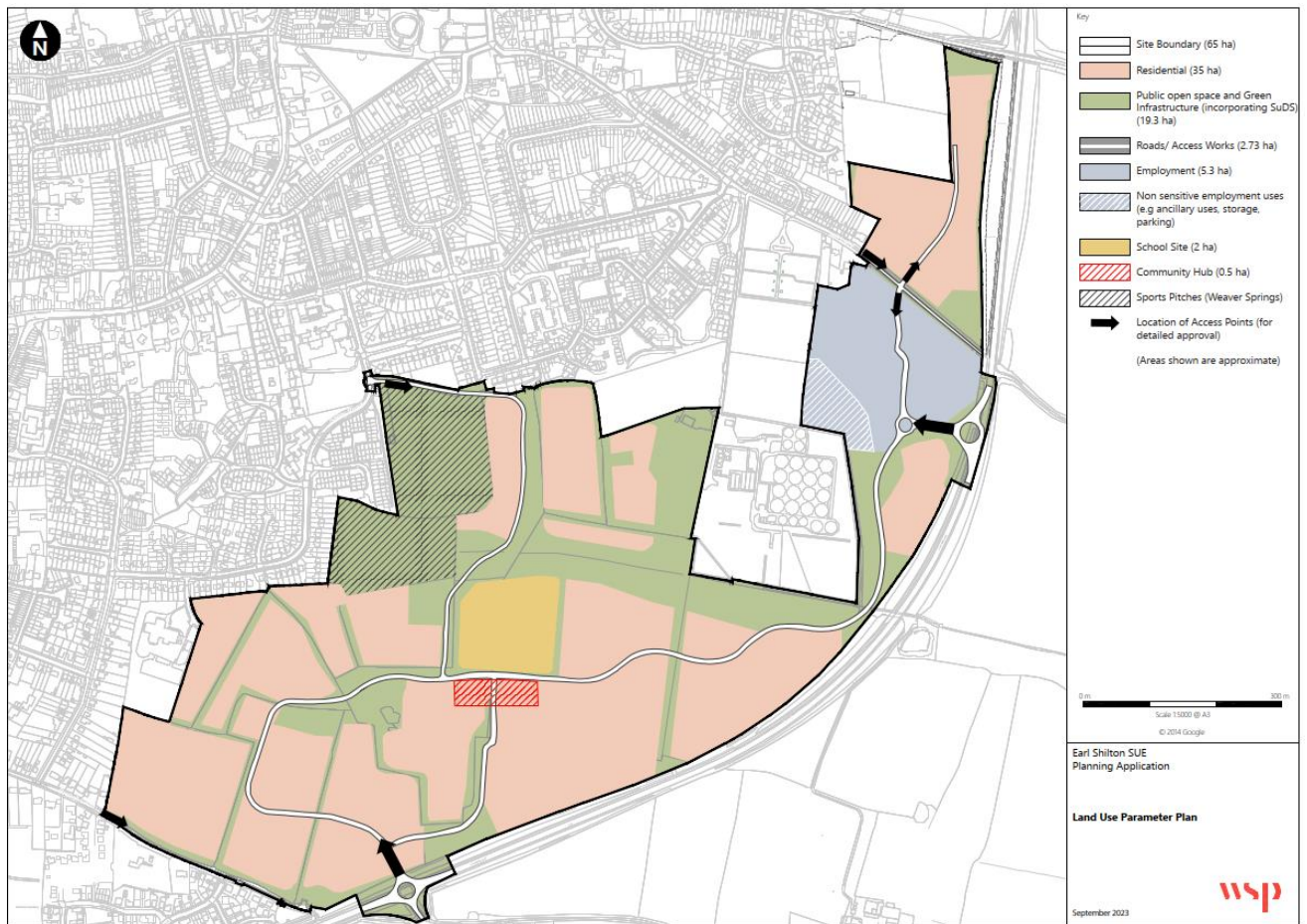


Figure 1-2 - Updated Land Use Parameters Plan

1.3 PURPOSE OF ES ADDENDUM

- 1.3.1. This ES Addendum reflects the technical disciplines affected by the proposed changes to the scheme. All the topic assessments presented in this Addendum have been undertaken on the basis of a common understanding of the nature of the Proposed Development and if the proposed changes to the scheme could affect the final conclusions of the original ES of December 2021.
- 1.3.2. For each topic, the assessment of the new likely significant effects has been undertaken by competent persons with relevant specialist skills, drawing on their experience of working on other development projects, good practice in EIA and relevant published information. For some topics, use has been made of modelling or other methodologies, as appropriate.
- 1.3.3. It is anticipated that the nature of the proposed changes to the scheme will have limited effect on the outcome of the 2021 ES. As indicated above the 2021 ES has been reviewed and it is considered that the following ES chapters will not require updating as a result of the proposed changes and so has not been subject to further assessment.
- Biodiversity;
 - Climate Change;
 - Landscape and Visual;
 - Socio-economic and Health;
 - Soils;
 - Water (surface water, groundwater and flood risk); and
 - Land quality.
- 1.3.4. The update to the PRTM model has required the transport modelling to be updated which has the potential to affect the outcome of the Transport, Air Quality and Noise chapters of the ES. As a result of this, along with the proposed scheme changes, updated assessments have been provided within this addendum for the following:
- Traffic and Transport;
 - Noise; and
 - Air Quality

2 TRAFFIC AND TRANSPORT

2.1 INTRODUCTION

- 2.1.1. The Traffic and Transport (T&T) assessment included in Chapter 14 of the original ES of December 2021 (referred to herein as ‘the original ES’) was based on traffic modelling set out in the Transport Assessment (TA) that was submitted in support of both planning applications A and B. Comments on the TA from the Leicestershire County Council (LCC) Highways Development Management (HDM) team and National Highways identified the need for agreements on the traffic modelling and transport assessment approach and for further testing using the Pan Regional Traffic Model (PRTM). The comments were received in relation to both planning applications.
- 2.1.2. Further PRTM modelling has been undertaken in consultation with LCC HDM, National Highways and Warwickshire County Council (WCC) Highways, collectively referred to herein as the ‘highway authorities’. The Applicants have commissioned AECOM to carry out the PRTM modelling. The PRTM modelling is based on the full allocation of 1,600 dwellings.
- 2.1.3. This addendum to the Traffic and Transport chapter has been based on the new PRTM traffic flow outputs. Updates to the policy and baseline sections have also been made where applicable. The traffic data derived from PRTM has been converted to the appropriate time periods for the Air Quality and Noise addendum assessments.
- 2.1.4. The updated work includes an addendum to the TA, the content of which has been produced in consultation and agreement with the highway authorities.
- 2.1.5. This chapter considers the potential Traffic and Transport effects associated with the operation of the Proposed Development on the surrounding local road network and on sensitive receptors.
- 2.1.6. The submitted Traffic and Transport Chapter in the original ES was supported by five Figures (Figures 14.1 to 14.5). Appendix 2A presented these Figures reproduced for this ES addendum with updates where required, as outlined in the relevant section of this chapter.

RELEVANT LEGISLATION, PLANNING POLICY, TECHNICAL GUIDANCE

Legislative context

- 2.1.7. There are no updates required to the outline of legislative context presented in the submitted ES Section 14.3.

Planning policy context

- 2.1.8. Table 14.1 in the Traffic and Transport (T&T) Chapter of the original ES provided a summary of the relevant transport-specific national, regional and local policies and plans. An update to this is provided within **Table 2-1**. These policies and plans have been considered to help define the scope of the assessment in this addendum T&T Chapter.

Table 2-1 - Planning Policy Issues Relevant to Traffic and Transport

Policy reference	Implications
National planning policies	
National Planning Policy Framework (NPPF) (December 2023) ²	The NPPF, in Chapter 9: Promoting Sustainable Transport, identifies the need to favour sustainable transport modes and enhance travel choice, and to locate developments that generate significant movement where the need to travel will be minimised and the use of sustainable transport modes can be maximised. It has the following key paragraphs concerning transport, transport impacts and developments: Paragraph 108 – Transport needs to be considered early in the process to ensure: “...<i>The environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains...</i>” Paragraph 115 – “<i>Development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or if the residual cumulative impacts on the road network would be severe.</i>” Paragraph 117 – “<i>All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.</i>”
Development plan policies	
Leicestershire County Council Strategic Plan 2022 - 26 ³	This plan was adopted in March 2022 and outlines LCC's five desired outcomes to be achieved in its administrative area. These outcomes are: Clean and Green; Great Communities; Improved Opportunities; Strong Economy Transport and Infrastructure and Safe and Well. There are supporting outcomes and measures to monitor their progress. Transport indicators contribute to the measure of three of the five indicators. Transport related indicators in the plan include: electric vehicle ownership, proportion of adults walking and cycling 3 days per week, proportion of roads for consideration of structural maintenance, rates of public transport use and satisfaction, satisfaction level with traffic levels; number of deaths and seriously injured on the transport network and accessibility to green space within 10 minute walk.

² Department for Levelling Up, Housing and Communities (DLUHC), (2023). National Planning Policy Framework 5. Available at: [National Planning Policy Framework \(publishing.service.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/115271/nppf-2023.pdf) [Accessed 19 December 2023].

³ Leicestershire County Council (2022) Strategic Plan 2022-26. Available at: <https://www.leicestershire.gov.uk/sites/default/files/field/pdf/2022/7/13/LCC-Strategic-Plan-2022-26.pdf> [Accessed 08 November 2023]

TECHNICAL GUIDANCE

- 2.1.9. Table 14.2 in the T&T Chapter of the original ES provided a summary of the technical guidance that had informed the assessment. Since the submission of the original ES, the Guidelines for the Environmental Assessment of Road Traffic (GEART)⁴ has been superseded. The Institute of Environmental Management and Assessment (IEMA) issued new guidance in 2023: the Environmental Assessment of Traffic and Movement (EATM)⁵, which has retained the methodology in the GEART, but has updated it and set out further detail for assessment of environmental effects. The assessment within this addendum T&T Chapter has been conducted with reference to the new guidance as summarised in **Table 2-2**. The other guidance set out in Table 14.2 remains applicable and has been included in **Table 2-2** for ease of reference.

Table 2-2 - Addendum technical guidance

Guidance reference	Guidance issue
EATM (IEMA), 2023).	Provides the framework for assessment of road traffic on the environment
Manual For Streets 2 (Chartered Institution of Highways & Transportation, 2010)	Provides guidance for well-designed streets in urban and rural settings for wider application of principles of 'Manual for Streets'.
Design Manual for Roads and Bridges (DMRB)	Provides information on highways design

CONSULTATION AND TECHNICAL ENGAGEMENT

- 2.1.10. Table 14.10 in the Traffic and Transport (T&T) Chapter of the original ES provided a summary of key aspects of consultation relating to T&T.
- 2.1.11. WSP has participated in technical engagement with the highway authorities since comments were received on the TA in 2022 in relation to planning application B. Comments received for planning application A, which was submitted in March 2023, make reference to this engagement and the need for the completion and agreement to the assessment and access strategy work. Regular meetings have been held to discuss and agree the traffic modelling and access and movement proposals for the Earl Shilton SUE. Key aspects that have been discussed that have affected the addendum T&T Chapter are identified in Table 2-3.

⁴ Institute of Environmental Assessment (IEA).1(993). Guidelines for the Environmental Assessment of Road Traffic (GEART). Institute of Environmental Assessment (IEA); Lincoln, UK.

⁵ Guidelines for the Environmental Assessment of Road Traffic (EATM), Institute of Environmental Management and Assessment (IEMA),2023

Table 2-3 - Summary of Technical Engagement

Topic Raised	Consultee(s)	Response and How Considered in this Chapter	Section Reference
PRTM modelling	LCC HDM, National Highways and WCC	New modelling undertaken which has changed the traffic flows. Note that the traffic generation is unchanged	Future baseline and future baseline with Earl Shilton SUE flows.

2.2 EXISTING SCHEME IMPACTS

- 2.2.1. As set out in **Section 2.1**, further modelling of the Proposed Development in the PRTM was required at the request of LCC HDM and National Highways. This has resulted in changes to the traffic flows included in the T&T Chapter in the original ES. The vehicular trips associated with the Proposed Development are unchanged, however, the PRTM Reference Case model is different as it is an updated version and the background traffic flows include the latest planning data and transport network assumptions. In addition, there are differences in traffic distribution assumptions which are based on appropriate 'Parent Zones' near to the Site. All PRTM updates have been approved by the highway authorities.
- 2.2.2. There are no other updates to the Proposed Development, as described in Section 1.2 of this ES Addendum, that affect the T&T Chapter.

2.3 ASSESSMENT METHODOLOGY AND SCOPE

DATA GATHERING METHODOLOGY

Study area

- 2.3.1. The study area for the T&T EIA assessment was informed through scoping discussions with the highway authorities and includes junctions / links which may be affected by the proposed development. These are set out in **Table 2-4** and are unchanged from the study area presented in the original ES.

Table 2-4 - Roads included in the Study Area

Desford Road (B582)	A47 (South of Barwell)
Leicester Lane (B582)	The Common
A47 (Northeast of Earl Shilton)	Leicester Road (B4668)
Leicester Road (west of A47)	Ashby Road
A47 (Earl Shilton Bypass – Clickers Way)	Mill Lane
Masefield Drive	Alexander Avenue
Wilkinson Lane/Station Road	Astley Road
Station Road (B581)	High Street

Desford Road (B582)	A47 (South of Barwell)
Leicester Road (North of A47)	Wood Street

Desk study

- 2.3.2. The sources of information used for the T&T assessment within this ES addendum are listed in **Table 2-5**.

Table 2-5 - Sources of Information used for the Traffic and Transport Assessment

Source	Date Provided	Data
AECOM on behalf of LCC	August 2023	Updated traffic flows from the PRTM
LCC / Bing Maps – OS Maps	18/10/2023	The Definitive Map to identify Public Rights of Way
CrashMap Pro	17/11/2023	Personal Injury Accident data
Google Traffic	18/10/2023	Indication of traffic conditions on the road network
Google Street View	18/10/2023	Desk study
Arriva Bus and Stagecoach Bus	20/10/2023	Bus services
National Rail	18/10/2023	Train Services
Sustrans	18/10/2023	Cycle routes

Survey work

- 2.3.3. The survey work that has been undertaken is summarised in **Table 2-6**.

Table 2-6 - Survey Work Used for the Traffic and Transport Assessment

Source	Conducted by	Date
Site Audit	WSP (formerly Wood Transport Team)	Numerous site visits
Traffic count data of junctions within the study area	National Data Collection (NDC)	July 2022
Traffic count data of junctions within the study area	MHC Traffic	June 2023

Transport documents

- 2.3.4. As set out in **Section 2.1**, a TA and FTP was produced to support both planning applications A and B. A TA Addendum and FTP Addendum have been produced to reflect the latest traffic modelling and outcome of consultations with the highway authorities.

SCOPE OF THE ASSESSMENT

- 2.3.5. This chapter considers the potential effects of changes in road traffic movements on receptors, i.e. the users of this road network (pedestrians, cyclists, equestrians and drivers) and those living close to it.

Spatial scope

- 2.3.6. The spatial scope of the T&T assessment is unchanged from that within the submitted original ES and consists of highway links that will be used by traffic generated by the proposed development which are summarised in **Table 2-4**. The receptors along the highways identified in **Table 2-4** have been identified as forming the scope of the assessment in relation to potentially traffic-related effects.

Temporal scope

- 2.3.7. The temporal scope of the assessment of T&T is the year of completion which will be 2036.
- 2.3.8. This T&T Addendum considers the potential effects of the full operational development. The quantum of traffic into and out of the site in the peak hours during the construction or construction with partial occupancy phase is anticipated to be lower than during the AM and PM peak of full occupation. Assessing the 2036 year of completion therefore represents the anticipated worst-case scenario of traffic generation from the proposed development.

ASSESSMENT METHODOLOGY

- 2.3.9. As outlined in **Section 2.1** new IEMA guidance, EATM, has been published. The T&T assessment has been conducted with reference to EATM with the following section setting out the assessment methodology.

Potential receptors

- 2.3.10. Transport receptors are the users or beneficiaries of the highways network assets and facilities such as pedestrians, cyclists, equestrians, and drivers who travel within the vicinity of the Proposed Development. EATM identifies the following key user groups: Non-Motorised Users (NMU), Public Right of Way (PRoW) users, motorists/freight vehicles, public transport and emergency services. It further identifies sensitive locations/users that following groups that may be affected:
- 'People at home';
 - People at work;
 - Sensitive and/or vulnerable groups (including young age; older age; income; health status; social disadvantage; and access and geographic factors);
 - Locations with concentrations of vulnerable users (e.g., hospitals, places of worship, schools);
 - Retail areas;
 - Recreational areas;

- Tourist attractions;
- Collision clusters and routes with road safety concerns; and
- Junctions and highway links at (or over) capacity’;

2.3.11. EATM details that the identified sensitive receptors should be assigned to the nearest highway link for assessment, with each highway link then assigned a sensitivity value.

Likely significant effects

2.3.12. The likely significant T&T effects on receptors, due to additional road traffic on local routes generated by the Proposed Development, that have been taken forward for assessment in the ES are outlined below.

Severance

2.3.13. The separation of people from places and other people/places or impeding pedestrian access to essential facilities.

2.3.14. The EATM outlines that when assessing severance, the assessor should consider any physical infrastructure barriers, road width, traffic flow, traffic composition, traffic speed, crossing facilities and likely crossing movements (e.g. defining facilities to which access may be impaired and the potential total users and user groups) along with considering the impact on vulnerable groups.

Driver delay:

2.3.15. Traffic delays to non-development traffic. EATM states that ‘delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.’ The capacity of a road or a particular junction can be determined by establishing the ratio of flow to capacity (RFC).

2.3.16. Delay might be found more commonly at site entrances, where parked cars may share road space, at key intersections along a route and at side roads where the ability to find gaps in traffic may be reduced.

Non-motorised user delay

2.3.17. The impact on the ability of people to crossroads resulting from changes in: traffic volume, composition and speed; the level of pedestrian activity; visibility and the general physical conditions of the proposed development.

Non-motorised user amenity

2.3.18. The effect on the relative pleasantness of a pedestrian journey resulting from changes in traffic flow and composition and separation from traffic (including pavement width).

Fear and intimidation:

2.3.19. Fear and intimidation experienced by receptor groups resulting from change in traffic volume and proximity, including due to narrow pavement widths and lack of protection, traffic composition and speed.

2.3.20. EATM outlines that:

‘The extent of fear and intimidation is dependent on:

- The total volume of traffic;

- The heavy vehicle composition;
- The speed these vehicles are passing; and
- The proximity of traffic to people – and/or the feeling of the inherent lack of protection created by factors such as a narrow pavement median, a narrow path or a constraint (such as a wall or fence) preventing people stepping further away from moving vehicles.’

2.3.21. EATM, also, notes that special consideration should be given to areas where there are likely to be:

- High-speed sections of road;
- Locations of turning points and accesses;
- Narrow pavement median, narrow footway and/or constraints such as fences;
- Area frequented with road users unfamiliar with the location such as tourist spots; and
- Areas frequented vulnerable groups.

2.3.22. There are no commonly agreed thresholds by which to determine fear and intimidation from known traffic and physical conditions. EATM sets out thresholds for assessment of fear and intimidation which firstly instructs that assessment should be defined by the degree of hazards to pedestrians by average traffic flow over an 18-hour heavy vehicle flow and average speed over an 18-hour day in miles per hour. **Table 2-7** provides EATM’s example of a degree of hazard scoring system that can be adapted to reflect local conditions.

Table 2-7 - Fear and Intimidation Degree of Hazard

Average traffic flow 18-hour day - all vehicles/hour 2-way (a)	Total 18-hour heavy vehicle flow (b)	Average vehicle speed (c)	Degree of Hazard score
+1800	+3000	->40	30
1200-1800	2000-3000	30-40	20
600-1200	1000-2000	20-30	10
<600	<1000	<20	0

Source: EATM Table 3.1

2.3.23. Secondly the total score from all three degree of hazard elements is combined to provide a ‘level’ of fear and intimidation which can be used to identify significant changes to the level of perceived fear and intimidation. **Table 2-8** provides EATM’s example.

Table 2-8 - Level of Fear and Intimidation

Level of Fear and Intimidation	Total hazard score (a)+(b)+(c)
Extreme	71+
Great	41-70

Level of Fear and Intimidation	Total hazard score (a)+(b)+(c)
Moderate	21-40
Small	0-20

Source: EATM Table 3.2

Road user and pedestrian safety:

- 2.3.24. Any impact on the risk of accidents occurring. This is informed by a review of existing collision patterns and trends based upon the existing personal injury collision records (particularly to identify collision clusters) and the forecast increase in traffic and informed by any road safety concerns.
- 2.3.25. The EATM guidance suggest that, in addition to collision analysis, that the 'Safe System' approach should be adopted. The approach is broadly as follows:
- 'Identify the study area using historic crash data;
 - Undertake evidence-led, objective modelling techniques to establish a baseline road safety level for the roads within the study area on which the impact thresholds are exceeded in relation to either non-motorised users or motorised user traffic. This analysis can be carried out using tools such as the iRAP Star Ratings protocols or similar tools produced by individual highways authorities; and
 - Assess the effects of additional development traffic for all users (including vulnerable groups), across the whole width of the highway corridor. This model should also assess the effect of any changes to the baseline road network, such as the provision of access junctions.'

Hazardous/large loads:

- 2.3.26. The impact of transportation of hazardous or abnormal loads relating to the nature of the load and number of trips.

Other

- 2.3.27. The IEMA Guidance also refer to additional linked assessments: air quality, visual effects, noise, vibration, biodiversity, cultural heritage and climate. The submitted ES contained assessment of these aspects in Chapters 6, 10, 11 (noise and vibration), 9 and 8 respectively. **Chapters 3 and 4** of this ES addendum update the Noise and Air Quality assessments.

Effects scoped out

- 2.3.28. The following potential effects have been scoped out of further assessment because the potential effects are not considered to be significant.
- Potential effects on users of the road network and adjacent land uses as a result of construction traffic from the Proposed Development. The volume of total traffic generated by the operational phase of the Proposed Development would be greater than that during the construction phase and therefore the operational phase represents the likely worst-case traffic effects arising from the Proposed Development; and
 - Hazardous loads – No hazardous loads are anticipated given the nature of the Proposed Development and are therefore not considered further within this chapter.

Environmental measures embedded into the development proposals

- 2.3.29. A range of environmental measures have been embedded into the development proposals as outlined in **Table 4.5** of the submitted ES. This section describes those measures relevant to the T&T assessment and how these embedded measures will influence the assessment.
- 2.3.30. A construction traffic management plan (CTMP) will be developed to minimise traffic impacts during the construction period of the Proposed Development. The CTMP would manage the daily delivery profiles and control movements and routing of HGVs through the following measures:
- Traffic routing strategy – ensuring vehicles access the Proposed Development via the most appropriate route and avoid unnecessary conflict with sensitive areas;
 - Traffic timing strategy – programme vehicles arrivals / departures and working hours to lessen the impact on the highway network;
 - Temporary signage – in accordance with Department for Transport (DfT) Traffic Signs Manual, Chapter 8 to inform local road users of construction access points and the presence of HGVs;
 - Traffic Marshals – to marshal access points and PRow crossings whilst deliveries are taking place; and
 - Temporary traffic management – provided on approaches to accesses in the form of traffic warning signs, possible reductions in speed limit signs to ensure safe passage of vehicles. All signage in accordance with DfT's Traffic Signs Manual, Chapter 8.
- 2.3.31. There will be good active travel permeability within the Proposed Development and external links to Earl Shilton via Breach Lane, Astley Road, Avenue South, Montgomery Road and Mill Lane to enable short journeys to be undertaken by foot and cycle.
- 2.3.32. A Travel Plan will be implemented, based on the Framework Travel Plan, to facilitate and encourage sustainable travel to reduce journeys by car and traffic generation.
- 2.3.33. The Proposed Development has been designed to enhance the existing level of bus service provision as the spine road and secondary road to Astley Road through the site, as well as the strategic site access junctions, are all designed to accommodate bus access to enable travel by public transport to reduce journeys by car and traffic generation.

METHODOLOGY FOR THE PREDICATION OF EFFECTS

- 2.3.34. The generic project-wide approach to the assessment methodology is set out in the original ES Chapter 4, and specifically in Sections 4.5 to 4.7. However, whilst this has informed the approach that has been used in this Traffic and Transport (T&T) assessment, it is necessary to set out how this methodology has been applied, and adapted as appropriate, to address the specific assessment needs.
- 2.3.35. This assessment is based on the new EATM guidance and compares (in percentage terms) the 2036 Future Baseline traffic flows with those for the 2036 Future Baseline with the Proposed Development traffic flows.

General approach

- 2.3.36. EATM provides two rules that are used to establish whether an environmental assessment of traffic effects should be carried out on receptors:

- **‘Rule 1:** Include highway links where traffic flows will increase by more than 30% (or where the number of heavy goods vehicles will increase by more than 30%); and
- **Rule 2:** Include highway links of high sensitivity where traffic flows have increased by 10% or more.’

2.3.37. It should be noted that, according to EATM, predicted traffic flow increases below 10% are generally not considered to be significant as daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flows below this level are, therefore, assumed not to result in significant environmental effects and will not be assessed. Consideration will, also, be given to the duration of the impact within the assessment.

Receptor Sensitivity

- 2.3.38. As set out in EATM, the impact of development traffic is dependent upon a wide range of factors which include the volume of traffic, traffic speeds and traffic composition (such as percentage of HGVs of total traffic). Additionally, EATM states that the perception of changes in traffic varies according to factors such as:
- ‘Existing traffic levels;
 - The location of traffic movements;
 - The time of day;
 - Temporal and seasonal variation of traffic;
 - Design and layout of the road and pavement;
 - Crossing points;
 - Landscape/townscape character, designated status, land use activities adjacent to the route; and
 - Ambient conditions of adjacent land-uses’.
- 2.3.39. Each highway link included in the assessment will be assigned a sensitivity in accordance with EATM and informed by professional judgement based on factors including the proximity of sensitive receptors to the highway link and the highway environment.
- 2.3.40. **Table 2-9** summarises the rationale used to determine the sensitivity of receptors.

Table 2-9 - Classification of Receptor Sensitivity

Sensitivity	Rationale/Description
High	Highway links with sensitive receptors alongside them such as schools, colleges, playgrounds, accident cluster areas, retirement homes, urban/residential roads without footways that are used by high volumes pedestrians and cyclists where footway provision is poor.
Medium	Highway links with congested junctions/highway links, places of worship, doctors’ surgeries, hospitals, retail with highway frontage, roads with narrow footways, unsegregated cycleways, tourist attractions, community centres, parks and recreation facilities

Sensitivity	Rationale/Description
Low	Highway links with adjacent land-uses such as public open space, nature conservation areas, listed buildings and residential areas with adequate footway provision and limited pedestrian/cycle users.
Negligible	Highway links with receptors sufficiently distant from affected roads and junctions and no/very limited numbers of pedestrians/cyclists.

- 2.3.41. Where a road passes through a location, users are considered subject to the highest level of sensitivity defined by either the road or location characteristics.
- 2.3.42. Sensitivity judged as ‘High’ or ‘Medium’ results in Rule 2 (sensitive areas where traffic flows are predicted to increase by 10% or more) being considered for that link. Sensitivity judged as ‘Low’ or ‘Negligible’ results in Rule 1 being considered for that link where traffic flows are predicted to increase by more than 30% or where the number of HGVs is predicted to increase by more than 30%.

Magnitude of Change

- 2.3.43. The magnitude of impact will be determined in accordance with the advice provided in EATM and based on professional judgement.
- 2.3.44. **Table 2-10** sets out the impact (high, medium, low or negligible, of potential significant effects of transport set out in Paragraphs 2.3.12 to 2.3.27, on receptors.

Table 2-10 - Magnitude of Change

	Magnitude of change			
Transport effect	High	Medium	Low	Negligible
Severance	Change in total traffic or HGV flows over 91%.	Change in total traffic or HGV flow of 61-90%.	Change in total traffic or HGV flows of 31-60%.	Change in total traffic or HGV flows of less than 30%.
	Context should, also, be considered including population and facilities impacts. EATM states caution should be applied with applying these thresholds to highway links with low baseline blows.			
Driver delay	High increase in queuing at junctions and/or congestion on road links.	Medium increase in queuing at junctions and/or congestion on road links.	Low increase in queuing at junctions and/or congestion on road links.	Low or no increase in queuing at junctions and/or congestion on road links.
Non-Motorised users amenity	A halving or doubling of traffic flow (or HGV flow) can be used as a broad threshold when considered in the local context and applied with caution. Assignment based on a variety of factors including general level of pedestrian activity, visibility, and physical conditions such as traffic flow, traffic composition, crossing points and			

	Magnitude of change			
Transport effect	High	Medium	Low	Negligible
	pavement width/separation from traffic. EATM, also, advises consideration of factors included in the Transport for London's Healthy Streets Indicators.			
Non-motorised user delay	Generally, increases in traffic may lead to greater delay, though is dependent on the level of non-motorised users' activity in the area. Assessed based on pedestrian delay experienced when crossing highways links considering a range of factors including crossing type, pedestrian flows, traffic levels, visibility and general highway condition.			
Fear and Intimidation	Assigned based on the levels scoring systems provided in EATM (which is dependent on 18hr average traffic flow; 18hr average HGV traffic flow and vehicle speed) extreme 71+; great (41-70); moderate (21-40) and small (0-20).			
	Two step change in level score of fear and intimidation.	One step change in level score of fear and intimidation and >400 average 18hr vehicle increase or >500 HGV 18hr vehicle increase.	One step change in level score of fear and intimidation and <400 average 18hr vehicle increase or <500 HGV 18hr vehicle increase.	No change to step in level score of fear and intimidation.
Road safety	Assignment informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic that may change the risk of serious and fatal injuries.			

Significance criteria

- 2.3.45. The classification significance of a likely Traffic and Transport (T&T) effect is derived by considering the sensitivity of the receptor (**Table 2-9**) and the magnitude of change (**Table 2-10**) as defined in Table 2-11. The shading indicates those significance ratings that are deemed to be 'significant' effects.

Table 2-11 - Significance Evaluation Matrix

		Magnitude of change			
		High	Medium	Low	Negligible
Receptor sensitivity	High	Major (Significant)	Major (Significant)	Moderate (Significant)	Negligible (Not significant)
	Medium	Major (Significant)	Moderate (Significant)	Minor (Not significant)	Negligible (Not significant)

		Magnitude of change			
	Low	Moderate (Significant)	Minor (Not significant)	Minor (Not significant)	Negligible (Not significant)
	Negligible	Negligible (Not significant)	Negligible (Not significant)	Negligible (Not significant)	Negligible (Not significant)

- 2.3.46. Major and Moderate effects are considered to be significant in EIA terms, whilst Minor and Negligible effects are considered not significant for EIA purposes.

2.4 CHANGES TO BASELINE

CURRENT BASELINE: LOCAL AND STRATEGIC ROAD NETWORK

- 2.4.1. There are no updates required to the outline of the local and strategic road networks.

TRAFFIC FLOWS

- 2.4.2. The baseline traffic flows for 2021 are unchanged

PUBLIC RIGHT OF WAY

- 2.4.3. There are no updates to the Public Right of Way (PRoW) network.

PEDESTRIAN NETWORK

- 2.4.4. There are no updates to the pedestrian network.

CYCLE NETWORK

- 2.4.5. There are no updates to the cycle network.

BUS SERVICES AND FACILITIES

- 2.4.6. Since the original ES was issued, bus service 1 has been withdrawn and bus service 48L has been renamed to 148. The current local bus service provision consists of:

- Stagecoach 148 (between Leicester and Coventry): which has approximately two services per hour per direction Monday to Saturday and 1 per hour per direction on Sunday.
- Arriva 158 (between Nuneaton/Hinkley and Coventry): which has approximately two services per hour per direction Monday to Saturday and 1 per hour per direction on Sunday.

- 2.4.7. These bus services serve bus stops on High Street (nearest to the Mill Lane and the Astley Road Site access points approximately 15 and 6 minutes walking time respectively) and Wood Street (nearest to the Breach Lane access at approximately 14 minutes walking time). **Figure 2.4** in Appendix 2A illustrates these bus routes and nearest bus stops.

RAIL SERVICES AND STATIONS

- 2.4.8. There are no updates to rail services and stations.

LOCAL ROAD SAFETY CONSIDERATIONS AND ASSESSMENT

- 2.4.9. Tables 14.7 and 14.8 in the original ES presented Personal Injury Accident (PIA) data sourced from Crashmap Pro and Crashmap for the local road network roads and junction between 2016 and 2020. Since submission of the ES Crashmap has published 2022 PIA data and an update to the PIA summary is required for the T&T Addendum. **Figure 2.5** in **Appendix 2A** shows the accident assessment area and accident locations. A summary of the accident data for the study area is given in **Appendix 2B**.
- 2.4.10. **Table 2-12** provides a summary of the data from Crashmap and Crashmap Pro for the junctions in the study where accidents were recorded along Clickers Way A27 and the A47 north of Earl Shilton to Desford Road (B582). Accidents at these junctions were categorised as being within 20m of the junction or in a position where the junction is assumed to be a factor.

Table 2-12 - PIA Summary 2018-2022: Junctions

Junctions	Slight	Serious	Fatal	Total	Accident Rate p.a.	No. Accidents with Vulnerable Casualties *
A47 Clickers Way/ Station Road B581	1	0	0	1	0.2	-
A47 Clickers Way/Wilkinson Lane	1	0	0	1	0.2	-
A47 Clickers Way/Masefield Drive	2	0	0	2	0.4	-
A47 Clickers Way/ Breach Lane	0	0	0	0	0	-
A47 Clickers Way/Mill Lane	0	1	0	1	0.2	Child: 1
A47 Clickers Way/A47 Leicester Road (W)/Leicester Road Carrs Hill	2	1	0	3	0.6	-
A47 Clickers Way/Leicester Road (W)/ A47 (N)	1	0	0	1	0.2	Pedestrian: 1
A47/Dans Lane Junction	3	2	0	5	1	-
A47/Peckleton Lane Junction	2	1	1	4	0.8	-
Leicester Lane B582/Desford Road B582/A47 junction	2	1	0	3	0.6	-
Total	14	6	1	21	-	-

*Vulnerable road users are defined as cyclists and pedestrians. Accidents involving child casualties are also noted.

Base Data Source: Department for Transport data published by www.crashmap.co.uk

- 2.4.11. **Table 2-13** summarises the data for the roads in the study area, where accidents have occurred within the study period, and excluding accidents recorded at the junctions in **Table 2-12**. This is reported for the roads, and in some case for sub-sections of road, for accident rate per annum. Where traffic turning count data, surveyed by NDC in July 2021, for peak times is available at a location of relevance it has been used to give an estimate of the average annual daily traffic (AADT) for roads/sections of road which has been used to calculate an estimated annual accident rate per million vehicle km
- 2.4.12. 57 accidents were recorded in the study area over the five-year period of which 36 were slight, 19 serious and two fatal. Some of these accidents involved vulnerable road users: Six accidents were recorded as involving pedestrian casualties and two involving pedal cyclist casualties. Four accidents involved child casualties. The accident rate per annum is generally low at these junctions and roads, with the exception of Station Road (B581) between the A47 Clickers Way and Leighton Crescent where the average annual accident rate per annum is 1.2.
- 2.4.13. Only clusters or links which exhibit an annual accident rate of greater than one accident per annum are considered to be significant. Though there are clusters of accidents at junction within the study area, no junctions have an annual accident rate >1.
- 2.4.14. Three roads record an annual accident rate in excess of 1 which are: the A47 between Leicester Road (W), Station Road (B581) between: A47 Clickers Way and Leighton Crescent and Desford Road B582 and 'Old A47'. The A47 between Dan's Lane and Desford Road B582 has an average annual accident rate above 1 while the section between Leicester Road (W) and Dan's Lane has an average annual accident rate below 1. The A47 north of Earl Shilton is a long road section and there was available traffic count data allowing investigation into the accident rate taking into account a distance metric. The 'old A47' in total which is made up of various roads which taken individually have low accident rates per annum – though within this Wood Street recorded one fatal accident.

Table 2-13 - PIA Summary 2018-2022: Links (Excluding Accidents Recorded at the Junctions in Table 2-12)

Link Section	Slight	Serious	Fatal	Total	Accident Rate Per Annum	Number of Accidents Involving Vulnerable Casualties *	Estimated AADT for Link	Approximate Link Length (km)	PIA per Annum per million vehicle km
Astley Road and Meadow Court Road	2	0	0	2	0.4	Pedestrian (including child): 1 and Pedestrian: 1		0.73	
Alexander Avenue	1	1	0	2	0.4	-		0.82	
Station Road and Wilkinson Lane	2	2	0	4	0.8	Pedestrian: 1 and Child: 1	6,956	1.06	0.31
A47 Clickers Way: Between Leicester Road Carrs Hill and Leicester Road (W)	1	1	0	2	0.4	-	10,390	4.35	0.03
Station Road (B581) between: A47 Clickers Way and Leighton Crescent	3	3	0	6	1.2	Pedestrian: 1 and Pedal Cycle (including child): 1	10,805	1.07	0.30
A47: Between Leicester Road (W) and Desford Road B582 Total	9	2	0	11	2.2	-		4.19	
Between Dan's Lane and Desford Road B582	4	2	0	6	1.2	-	16,230	1.83	0.12
Between Dan's Lane and Leicester Road (W)	5	0	0	5	1	-	15,499	2.36	0.08
'Old A47' Total:	4	4	1	9	1.8	-		3.96	

Link Section	Slight	Serious	Fatal	Total	Accident Rate Per Annum	Number of Accidents Involving Vulnerable Casualties *	Estimated AADT for Link	Approximate Link Length (km)	PIA per Annum per million vehicle km
Leicester Road (S)	0	0	0	0	0	-	11,593	0.61	0
Hinckley Road	0	0	0	0	0	-		0.87	
Wood Street	1	1	1	3	0.6	Pedal Cycle: 1		0.41	
The Hollow	0	0	0	0	0	-		0.25	
High Street (inc. Hilltop)	0	2	0	2	0.4	-		0.53	
Leicester Road (N)	3	1	0	4	0.8	Pedestrian: 1	6,603	1.29	0.27
Total	22	13	1	36	-	-	-	-	-

*Vulnerable road users are defined as cyclists and pedestrians. Accidents involving child casualties are also noted.

Base Data Source: Department for Transport data published by www.crashmap.co.uk

- 2.4.15. The DfT (2023) reported road casualties for Great Britain 2022 presented in RAS0302⁶ for 2013 to 2022 and includes the national accident numbers per billion vehicle kms by road classification.
- 2.4.16. **Table 2-14** summarises the national accident rate per million vehicle kms by road classification for 2018 to 2022.

Table 2-14 - Average Accident Rate Per Million Vehicle Kilometres by Road Type

Road Type	2018	2019	2020	2021	2022	Average
Urban A-Road	0.43	0.42	0.42	0.42	0.30	0.40
Rural A-Road	0.12	0.11	0.11	0.11	0.11	0.11
Urban Other Road	0.43	0.40	0.36	0.37	0.37	0.39
Rural Other Road	0.21	0.20	0.19	0.19	0.19	0.19

Source: Department for Transport statistics (2023) RAS0302

- 2.4.17. Within the study area the A47 is to be considered an urban A road on Clicker's Way and north of Earl Shilton it is considered a rural A road. All other roads in the study area are considered to be urban other roads.
- 2.4.18. Comparing the links in **Table 2-13**, where there was some count data available, from that surveyed by NDC in July 2021, it can be seen that all roads have an PIA per annum per million vehicle km at or below the 2018 to 2022 average PIA per annum per million vehicle km for their road type, excluding the section of the A47 between Dan's Lane and Desford Road B582. The section of the A47 Between Dan's Lane and Desford Road B582, however is only 0.01 above the national average accident rate per annum per million vehicle kilometres for a rural A-road.

Conclusion

- 2.4.19. The accident levels are generally low and where links exhibit an annual average accident rate greater than 1 their average annual accident rate per million vehicle km is not in excess of the national average for their road type excluding the section of the A47 between Dan's Lane and Desford Road B582 however this section of the A47 is only 0.01 above the national average accident rate per annum per million vehicle kilometres for a rural A-road. It is concluded that the study area does not exhibit any severe accident hot spots which need to be targeted with specific casualty reduction measures as part of the development proposals.

FUTURE BASELINE

LOCAL ROAD NETWORK

- 2.4.20. The future baseline of the local road network has been considered as there are a number of junction improvement schemes that are part of the off-site mitigation to be provided by permitted development proposals and can therefore be considered as committed infrastructure. These are as follows:

⁶ Department for Transport statistics (2023) RAS0302. Available at: <https://www.gov.uk/government/statistical-data-sets/reported-road-accidents-vehicles-and-casualties-tables-for-great-britain#road-type-ras03> Accessed 08/11/23

- A47/Dans Lane – signalisation of priority junction as part of the Neovia Logistics permitted development (HBBC planning reference: 21/00619/FUL);
- A47/Beggars Lane – widening improvements to signal junction as part of the Land North of Hinckley Road, Kirby Muxloe development (Blaby planning reference: 19/1610/OUT); and
- A47/Kirby Lane - widening improvements to signal junction as part of the Land North of Hinckley Road, Kirby Muxloe development (Blaby planning reference: 19/1610/OUT)

2.4.21. It is noted that LCC has proposals for the upgrade of the signalised A47/B582 staggered crossroads junction, known as the Desford Crossroads. The design and cost of the improvement is being developed by LCC. A financial contribution towards this scheme will be identified within the planning approval for the Earl Shilton SUE.

TRAFFIC DATA

2.4.22. Traffic data for the future baseline has been derived from the PRTM model which has been run by AECOM on behalf of the Applicants. Model runs have been produced for the year of opening, 2026, and the year of completion which is anticipated to be 2036. The PRTM approach and outputs have been approved by the highway authorities. For the purpose of the EIA chapter, the following two future year scenarios have been assessed:

- 2036 traffic flows without development (includes committed development traffic), i.e. the 2036 Future Baseline; and
- 2036 Future Baseline with development traffic.

2.4.23. Table 2-15 summarises the predicted 2036 Future Baseline.

Table 2-15 - 2036 Baseline Two-Way Traffic Flows (PCU)

Link	Link Name	AM Peak	PM Peak
1	A47 (Hinckley Road North) – North of junction with B582	1,608	1,652
2	B582 Desford Road - South of junction with A47	1,621	1,456
3	A47 (Hinckley Road South) - South of junction with B582	1,362	1,635
4	B582 Leicester Lane - Northwest of junction with A47	1,192	1,146
5	Leicester Road - West of junction with A47	343	413
6	A47 Clickers Way - North of junction with the proposed site access (north)	1,117	900
7	A47 Clickers Way - South of junction with the proposed site access (north)	1,117	900
8	A47 Clickers Way - Northeast of junction with Masefield Drive	1,127	914
9	A47 Clickers Way - Southwest of junction with Masefield Drive	1,127	914
10	A47 Clickers Way - West of junction with Wilkinson Lane	1,359	1,246

Link	Link Name	AM Peak	PM Peak
11	Wilkinson Lane - North of junction with A47	430	536
12	Station Road - South of junction with A47	1,162	1,252
13	A47 - Southwest of junction with Station Road	1,921	2,021
14	A47 - Southwest of junction with Leicester Road	2,786	2,954
15	Leicester Road - North of junction with A47	1,037	1,187
16	B4668 Leicester Road - South of junction with A47	1,389	1,475
17	A47 Normandy Road - West of junction with B4668 and The Common	1,673	1,782
18	The Common - North of junction with A47	683	787
19	B4667 Ashby Road - South of junction with A47	1,625	1,615
20	A47 Normandy Road - West of junction with Ashby Road	1,755	1,728
21	A447 Ashby Road - North of junction with A47	1,747	1,632
22	Mill Lane At Site Access	3	4
23	Alexander Avenue - South of Mill Lane	191	182
24	Astley Road (South of Alexander Avenue)	130	117
25	Astley Road (South of the Proposed Site Access)	130	117
26	Alexander Avenue - West of junction with Astley Road	68	72
27	High Street - South of junction with Alexander Avenue	457	560
28	High Street - North of junction with Alexander Avenue	397	491
29	Wood Street - West of junction with Station Road	428	514

2.5 EFFECTS OF SCHEME CHANGES

2.5.1. This section provides the assessment of effects arising from traffic generated by the Proposed Development.

SENSITIVITY OF HIGHWAY LINKS

Table 2-16 identifies the sensitivity of highway links, based on the current baseline, and identifies the EATM Rule that applies. There are no changes to the assignment of highway link sensitivity compared with that presented in the submitted ES in **Table 14.5**.

Table 2-16 - Sensitivity of Highway Links

Link No.	Highway link	Rationale	Receptor sensitivity	Assessment (Rule 1/2)	Proposed Development Changes
1	A47 (Hinkley Road North) - North of junction with B582	50mph with no land uses and footways.	Negligible	Rule 1	No change
2	B582 Desford Road - South of junction with A47	60mph with no footways. Only couple of farm accesses.	Low	Rule 1	No change
3	A47 (Hinkley Road South) - South of junction with B582	50mph with footway on side of the road. Most of the sections have no land use along its length. Frontage of few properties and on-road cycle lane.	Low	Rule 1	No change
4	B582 Leicester Lane - Northwest of junction with A47	40mph with a short section of footways. Residential properties are well back from the road.	Low	Rule 1	No change
5	Leicester Road - West of junction with A47	50mph with no land uses along its length.	Negligible	Rule 1	No Change
6	A47 Clickers Way - North of junction with the proposed site access (north)	60mph with no land uses along its length. A shared cycle and pedestrian route along the western side of the road.	Low	Rule 1	New three-arm roundabout to serve the northern section of the site. Proposed pedestrian and cycle facilities within the junction will be tied into the existing provision.
7	A47 Clickers Way - South of junction with the proposed site access (north)	60mph with no land uses along its length. A segregated shared cycle and pedestrian route along the western side of the road.	Low	Rule 1	New four arm junction with A47/Breach Lane. Proposed pedestrian and cycle facilities within the junction will be tied into the existing provision.
8	A47 Clickers Way - Northeast	40mph with hedgerow segregating residential	Low	Rule 1	North section of this link will be one of the

Link No.	Highway link	Rationale	Receptor sensitivity	Assessment (Rule 1/2)	Proposed Development Changes
	of junction with Masfield Drive	properties. A shared cycle and pedestrian route along the northern side of the road.			arms of the proposed southern site access.
9	A47 Clickers Way - Southwest of junction with Masfield Drive	40mph with hedgerow segregating residential properties. A shared cycle and pedestrian route along the northern side of the road.	Low	Rule 1	No change
10	A47 Clickers Way - West of junction with Wilkinson Lane	40mph with hedgerow segregating residential properties. A shared cycle and pedestrian route along the northern side of the road.	Low	Rule 1	No change
11	Wilkinson Lane - North of junction with A47	30mph with narrow footways and property frontage. It runs through a residential area.	Medium	Rule 2	No change
12	Station Road (B581) - South of junction with A47	40mph with footway along one side of the road. Properties are well back from the carriageway.	Low	Rule 1	No change
13	A47 - Southwest of junction with Station Road	40mph with hedgerow segregating residential properties. A shared cycle and pedestrian route along one side of the carriageway.	Low	Rule 1	No change
14	A47 - Southwest of junction with Leicester Road	40mph short section of dual carriageway and shared cycle and pedestrian route.	Negligible	Rule 1	No change
15	Leicester Road (Carr Hill) - North of junction with A47	40mph with footway on side of the carriageway. Rural setting without property frontage.	Low	Rule 1	No change
16	B4668 Leicester Road - South of junction with A47	50mph with segregated footways and shared cycle and pedestrian route. Properties are well back from the carriageway.	Low	Rule 1	No change

Link No.	Highway link	Rationale	Receptor sensitivity	Assessment (Rule 1/2)	Proposed Development Changes
17	A47 Normandy Road - West of junction with B4668 and The Common	60mph with segregated footways and shared cycle and pedestrian route.	Low	Rule 1	No change
18	The Common - North of junction with A47	40mph/30mph with segregated footways and footways and property frontage.	Medium	Rule 2	No change
19	B4667 Ashby Road - South of junction with A47	30mph with segregated footways and shared cycle and pedestrian route. Properties are well back from the carriageway.	Low	Rule 1	No change
20	A47 Normandy Road - West of junction with Ashby Road	40mph with segregated and shared cycle and pedestrian route on the south side of the carriageway. No property frontage.	Low	Rule 1	No change
21	A447 Ashby Road - North of junction with A47	40mph with footways. Properties are well back from the carriageway.	Low	Rule 1	No change
22	Mill Lane near Site Access	30mph with footways and property frontage. Part of the carriageway is narrow. Western end has primary school access.	Medium	Rule 2	Road widening, new footway, mini-roundabout at Site accesses
23	Alexander Avenue - South of Mill Lane	30mph with property frontage and narrow footways. Route to primary school access at western end.	Medium	Rule 2	No change
24	Astley Road (South of Alexander Avenue)	30mph with property frontage and narrow footways. Primary school access.	Medium	Rule 2	Traffic calming measure at the Astley Road/Site access junction
25	Astley Road (South of the Proposed Site Access)	30mph with property frontage and adequate footways. Primary school access at northern end.	Medium	Rule 2	Traffic calming measures at the Astley Road/Site access junction

Link No.	Highway link	Rationale	Receptor sensitivity	Assessment (Rule 1/2)	Proposed Development Changes
26	Alexander Avenue - West of junction with Astley Road	30mph with property frontage and adequate footways. Route to primary school access at northern end.	Medium	Rule 2	No change
27	High Street - South of junction with Alexander Avenue	30mph with property frontage and narrow footways.	Medium	Rule 2	No change
28	High Street - North of junction with Alexander Avenue	30mph with property frontage and narrow footways.	Medium	Rule 2	No change
29	Wood Street - West of junction with Station Road	20mph with shop and residential property frontage and adequate footways.	Medium	Rule 2	No change

CHANGES IN TRAFFIC FLOWS

- 2.5.2. shows the percentage change in traffic flows in 2036, with the Proposed Development traffic on the local road network during the AM peak hours. **Table 2-18** shows the percentage change in traffic flows in 2036, with the Proposed Development traffic on the local road network during the PM peak hours.
- 2.5.3. It should be noted that the PRTM is a variable demand strategic model which simulates the assignment of traffic on the road network and includes changes to journey patterns in response to changes in journey times and costs. Changes in flows shown in the results is not just due to the development traffic, as it also reflects changes to the background traffic flows as a result of the additional traffic, i.e. some existing traffic will reroute as a consequence to changes in journey times. In addition, some local traffic will reroute via the Site due to the new accesses onto the A47.

Table 2-17 - Change in Traffic Flows: 2036 AM Peak Hour

Link No.	Link Name	EATM Rule Screening	2036 Base (PCU)	2036 Base + Development (PCU)	% Change in total traffic	Requires Further Assessment (Rule 1/2)?
1	A47 (Hinkley Road North) - North of junction with B582	Rule 1	1,608	1,636	2%	Below 30% - no assessment required
2	B582 Desford Road - South of junction with A47	Rule 1	1,621	1,628	0%	Below 30% - no assessment required
3	A47 (Hinkley Road South) - South of junction with B582	Rule 1	1,362	1,379	1%	Below 30% - no assessment required
4	B582 Leicester Lane - Northwest of junction with A47	Rule 1	1,192	1,211	2%	Below 30% - no assessment required
5	Leicester Road - West of junction with A47	Rule 1	343	496	44%	Exceeds 30% - assessment required
6	A47 Clickers Way - North of junction with the proposed site access (north)	Rule 1	1,117	1,113	0%	Below 30% - assessment required
7	A47 Clickers Way - South of junction with the proposed site access (north)	Rule 1	1,117	1,075	-4%	Below 30% - no assessment required
8	A47 Clickers Way - Northeast of junction with Masefield Drive	Rule 1	1,127	1,319	17%	Below 30% - no assessment required
9	A47 Clickers Way - Southwest of junction with Masefield Drive	Rule 1	1,127	1,319	17%	Below 30% - no assessment required
10	A47 Clickers Way - West of junction with Wilkinson Lane	Rule 1	1,359	1,544	14%	Below 30% - no assessment required

Link No.	Link Name	EATM Rule Screening	2036 Base (PCU)	2036 Base + Development (PCU)	% Change in total traffic	Requires Further Assessment (Rule 1/2)?
11	Wilkinson Lane - North of junction with A47	Rule 2	430	381	-11%	Below 10% - no assessment required
12	Station Road - South of junction with A47	Rule 1	1,162	1,235	6%	Below 30% - no assessment required
13	A47 - Southwest of junction with Station Road	Rule 1	1,921	2,093	9%	Below 30% - no assessment required
14	A47 - Southwest of junction with Leicester Road	Rule 1	2,786	2,978	7%	Below 30% - no assessment required
15	Leicester Road - North of junction with A47	Rule 1	1,037	1,066	3%	Below 30% - no assessment required
16	B4668 Leicester Road - South of junction with A47	Rule 1	1,389	1,475	6%	Below 30% - no assessment required
17	A47 Normandy Road - West of junction with B4668 and The Common	Rule 1	1,673	1,776	6%	Below 30% - no assessment required
18	The Common - North of junction with A47	Rule 2	683	667	-2%	Below 10% - no assessment required
19	B4667 Ashby Road - South of junction with A47	Rule 1	1,625	1,738	7%	Below 30% - no assessment required
20	A47 Normandy Road - West of junction with Ashby Road	Rule 1	1,755	1,772	1%	Below 30% - no assessment required
21	A447 Ashby Road - North of junction with A47	Rule 1	1,747	1,788	2%	Below 30% - no assessment required

Link No.	Link Name	EATM Rule Screening	2036 Base (PCU)	2036 Base + Development (PCU)	% Change in total traffic	Requires Further Assessment (Rule 1/2)?
22	Mill Lane At Site Access	Rule 2	3	142	4102%	Exceeds 10% - assessment required
23	Alexander Avenue - South of Mill Lane	Rule 2	191	480	152%	Exceeds 10% - assessment required
24	Astley Road (South of Alexander Avenue)	Rule 2	130	504	288%	Exceeds 10% - assessment required
25	Astley Road (South of the Proposed Site Access)	Rule 2	130	176	35%	Exceeds 10% - assessment required
26	Alexander Avenue - West of junction with Astley Road	Rule 2	68	187	176%	Exceeds 10% - assessment required
27	High Street - South of junction with Alexander Avenue	Rule 2	457	629	38%	Exceeds 10% - assessment required
28	High Street - North of junction with Alexander Avenue	Rule 2	397	465	17%	Exceeds 10% - assessment required
29	Wood Street - West of junction with Station Road	Rule 2	428	552	29%	Exceeds 10% - assessment required

Table 2-18 - Change in Traffic Flows: 2036 PM Peak Hour

Link No.	Link Name	GEART Rule Screening	2036 Base (PCU)	2036 Base + Development (PCU)	% Change in total traffic	Assessment (Rule 1/2)
1	A47 (Hinkley Road North) - North of junction with B582	Rule 1	1,652	1,703	3%	Below 30% - no assessment required
2	B582 Desford Road - South of junction with A47	Rule 1	1,456	1,482	2%	Below 30% - no assessment required
3	A47 (Hinkley Road South) - South of junction with B582	Rule 1	1,635	1,693	4%	Below 30% - no assessment required
4	B582 Leicester Lane - Northwest of junction with A47	Rule 1	1,146	1,158	1%	Below 30% - no assessment required
5	Leicester Road - West of junction with A47	Rule 1	413	536	29.7%	Below 30% - no assessment required
6	A47 Clickers Way - North of junction with the proposed site access (north)	Rule 1	900	1,000	11%	Below 30% - no assessment required
7	A47 Clickers Way - South of junction with the proposed site access (north)	Rule 1	900	950	6%	Below 30% - no assessment required
8	A47 Clickers Way - Northeast of junction with Masefield Drive	Rule 1	914	1,166	27%	Below 30% - no assessment required
9	A47 Clickers Way – Southwest of junction with Masefield Drive	Rule 1	914	1,166	27%	Below 30% - no assessment required
10	A47 Clickers Way - West of junction with Wilkinson Lane	Rule 1	1,246	1,509	21% ¹	Below 30% - no assessment required

Link No.	Link Name	GEART Rule Screening	2036 Base (PCU)	2036 Base + Development (PCU)	% Change in total traffic	Assessment (Rule 1/2)
11	Wilkinson Lane - North of junction with A47	Rule 2	536	462	-14%	Below 10% - no assessment required
12	Station Road - South of junction with A47	Rule 1	1,252	1,277	2%	Below 30% - no assessment required
13	A47 - Southwest of junction with Station Road	Rule 1	2,021	2,272	12%	Below 30% - no assessment required
14	A47 - Southwest of junction with Leicester Road	Rule 1	2,954	3,146	6%	Below 30% - no assessment required
15	Leicester Road - North of junction with A47	Rule 1	1,187	1,184	-0.2%	Below 30% - no assessment required
16	B4668 Leicester Road - South of junction with A47	Rule 1	1,475	1,640	11%	Below 30% - no assessment required
17	A47 Normandy Road - West of junction with B4668 and The Common	Rule 1	1,782	1,843	3%	Below 30% - no assessment required
18	The Common - North of junction with A47	Rule 2	787	826	5%	Below 10% - no assessment required
19	B4667 Ashby Road - South of junction with A47	Rule 1	1,615	1,654	2%	Below 30% - no assessment required
20	A47 Normandy Road – West of junction with Ashby Road	Rule 1	1,728	1,793	4%	Below 30% - no assessment required
21	A447 Ashby Road - North of junction with A47	Rule 1	1,632	1,678	3%	Below 30% - no assessment required
22	Mill Lane At Site Access	Rule 2	4	158	3448%	Exceeds 10% - assessment required

Link No.	Link Name	GEART Rule Screening	2036 Base (PCU)	2036 Base + Development (PCU)	% Change in total traffic	Assessment (Rule 1/2)
23	Alexander Avenue - South of Mill Lane	Rule 2	182	416	128%	Exceeds 10% - assessment required
24	Astley Road (South of Alexander Avenue)	Rule 2	117	428	265%	Exceeds 10% - assessment required
25	Astley Road (South of the Proposed Site Access)	Rule 2	117	150	28%	Exceeds 10% - assessment required
26	Alexander Avenue - West of junction with Astley Road	Rule 2	72	129	80%	Exceeds 10% - assessment required
27	High Street - South of junction with Alexander Avenue	Rule 2	560	675	21%	Exceeds 10% - assessment required
28	High Street - North of junction with Alexander Avenue	Rule 2	491	558	14%	Exceeds 10% - assessment required
29	Wood Street - West of junction with Station Road	Rule 2	514	553	8%	Below 10% - no assessment required

2.5.4. An assessment of environmental effects on the following links was undertaken based on the percentage impact results detailed in Table 2-17 and **Table 2-18**:

- Link 5: Leicester Road - West of junction with A47 (AM peak);
- Link 22: Mill Lane near site access (AM and PM peaks);
- Link 23: Alexander Avenue – South of Mill Lane (AM and PM peaks);
- Link 24: Astley Road - South of Alexander Avenue (AM and PM peaks);
- Link 25: Astley Road – South of the proposed site access (AM and PM peaks);
- Link 26: Alexander Avenue - West of junction with Astley Road (AM and PM peaks);
- Link 27: High Street – South of junction with Alexander Avenue (AM and PM peaks);
- Link 28: High Street - North of junction with Alexander Avenue (AM and PM peaks); and
- Link 29: Wood Street - West of junction with Station Road (AM peak).

Leicester Road - West of junction with A47 (Link 5)

2.5.5. With a traffic flow increase of 44% on link 5 in the AM the EATM threshold (Rule 1, 30%) is exceeded.

Severance

2.5.6. The predicted increase of 44% traffic flows with the addition of the Proposed Development results in a low magnitude of change relating to severance. Additionally, this link section has no adjacent land-uses beyond fields and a few properties set well back from the carriageway, hence the link has been identified as negligible sensitivity to T&T effects (**Table 2-9**). Overall, the significance of the effect of severance on this link, due to the proposed development is negligible (Not significant).

Road vehicle driver and passenger delay

2.5.7. The traffic flows on the link are low and the additional traffic will not affect capacity or delay.

Non-motorised user delay and amenity

2.5.8. This link section has low pedestrian activity and the footway on the western/northern side of the carriageway is set back from the road by verge. The increase in flows as a result of the Proposed Development will not affect NMU delay or amenity.

Fear and intimidation on and by road users

2.5.9. Without and with the proposed development flows this link has a degree of hazard score of 60 and thus a level of fear and intimidation of Great (based on **Table 2-7** and **Table 2-8**) therefore, the magnitude of change, due to the proposed development traffic on the level of fear and intimidation is negligible. Overall impact on fear and intimidation, due to the proposed development, would be anticipated to be negligible (Not significant).

Road user and pedestrian safety

2.5.10. As shown in **Table 2.14**, this link section does not exhibit severe accident hot spots which need to be assessed in detail and targeted with specific casualty reduction measures. The magnitude of change is considered to be low and the overall significant of effect as negligible (not significant).

Mill Lane near site access (Link 22)

- 2.5.11. With traffic flow increases of 4102% and 3488% in AM and PM peak respectively, the EATM threshold (Rule 2, 10%) is exceeded. The percentage increase in traffic should be treated with caution given the low volume of baseline traffic (without development) as this method of comparison gives results in a disproportionate impact. Table 2-17 and **Table 2-18** show negligible traffic flows of 3 and 4 vehicles in the 2036 Future Baseline during AM and PM peak respectively.

Severance

- 2.5.12. Due to the low baseline flows the percentage change in traffic flow is not appropriate for assessing the magnitude of impact on severance on this link. The increase in traffic flows is 138 vehicles in the AM peak and 153 vehicles in the PM peak hour, which equates to an average of less than three vehicles per minute which will not impact on severance. The magnitude of change is considered low and the overall significance of effect to be minor (not significant).

Road vehicle driver and passenger delay

- 2.5.13. Mill Lane is a cul-de-sac with vehicular access to the properties along it and side roads. Traffic management measures within the Proposed Development design are intended to minimise traffic flows along Mill Lane. With the implementation of these measures, the magnitude of change is considered to be low and the overall significance of effect to be minor (not significant).

Non-motorised user delay and amenity

- 2.5.14. The increase in traffic flows is 138 vehicles in the AM peak and 153 vehicles in the PM peak hour, which equates to an average of less than three vehicles per minute. The magnitude of change is considered low and the overall significance of effect to be minor (not significant). Traffic management and pedestrian footway connectivity within the Site will provide a benefit to the pedestrian environment.

Fear and Intimidation on and by road users

- 2.5.15. Without the proposed development flows the level of fear and intimidation on this section of link is considered small due to the minimal traffic flows, with the increase in traffic flows due to the proposed development impacting on the degree of hazard the level of fear and intimidation increases to moderate (based on **Table 2-7** and **Table 2-8**) therefore, the magnitude of change, due to the proposed development traffic on the level of fear and intimidation is medium. However due to the low baseflows and the context that traffic management and pedestrian footway connectivity will provide a benefit to the pedestrian environment on Mill Lane near the Site accesses the impact on fear and intimidation is low and the overall significance of effect is considered minor (not significant).

Road user and pedestrian safety

- 2.5.16. As shown in **Table 2.14**, this link section does not exhibit any recorded accident and thus no severe accident hot spots which need to be assessed in detail and targeted with specific casualty reduction measures. The magnitude of change is considered to be low, as, although traffic flows will increase by a large percentage, the access design connecting the Site to Mill Lane will be compliant with appropriate design standards and tie into existing provision. The significance of effect to be minor (not significant).

Alexander Avenue (Links 23 +26)

- 2.5.17. With traffic flow increases of 152% and 128% on link 23 in the AM and PM peak respectively, and 176% and 80% on link 26 in AM and PM peak respectively, the EATM threshold (Rule 2, 10%) is exceeded. For the purpose of the assessment, the links have been combined as one as they are the same in character and the scale of impact is similar.
- 2.5.18. The percentage increase in traffic should be treated with caution given the low volume of existing baseline traffic (without development) as this method of comparison gives results in a disproportionate impact.

Severance

- 2.5.19. The scale of increase is higher in proximity to the Mill Lane junction than the Astley Road junction which implies that it is likely that there is redistribution of traffic from existing housing towards Mill Lane and the Proposed Development in order to gain access to the A47 via the new roundabout junctions. The baseline flows are low and the increase is highest in the AM peak, with an increase from 191 to 480 trips, an increase of 5 cars per minute or 1 every 12 seconds. This change is unlikely to impact on severance, however, consideration should be given to monitoring the traffic flows in order to assess whether traffic management is required to minimise the impact of traffic flows along the route.

Road vehicle driver and passenger delay

- 2.5.20. Baseline flows are low, and the additional traffic represents a high increase, but this can be accommodated. As set out in paragraph 2.5.20, monitoring is required to assess the impacts and whether traffic management measures are required to minimise the impact.

Non-motorised user delay and amenity

- 2.5.21. Alexander Avenue has footways on both sides of the road, and as identified in paragraph 2.5.20, the increase in traffic is unlikely to impact on amenity. As previously identified, monitoring is required to assess the impacts and whether traffic management measures are required to minimise the impact.

Fear and intimidation on and by road users

- 2.5.22. Without and with the proposed development flows this link has a degree of hazard score of 50 and thus a level of fear and intimidation of Great (based on **Table 2-7** and **Table 2-8**) therefore, the magnitude of change, due to the proposed development traffic on the level of fear and intimidation is negligible. Overall impact on fear and intimidation, due to the proposed development, would be anticipated to be negligible (Not significant).

Road user and pedestrian safety

- 2.5.23. As shown in **Table 2.14**, this link section does not exhibit severe accident hot spots which need to be assessed in detail and targeted with specific casualty reduction measures. The magnitude of change is considered to be low and the significance of effect to be minor (not significant).

Astley Road (Links 24 + 25)

- 2.5.24. With traffic flow increases of 288% and 165% on link 24 in the AM and PM peak respectively, and 35% and 28% on link 25 in AM and PM peak respectively the EATM threshold (Rule 2, 10%) is exceeded. For the purpose of the assessment, the links have been combined as one as they are the same in character and the scale of impact is similar.

- 2.5.25. The percentage increase in traffic should be treated with caution given the low volume of existing baseline traffic (without development) as this method of comparison gives results in a disproportionate impact.
- 2.5.26. It is highlighted that the traffic flows for the Proposed Development are overly robust, as it is assumed that the traffic generated by the retail land use is all external to the Site and 50% of the primary school trips are external to the Site. It is likely that a high proportion of these trips would access the Site via Astley Road. In reality, a much smaller proportion of retail trips would be external, with the remaining retained within the Site. In addition, it is likely that the A47 roundabouts may result in existing traffic routing through the Site to access the A47. Traffic management on the internal access road from Astley Road is proposed to deter the use of the junction.

Severance

- 2.5.27. The baseline flows are low in both peaks and the increase is highest in the AM peak on the northern section of Astley Road, with an increase from 130 to 504 trips, an increase of over 6 cars per minute or 1 every 10 seconds. This change is unlikely to impact on severance, however, consideration should be given to monitoring the traffic flows from the Site access and on Astley Road in order to assess whether traffic management is required to minimise the impact of traffic flows along the route.

Road vehicle driver and passenger delay

- 2.5.28. An assessment has been undertaken of the capacity of the Astley Road/Site access. This found that there is capacity both on Astley Road and at the Site access road with the addition of the development traffic. Therefore, the magnitude of change is considered to be low and the overall significance of effect to be minor (not significant).

Non-motorised user delay and amenity

- 2.5.29. Astley Road has footways on both sides of the road, and as identified in paragraph 2.5.27, the increase in traffic is unlikely to impact on amenity. As previously identified, monitoring is required to assess the impacts and whether traffic management measures are required to minimise the impact.

Fear and intimidation on and by road users

- 2.5.30. Without the proposed development flows this link has a degree of hazard score of 40 and thus a level of fear and intimidation of Moderate, with the addition of the proposed development traffic flows these are a score of 50 and level of Great (based on **Table 2-7** and **Table 2-8**). Therefore, the magnitude of change, due to the proposed development traffic on the level of fear and intimidation is medium. Overall impact on fear and intimidation, due to the proposed development, would be anticipated to be moderate (significant).

Road user and pedestrian safety

- 2.5.31. As shown in Table 2-14, this link section does not exhibit severe accident hot spots which need to be assessed in detail and targeted with specific casualty reduction measures. The magnitude of change is considered to be low and the significance of effect to be minor (not significant).

High Street (Links 27 + 28)

- 2.5.32. With traffic flow increases of 38% and 21% on link 27 in the AM and PM peak respectively, and 17% and 14% on link 28 in AM and PM peak respectively, the EATM threshold (Rule 2, 10%) is

exceeded. For the purpose of the assessment, the links have been combined as one as they have similar characteristics.

Severance

- 2.5.33. The greatest percentage increase in traffic flows on these link sections is 38% in the AM peak. The increase in traffic flows is up to 172 vehicles in the AM peak and 115 vehicles in the PM peak hour (both on link 27) which equates to an average of approximately 3 per minute in the AM (or one every 20 seconds) and approximately two vehicles per minute in the PM peak hour (or one every 30 seconds) which will not impact on severance. The magnitude of change is considered to be low and the overall significance of effect to be minor (not significant).

Road vehicle driver and passenger delay

- 2.5.34. The increase in traffic flow can be accommodated on the road but may affect junction capacities. As identified for other links, monitoring is required to assess the impacts and whether traffic management measures are required to minimise the impact.

Non-motorised user delay and amenity

Non-motorised user delay

The magnitude of change is therefore considered to be low concerning non-motorised user delay due to the provision of zebra pedestrian crossing points and the relatively low increase in traffic flows (up to 38% which occurs in the AM peak). Therefore, the significance of effect is considered to be minor (not significant).

Non-motorised user amenity

The percentage increase in traffic flow on High Street due to the proposed development is below a 50% increase and predominantly light vehicles. High Street has footways with pedestrian crossing facilities, including zebra crossings these factors provide a benefit to the pedestrian environment. The increase in traffic as a result of the Proposed Development is unlikely to affect amenity of users of the route. The magnitude of change is therefore considered to be low and the significance of effect minor (not significant).

Fear and intimidation on and by road users

- 2.5.35. Without and with the proposed development flows this link has a degree of hazard score of 50 and thus a level of fear and intimidation of Great (based on **Table 2-7** and **Table 2-8**) therefore, the magnitude of change, due to the proposed development traffic on the level of fear and intimidation is negligible. Overall impact on fear and intimidation, due to the proposed development, would be anticipated to be negligible (Not significant).

Road user and pedestrian safety

- 2.5.36. As shown in Table 2-14, this link section does not exhibit severe accident hot spots which need to be assessed in detail and targeted with specific casualty reduction measures. The magnitude of change is considered to be low and the significance of effect to be minor (not significant).

Wood Street (Link 29)

- 2.5.37. With a traffic flow increase of 29% on link 29 in the AM the EATM threshold (Rule 2, 10%) is exceeded.

Severance

- 2.5.38. The greatest percentage increase in traffic flows on this link section is 29% in the AM peak. The increase in traffic flows is up to 124 vehicles in the AM peak and 40 vehicles in the PM peak hour equates to an average of approximately 2 per minute in the AM (one every 30 seconds) which will not impact on severance. The magnitude of change is considered to be negligible and the overall significance of effect to be negligible (not significant).

Road vehicle driver and passenger delay

- 2.5.39. The increase in traffic flow can be accommodated on the road but may affect junction capacities. As identified for other links, monitoring is required to assess the impacts and whether traffic management measures are required to minimise the impact.

Non-motorised user delay and amenity

- 2.5.40. Wood Street has ample footways with pedestrian crossing facilities, including signalised crossings with advanced cycle markings, and build outs. The magnitude of change is considered to be low concerning non-motorised user delay due to the provision of signalised pedestrian crossing points and the relatively low increase in traffic flows (up to 29% which occurs in the AM peak). The presence of advanced cycle stop line at the signalised junctions, also, reduce the magnitude of impact on cycle delay due to increased traffic flows. Therefore, the significance of effect is considered to be minor (not significant).

Fear and intimidation on and by road users

- 2.5.41. Without and with the proposed development flows this link has a degree of hazard score of 40 and thus a level of fear and intimidation of Moderate (based on **Table 2-7** and **Table 2-8**) therefore, the magnitude of change, due to the proposed development traffic on the level of fear and intimidation is negligible. Overall impact on fear and intimidation, due to the proposed development, would be anticipated to be negligible (Not significant).

Road user and pedestrian safety

- 2.5.42. As shown in Table 2-14, this link section does not exhibit severe accident hot spots which need to be assessed in detail and targeted with specific casualty reduction measures. However, this link section did record one fatal accident. The greatest percentage increase in traffic flows on this link section is 29% in the AM peak, equating to up to 124 vehicles and an average of approximately 2 per minute in the AM which will not be anticipated to have a severe detrimental impact on road user safety. The magnitude of change is considered to be low and the significance of effect to be minor (not significant).

2.6 ASSUMPTIONS AND LIMITATIONS

- 2.6.1. As per the submitted ES Chapter 14: Traffic, there are no limitations relating to T&T that affect the robustness of the assessment of the likely significant T&T effects of the Proposed Development contained within this ES addendum **Chapter 2**.

2.7 CONCLUSIONS

- 2.7.1. This Chapter of the ES Addendum provides a review and update, where applicable, of the Traffic & Transport (T&T) assessment presented within Chapter 14 of the 2021 ES to take into account updates to the traffic data as a result of addressing comments made by the highway authorities.
- 2.7.2. Whilst the updated traffic data and revised modelling results in minor changes to the assessment, they do not materially change the overall conclusions of the 2021 ES. Monitoring of traffic flows on neighbouring roads should be undertaken during the construction and delivery of the Proposed Development to assess the need for traffic management measures, such as lower speed limits to address impacts.

3 NOISE

3.1 INTRODUCTION

- 3.1.1. This chapter of the addendum assesses the likely significant effects of the Proposed Development with respect to noise and vibration and is based on updated traffic flow information provided in October 2023. This should be read in conjunction with the development description provided in **Chapter 3: Description of the Proposed Development** of the environmental statement⁷ (ES) and with respect to relevant parts of this addendum, namely **Chapter 2: Traffic**, where common receptors have been considered and where there is an overlap or relationship between the assessment of effects.
- 3.1.2. Noise and vibration can have an effect on the environment and on the quality of life, health and well-being of individuals and communities. It can also pervade and affect the quality of natural resources.
- 3.1.3. An update to the separate Site Suitability Report has been completed based on the updated traffic flow information provided in October 2023. The site suitability assesses the residential aspects of the Proposed Development.

3.2 ASSESSMENT METHODOLOGY AND SCOPE

- 3.2.1. The generic project-wide approach to the assessment methodology is set out within **Chapter 4: Approach to Preparing the Environmental Statement** of the ES⁷, specifically in **Sections 4.5 to 4.7**. However, whilst this has informed the approach that has been used in this noise and vibration assessment, it is necessary to set out how this methodology has been applied, and adapted as appropriate, to address the specific needs of this noise and vibration assessment.
- 3.2.2. Government noise policy, namely that set out within the Noise Policy Statement for England⁸ (NPSE) requires that noise and vibration assessments identify effects that would result in significant adverse impacts on health and quality of life from a proposed development.
- 3.2.3. In NPSE⁸ and Planning Practice Guidance-Noise⁹ (NPPG) the effect levels in relation to adverse impacts on health and quality of life are set out as:
 - 3.2.4. No Observed Effect Level (NOEL)– level below which no effect on health and quality of life is detected.
 - 3.2.5. Lowest Observed Adverse Effect Level (LOAEL) – level above which adverse effects on health and quality of life can be detected;
 - 3.2.6. Significant Observed Adverse Effect Level (SOAEL)– level above which significant adverse effects on health and quality of life occur; and
 - Unacceptable Adverse Effect Level (UAEL) – level above which adverse effects are unacceptable.

⁷ Wood Group UK Ltd, 2021. 42523-WOOD-XX-XX-RP-MD-0001_S3_P01 - Earl Shilton Environmental Statement, December 2021

⁸ Department for Environment, Food & Rural Affairs (2010). Noise Policy Statement for England (online). Available at: <https://www.gov.uk/government/publications/noise-policy-statement-for-england> (Accessed 01 November 2023).

⁹ Ministry of Housing, Communities & Local Government. (2019). Planning Practice Guidance, Noise. (online). Available at <https://www.gov.uk/guidance/noise--2> (Accessed 01 November 2023).

3.2.7. The NPPG⁹ links the increasing effect levels to an effect, perception by receptor and associated action, as summarised in **Table 3-1**.

Table 3-1 - NPPG, summary of Noise Exposure Hierarchy

Increasing effect level	Effect	Perception	Action
Less than NOEL	No effect	Not noticeable	No specific measures
Greater than NOEL	Effect	Noticeable but not intrusive	No specific measures
Greater than LOAEL	Adverse effect	Noticeable and intrusive	Mitigate and reduce to a minimum
Greater than SOAEL	Significant adverse effect	Noticeable and disruptive	Avoid

3.2.8. In relation to the effect levels summarised in **Table 3-1**, NPSE⁸ sets out three aims:

- Avoid developments or activities which are demonstrated to have significant observed adverse effects i.e. Greater than the soael;
- Mitigate and minimise developments or activities where the effect lies between the loaels and the soael; and
- Contribute to the improvement of health and quality of life through the effective management and control of environmental noise.

3.2.9. The NPSE⁸ states that it is not possible to have a ‘single objective’ noise (or vibration) based measure applicable to all sources and receptors that define the on-set of the LOAEL or the SOAEL. It is however possible to define threshold levels for the onset of each of the effect levels, based upon available Standards and technical guidance.

3.2.10. The Standards and technical guidance used within this assessment to define the NPSE⁸ threshold levels, and associated reasoning, are detailed below.

ESTABLISHING RECEPTOR SENSITIVITY

3.2.11. The EIA Regulations recognise that developments will affect different environmental elements to differing degrees, and that not all of these are of sufficient concern to warrant detailed investigation through the EIA process. The EIA Regulations identify those environmental resources that warrant investigation as those that are *‘likely to be significantly affected by the development’*.

3.2.12. The EIA Regulations do not define significance and it is necessary to state how this is defined for EIA. The significance of an effect resulting from a development during construction or operation is most commonly assessed by reference to the sensitivity (or value) of a receptor and the magnitude of the effect. This approach provides a mechanism for identifying areas where mitigation measures may be required and to identify the most appropriate measures to alleviate the risk presented by the development.

3.2.13. The precise determination of the sensitivity of a receptor relies on professional judgement.

- 3.2.14. **Table 3.2** details the basis for assessing receptor sensitivity which has been produced on the basis of experience and assessing similar facilities, and on professional judgement.

Table 3.2 - Establishing the Sensitivity of Receptors.

Sensitivity	Example
High	Hospital operating theatres, recording studios
Medium	Dwellings, schools, hotels
Low	Offices, public amenity areas
Negligible	Industrial and commercial areas

SIGNIFICANCE OF EFFECT EVALUATION METHODOLOGY

- 3.2.15. The evaluation of significance differs depending on the sensitivity of the assessed receptor(s). National noise policy and standards documents generally focus on the effects of noise on residential receptors in isolation, whilst there is a requirement within the NPSE⁸ and NPPG⁹ to evaluate the effects on a community basis; such as within a neighbourhood. The evaluation of significance within a community is therefore a combination of advice derived from standards and policy, in addition to considerations of context and receptor sensitivity.
- 3.2.16. The precise determination of impact magnitudes for operational noise effects are based on relevant guidance and professional judgement. For example, Design Manual for Roads and Bridges¹⁰ (DMRB) provides criteria which may be directly transposed to different impact magnitude categories (see **Table 3.5** and **Table 3.6**).
- 3.2.17. The overall significance of effect rating is based on the evaluation of significance matrix presented in **Table 3.3**.

Table 3.3 - Significance of Effect Matrix for Noise and Vibration.

Level of significance to sensitivity of receptor/resource	Magnitude of change			
	High	Medium	Low	Negligible
High	Major (significant)	Moderate/Major (significant)	Minor/Moderate (potentially significant)	Minor (not significant)
Medium	Moderate/Major (significant)	Minor/Moderate (potentially significant)	Minor (not significant)	Negligible/Minor (not significant)

¹⁰ Highways England (2020). Design Manual for Roads and Bridges, LA 111 – Noise and Vibration (Revision 2) (online). Available at: <https://www.standardsforhighways.co.uk/dmrbs/search/cc8cfcf7-c235-4052-8d32-d5398796b364> (Accessed 01 November 2023).

Level of significance to sensitivity of receptor/resource	Magnitude of change			
	High	Medium	Low	Negligible
Low	Minor/Moderate (potentially significant)	Minor (not significant)	Negligible/Minor (not significant)	Negligible (not significant)

Residential receptors

- 3.2.18. For assessment purposes, where the calculated noise or vibration exposure at a residential receptor is greater than the SOAEL and is therefore a significant observed adverse impact on health and quality of life in Government noise policy terms; this will also be treated as a likely significant adverse effect in the context of the EIA Regulations.
- 3.2.19. Effects at the assessed residential receptors which are shown to be lower than the LOAEL are not considered to be adverse in terms of EIA Regulations. However, where possible, mitigation has been recommended with the aim to positively improve the health and quality of life of those receptors. This approach is in keeping with the third aim of NPSE⁸.
- 3.2.20. The second aim of NPSE⁸ refers to situations where the impact lies between the LOAEL and the SOAEL, where there is a requirement to *'mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development'*. In this case reasonable steps should be taken to mitigate and minimise the impact. The NPSE⁸ however recognises that this does not necessarily mean such adverse effects cannot occur.
- 3.2.21. The decision-making process as to whether or not an adverse effect at a residential receptor occurs when the noise or vibration exposure is between the LOAEL and SOAEL can require additional quantitative and qualitative considerations. These require elements of professional judgement and consideration of the context within which the effect occurs. In summary, these considerations include:
- The magnitude of the effect;
 - The change in magnitude of the effect;
 - The type of effect, including its intermittency;
 - The existing acoustic environment;
 - The effectiveness of mitigation, including best practicable means (bpm); and
 - The duration of effect.
- 3.2.22. The PPG:N⁹ advises that noise effects may be partially offset if the residents of affected dwellings have access to:
- A relatively quiet facade (containing windows to habitable rooms) as part of their dwelling, and/or;
 - A relatively quiet external amenity space for their sole use, (e.g. a garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced with increasing noise exposure and could be such that significant adverse effects occur, and/or;

- A relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings, and/or;
- A relatively quiet, protected, external publicly accessible amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minute walking distance).

3.2.23. Furthermore, the National Planning Policy Framework¹¹ (NPPF) requires consideration to be given to the likely effects at receptors of noise and vibration together from the Site in isolation and in-combination with other relevant committed and proposed projects.

Non-residential receptors

3.2.24. For non-residential receptors, the evaluation of significance has taken into account the considerations outlined in the previous section, and the sensitivity of the non-residential receptor's existing use.

3.2.25. The assessment as to whether there will be a significant adverse effect in terms of the EIA Regulations is based upon the quantitative and qualitative considerations in the Significance evaluation methodology section, namely:

- The magnitude of the effect;
- The change in magnitude of the effect;
- The type of effect, including its intermittency;
- The existing acoustic environment;
- The effectiveness of mitigation, including bpm; and
- The duration of effect.

OPERATIONAL ROAD TRAFFIC NOISE METHODOLOGY

3.2.26. Changes in noise levels arising from variations in road traffic volumes on the local network (associated with the Proposed Development) have been assessed using the Calculation of Road Traffic Noise¹² (CRTN) and DMRB¹⁰.

3.2.27. In accordance with DMRB¹⁰, daytime (06:00 – 00:00) levels have been predicted and assessed using the $L_{10,18h}$ noise metric. No traffic flows have been provided for night-time and therefore a night-time noise level was predicted by using the methodology within TRL document '*Converting the UK traffic noise index $L_{A10,18h}$ to EU noise indices for noise mapping*'¹³. This methodology uses the $L_{A10,18h}$ daytime to provide a $L_{Aeq,8h}$ night-time (23:00 – 07:00). NPSE⁸ levels are identified below for both periods and metrics.

¹¹ Ministry of Housing, Communities & Local Government (December 2023). Revised National Planning Policy Framework (online). Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2> (Accessed 29 January 2024).

¹² The Department of Transport (1988). *Calculation of Road Traffic Noise*. DfT, London, UK.

¹³ TRL Limited (2002). '*Converting the UK traffic noise index $L_{A10,18h}$ to EU noise indices for noise mapping*'. (online). Available at: https://webarchive.nationalarchives.gov.uk/ukgwa/20130402151656/http://archive.defra.gov.uk/environment/quality/noise/research/crtn/documents/noise_crtn.pdf (Accessed 01 November 2023).

3.2.28. Road traffic noise has been predicted using CadnaA software. The road traffic models were based upon total vehicle flow, percentage HGVs and average speed data for the daytime and night-time average hourly traffic flows in both the baseline and 'with development' scenarios.

Residential receptors

3.2.29. DMRB¹⁰ states that LOAELs and SOAELs should be set out in accordance with **Table 3.4**, although it also provides scope for the application of professional judgement in modifying these values where it is appropriate to do so.

Table 3.4 - Summary of Road Traffic Noise Threshold Levels

Noise sources	Receptor	Period	LOAEL	SOAEL
Operational noise – road traffic	Residential	Daytime	50 dB $L_{Aeq, 16h}$ (free-field) 55 dB $L_{A10, 18h}$ (façade)	63 dB $L_{Aeq, 16h}$ (free-field) 65 dB $L_{A10, 18h}$ (façade)
		Night-time	40 dB $L_{Aeq, 8h}$ (free-field)	55 dB $L_{Aeq, 8h}$ (free-field)

3.2.30. Consideration has been given to the items listed in paragraph 3.2.21 to evaluate the magnitude of significance in terms of the EIA Regulations; where the road traffic noise effects at residential receptors lie between the LOAEL and the SOAEL.

3.2.31. In addition to the considerations summarised in the significance evaluation methodology section, the determination as to whether there is a significant adverse effect in terms of the EIA Regulations from road traffic noise will consider the likely magnitude of change.

3.2.32. DMRB¹⁰ presents the interpretation of changes in road traffic noise levels ($L_{A10, 18hr}$ and/or $L_{Aeq, 8hr}$) for determining the potential magnitude of impact. DMRB¹⁰ sets out differing criteria associated with change in noise level for short term (i.e. immediately after the Proposed Development opening) and long-term (ideally 15 years from the Proposed Development opening) impacts; as outlined in **Table 3.5** and **Table 3.6**, respectively (terminology amended from DMRB¹⁰ to align with significance of effect matrix).

Table 3.5 - DMRB¹⁰ classification of magnitude of noise impacts in the short term

Noise change in dB $L_{A10, 18h}$	Magnitude of impact
0.1 – 0.9	Negligible
1 – 2.9	Low
3 – 4.9	Medium
5+	High

Table 3.6 - DMRB¹⁰ Classification of Magnitude of Noise Impacts in the Long-term

Noise change in dB $L_{A10, 18h}$	Magnitude of impact
0.1 – 2.9	Negligible
3 – 4.9	Low
5 – 9.9	Medium
10+	High

- 3.2.33. DMRB¹⁰ advocates a staged approach for the assessment of likely significant effects. This takes the form of an initial assessment where minor or negligible change magnitudes on NSRs in the short term are deemed not significant and change magnitudes moderate or above are deemed to be significant.
- 3.2.34. DMRB¹⁰ considers that where the magnitude of change is deemed ‘negligible’ in the initial assessment then no further assessment required for these NSRs.
- 3.2.35. For NSRs where the magnitude of change is found to be minor, moderate, or major in the initial assessment then there are series of additional factors to consider before the final significance determination can be made, these include:
- 3.2.36. whether the noise level change is close to the boundary, i.e. a moderate impact magnitude is less than 1 dB above the minor impact range;
- Where the long-term and short-term outcomes differ:
 - Where long-term impact is predicted to be greater than short-term impact, it can be appropriate to conclude that a minor change in the short term is a likely significant effect;
 - Where the long-term impact is predicted to be less than the short-term, it can be appropriate to conclude that a moderate or major change in the short term is not significant; or
 - A similar change in long-term and non-project noise can indicate that change is not due to the project and therefore not an indication of a likely significant effect;
 - A noise change where all do-something absolute noise levels are below SOAEL requires no modification of the initial assessment;
 - Where any do-something absolute noise levels are above SOAEL, a noise change in the short term of 1 db or over results in a likely significant effect;
 - Consideration of the locations of the noise sensitive parts of the receptor;
 - Acoustic context – i.e. Is the noise source being introduced different in character to the existing soundscape; and
 - Likely perception of change by residents – i.e. non-acoustic factors.

Non-residential receptors

- 3.2.37. The DMRB¹⁰ criterion above is applied to non-residential receptors. However, an initial screening criterion is used to assess whether the absolute noise level is potentially significant. For example, a major increase in traffic noise at a school would not be considered significant if the total noise was below a set noise level.

- 3.2.38. British Standard 8233:2014 - *Guidance on sound insulation and noise reduction on buildings*¹⁴ (BS 8233: 2023) sets out desirable internal ambient noise levels in rooms intended for a variety of activities. The desirable internal ambient noise levels are set based upon impacts from noise sources that do not have a specific distinguishable character, such as a tone or strong low-frequency content.
- 3.2.39. In the absence of façade construction information for each of the non-residential receptors, the internal ambient noise criteria have been related to an external criterion by applying a +15 dB correction. This approach is advocated by the calculation methodology set out within BS 8233:2014¹⁴ and assumes a 15 dB attenuation across a partially open window.
- 3.2.40. The Acoustic design of schools: performance standards: building bulletin 93¹⁵ (BB93:2015) has set out acoustic performance standards appropriate for education facilities covered by The Building Regulations Approved Document E¹⁶. In BB93:2015¹⁵, the most used limit for indoor ambient noise is 35 dB $L_{Aeq, 30min}$ and is specified for rooms where the uses include, nursery school rooms, primary or secondary school classrooms, teaching areas, or laboratories. This indoor noise limit has been adopted as the daytime impact criterion for the educational facilities non-residential receptor group. The associated daytime external criterion is 50 dB $L_{Aeq, T}$, assuming a 15 dB correction for a partially opened window. For the purposes of this assessment, it is assumed that the $L_{Aeq, 30 min}$ is represented by an $L_{Aeq, 16 hour}$, which is obtained by deducting 2.2 dB from the $L_{A10, 18 hour}$ as per TRL methodology¹⁷. The 50 dB level is considered as a screening threshold for further assessment of the traffic noise change from the Proposed Development.

SITE SUITABILITY

- 3.2.41. As previously stated, a Site Suitability assessment is considered to be outside of the scope and therefore will not be assessed in this ES⁷, but has instead been assessed in a separate, standalone, Site Suitability Report. This report has assessed that the Site will be suitable for its intended purposes and outlines the nature and level of measures which may be required to meet acceptable external and internal amenity levels. Residential areas have been assessed in accordance with guidance given in ProPG: Planning and Noise: New Residential Development¹⁸. Any new school sites will be assessed in accordance with BB93:2015¹⁵.

¹⁴ British Standards Institution (2014). BS 8223:2014, Guidance on sound insulation and noise reduction on buildings. BSI: London, UK

¹⁵ Education funding Agency (2015). Acoustic design of schools: performance standards: Building bulletin 93 (online) Available at: <https://www.ioa.org.uk/sites/default/files/14720%20ProPG%20Main%20Document.pdf> (Accessed 01 November 2023).

¹⁶ UK Government (2015). The Building Regulations 2010 Approved Document E: Resistance to the passage of sound. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/468870/ADE_LOCKED.pdf [Accessed 01 November 2023].

¹⁷ TRL Limited (2002). 'Converting the UK traffic noise index $L_{A10, 18h}$ to EU noise indices for noise mapping'. (online). Available at: https://webarchive.nationalarchives.gov.uk/ukgwa/20130402151656/http://archive.defra.gov.uk/environment/quality/noise/research/crtn/documents/noise_crtn.pdf (Accessed 01 November 2023).

¹⁸ Association of Noise Consultants, Institute of Acoustics and Chartered Institute of Environmental Health (2017), ProPG: Planning & Noise - Professional Practice Guidance on Planning & Noise – New Residential Development. (online) Available at: <https://www.ioa.org.uk/sites/default/files/14720%20ProPG%20Main%20Document.pdf> (Accessed 01 November 2023).

3.3 EXISTING SCHEME IMPACTS

- 3.3.1. This section provides a summary of the existing impacts assessed as part of the ES⁷.
- 3.3.2. Calculations completed in accordance with CRTN¹² allow the determination of road traffic noise emissions from the road network around the Proposed Development. Noise change due to the Proposed Development has been determined at NSRs within the Study Area. The change in noise has been assessed for the following:
- Short term: Do Minimum Opening Year (DMOY) compared against the Do Something Opening Year (DSOY).
 - Long term: Do Minimum Opening Year (DMOY) compared against the Do Something Future Year (DSFY).
- 3.3.3. A comprehensive noise model has been undertaken using CadnaA, a computational noise modelling suite. CadnaA noise modelling suite allows a 3-dimensional environmental model to be constructed using digital mapping and topographic data. As such, it takes into account the following factors potentially affecting levels of noise propagation in the area surrounding a particular noise source:
- Noise source location, as shown by digital mapping data;
 - Noise emission data, calculation of source emission sound pressure levels from total road traffic volumes, percentage of hgvs, road segment speeds etc (in accordance with crtn¹²);
 - Relative distances between noise sources/receptors and any noise attenuating barriers;
 - Locations and dimensions of barriers between noise source and receptor;
 - Ground contours, contributing to the relative heights of sources/receptors and barriers; and
 - Ground attenuation, relating to the attenuation provided by ground cover between the sources and receptors.
- 3.3.4. CadnaA allows the calculation of noise levels at specific, single points or over a calculation grid of a specified size. In order to assess the potential effects of road traffic noise during daytime and night-time periods, calculation grids were determined at the following heights:
- Daytime, 1.5 m (ground level); and
 - Night-time, 4 m (first floor).
- 3.3.5. In order to evaluate the potential magnitude of changes in traffic in residential areas located on or close to these routes, the differences in predicted noise levels for short-term effect, and long-term effect have been assessed with reference to Do Minimum (DM) 2026, Do Something (DS) 2026, and Do Something (DS) 2036. A summary of results is provided in **Table 3-7** and **Table 3-8**.

Table 3-7 - Summary of Short-Term Significance of Adverse Effects

Receptor and summary of predicted effects	Sensitivity/ importance/ value of receptor ¹	Period	Magnitude of change ²	Significance ³	Summary rationale
Residential receptors at the 20/01225/FUL site, Equity Road East and Breach Lane	Medium	Day	No change	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Residential receptors at the Future SUE site, 20/01225/FUL, The Leecrofts and Masefield Place	Medium	Night	No change	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Residential receptors at the Future SUE site, Weaver Road, The Leecrofts and Masefield Place	Medium	Day	Negligible	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Residential receptors at Weaver Road, Astley Road (South) and Meadow Court Road	Medium	Night	Negligible	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Residential receptors at Astley Road (South), Meadow Court Road, Oaklands Way, Masefield Place and Oaklands Drive	Medium	Day	Low	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.

Receptor and summary of predicted effects	Sensitivity/ importance/ value of receptor ¹	Period	Magnitude of change ²	Significance ³	Summary rationale
Residential receptors at Oaklands Way, Masefield Place and Oaklands Drive	Medium	Night	Low	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Residential at Astley Road (North)	Medium	Day	High	Moderate (significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Residential at Astley Road (North)	Medium	Night	High	Moderate (significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Townlands Church of England Primary School	Medium	Day	Negligible	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
St Simon & St Jude Primary School	Medium	Day	High	Moderate (significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.

1. The sensitivity/importance/value of a receptor is defined using the criteria set out in **Section 3.2** and is defined as low, medium, and high.
2. The magnitude of change on a receptor resulting from activities relating to the development is defined using the criteria set out in **Section 3.2** and is defined as negligible, low, medium, and high.
3. The significance of the environmental effects is based on the combination of the sensitivity/importance/value of a receptor and the magnitude of change and is expressed as major (significant), moderate (probably significant) or minor/negligible (not significant), subject to the evaluation methodology outlined in **Section 3.2**.

Table 3-8 - Summary of Long-term Significance of Adverse Effects

Receptor and summary of predicted effects	Sensitivity/ importance/ value of receptor ¹	Period (Day/Night)	Magnitude of change ²	Significance ³	Summary rationale
Residential receptors at the 20/01225/FUL site, Columbus Lane, Parry Close, The Leecrofts, Equity Road East, Breach Lane and Masefield Place	Medium	Day	No change	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Residential receptors at the 20/01225/FUL site, Columbus Lane, Parry Close, Equity Road East and Breach Lane	Medium	Night	No change	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Residential receptors at the Future SUE site, Weaver Road, Meadow Court Road, Oaklands Way, Masefield Place and Oaklands Drive	Medium	Day	Negligible	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Residential receptors at the future SUE site, Weaver Road, The Leecrofts, Astley Road, Meadow Court Road, Oaklands Way, Masefield Place and Oaklands Drive	Medium	Night	Negligible	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.

Receptor and summary of predicted effects	Sensitivity/ importance/ value of receptor ¹	Period (Day/Night)	Magnitude of change ²	Significance ³	Summary rationale
Residential at Astley Road (North)	Medium	Day	Medium	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Residential at Astley Road (North)	Medium	Night	Medium	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Townlands Church of England Primary School	Medium	Day	Negligible	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
St Simon & St Jude Primary School	Medium	Day	High	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.

1. The sensitivity/importance/value of a receptor is defined using the criteria set out in Section 3.3 and is defined as low, medium, and high.
2. The magnitude of change on a receptor resulting from activities relating to the development is defined using the criteria set out in Section 3.3 and is defined as negligible, low, medium, and high.
3. The significance of the environmental effects is based on the combination of the sensitivity/importance/value of a receptor and the magnitude of change and is expressed as major (significant), moderate (probably significant) or minor/negligible (not significant), subject to the evaluation methodology outlined in Section 3.3.

3.4 SCOPE OF THE NOISE ASSESSMENT

SPATIAL SCOPE

- 3.4.1. The identification of receptors is based on relevant guidance and the professional judgement of a qualified technical specialist who has undertaken a desk study for the Proposed Development location.
- 3.4.2. The following considerations have been taken into account when identifying potential sensitive receptors:
- The extent to which the receptor will be affected by changes that are expected to result from the Proposed Development;
 - The sensitivity of the receptors to the changes that are likely to occur;
 - The likely magnitude, duration, and other characteristics of the effects;
 - The importance or value of the receptor at a local, regional, and national level; and
 - Relevant best practice and guidance where specialist methodologies have been developed, as detailed below.

TEMPORAL SCOPE

- 3.4.3. The temporal scope of the assessment of noise and vibration considers the noise impact of the Proposed Development in its fully built state, as this would represent the long-term future change. The opening year and future year are considered to assess short-term and long-term impact of traffic noise on roads affected by the Proposed Development.

POTENTIAL RECEPTORS

- 3.4.4. The receptors that will potentially be affected by the Proposed Development comprise of existing local residents and schools adjacent to road traffic routes affected by Proposed Development, which are potentially expected to experience an increase in road traffic noise levels (indirect effects).

Existing NSRs

- 3.4.5. Existing NSRs in close proximity to the Proposed Development are located as follows:
- Residential areas to the west/north of the Site, forming the Site boundary at these locations, including (from west to east) residential properties on Equity Road East, Meadow Court Road, Astley Road, The Leecrofts, Weaver Road, Montgomery Road, Parry Close, Columbus Lane, Bartlett Close, Mill Lane and Union Mill Close;
 - Residential areas to the south of the A47 and south-west of the Site, opposite Breach Lane (Masefield Drive/Oaklands Way);
 - Townlands Church of England and St Simon and St Jude primary schools, also located west/north of the Site on Meadow Court Road and Alexander Avenue, respectively; and
 - Other residential areas on major road traffic routes in the vicinity of the Proposed Development potentially experiencing a significant increase in road traffic noise levels.

3.4.6.

3.4.7. presents an updated figure of the receptor locations assessed within this addendum.

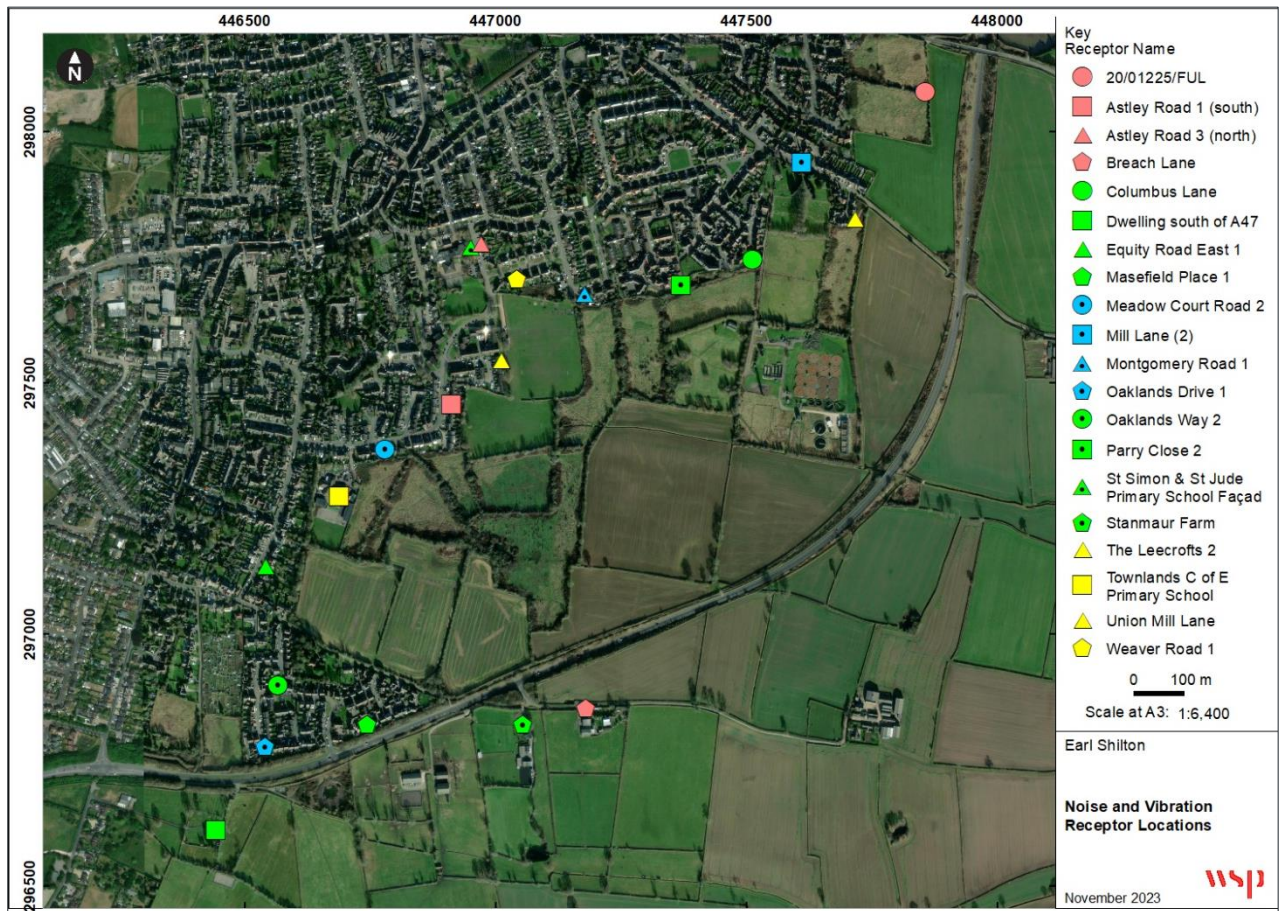


Figure 3-1 - 2023 Receptor Locations used within the Assessment.

Future NSRs

3.4.8. There is other residential development within this area, but it is assumed that, given it is also part of the SUE, that residents there would not experience the change in traffic noise level as experienced by the existing residents. Therefore, future NSRs are not included within this assessment.

3.5 EFFECTS OF SCHEME CHANGES

3.5.1. This section provides the updated assessment of effects and their significance. The following assessment is based on the most current traffic flow information received in October 2023.

PREDICTED EFFECTS AND THEIR SIGNIFICANCE

3.5.2. Calculations completed in accordance with CRTN¹² allow the determination of road traffic noise emissions from various routes around the Proposed Development. Noise change due to the Proposed Development has been determined at NSRs within the Study Area. The change in noise has been assessed for the following:

- Short term: Do Minimum Opening Year (DMOY) compared against the Do Something Opening Year (DSOY).

- Long term: Do Minimum Opening Year (DMOY) compared against the Do Something Future Year (DSFY).

3.5.3. A comprehensive noise model was developed using CadnaA, a computational noise modelling suite. CadnaA noise modelling suite allows a 3-dimensional environmental model to be constructed using digital mapping and topographic data. As such, it takes into account the following factors potentially affecting levels of noise propagation in the area surrounding a particular noise source:

- Noise source location, as shown by digital mapping data;
- Noise emission data, calculation of source emission sound pressure levels from total road traffic volumes, percentage of hgvs, road segment speeds etc (in accordance with crtn¹²);
- Relative distances between noise sources/receptors and any noise attenuating barriers;
- Locations and dimensions of barriers between noise source and receptor;
- Ground contours, contributing to the relative heights of sources/receptors and barriers; and
- Ground attenuation, relating to the attenuation provided by ground cover between the sources and receptors.

3.5.4. CadnaA allows the calculation of noise levels at specific, single points or over a calculation grid of a specified size. In order to assess the potential effects of road traffic noise during daytime and night-time periods, calculation grids were determined at the following heights:

- Daytime, 1.5 m (ground level); and
- Night-time, 4 m (first floor).

3.5.5. In order to evaluate the potential magnitude of changes in traffic in residential areas located on or close to these routes, the differences in predicted noise levels for short term effect, and long term effect have been assessed with reference to Do Minimum (DM) 2026, Do Something (DS) 2026, and Do Something (DS) 2036 with the results provided in **Table 3-9** to **Table 3-12**.

Table 3-9 - Predicted Change in Road Traffic Noise Levels, Daytime – Short Term Effect

ID	Receptor	DM 2026 predicted noise level L _{A10,18h} , dB	DS 2026 predicted noise level L _{A10,18h} , dB	DS2026 – DM2026, dB	Magnitude of effect (Short term)	Significance of effect (Adverse unless otherwise identified)
1	20/01225/FUL	52	53	0	Negligible	Negligible
2	Oaklands Drive 1	53	54	1	Negligible	Negligible
3	Oaklands Way 1	46	46	0	Negligible	Negligible
4	The Leecrofts 2	49	53	4	Medium	Minor/Moderate
5	Montgomery Road 1	43	46	3	Low	Minor
6	Meadow Court Road 2	56	58	2	Low	Minor

ID	Receptor	DM 2026 predicted noise level L _{A10,18h} , dB	DS 2026 predicted noise level L _{A10,18h} , dB	DS2026 – DM2026, dB	Magnitude of effect (Short term)	Significance of effect (Adverse unless otherwise identified)
7	Townlands C of E Primary School	45	46	1	Negligible	Negligible
8	Columbus Lane	47	48	1	Negligible	Negligible
9	Parry Close 2	47	48	1	Negligible	Negligible
10	Weaver Road 1	51	56	6	High	Moderate/Major
11	Equity Road East 1	47	47	0	Negligible	Negligible
12	Masefield Place 1	49	50	1	Negligible	Negligible
13	Astley Road 1 (south)	55	57	2	Low	Minor
14	Astley Road 3 (north)	65	73	7	High	Moderate/Major
15	Union Mill Lane	50	53	3	Medium	Minor/Moderate
16	Mill Lane (2)	48	59	11	High	Moderate/Major
17	Stanmaur Farm	58	59	1	Negligible	Negligible
18	Breach Lane	57	57	1	Negligible	Negligible
19	Dwelling south of A47	57	57	0	Negligible	Negligible
20	St Simon & St Jude Primary School	62	69	7	High	Moderate/Major

- 3.5.6. There has been an investigation into the input data. The traffic data, particularly on Astley Road and Alexander Lane is **potentially over-estimated** due to assumptions made on vehicle movements through the development. Therefore, the predictions of additional road noise due to the project are considered to be **a worst case**.
- 3.5.7. The predicted effects for medium sensitivity receptors are largely of **negligible to minor adverse** significance using the matrix presented in **Table 3.3**. However, a **high** magnitude of impact is identified for the following receptors:
- Weaver Road residences – high impact on medium sensitivity receptor resulting in moderate to major adverse significance. Considered of **moderate adverse** effect as the predicted noise level is 1 dB above the LOAEL, and below the SOAEL and therefore **not significant**.
 - Mill Lane residences – high impact on medium sensitivity receptor resulting in moderate to major adverse significance. Considered of **moderate adverse** effect as the predicted noise level is 6 dB below the absolute SOAEL and therefore, **not significant**.

Astley Road residences – high impact on medium sensitivity receptor resulting in moderate to major adverse significance. This has been determined to be of **moderate adverse** effect and **significant** because the SOAEL has been exceeded. A higher resolution modelling assessment, as indicated in Figure 3-2 has been carried out on properties along Astley Road (including corner properties that are technically on Alexander Avenue and Weaver Road) to evaluate where significant effects are likely. A total of 10N^o properties were determined to be at or above the SOAEL:

- 79 Alexander Avenue
- 1, 3, 5, 7, 9, 11 and 13 Astley Road
- 23 and 24 Weaver Road

3.5.8. Mitigation may be required for these 10 specific properties. This would be funded through a financial contribution as part of the Application A S106 Agreement.

St Simon & St Jude Primary School

3.5.9. The $L_{Aeq,16hr}$ is predicted to be approximately 60 dB and 67 dB for the DM 2026 and DS 2026 scenarios respectively. The $L_{Aeq,16hr}$ noise levels at the frontage façade exceed the screening criteria of 50 dB $L_{Aeq,T}$ and a high impact on medium sensitivity receptor resulting in a **moderate to major adverse** significance is predicted in the worst case.

The easternmost façade does not appear to have any critical teaching spaces, the ‘without development’ scenario would appear to already be exceeding the screening criteria (i.e. the school should already have some mitigation in place to meet internal ambient noise criteria with windows open). Further west into the site, noise levels reduce quickly and noise ingress would be unlikely to give rise to a significant rise in levels in teaching spaces beyond the extent of the 62 dB contour in the grid noise map below Figure 3-2. The worst case noise levels are based on traffic numbers that contain peak AM and PM travel to the school and to the proposed new school within the new development and is therefore an **overestimation** of noise during teaching periods. Indeed, travel in AM and PM peaks to and from school time would be outside of school teaching hours.

3.5.10. As such the change in road noise levels at the school buildings due to the opening of the development is **not significant**

3.5.11. The road noise levels in the outdoor teaching area (playground) are predicted to be 60 dB $L_{Aeq,T}$. This is considered a **moderately adverse effect** and **significant**

3.5.12. Mitigation is recommended and this would take the form of an acoustic barrier funded through a financial contribution as part of the Application A S106 Agreement...

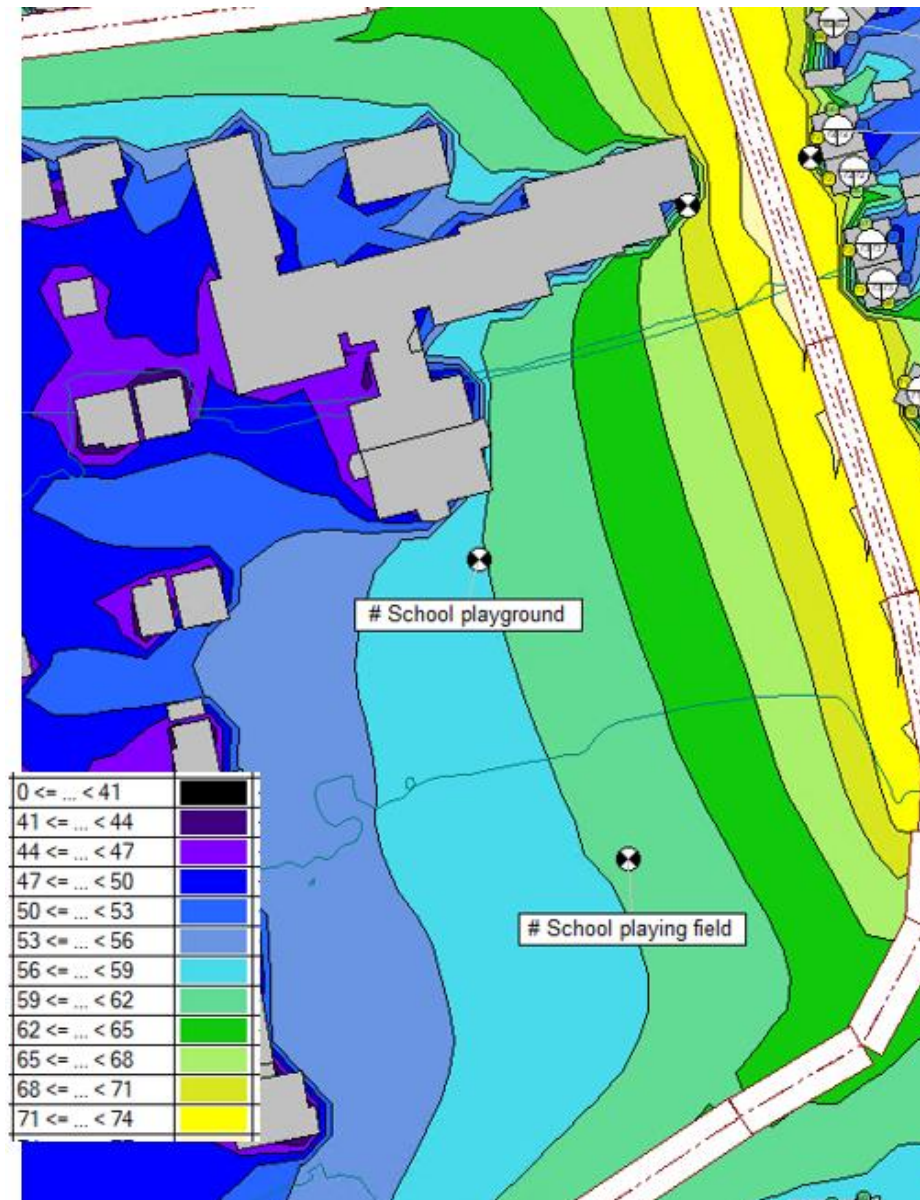


Figure 3-2 - Grid Noise Map of School Grounds $L_{Aeq,T 16hr}$ (Do Something 2026)

Table 3-10 - Predicted Change in Road Traffic Noise Levels, Night-Time – Short Term Effect

ID	Receptor	DM 2026 predicted noise level $L_{Aeq,8h}$, dB	DS 2026 predicted noise level $L_{Aeq,8h}$, dB	DS2026 – DM2026, dB	Magnitude of effect (Short term)	Significance of effect (Adverse unless otherwise identified)
1	20/01225/FUL	46	46	0	Negligible	Negligible
2	Oaklands Drive 1	46	47	1	Negligible	Negligible
3	Oaklands Way 1	40	40	0	Negligible	Negligible

ID	Receptor	DM 2026 predicted noise level L _{Aeq,8h} , dB	DS 2026 predicted noise level L _{Aeq,8h} , dB	DS2026 – DM2026, dB	Magnitude of effect (Short term)	Significance of effect (Adverse unless otherwise identified)
4	The Leecrofts 2	42	46	4	Medium	Minor/Moderate
5	Montgomery Road 1	37	40	2	Low	Minor
6	Meadow Court Road 2	49	51	2	Low	Minor
7	Columbus Lane	41	41	1	Negligible	Negligible
8	Parry Close 2	41	41	1	Negligible	Negligible
9	Weaver Road 1	44	49	5	High	Moderate/Major
10	Equity Road East 1	41	41	0	Negligible	Negligible
11	Masefield Place 1	43	44	1	Negligible	Negligible
12	Astley Road 1 (south)	48	50	2	Low	Minor
13	Astley Road 3 (north)	57	64	7	High	Moderate/Major
14	Mill Lane (2)	42	51	9	High	Moderate/Major
15	Union Mill Lane	44	46	3	Low	Minor
16	Stanmaur Farm	51	51	1	Negligible	Negligible
17	Breach Lane	49	50	1	Negligible	Negligible
18	Dwelling south of A47	50	50	0	Negligible	Negligible

3.5.13. The predicted effects for medium sensitivity receptors are largely of **negligible to minor adverse** significance or **without change** using the matrix presented in **Table 3.3**. However, a **high** magnitude of effect is identified for the following receptors:

- Weaver Road residences – high impact on medium sensitivity receptor resulting in **moderate to major adverse** significance. Considered a **moderate adverse** effect as the predicted noise level is 6 dB below the SOAEL, and therefore, **not significant**.
- Astley Road residences – high impact on medium sensitivity receptor resulting in moderate to major adverse significance. Considered a **significant adverse** effect without mitigation. The significant effect is restricted to the ten named properties for daytime impact only.
- Mill Lane residences – high impact on medium sensitivity receptor resulting in moderate to major adverse significance. Considered of **moderate adverse** effect as the predicted Do Something Future Year noise level is 4 dB below the SOAEL, and therefore **not significant** because the SOAEL has not been exceeded.

Table 3-11 - Predicted Change in Road Traffic Noise Levels, Daytime – Long Term Effect

ID	Receptor	DM 2026 predicted noise level L- A10,18h, dB	DS 2036 predicted noise level L- A10,18h, dB	DS – DM, dB	Magnitude of effect (Long term)	Significance of effect
1	20/01225/FUL	52	53	1	Negligible	Negligible
2	Oaklands Drive 1	53	54	1	Negligible	Negligible
3	Oaklands Way 1	46	46	1	Negligible	Negligible
4	The Leecrofts 2	49	53	4	Low	Minor
5	Montgomery Road 1	43	46	3	Negligible	Negligible
6	Meadow Court Road 2	56	58	2	Negligible	Negligible
7	Townlands CofE Primary School	45	46	1	Negligible	Negligible
8	Columbus Lane	47	48	1	Negligible	Negligible
9	Parry Close 2	47	48	1	Negligible	Negligible
10	Weaver Road 1	51	57	6	Medium	Minor/Moderate
11	Equity Road East 1	47	48	1	Negligible	Negligible
12	Masefield Place 1	49	50	1	Negligible	Negligible
13	Astley Road 1 (south)	55	57	2	Negligible	Negligible
14	Astley Road 3 (north)	65	73	7	Medium	Minor/Moderate
15	Union Mill Lane	50	53	3	Low	Minor
16	Mill Lane (2)	48	59	11	High	Moderate/Major
17	Stanmaur Farm	58	59	1	Negligible	Negligible
18	Breach Lane	57	58	1	Negligible	Negligible
19	Dwelling south of A47	57	58	1	Negligible	Negligible
20	St Simon & St Jude Primary School	62	69	7	Medium	Minor/Moderate

3.5.14. The predicted effects for medium sensitivity receptors are largely of negligible or minor adverse effect and **not significant** using the matrix presented in **Table 3.3**. However, a high impact is identified with the following receptors:

- Mill Lane residences – high impact on medium sensitivity receptor resulting in **moderate to major** adverse significance. However, the SOAEL is not exceeded so the moderate adverse effect is **not significant**.

3.5.15. A medium impact has been identified at the following receptors:

- Weaver Road residences – medium impact on medium sensitivity receptor resulting in **minor to moderate** adverse significance. Considered of minor adverse effect and **not significant** as the SOAEL is not exceeded.

3.5.16. Astley Road residences – medium impact on medium sensitivity receptor resulting in **minor to moderate** adverse significance. Considered of moderate adverse effect and **significant** as the SOAEL is exceeded without mitigation.

3.5.17. The same properties that were identified for the short-term effects are also determined to require mitigation for long term changes. Namely:

- 79 Alexander Ave
- 1, 3, 5, 7, 9, 11 and 13 Astley Road
- 23 and 24 Weaver Road

St Simon & St Jude Primary School

3.5.18. The $L_{Aeq,16hr}$ is predicted to be 60 dB and 67 dB for the DM 2026 and DS 2036 scenarios respectively. As the long-term increase from the DS 2026 is negligible, Mitigation applied for the short-term increase will be sufficient for the long term increase.

Table 3-12 - Predicted Change in Road Traffic Noise Levels, Night-time – Long Term Effect

ID	Receptor	DM 2026 predicted noise level $L_{Aeq,8h}$, dB	DS 2036 predicted noise level $L_{Aeq,8h}$, dB	DS – DM, dB	Magnitude of effect (Long term)	Significance of effect
1	20/01225/FUL	46	46	1	Negligible	Negligible
2	Oaklands Drive 1	46	47	1	Negligible	Negligible
3	Oaklands Way 1	40	40	1	Negligible	Negligible
4	The Leecrofts 2	42	46	4	Low	Minor
5	Montgomery Road 1	37	40	3	Negligible	Negligible
6	Meadow Court Road 2	49	51	2	Negligible	Negligible
7	Columbus Lane	41	42	1	Negligible	Negligible
8	Parry Close 2	41	42	1	Negligible	Negligible
9	Weaver Road 1	44	49	5	Medium	Minor/Moderate
10	Equity Road East 1	41	41	1	Negligible	Negligible
11	Masefield Place 1	43	44	1	Negligible	Negligible

ID	Receptor	DM 2026 predicted noise level L _{Aeq,8h} , dB	DS 2036 predicted noise level L _{Aeq,8h} , dB	DS – DM, dB	Magnitude of effect (Long term)	Significance of effect
12	Astley Road 1 (south)	48	50	2	Negligible	Negligible
13	Astley Road 3 (north)	57	64	7	Medium	Minor/Moderate
14	Union Mill Lane	44	47	3	Negligible	Negligible
15	Mill Lane (2)	41	50	9	Medium	Minor/Moderate
16	Stanmaur Farm	51	52	1	Negligible	Negligible
17	Breach Lane	49	50	1	Negligible	Negligible
18	Dwelling south of A47	50	50	0	Negligible	Negligible

3.5.19. The predicted effects for medium sensitivity receptors are largely of **negligible** or **minor adverse** significance or without change using the matrix presented in **Table 3.3**. However, a medium impact is identified with the following receptors:

- Weaver Road residences – medium impact on medium sensitivity receptor resulting in a minor to moderate adverse significance. Considered of minor adverse effect and **not significant** as the SOAEL has not been exceeded.
- Astley Road residences – medium impact on medium sensitivity receptor resulting in a minor to moderate adverse significance. Considered of minor adverse effect and **not significant** as the SOAEL has not been exceeded.
- Mill Lane residences – medium impact on medium sensitivity receptor resulting in a minor to moderate adverse significance. Considered of minor adverse effect and **not significant** as the SOAEL has not been exceeded.

3.5.20. A summary of the results of the assessment of the noise and vibration is provided in **Table 3-13** and **Table 3-14**.

Table 3-13 - Summary of Short-term Significance of Adverse Effects

Receptor	Sensitivity/ importance/ value of receptor¹	Period (Day/Night)	Magnitude of change²	Significance³	Summary rationale
20/01225/FUL, Oaklands Way 1, Equity Road East 1, Dwelling south of A47	Medium	Day	No change	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
20/01225/FUL, Oaklands Way 1, Equity Road East 1, Dwelling south of A47	Medium	Night	No change	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Oaklands Drive 1, Townlands C of E Primary School, Columbus Lane, Parry Close 2, Masefield Place 1, Stanmaur Farm, Breach Lane	Medium	Day	Negligible	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Oaklands Drive 1, Columbus Lane, Parry Close 2, Masefield Place 1, Stanmaur Farm, Breach Lane	Medium	Night	Negligible	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
The Lee Crofts 2, Montgomery Road 1, Meadow Court Road 2, Astley Road 1 (south), Union Mill Lane	Medium	Day	Low	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.

Receptor	Sensitivity/ importance/ value of receptor ¹	Period (Day/Night)	Magnitude of change ²	Significance ³	Summary rationale
Montgomery Road 1, Meadow Court Road 2, Astley Road 1 (south)	Medium	Night	Low	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
The Lee Crofts 2, Union Mill Lane	Medium	Day	Medium	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
The Lee Crofts 2, Union Mill Lane	Medium	Night	Medium	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Weaver Road 1, Mill Lane (2)	Medium	Day	High	Moderate (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Weaver Road 1, Astley Road 3 (north), Mill Lane (2)	Medium	Night	High	Moderate (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Astley Road 3 (north)	Medium	Day	High	Moderate (significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.

Receptor	Sensitivity/ importance/ value of receptor ¹	Period (Day/Night)	Magnitude of change ²	Significance ³	Summary rationale
St Simon & St Jude Primary School	Medium	Day	High	Moderate (significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.

1. The sensitivity/importance/value of a receptor is defined using the criteria set out in **Section 3.2** and is defined as low, medium, and high.
2. The magnitude of change on a receptor resulting from activities relating to the development is defined using the criteria set out in **Section 3.2** and is defined as negligible, low, medium, and high.
3. The significance of the environmental effects is based on the combination of the sensitivity/importance/value of a receptor and the magnitude of change and is expressed as major (significant), moderate (probably significant) or minor/negligible (not significant), subject to the evaluation methodology outlined in **Section 3.2**.

Table 3-14 - Summary of Long-term Significance of Adverse Effects

Receptor and summary of predicted effects	Sensitivity/ importance/ value of receptor ¹	Period (Day/Night)	Magnitude of change ²	Significance ³	Summary rationale
20/01225/FUL, Oaklands Drive 1, Oaklands Way 1, Montgomery Road 1, Meadow Court Road 2, Townlands C of E Primary School, Columbus Lane, Parry Close 2, Equity Road East 1, Masfield Place 1, Astley Road 1 (south), Stanmaur Farm, Breach Lane, Dwelling south of A47	Medium	Day	Negligible	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
20/01225/FUL, Oaklands Drive 1, Oaklands Way 1, Montgomery Road 1,	Medium	Night	Negligible	Negligible (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.

Receptor and summary of predicted effects	Sensitivity/ importance/ value of receptor ¹	Period (Day/Night)	Magnitude of change ²	Significance ³	Summary rationale
Meadow Court Road 2, Townlands C of E Primary School, Columbus Lane, Parry Close 2, Equity Road East 1, Masfield Place 1, Astley Road 1 (south), Stanmaur Farm, Breach Lane, Dwelling south of A47, Union Mill Lane					
The Lee Crofts 2, Union Mill Lane	Medium	Day	Low	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
The Lee Crofts 2	Medium	Night	Low	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Weaver Road 1, St Simon & St Jude Primary School	Medium	Day	Medium	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Weaver Road 1, Astley Road 3 (north), Mill Lane (2)	Medium	Night	Medium	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.

Receptor and summary of predicted effects	Sensitivity/ importance/ value of receptor ¹	Period (Day/Night)	Magnitude of change ²	Significance ³	Summary rationale
Astley Road 3 (north)	Medium	Day	Medium	Moderate (significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.
Mill Lane (2)	Medium	Day	High	Minor (not significant)	Predicted change in noise level and subsequent assessment have been calculated using the methodology presented in DMRB and CRTN.

1. The sensitivity/importance/value of a receptor is defined using the criteria set out in **Section 3.2** and is defined as low, medium, and high.
2. The magnitude of change on a receptor resulting from activities relating to the development is defined using the criteria set out in **Section 3.2** and is defined as negligible, low, medium, and high.
3. The significance of the environmental effects is based on the combination of the sensitivity/importance/value of a receptor and the magnitude of change and is expressed as major (significant), moderate (probably significant) or minor/negligible (not significant), subject to the evaluation methodology outlined in **Section 3.2**.

3.6 SUMMARY OF DIFFERENCES IN THE ASSESSMENT OUTCOMES

- 3.6.1. This section provides a summary of the main differences between the 2021 ES⁷ and the 2023 addendum assessment. The addendum has also assessed additional receptors on Mill Lane and dwellings south of the A47.
- 3.6.2. In general, the outcome of both assessments is that the significance of effect for the majority of the receptor locations is negligible, minor and **not significant**.
- 3.6.3. The exception is related to 10 residential receptors located on the northern section of Astley Road, opposite St Simon and St Jude Primary School, as well as the school itself. Based on the 2023 updated traffic flows the significance effects are predicted to be moderate and **significant** and mitigation is recommended.
- 3.6.4. Where properties do not benefit currently from double glazing with a means of providing background ventilation (i.e. trickle or in-wall ventilators), mitigation may be required in the form of secondary double glazing if the traffic increase is demonstrated not to be overestimated. Replacement of glazing with standard thermal double glazing units would also be appropriate, where considered more cost efficient. It is proposed that this is funded through a financial contribution to HBBC through the Application A S106 Agreement. The 10 specific properties affected are:
- 79 Alexander Ave
 - 1, 3, 5, 7, 9, 11 and 13 Astley Road
 - 23 and 24 Weaver Road
- 3.6.5. It is recognised that the sound levels for the school included trips to drop children off, both at St Simon and St Jude and at the proposed primary school within the proposed development. As these traffic movements would not be concurrent with teaching periods, it may be that the mitigation (acoustic screening of the playground) is not needed. It is proposed that a financial contribution is made to HBBC through the Application A S106 Agreement for this screening, but is returned to the Developer if not required after an agreed period of time.
- 3.6.6. The 2021 ES⁷ predicted that during the daytime, long term effects would be considered to be minor and not significant. Based on the 2023 updated traffic flows the significance effects are now predicted to be moderate and significant, this is due to adjusted predicted noise levels exceeding the SOAEL. Mitigation proposed for short-term impacts addresses the predicted significant long term impacts.

3.7 ASSESSMENT OF NOISE IMPACT FROM THE EXISTING WASTEWATER TREATMENT WORKS

- 3.7.1. The conclusions drawn from the addendum of works^{19,20} state the plant noise from the Wastewater Treatment Works (WwTW) is tonal, but the traffic noise across the site drives the sound insulation requirements and there does not need to be any specific noise protection to mitigate the plant noise that is not already required for the road traffic noise emanating from the A47. As such,

¹⁹ WSP E&I UK Ltd, 2023. 42523-WSPE-XX-XX-TN-ON-00002_S0_P01 - Technical note: Second addendum of works to the Noise Suitability Report (Dec21): Noise monitoring - supporting information, 2023

²⁰ WSP E&I UK Ltd, 2023. 42523-WOOD-XX-XX-TN-ON-0002_S1_P01 - Technical note: Earl Shilton – Response to HBBC Noise comments on 21/01511/OUT and 23/00330/OUT, 2023.

recommendations provided within 42523-WOOD-XX-XX-TN-ON-0001_S3_P02¹⁹ are considered equally relevant.

- 3.7.2. The masterplan has been amended such that dwellings are to be located further away from the WwTW. Therefore, the assessments undertaken within the two addenda^{19,20} are still considered relevant. A summary of the assessment in accordance with BS 8233:2014¹⁴ has been reproduced below:
- 3.7.3. BS8233:2014¹⁴ presents design criteria for noise within habitable rooms in new residential developments to avoid adverse impacts on sustainability for the intended use.
- 3.7.4. Open and closed window calculations have been undertaken using the highest predicted façade level to give an indicative internal noise level and indication of what glazing, and ventilation strategies will be available for dwellings.
- 3.7.5. A standard façade construction is used for the calculation consisting: masonry cavity wall, trickle ventilation and standard double glazed glass windows with a thickness configuration of 4(4-16)4.
- 3.7.6. Traffic noise is predicted to be the prevailing dominant noise across the site during the daytime and the night-time. The combined plant noise and traffic noise levels are used to determine the required sound insulation strategy for first floor bedrooms. The outcome of the assessment is that an indicative glazing and ventilation strategy would consist of:
 - Standard thermal double glazing configuration and attenuated trickle ventilation (minimum performance 42 D_{ne})
- 3.7.7. The measured plant noise from the WwTW does not significantly change the glazing or ventilation requirements at the Proposed Development, as these are driven by road noise levels across the site.

3.8 CONCLUSIONS

CONSIDERATION OF OPTIONAL ADDITIONAL MITIGATION OR COMPENSATION

- 3.8.1. The assessment set out above has concluded that it may be necessary to implement some further mitigation measures for Application A as the noise assessment is based on a worst case.
- 3.8.2. Mitigation measures, i.e. sound insulation provision, may be required for the following 10 dwellings only:
 - 79 Alexander Ave
 - 1, 3, 5, 7, 9, 11 and 13 Astley Road
 - 23 and 24 Weaver Road
- 3.8.3. It has been agreed in principle with HBBC that Application A will make a financial contribution to HBBC to cover the cost of double glazing to the front façade of the above properties, should residents want to install double glazing. This would be returned to the Developer if it was not used within a specified time period.

Based on data, that is likely an overestimation, St Simon & St Jude Primary School requires provision of acoustic screening to mitigate against the additional traffic impacting on external teaching areas, (the playground). It has been agreed in principle with HBBC that Application A will make a financial contribution to HBBC to cover the cost of this screening. The contribution would be returned to the Developer if it was not used.

WASTEWATER TREATMENT WORKS CONCLUSIONS

- 3.8.4. The masterplan has been amended in relation to Application B such that dwellings are to be located further away from the Wastewater Treatment Works. Therefore, traffic noise is still considered the prevailing dominant noise source across the development site during the daytime and night-time. The combined plant noise and traffic noise levels have been used to determine the required sound insulation strategy for first floor bedrooms. The outcome of the assessment, that is still considered valid, is that an indicative glazing and ventilation strategy for habitable rooms on facades overlooking the WwTW would consist of:
- Standard thermal double glazing configuration and attenuated trickle ventilation (minimum performance 42 D_{ne})

4 AIR QUALITY

4.1 INTRODUCTION

- 4.1.1. An assessment of air quality effects associated with the Proposed Development was set out in Chapter 6 of the 2021 ES.
- 4.1.2. This Chapter of the ES Addendum provides a review and update, where applicable, of the potential air quality effects resulting from the revisions made to the Proposed Development (and the associated traffic data) since the completion of the 2021 ES.
- 4.1.3. It summarises the conclusions of the 2021 ES and presents a review of the changes to the applicable legislation, planning policy framework, assessment methodology / guidance, baseline conditions, and provides an update on any further assessment undertaken. This chapter is supported by the following appendices:
- Appendix 4A – ADMS Roads Inputs
 - Appendix 4B – ADMS Roads Model Results
- 4.1.4. As the information presented in this chapter is supplementary to that provided in Chapter 6 of the 2021 ES, it should be considered alongside the original document.

4.2 EXISTING SCHEME IMPACTS

- 4.2.1. The air quality assessment presented in Chapter 6 of the 2021 ES assessed the potential impacts on local air quality that may arise during both the construction and operational phases of the Proposed Development, notably from: dust and particulate matter generation during the site preparation and construction works; exhaust emissions from construction traffic and plant; and exhaust emissions from road traffic generated by the Proposed Development once it becomes operational. The assessment considered the impacts on nearby sensitive human and ecological receptors, as appropriate. The assessment was undertaken with reference to relevant best practice guidance and technical tools published at the time of writing.
- 4.2.2. In relation to the construction phase, the assessment concluded that with the implementation of appropriate mitigation measures (set out in Chapter 6, Section 6.13, of the 2021 ES) and the adoption of good site practice, the impacts on nearby sensitive receptors associated with releases of dust and particulate matter would be negligible.
- 4.2.3. In relation to the operational phase, the assessment concluded that whilst additional traffic generated by the Proposed Development would result in an increase in concentrations of relevant pollutants at many of the identified human health sensitive receptors, the increases and/or total pollutant concentrations were sufficiently small/low that the effect on air quality was determined to be 'not significant'. Furthermore, pollutant concentrations were predicted to be compliant with the relevant air quality standards and objectives (set out in the 2021 ES) at all receptors, both with and without the Proposed Development in operation.
- 4.2.4. Similarly, the predicted change in annual and daily mean NO_x concentrations, as well as nutrient nitrogen (N dep) and acid deposition rates, at the identified ecological receptors (Burbage Common and Woods Local Nature Reserve [LNR]) were less than 1% of the relevant assessment benchmarks; consequently, the predicted impacts on the LNR are likely to be imperceptible.

- 4.2.5. In addition, Chapter 6 referenced the findings of a separate odour assessment undertaken for the adjacent Earl Shilton Waste Water Treatment Works (WWTW), the outputs of which were used to inform the development of the masterplan. It concluded that land in the immediate vicinity of the WWTW would not be suitable for high-sensitivity receptors. As such, only non-sensitive receptors (i.e., commercial / industrial sites) were proposed in these areas.
- 4.2.6. Cumulative effects in relation to air quality and dust were determined to be ‘not significant’.

4.3 ASSESSMENT METHODOLOGY AND SCOPE

REVIEW OF CHANGES TO LEGISLATIVE CONTEXT

- 4.3.1. Section 6.3 of the 2021 ES (Chapter 6) sets out the legislative context applicable to the air quality assessment. The following updates have been made since the original assessment was completed:
- The *Environment Act 2021*²¹, published in November 2021.
 - The *Environmental Targets (Fine Particulate Matter) (England) Regulations 2023*²², which brought into UK law the following long-term objectives for fine particulate matter (PM_{2.5}), as required by the *Environment Act 2021*:
 - A maximum annual mean concentration target of 10µg/m³ to be met across England by 2040.
 - A population exposure reduction target of 35% reduction in population exposure by 2040 (compared to a base year of 2018).
 - The Government’s *Environmental Improvement Plan 2023*²³ which, further to the new long-term PM_{2.5} objectives summarised above, sets out the following additional interim targets for PM_{2.5}, to be achieved by 2028:
 - The highest annual mean PM_{2.5} concentration in the most recent full calendar year must not exceed 12 µg/m³.
 - The reduction in population exposure to PM_{2.5} in the most recent full calendar year must be 22% or greater (compared to 2018).

REVIEW OF CHANGES TO PLANNING POLICY CONTEXT

- 4.3.2. On the 20th December 2023 an update to the National Planning Policy Framework (NPPF)²⁴ was published. However, the update did not include any material changes to those paragraphs relevant to air quality. The applicable text therefore remains as reported in the 2021 ES (Chapter 6, Table 6.1).
- 4.3.3. No changes have been made to the applicable local planning policy / development plan documents referenced within the 2021 ES (Chapter 6, Table 6.1) and they therefore remain valid.

²¹ UK Government (2021) Environment Act 2021. [Online] <https://www.legislation.gov.uk/ukpga/2021/30/contents>

²² Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 – SI 2023 No.96

²³ HM Government (2023) Environmental Improvement Plan 2023. Available at: <https://www.gov.uk/government/publications/environmental-improvement-plan>

²⁴ Department for Levelling Up, Housing and Communities (December 2023) National Planning Policy Framework

REVIEW OF CHANGES TO TECHNICAL GUIDANCE

4.3.4. Table 6.2 of in the 2021 ES (Chapter 6, Section 6.3) sets out the technical guidance used in the air quality assessment. Table 4-1 provides a summary of those documents that have been superseded and utilised within this ES Addendum.

Table 4-1 - Updates to Relevant Technical Guidance

Guidance Reference from 2021 ES	Revised Guidance Reference	Notes
Defra (2018) Local Air Quality Management Technical Guidance LAQM.TG16 ²⁵	Defra (2022 Local Air Quality Management Technical Guidance LAQM.TG22 ²⁶	The updates to the guidance do not materially change the approach to the assessment or the processing of the model outputs.
Institute of Air Quality Management (IAQM) (2014) Guidance on the Assessment of Dust from Demolition and Construction ²⁷	IAQM (2023) Guidance on the Assessment of Dust from Demolition and Construction (Version 2.1) ²⁸	The update includes a change in the assessment screening criteria and the criteria to determine the dust emissions magnitude each dust/PM ₁₀ source. This would not materially change the need for the assessment or the overall conclusions of the assessment.
IAQM (2019) Guide to the assessment of air quality impacts on designated nature conservation sites ²⁹	IAQM (2020) Guide to the assessment of air quality impacts on designated nature conservation sites ³⁰	Most of the updates are minor. However, the latest guidance does touch upon the evidence that ammonia from road vehicles can make a notable contribution to traffic related increases in nitrogen deposition and therefore, despite being a small source compared to agriculture, consideration should be given to including it within assessments.
N/A	Joint Nature Conservation Committee (JNCC) Nitrogen Futures report ³¹	This document provides guidance on future year projection rates for pollutants including ammonia and nitrogen deposition.

²⁵ Department for Environment Food and Rural Affairs (Defra). (2018). Local air quality management technical guidance (TG16), (online). Available at: <https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf>

²⁶ Defra (2022) Part IV The Environment Act 1995 and Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management Technical Guidance (TG22)

²⁷ Institute of air quality management (IAQM). (2014). Guidance on the Assessment of Dust from Demolition and Construction. Available from: <https://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>

²⁸ Institute of air quality management (2023). Guidance on the Assessment of Dust from Demolition and Construction (Version 2.1)

²⁹ IAQM (2019) A guide to the assessment of air quality impacts on designated nature conservation sites.

³⁰ IAQM (2019) A guide to the assessment of air quality impacts on designated nature conservation sites. (Online). Available at: <https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2019.pdf> (Accessed November 2021).

³¹ Joint Nature Conservation Committee (JNCC) (October 2020) JNCC Report No. 665 – Nitrogen Futures.

SCOPE OF THE ASSESSMENT

Spatial Scope

- 4.3.5. The spatial scope of the assessment remains consistent with the study area assessed in the 2021 ES.

Temporal Scope

- 4.3.6. The Temporal scope of the assessment also remains consistent with the 2021 ES, which considered a baseline/model verification year of 2019 and a future assessment year of 2026 (i.e., the assessed opening year of the Proposed Development).

Potential Receptors and Likely Significant Effects

- 4.3.7. The receptors and likely significant effects considered in the ES Addendum are consistent with those assessed within the 2021 ES. They include:
- Dust effects from construction activities at receptors (i.e., residential properties) within 350m of the Site and/or 50m of routes used by construction traffic, up to 500m from the Site entrances.
 - Air Quality effects from additional road traffic emissions at sensitive human receptors (primarily residential properties and schools) within 200m of roads affected by traffic related to the Proposed Development.
 - Ecological effects from additional road traffic related to the Proposed Development at Burbage Common and Woods LNR.
- 4.3.8. An odour assessment for Earl Shilton WWTW was undertaken in 2021 to inform the master planning process and to feed into the 2021 ES (presented as part of Appendix 6B). An update to the odour assessment has also been completed. This is now presented as a standalone odour dispersion modelling report.
- 4.3.9. The results of this report indicate that there is the potential for odourous emissions to be detected within the Site. However, the masterplan has been developed to ensure that all residential dwellings in Application B (which would be considered high sensitivity receptors) are located outside of the odour criterion and are located within zones where the risk of odour complaint is negligible. In areas where the odour criterion is likely to be exceeded, the masterplan has been amended so that only parking remains. It has been confirmed that the employment use closest to the WWTW is most likely to consist of low sensitivity uses such as storage/distribution rather than offices.
- 4.3.10. Therefore, odour is not considered any further in this Addendum Chapter.

ASSESSMENT METHODOLOGY

CONSTRUCTION DUST

- 4.3.11. As noted in Table 4-1, an update to the IAQM Construction Dust Guidance was published in August 2023. Whilst the overall approach to the assessment remains the same, the update included some changes to the initial screening criteria for determining the need for an assessment and the criteria for determining the dust emission magnitude for some of the dust and PM₁₀ sources. In relation to the screening criteria, for human receptors, the updated guidance reduces the screening distance from 350m of the Site boundary to 250m. Given the location of the Site on the edge of Earl Shilton and the proximity of existing residential receptors, a dust assessment would still be required,

regardless of the criteria applied. As the 2021 ES considers an area of 350m it can be considered conservative.

- 4.3.12. For the purposes of this ES Addendum, the construction dust assessment presented within the 2021 ES has therefore been reviewed and updated, where appropriate, to take into account the following:
- Changes to the scheme that may alter the type, scale, and location of on-site construction activities.
 - The revised criteria for determining the dust emission magnitudes for the dust/PM₁₀ emission sources.
 - The updated list of mitigation measures for each identified risk category.

OPERATIONAL ROAD TRAFFIC

- 4.3.13. The overall methodology for the assessment of operational road traffic emissions on human health receptors remains as reported within Chapter 6 (section 6.8) of the 2021 ES and is not repeated in full here.
- 4.3.14. As noted in Table 4.1, there has been an update to Defra's technical guidance, formerly referred to as TG16. However, the release of TG22 does not materially change the assessment presented herein.
- 4.3.15. The ADMS-Roads model has again been used to predict the change in pollutant concentrations at the identified sensitive receptors due to development related traffic. It is noted that since the 2021 ES was completed, there have been some minor updates to the ADMS software. The model version used for the update was Version 5.0.1. However, a sensitivity test undertaken using the previous 2019 model inputs confirmed that the updates to the software did not alter the model outputs.
- 4.3.16. Furthermore, with the exception of the Emissions Factors Toolkit (EFT)³², there have been no changes to the technical assessment tools published by Defra which were utilised in the human health impact modelling (i.e., 2018-reference case background maps and NO_x to NO₂ calculator version 8.1). In relation to the EFT, V10.1 was utilised in the 2021 ES. In November 2021, EFT V11.0 was released. The main change related to the inclusion of emission outputs for England (not including London) for the years 2031 to 2050, for the purpose of climate assessments and appraisals only, and an update to the fleet splits for London to extend the fleet data out to 2050. However, the emission outputs for 2018 to 2030 remain unchanged from V10.1.
- 4.3.17. Taking into account the above, as the 2019 base year traffic data remains as previously assessed, and the 2019 emissions factors remain unchanged, the 2019 model verification has not been updated and remains as previously reported.
- 4.3.18. Traffic data for the opening year (2026) has changed in response to the updates to the Proposed Development, queries raised by the local authority, and changes to the traffic modelling. The following future year scenarios have therefore been remodelled / reassessed to inform this ES Addendum:

³² Emissions Factors Toolkit is available to download from: <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/emissions-factors-toolkit/>

- 2026 Do Minimum (DM) Scenario (Assessed opening year that includes committed developments within the area but excludes the Proposed Development); and
- 2026 Do Something (DS) (Assessed opening year that includes committed developments within the area and contributions from the Proposed Development itself).

4.3.19. A copy of the updated traffic data used in the assessment is presented in Appendix 4A.

4.3.20. The traffic data is based on peak hour outputs from the Pan Regional Traffic Model (PRTM) that have been factored up to 24-hour Annual Average Daily Traffic (AADT) flows using appropriate factors from the Department for Transport guidance. The latest PRTM modelling undertaken for the Proposed Development results in a higher quantum of traffic using the Astley Road site access. This is primarily due to a change in the origin and distribution of the trips for the proposed school and retail uses. At the request of Leicestershire County Council (LCC), the traffic data assumes that all retail trips and 50% of the school trips will originate from outside of the Site. This is likely to result in an over-estimation of traffic generated on the local road network, and on Astley Road in particular. The Transport Consultants have therefore undertaken a sensitivity analysis for trip generation on Astley Road to consider the following adjustments:

- School traffic is limited to the start and finish times of the school day and therefore application of a blanket adjustment factor to the PRTM outputs will overestimate trip generation. The school trips were therefore manually adjusted before being added into the AADT flows for the access point. This approach would reduce trip generation on Astley Road (links 25 and 26) by up to 9%, compared to the initial adjustment of the 2023 model outputs.
- The assumption that 50% of retail trips will be external and 50% internal trips. This approach would reduce trip generation on Astley Road by 44% for Link 25 and by 30% for Link 26, compared to the initial adjustment of the 2023 model outputs.

4.3.21. For the purposes of the air quality assessment, the highest development flows have been used for the air quality modelling. **The results are therefore likely to be overly conservative/worst-case.**

4.3.22. In relation to ecological receptors and the assessment of impacts at the Burbage Common and Woods LNR, the modelling has been updated to take into account the influence of ammonia (NH₃) on total nutrient N deposition, in line with current best practice guidance, and the latest trend data for these pollutants (which has been used to estimate future background concentrations/deposition rates).

4.3.23. The EFT does not allow calculation of emission factors for NH₃. These were therefore calculated for each of the modelled road links using the Air Quality Consultant's 'Calculator for Road Emissions of Ammonia' (CREAM V1A)³³, which works in a similar way to the EFT, for inclusion within the modelling.

4.3.24. Estimated background nitrogen deposition rates and NH₃ concentrations for the area of the LNR were obtained from the Air Pollution Information System (APIS)³⁴ website, where deposition rates have been mapped for the whole of the UK at a grid resolution of 5x5km grid squares. It is noted that estimates are currently available for a three-year averaging period (2019-2020), with a mid-year

³³ Air Quality Consultants (2020) Calculator for Road Emissions of Ammonia CREAM V1A

³⁴ UK Air Pollution Information System [online] Air Pollution Information System | Air Pollution Information System (apis.ac.uk)

of 2020, which would represent an update to the data presented in the 2021 ES. However, to ensure consistency with the model verification year/existing baseline scenario, values for the 2019 mid-year have been used as a basis for the assessment.

- 4.3.25. Future year (2026) predictions of these two pollutants were then calculated based on the latest trend data provided within the JNCC Nitrogen Futures report³⁵, which suggests there will be:
- A reduction in nutrient nitrogen deposition rates of 1.04% per year; and
 - An increase in NH₃ concentrations of 0.08% per year.
- 4.3.26. To calculate the predicted total nitrogen deposition rates at each receptor point, the modelled road-NO_x concentrations were converted to road-NO₂ concentrations using Defra's NO_x to NO₂ calculator. The road-NO₂ contributions and NH₃ concentrations were then converted to a dry nutrient N deposition rate using the appropriate conversion rates set out in the Environment Agency AQTAG³⁶ guidance, before incorporation of the relevant background deposition rates to calculate total values.

4.4 CHANGES TO BASELINE

LOCAL AIR QUALITY MANAGEMENT AND MONITORING DATA

- 4.4.1. The latest air quality review and assessment report available from Hinckley and Bosworth Borough Council (HBBC) is the 2023 Annual Status Report (ASR)³⁷, which reports monitoring concentrations up to and inclusive of 2022. The ASR indicates that there have been no significant changes to baseline air quality conditions since the 2021 ES was completed. Road transport continues to be the main source of air pollution within the borough, however, air quality is generally good.
- 4.4.2. The ASR includes the following comments:
- *"The Annual Status Report did not identify any exceedances of the Air Quality Objectives based on the assessment criteria in Local Air Quality Management Technical Guidance LAQM (TG16³⁸). In line with national trends, levels of Nitrogen Dioxide (NO₂) continue a steady decline..."*
 - *"The principal pollutant of concern in the borough is NO₂ from the road network."*
 - *"Overall Air Quality in the Borough is good when compared to the air quality objective value [for NO₂]..."*
 - *"Hinckley and Bosworth Borough Council currently does not have any declared AQMA³⁹s."*
 - *"There are no new major sources of emissions within the borough".*
- 4.4.3. HBBC's monitoring network comprises 16 NO₂ diffusion tube locations, two of which are located within Earl Shilton. Table 6.3 from the 2021 ES, which reported the monitoring results for these two tubes, has been reproduced as Table 4-2 below and updated to include the 2022 monitoring data.

³⁵ Joint Nature Conservation Committee (JNCC) (October 2020) JNCC Report No. 665 – Nitrogen Futures.

³⁶ Environment Agency (2011) AQTAG06 Technical Guidance on detailed modelling approach for an appropriate assessment for emissions to air.

³⁷ Hinckley and Bosworth Borough Council (June 2023) 2023 Air Quality Annual Status Report (ASR).

³⁸ Now superseded by LAGM.TG22 (See Table 4-1)

³⁹ Air Quality Management Areas

Table 4-2 - Air Quality Monitoring in Earl Shilton

Site ID	Site name	Type	X (m)	Y (m)	Annual Mean NO ₂ Concentration (µg/m ³)							
					2015	2016	2017	2018	2019	2020	2021	2022
8	Earl Shilton Bypass	Suburban	446696	296771	17.4	17.9	17.7	16.2	19.1	15.6	17.2	17.7
9	Wood Street Earl Shilton	Roadside/ Urban Centre	446320	297756	22.8	23.9	21.7	20.9	23.3	18.8	21.6	19.1

- 4.4.4. The data above confirms NO₂ concentrations continue to meet the objective of 40ug/m³ at both monitoring locations.
- 4.4.1. Although concentrations reduced noticeably in 2020, these results should be treated with some caution as they are likely to be influenced by reduced traffic levels at this time because of the national lockdowns and travel restrictions implemented in response to the COVID-19 pandemic. However, 2022 monitored concentrations were still below those recorded in 2019, suggesting there is a general downward trend.
- 4.4.2. No monitoring is undertaken for particulate matter (PM₁₀ or PM_{2.5}).

DEFRA BACKGROUND CONCENTRATIONS

- 4.4.3. As noted previously, there have no changes to the background maps since the completion of the 2021 ES and these remain as per the 2021 ES. However, for information, the background pollutant concentrations relevant to the area of the Site itself (which lies over two 1x1km grid squares) are summarised in Table 4-3.

Table 4-3 - Defra Mapped Background Concentrations Applicable to the Area of the Proposed Development

Year	Annual mean concentration (µg/m ³)			
	NO ₂	NO _x	PM ₁₀	PM _{2.5}
Grid Square 447500, 297500				
2019	10.8	14.2	13.9	8.8
2026	8.4	10.8	12.9	8.0
Grid Square 446500, 297500				
2019	11.2	14.8	13.3	8.8
2026	8.8	11.5	12.3	8.0
Grid Square 447500, 296500				

Year	Annual mean concentration ($\mu\text{g}/\text{m}^3$)			
	NO ₂	NO _x	PM ₁₀	PM _{2.5}
2019	11.7	15.5	14.5	9.0
2026	8.8	11.5	13.5	8.2
Grid Square 447500, 298500				
2019	10.2	13.4	13.5	8.7
2026	8.0	10.3	12.5	7.9

4.4.4. As reported in the 2021 ES (Chapter 6), as expected, the background concentrations are lower than the respective air quality objectives and below the monitored roadside NO₂ concentrations in Earl Shilton.

4.4.5. Based on a review of the LAQM reports, local monitoring data, and background maps, air quality continues to be good within study area and pollutant concentrations compliant with the statutory air quality objectives.

APIS BASELINE DATA

4.4.6. In relation to ecological receptors, the baseline acid deposition and N deposition rates used in the assessment are summarised in Table 4-4 below.

Table 4-4 – Background Deposition Rates Used in the Assessment

Grid Square (Centred on X,Y)	2019 background nitrogen deposition (kgN/ha/yr)	2026 background nitrogen deposition (kgN/ha/yr)	2019 background acid deposition (keqN/ha/yr)	2026 background acid deposition (keqN/ha/yr)
444500, 295500	34.6	32.2	2.5	1.9

4.4.7. The baseline NH₃ concentrations for the grid square applicable to the location of the modelled LNR receptors are summarised in table 4-5. These have also been obtained using the Site Relevant Critical Load (SRCL) tool on the APIS website.

Table 4-5 – Baseline NH₃ Concentrations Used in the Assessment

Grid Square (Centred on X,Y)	Annual Mean NH ₃ Concentration ($\mu\text{g}/\text{m}^3$)	
	2020	2026
444500, 295500	2.18	2.19

4.4.8. Background NO_x concentrations remain as presented within the 2021 ES (Chapter 6) (i.e., a concentration 11.0 $\mu\text{g}/\text{m}^3$ is assumed for the 2026 assessment scenarios).

BASELINE DUST CONDITIONS

- 4.4.9. No new significant dust generating activities have been identified in the vicinity of the Site since the 2021 ES was completed. The baseline dust conditions remain as reported within Chapter 6 of the 2021 ES.

FUTURE BASELINE

- 4.4.10. In the absence of the Proposed Development, as reported in Chapter 6 of the 2021 ES, it is expected there would be a gradual decline in current baseline pollutant concentrations as a result of expected improvements in air quality resulting from the implementation of the Government's clean air strategy objectives, improvements in the emissions performance of road vehicles, a shift towards low and zero-emission vehicles, and the encouragement of active and sustainable transport (particularly for short journeys).
- 4.4.11. Other committed developments in the vicinity of the Site, which are expected to increase traffic flows on the local road network, have been included in the traffic flow data for the future baseline scenario, against which the effects of the Proposed Development have been assessed. The modelling results for the future baseline, as presented in Appendix 4B, show that pollutant concentrations are predicted to be below the respective air quality objectives at all human health assessment receptor locations. NO_x concentrations are also below the respective critical levels of 30µg/m³ for annual mean concentrations and 75µg/m³ for daily mean concentrations. N deposition rates are predicted to exceed the lower Critical Load of 15kgN/ha/yr, assumed for the LNR. However, these exceedances would occur regardless of the development coming forward.

4.5 EFFECTS OF SCHEME CHANGES

PREDICTED EFFECTS AND SIGNIFICANCE

Construction Dust Assessment

- 4.5.1. The changes to the Proposed Development include:
- Minor changes to illustrative layout to retain more trees, including minor change to internal spine road alignment and to the road northwest of the proposed school site.
 - Minor changes to housing layout east of Earl Shilton WWTW (to move the houses further away from the WWTW).
 - Removal of the employment buildings from area immediately north of WWTW, ensuring only car parking is now located in this area.
 - Addition of a new Suds ponds based on the updated drainage strategy.
 - Clarification of Public Open Space typologies and how they meet the required standards.
- 4.5.2. The outcomes of the construction dust assessment presented in the 2021 ES have been reviewed in light of the revisions to the IAQM Construction Dust Assessment guidance and taking into account the aforementioned changes to the Proposed Development. As summarised in Table 4-6 below, it is considered that the changes would not alter the calculated dust emission magnitudes for each of the key construction activities (as reported in the 2021 ES).

Table 4-6 - Commentary of Dust Emission Magnitude

Source	2021 ES Reported Dust Emission Magnitude	2023 Dust Emissions Magnitude	Reasoning
Demolition	Small	Small	The volume of the two huts located within the Site (north of the WWTW) is still estimated to be less than the revised criteria of 12,000m ³ for 'small' dust emission magnitudes.
Earthworks	Large	Large	The area of the site still exceeds the revised criteria for 'large sites' of 110,000m ² .
Construction	Large	Large	The building volume criteria for 'large' dust emission magnitudes has reduced to from 100,000m ³ to 75,000m ³ . The 'large' classification would continue to apply.
Trackout	Medium	Medium	No change to the criteria for this source. Changes to the development would not alter the classification.

- 4.5.3. Similarly, the sensitivity of the surrounding area remains as reported in the 2021 ES. That is: high for dust soiling effects (from demolition, earthworks, construction, and trackout) and low for health effects of PM₁₀ (from demolition, earthworks, construction, and trackout).
- 4.5.4. As the sensitivity of the surrounding environment and the calculated dust emission magnitudes have not changed, the overall risk categories for dust / PM₁₀ effects also remains unchanged from that presented in the 2021 ES. The calculated risk levels are summarised in Table 4-7 for completeness.

Table 4-7 - Construction dust

Effect	Demolition	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	High Risk	High Risk	Medium Risk
Human Health	Negligible	Low Risk	Low Risk	Low Risk

Mitigation and Residual Effects

- 4.5.5. Table 6.17 of the 2021 ES (Chapter 6) sets out mitigation measures proportionate to the calculated levels of risk. No new / additional mitigation measures have been identified following the application of the latest 2023 IAQM guidance. Therefore, the measures summarised in Table 6.17 of the 2021 ES should be incorporated into the Construction Environmental Management Plan (CEMP) and implemented at the Site by the appointed contractor for the duration of the construction phase.
- 4.5.6. With the application of the identified mitigation measures, the residual effect of dust and PM₁₀ releases on nearby sensitive receptors would be not significant (as previously reported).

Operational Road Traffic Assessment

- 4.5.7. Full modelling results are presented in Appendix 4B and a summary is provided below.

Human Health Receptors

NO₂

- 4.5.8. Detailed results are presented in Table 4B1 (Appendix 4B).
- 4.5.9. No exceedances of the annual mean objective of 40µgm³ are predicted at any modelled receptors in any of the assessment scenarios. The highest annual mean concentrations are predicted at R29, located on Ashby Road, and are 15.5µgm³ in the 2026 DM scenario and 15.9µgm³ in the 2026 DS scenario.
- 4.5.10. The largest predicted increase in concentrations is 1.1µgm³ (equivalent to 3% of the AQO) at Receptor R53, located on Astley Road. As noted in Paragraph 4.3.18, the assessed trip generation on Astley Road is likely to be overly conservative. Therefore, the predicted impact at Receptor 53 is also **likely to be an over-estimation**. In any case, as the predicted change in concentrations is 3% of the objective and total concentrations are well below the objective (<75%), in accordance with the Environmental Protection (EPUK) and IAQM joint guidance⁴⁰, the impact at Receptor 53 would be classed as negligible, which is not significant.
- 4.5.11. At all remaining receptors, the predicted increases range from <0.5% to 2% of the objective. Again, as the total NO₂ concentrations are all well below 75% of the objective, in accordance with the IAQM/EPUK guidance, the impact of the Proposed Development on annual mean NO₂ concentrations at these receptors would also be described as negligible, and not significant.
- 4.5.12. Annual mean concentrations are also comfortably below the annual mean objective of 40µgm³ at future proposed receptor locations, with a maximum predicted concentration of 14.7µgm³ at Receptor F7.

PM₁₀

- 4.5.13. Detailed results are presented in Table 4B2.
- 4.5.14. No exceedances of the annual mean objective of 40µgm³ are predicted at any of the modelled receptors, in any of the assessment scenarios. The highest annual mean concentration is predicted at Receptor R3, located on Hinckley Road, and is 14.3µgm³ in both the 2026 DM and 2026 DS scenarios.
- 4.5.15. The largest predicted increase in PM₁₀ concentrations with the Proposed Development in operation is 0.3µgm³ (equivalent to <1% of the objective) at R53, located on Astley Road. At all remaining receptors, little or no discernible change in concentrations is predicted (when the results are considered to one decimal place) and the changes are all <0.5% of the objective.
- 4.5.16. Annual mean concentrations are also comfortably below the annual mean objective of 40µgm³ at the future / proposed receptors, with a maximum predicted concentration of 13.9 µgm³ at F3.
- 4.5.17. The impact of the Proposed Development on annual mean PM₁₀ concentrations is classified as negligible in IAQM/EPUK terms at all receptors, which is considered not significant.

PM_{2.5}

- 4.5.18. Detailed results are presented in Table 4B3.

⁴⁰ Moorcroft and Barrowcliffe. *et al.* (2017) Land-use Planning & Development Control: Planning for Air Quality. v1.2. Institute of Air Quality Management, London

- 4.5.19. No exceedances of the annual mean objective of $20\mu\text{g}/\text{m}^3$ are predicted at any modelled receptors in any scenarios. The highest annual mean concentrations are predicted at Receptor R51, located on Leicester Road, and are $8.8\mu\text{g}/\text{m}^3$ in the 2026 DM scenario and $8.9\mu\text{g}/\text{m}^3$ in the 2026 DS scenario.
- 4.5.20. The largest predicted increase in $\text{PM}_{2.5}$ concentrations with the Proposed Development in operation is $0.2\mu\text{g}/\text{m}^3$ (equivalent to 1% of the objective) at R53, located on Astley Road.
- 4.5.21. Annual mean concentrations are also comfortably below the annual mean objective of $20\mu\text{g}/\text{m}^3$ at future proposed receptors, with a maximum predicted concentration of $8.5\mu\text{g}/\text{m}^3$ at F3. It is noted that concentrations predicted within the Site are also below the new long-term target of $10\mu\text{g}/\text{m}^3$, to be achieved by 2040.
- 4.5.22. The impact of the Proposed Development on annual mean $\text{PM}_{2.5}$ concentrations is classified as negligible in IAQM/EPUK terms at all receptors, which is considered not significant.

Summary

- 4.5.23. Whilst the updated traffic data and revised modelling (as summarised in Appendix 4A and Appendix 4B of this Addendum) result in minor changes to the assessment (in terms of the total predicted concentrations and the magnitude of the change in concentrations at the individual assessment receptors), they do not materially change the overall conclusions of the 2021 ES. No exceedances of the statutory objectives for NO_2 , PM_{10} and $\text{PM}_{2.5}$ are predicted at any receptor in 2026, either with or without the Proposed Development in place. Furthermore, pollutant concentrations predicted within the Site itself are well below the respective objectives. The impact of the Proposed Development on local air quality is thus described as negligible for all pollutants, and the resultant effects on the nearby sensitive receptors are not significant.

Ecological receptors

Oxides of nitrogen

- 4.5.24. Detailed results are presented in Tables 4B4 and 4B5.
- 4.5.25. Predicted annual mean concentrations of NO_x are well below the critical level (i.e., the objective) of $30\mu\text{g}/\text{m}^3$ in both the 2026 DM and 2026 DS scenarios.
- 4.5.26. The greatest increase in annual mean concentrations between the DM 2026 and DS 2026 scenarios is $0.08\mu\text{g}/\text{m}^3$ which is well below 1% of the critical level of $30\mu\text{g}/\text{m}^3$.
- 4.5.27. Predicted daily mean concentrations are also below the critical level of $75\mu\text{g}/\text{m}^3$ in both the DM and DS scenarios. The change in concentrations is also well below 1% of the critical level.

Nitrogen Deposition

- 4.5.28. Detailed results are presented in Table 4B6.
- 4.5.29. The lower critical load of 15 kg N/ha/yr, as available from the APIS resource, has been used for comparison against predicted nitrogen deposition rates.
- 4.5.30. The largest predicted change in nitrogen deposition between the 2026 DM and 2026 DS scenarios is 0.05kg N/ha/yr, which is well below 1% of the critical load.

Acid Deposition

- 4.5.31. Detailed results are presented in Table 4B7.

- 4.5.32. The minimum critical load of 0.142kg N/ha/yr, as available from the APIS resource, has been used for comparison against predicted acid deposition rates.
- 4.5.33. The change in acid deposition between the 2026 DM and 2026 DS scenarios is predicted to be <0.01kg N/ha/yr, which is comfortably below 1% of the critical load.

Summary

- 4.5.34. It is the role of a suitably qualified ecologist, rather than an air quality specialist, to determine whether predicted impacts on air quality within a designated site would result in a significant effect on the habitats present within the site. However, screening criteria can be used by the air quality specialists to identify when predicted impacts are unlikely to result in significant effects, thereby not requiring further assessment or specific mitigation.
- 4.5.35. As per the IAQM guidance, where the predicted change is $\leq 1\%$ of the relevant critical level or critical load, the impacts can be considered 'not significant'. Where the predicted impacts are greater than 1%, this does not mean that the Proposed Development will give rise to significant adverse effects at the designated site. This 1% criteria is simply used as a trigger for identifying when the impacts will require further evaluation.
- 4.5.36. As the predicted change in pollutant concentrations / deposition rates are all well below 1% of the relevant critical levels/load, it can be concluded that the Proposed Development is unlikely to give rise to significant effects on the Burbage Common and Woods LNR.

Mitigation and Residual Effects

- 4.5.37. The updates to operational phase assessment do not alter the overall conclusions in relation to air quality. No additional mitigation is therefore considered necessary over and above that outlined in the 2021 ES. The effects on air quality at both human and ecological sensitive receptors remain negligible and Not Significant.

Table 4-8 - Summary of Significance of Adverse (or Beneficial) Effects

Receptor and summary of predicted effects	Sensitivity/ importance/ value of receptor	Magnitude of change	Significance	Summary rationale
Residential properties potentially impacted by construction dust	High	Negligible	Not significant	Appropriate site-specific dust mitigation measures would be implemented (by way of a CEMP or similar) to ensure dust effects remain negligible. No change from the overall conclusions of the 2021 ES.
Residential properties potentially impacted by additional road traffic	High	Negligible	Not significant	No exceedances of the air quality objectives are predicted at any human assessment receptors, existing or proposed. Additional concentrations associated with increased road traffic emissions due to the Proposed Development are predicted to be negligible. No change

Receptor and summary of predicted effects	Sensitivity/ importance/ value of receptor	Magnitude of change	Significance	Summary rationale
				from the overall conclusions of the 2021 ES.
Burbage Common and Woods LNR	High	Negligible	Not significant	The change in NO _x concentrations, nutrient N and acid deposition associated with road traffic emissions remain negligible.

Cumulative Effects

- 4.5.38. As detailed in this chapter, with appropriate mitigation in place, air quality and dust effects as a result of the Proposed Development are predicted to be not significant. Therefore, potential in-combination effects on sensitive receptors (i.e., nearby residential properties and schools) common to both the air quality and the noise and vibration assessments are considered to be unlikely.
- 4.5.39. Furthermore, the traffic data utilised within the assessment includes contributions from other cumulative / committed development in the surrounding area. The operational phase modelling results are therefore inherently cumulative.

4.6 ASSUMPTIONS AND LIMITATIONS

- 4.6.1. There are recognised uncertainties in the predictive dispersion modelling process used in this assessment. Uncertainties with the background concentrations of pollutants and the systematic errors associated with the modelling components have been considered by undertaking a model verification. Model verification involves the comparison of modelled concentrations and local monitoring data. Model verification remain unchanged from the 2021 ES. Full details on the model verification are therefore presented in Appendix 6A of the 2021 ES and are not repeated here.

4.7 CONCLUSIONS

- 4.7.1. This Chapter of the ES Addendum provides a review and update, where applicable, of the air quality assessment presented within Chapter 6 of the 2021 ES to take into account revisions made to the Proposed Development and any updates to the associated traffic data, since the completion of the 2021 ES.
- 4.7.2. The revised air quality assessment did not identify any new or different effects in relation to dust or air quality.
- 4.7.3. The proposed design amendments would result in some minor changes to the construction phase assessment in terms of type and location of dust generating activities. However, taking into consideration changes to the Proposed Development updates to the IAQM construction dust assessment guidance since the 2021 ES was completed, and application of the latest guidance they would not alter the overall sensitivity of the surrounding area or the overall dust emission magnitudes for each of the key pollutant sources. Therefore, there would be no change to the overall conclusions of the January 2022 ES and no additional mitigation (over and above those identified in Table 6.17 of the 2021 ES) is required.

- 4.7.4. Whilst the updated traffic data and revised modelling results in minor changes to the assessment (in terms of the total predicted concentrations and the magnitude of the change in concentrations at the individual assessment receptors), they do not materially change the overall conclusions of the 2021 ES. For human health receptors, no exceedances of the statutory objectives for NO₂, PM₁₀ and PM_{2.5} are predicted at any receptor in 2026, either with or without the Proposed Development in place. Furthermore, pollutant concentrations predicted within the Site itself are well below the respective objectives. For ecological receptors, predicted impacts on pollutant concentrations / deposition rates are all less than 1% of the respective assessment levels. **Effects on air quality therefore continue to be described as not significant.**

5 CONCLUSIONS

- 5.1.1. This ES Addendum provides a review and update, where applicable, of the assessment presented in the 2021 ES affected by the changes in the scheme and the updated traffic data since the completion of the 2021 ES. It was identified by competent experts that the technical disciplines affected by the proposed changes to the scheme were traffic and transport, air quality and noise. The findings of all other assessments in the original 2021 ES remain unaffected by the proposed changes.
- 5.1.2. The revised T&T assessment considered the updates to the traffic data and addressed the comments made by the highway authorities. The updated traffic data and revised modelling result in minor changes to the assessment, but they do not materially change the overall conclusions of the 2021 ES.
- 5.1.3. The revised air quality assessment did not identify any new or different effects regarding dust or air quality. The proposed design amendments would result in some minor changes to the construction phase assessment in terms of the type and location of dust generating activities. However, there would be no change to the overall conclusions of the 2021 ES and no additional mitigation is required.
- 5.1.4. For human health receptors, no exceedances of the statutory objectives for NO₂, PM₁₀ and PM_{2.5} are predicted at any receptor in 2026, either with or without the Proposed Development in place. Furthermore, pollutant concentrations predicted within the Site itself are well below the respective objectives. For ecological receptors, predicted impacts on pollutant concentrations/deposition rates are all less than 1% of the respective assessment levels. Effects on air quality therefore continue to be assessed as not significant.
- 5.1.5. The revised noise assessment concluded that it will be necessary to implement further mitigation measures in relation to Application A. These have been identified through the iterative process of scheme design and would be in addition to those outlined and assessed in the 2021 ES. Additional mitigation measures, i.e. double glazing provision, may be required for 10 dwellings. A financial contribution for this mitigation would be made to HBBC through the Application A S106 Agreement. This would be returned to the Developer if not used within a certain timescale.
- 5.1.6. Traffic noise is still considered the prevailing dominant noise source across the development site during the daytime and night-time. The sound insulation strategy for first floor bedrooms is still the same as in the 2021 ES and relevant to Application B.
- 5.1.7. Therefore, there would be no significant change to the overall conclusions of the 2021 ES and no additional mitigation in all disciplines with the exception of noise assessment.



APPENDIX 1A

Updated Design and Access Statement Addendum

Earl Shilton SUE

Updated Design and Access Statement Addendum



Purpose of Document

A Design and Access Statement (DAS) Addendum was submitted in December 2022 to Hinckley and Bosworth Borough Council (HBBC) to provide further information in support of planning application reference number 21/01511/OUT - Earl Shilton SUE.

The DAS Addendum was also submitted in support of planning application reference number 23/00330/OUT'.

Following a period of consultation and assessment, a number of minor amendments have been made to the proposals and an updated illustrative masterplan submitted.

These minor amendments primarily relate to:

- SuDS areas
- Tree retention
- Layout in response to revised odour modelling
- Green infrastructure and play space

This document also addresses consultee comments received from HBBC relating to design matters.

Subsequent reserved matters applications will refer to the Council's Good Design Guide.

This document provides an update to the DAS Addendum and the figure numbers presented here correspond with both the original DAS (December 2001) and the DAS Addendum (December 2002).

Figure 5.1 Updated Illustrative Masterplan



Updated Land Use Parameters Plan

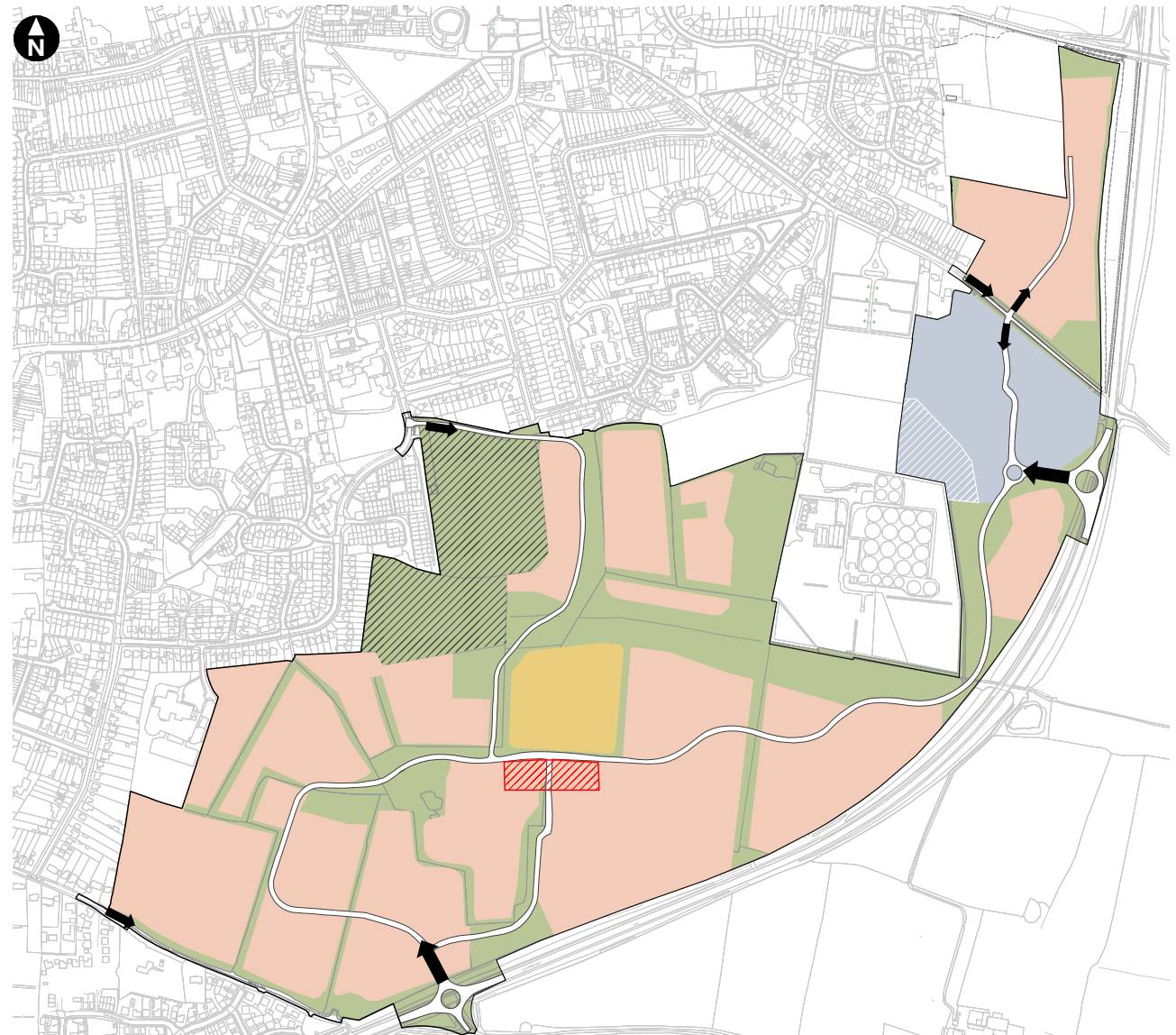
The Land Use Parameter Plan has been updated to reflect:

- Access to parcel north of Mill Lane
- Minor changes to indicative road layout
- Minor changes to indicative parcel layout

Key

-  Site Boundary (65 ha)
 -  Residential (35 ha)
 -  Public open space and Green Infrastructure (incorporating SuDS) (19.3 ha)
 -  Roads/ Access Works (2.73 ha)
 -  Employment (5.3 ha)
 -  Non sensitive employment uses (e.g ancillary uses, storage, parking)
 -  School Site (2 ha)
 -  Community Hub (0.5 ha)
 -  Sports Pitches (Weaver Springs)
 -  Location of Access Points (for detailed approval)
- (Areas shown are approximate)

Figure 5.5 Updated Land Use Parameters Plan



Updated Building Heights and Density Parameters Plan

The Building Height Parameters Plan has been updated to reflect the minor layout amendments. It should be noted:

- The parameters plan allows for 3 storey development where appropriate to topography within the landscape.
- Whilst the appearance of properties along Clickers Way/A47 will be determined through reserved matters stage, there is no intention that blank facades will be suggested for noise mitigation reasons.
- Building height parameters and illustrative layout of the employment area has been amended.

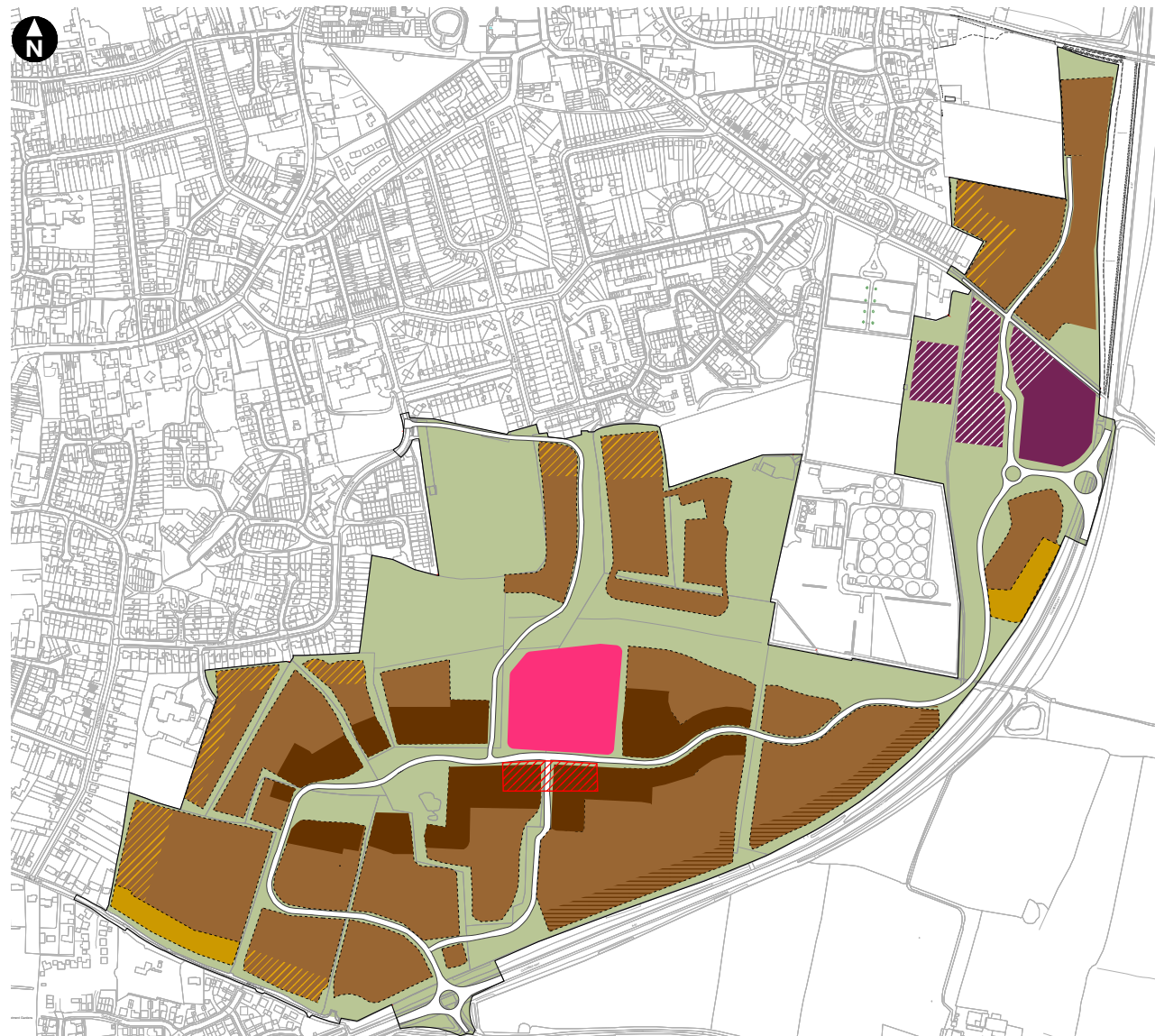
Key

 Site Boundary

Overall density and building heights

-  Higher density (up to 50 dph) including buildings of up to 3 storeys
-  Medium density (up to 45 dph) with buildings of 2 to 2.5 storeys (occasional use of 3 storey subject to detailed design approval)
-  Lower density (25 to 35 dph) with buildings of up to 2 storeys
-  Employment area buildings up to 17m ridge height (subject to detailed design approval)
-  Buildings up to 12m ridge height
-  Medium - high density, with up to 3 storeys where local topography allows

Figure 5.6 Updated Building Height and Density Parameters Plan



Updated Primary and Secondary Street Hierarchy Parameters Plan

The Primary and Secondary Street Hierarchy Parameters Plan has been updated to reflect minor changes to the layout.

Road design detail to be determined at reserved matters. The preference is for all internal roads to be to adoptable standards.

Key

-  Site Boundary
-  Existing Roads (Retained)
-  Primary Streets
-  Secondary Street
-  Traffic calmed community hub
-  Breach Lane access restricted to 50 dwellings

Figure 5.7 Primary and Secondary Street Hierarchy Parameters Plan



Updated Green and Blue Infrastructure Principles Plan

The green and blue infrastructure principles plan is a new plan that has been prepared to clearly show:

- SuDS areas which have been amended following revised drainage design.
- Layout to ensure the majority of existing trees and hedgerow to be retained.

The following areas accord with the typologies identified by the Council's open space standards.

- Accessible Natural Green Space
- Casual Informal Green Space
- Equipped Childrens Play Space

A separate public open space note has been submitted which sets out how the proposals meet the Council's requirements.

Key

Site Boundary

Green Infrastructure Parameters:

Retained hedgerow and smaller tree clusters

Existing tree to be retained

Existing pond to be retained

Existing Sports Pitches to be retained

Accessible Natural Green Space

Casual Informal Play Space

Equipped Children's Play Space

Sustainable Urban Drainage (SuDS)

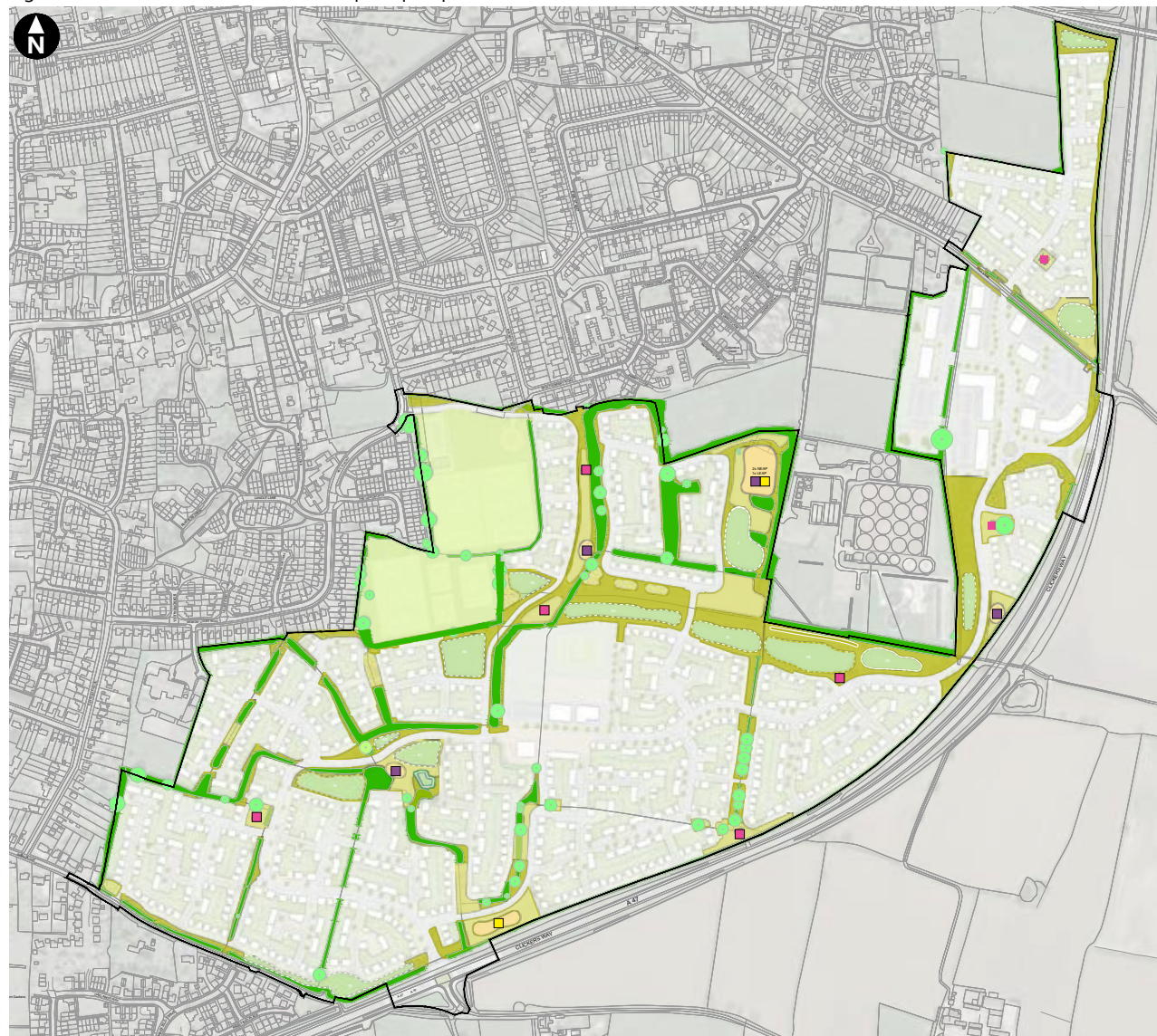
Play Areas:

3 x NEAP

4 x LEAP

7 x LAP

Figure 5.9 Green and Blue Infrastructure principles plan



Open Space Typologies

Accessible Natural Green Space

The masterplan provides areas of accessible natural green space linked throughout the site which retain existing trees and hedgerows and provide recreational routes and outdoor amenity space.

Examples of Accessible Natural Green Space



Casual Informal Play Space

Throughout the retained green infrastructure there are areas set aside for casual informal play space, which provide opportunities for a variety of activities.

Examples of Casual Informal Play Space



Equipped Children's Play Space

The masterplan provides areas for equipped play in the form of Local Areas for Play (LAPs), Local Equipped Areas for Play (LEAPs) and Neighbourhood Equipped Area for Play (NEAPs), which are dispersed throughout the development in accordance with policy. In addition there are opportunities for Play On The Way areas along footpaths within the public open space.

Examples of Children's Equipped Play Space



5.8 Character area principles

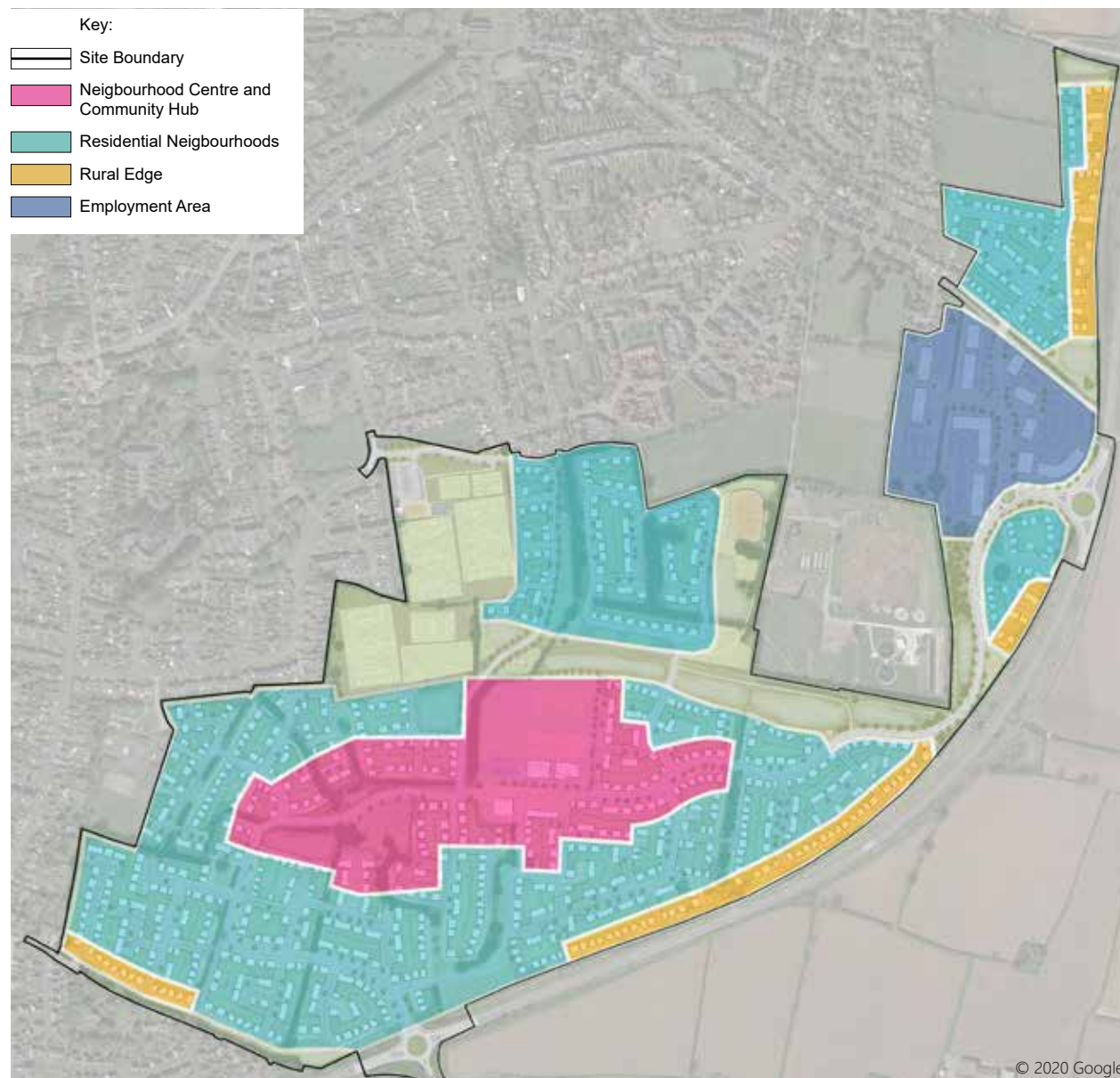
5.8.1 There are four proposed character areas within the scheme, reflecting different uses and locations within the development:

- the neighbourhood centre and community hub
- residential neighbourhoods
- the southern and eastern edges
- the employment area

5.8.2 Whilst the illustrative masterplan for the sustainable urban extension at Earl Shilton gives an indication of how the development may look, many details of the layout, building and landscape design will be determined through reserved matters applications. The purpose of the character areas is to help create areas of distinct character within the site where elements such as scale, appearance, building materials and details, boundary treatments and hard and soft landscape details are relatively consistent. In order to reinforce the distinction between different character areas, some contrasting details will be used in the different character areas.

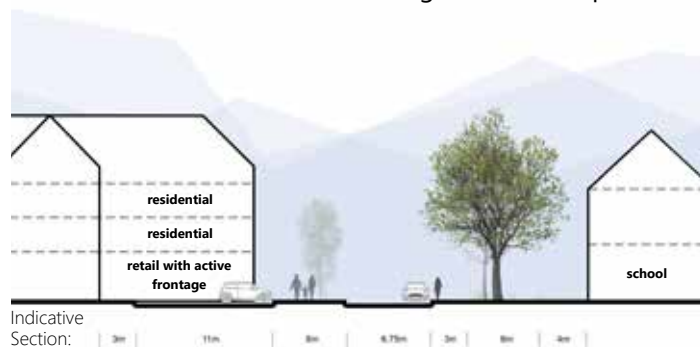
5.8.3 This section outlines and illustrates the differing design approaches and details that could be utilised within each character area.

Figure 5.7 Updated character areas principles plan



Neighbourhood centre and community hub

5.8.4 This is the core area of the site, where the primary school, local retail and community facilities are located alongside higher density homes. The character area extends along the tree-lined main street to the east and west. The linear form of this focal area echoes the form of Earl Shilton's main street, reinforcing the sense of place.



Below: examples of similarly scaled neighbourhood centres



Neighbourhood centre and community hub character area

Category:	Defining characteristics:
Scale and Massing	Up to 3-storey in areas fronting the community hub, open space and the main street to the east and west of the community hub. The community hub space will be designed in detail to create a central focal feature for the whole proposed development. Potential for apartment blocks to turn corners and town houses along streets in between. Frontages within the community hub to be tight to public realm/pavement where possible to give continuous façade and enclosure either side of the central square and immediate approaches. Transition from higher to lower storeys to be graduated, making use of 2.5 storey along the main street.
Density and Use	Homes up to 50dph subject to development of a detailed design solution that meets placemaking objectives. Mixed use to comprise local retail and community uses subject to market demand (at ground floor) with higher density residential. Flexible design to allow for re-use of ground floors for different uses, potentially with residential above in the community hub.
Access and Movement	Public realm focussed on prioritising safe access for pedestrians and cyclists to the square at the heart of the central hub area and the focal open space hub to the west of the community hub. Pedestrian and cycle routes connect into these spaces via secondary roads linked by the main spine, which has a shared footpath cycleway running along one side (and footpath along the other side). Parking for the community hub is to be provided as shared / communal facilities to serve all uses within the hub, encouraging linked trips. This is to be designed as an attractive landscaped parking court (or square). The primary school will be accessed directly off the proposed primary street with on-site parking for staff and a limited number of visitors only. Safe and pedestrian-friendly drop-off arrangements will need to be considered at detailed design stage.
Public realm	Public realm should be informal, but in contrast the central hub area should be marked by a semi-formal public square/space in high quality materials that may be used for outdoor events. Use of macadam finish for road carriageways will be acceptable but channel details could be employed to visually narrow streets. The length of carriageway through the central hub should have a contrasting finish or material. Other focal places should be paved in blocks or setts or other contrasting finish. Footway paving materials should be carefully considered to add variety to streets and lanes.
Architectural design	There is scope to use standardised building typologies, however, these need to be tailored to the overall design approach for the site, which is to create a distinctive neighbourhood that may be contemporary in style but should reflect traditional buildings and materials found in Earl Shilton to help bring cohesion to the site and to provide the new neighbourhood with a sense of place and connection to the town. In general the wider SUE provides a transition from rural edge to urban centre, but reference for designs of the core area surrounding the community hub should be taken from urban rather than rural locations, creating a focal, relatively more dense heart to the development, mirroring the linear form of the nearby town centre and approaches. Detailing should be robust and help create visual interest and managed variety. Groups of buildings should be designed collectively, with whole street scenes in mind rather than plot by plot
Facing Materials	Predominantly Leicestershire type brick, with some render and a mix of grey, red and brown roof tiles. The buildings within the community hub may use contrasting materials.
Landscaping and Boundaries	Generally properties will be located close to the back of the spine road pavement, strengthening the character of the hub as a mini high street. Where there is a set-back these semi-private spaces should be enclosed with railings or dwarf walls. Side and rear enclosures should be walls. Plain timber fences in the public realm should be avoided. Formally planted street trees will be integral part of the public realm.

The neighbourhood centre, community hub and the local primary school provide opportunities for distinctive architecture to provide unique character to the development.

Below: examples of neighbourhood centres and architectural style



Building and Hardscape Materials

A variety of materials will be considered for use in the neighbourhood centre, school and community building subject to detail design at reserved matters stage.

Wall



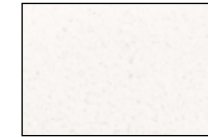
Red brick



Orange brick



Cement render



Smooth Render



Stone



Metal cladding

Roof



Grey interlocked roof tiles



Brown interlocked roof tiles



Smooth grey interlocked roof tiles



Metal roofing

Ground



Black Tarmac



Grey Block pavers



Brindle Block pavers



Neighbourhood centre and community hub

Landscape Specification:

Proposed tree planting to be planted at semi-mature sizes to create instant impact. Single species of tree to be planted along the primary street to make it easily identifiable.

New trees will be planted throughout the development to create structure and define areas of public open space. Proposed trees are encouraged to reflect the existing species on site and around the local area and include mainly native species in public open spaces and landscape buffers to increase diversity.

At the main entrances and key junctions, the opportunity to propose large growing tree species to accentuate and frame views into the site and provide focal points to long vistas could be considered.

Individual tree species suggested (or similar approved):

1. *Carpinus betulus* 'Fastigiata'
2. *Prunus* 'Amanogawa'
3. *Quercus robur*

Proposed Shrub planting

Proposed shrub planting to be used to provide colour and visual interest to break up the hard landscape and reinforce the more formal character of the area.



Prunus 'Amanogawa'



Carpinus betulus 'Fastigiata'



Quercus robur

Suggested shrub species (or similar approved):

Key Plan with highlighted Neighbourhood Centre and Community Hub



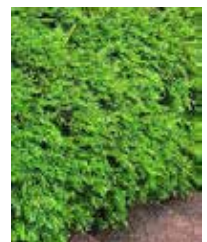
Hebe Red Edge



Hebe emerald green



Lavandula angustifolia



Lonicera nitida 'may green'

Residential neighbourhoods

5.8.5 The majority of medium density new homes and residential streets fall within this character area.

Images indicating potential appearance:



Indicative Plan Extract:



Residential neighbourhoods character area

Category:	Defining characteristics:
Scale and Massing	Predominantly 2 to 2.5 storeys but with occasional use of 3 storeys subject to detailed design. The majority of homes fall within these areas which take the form of traditional streets, overlooked by homes, typically with small enclosed semi-private spaces between the homes and the back of pavement. There will be some variation in scale and massing of the homes within these areas, but the streets are purposely relatively simple in form, with visual interest created through a combination of their integration with the surrounding landscape framework (typically with views to retained trees and hedgerows) and partly through their role as 'connecting' features between more dominant and elaborate focal areas and key frontages.
Density and Use	Complementing the above, residential development within this area will vary between 35 and 45 dwellings per hectare, with occasional pockets of higher or lower density to respond to particular features - for example lower density may be more appropriate for areas of the site in close proximity to existing homes, and small pockets of higher density homes may be appropriate where homes overlook adjacent open spaces or at significant nodes along the primary and secondary road network.
Access and Movement	The area is predominantly comprised of connected streets that serve only the homes, that link to the primary and secondary streets. The residential streets will be designed to be pedestrian and cycle friendly with integral features to limit vehicle speeds. The majority of homes within this area will be within walking distance of existing bus routes that run through the residential area that lies to the north of main part of the site. Parking will predominantly be provided on-plot with carefully designed driveways and garages to minimise visual impact. This will include a mix of parking to the side of homes and open parking on driveways in front of homes, broken up with soft landscape elements. A limited amount of unallocated parking parallel or perpendicular to the carriageway will be provided to supplement off-road alternatives. On-street parking will generally be used in the higher and medium density areas along the new primary and secondary streets.
Public realm	Public realm should be as informal as possible, and whilst roads may be acceptable in tarmac, channel details could be employed to visually narrow streets. Shared surfaces and private drives could be blocks or setts. Footway paving materials should be carefully considered to add variety to streets and lanes.
Architectural design	The design approach for this area should be cohesive with and complementary to the approach articulated for homes within the community hub character area, with contrast and variety resulting from differences in form, massing and density. As such there is scope to use standard building typologies, tailored to reflect the Earl Shilton identity. In general the wider SUE provides a transition from rural edge to urban centre, so reference for designs of the residential neighbourhoods that span the whole SUE area may be drawn from both the urban and rural context, with streets in the upper (more northerly) part of the site needing to reflect the urban context and more southerly areas more influenced by buildings found in the surrounding rural settlements.
Facing Materials	Predominantly brick with the potential for some render. Facing brick to have Leicestershire brick qualities and tone. Roof tiles to be a mix of grey, red and brown.
Landscaping and Boundaries	Front gardens of housing to be enclosed potentially using either rail and post or native hedgerows. Potential for fence treatments such as picket fencing and possibly railings in certain areas, depending upon the overall townscape character. Street trees and informal spaces should be designed into layouts to create networks of green infrastructure.

House Typologies

The development will provide a range of house types suitable to local needs and to be determined at reserved matter stage. Whilst more traditional house types of Leicestershire brick may predominate, it may be appropriate to provide more contemporary designs to support character and placemaking objectives.

The detail design will determine layout and will incorporate good placemaking principles such as identifying key house plots providing a focal point for views down secondary and primary streets, on key corner plots, and across areas of public open space



Building and Hardscape Materials

Wall



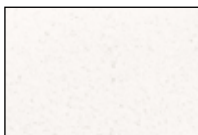
Red brick



Orange brick



Brown brick

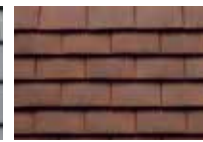


Smooth Render

Roof



Grey interlocked roof tiles



Brown interlocked roof tiles



Red interlocked roof tiles

Ground



Black Tarmac



Brindle Block pavers

Residential neighbourhoods

Landscape Specification:

Proposed tree planting can be within property boundaries and occasionally on hard surface. More variety as compared to primary street for the purpose of visual street hierarchy.

New trees will be planted throughout the development to create structure and define areas of public open space. Proposed trees are encouraged to reflect the existing species on site and around the local area and include mainly native species in public open spaces and landscape buffers to increase diversity.

At the main entrances and key junctions, the opportunity to propose large growing tree species to accentuate and frame views into the site and provide focal points to long vistas could be considered.

Individual tree species suggested (or similar approved):

1. *Sorbus aucuparia*
2. *Prunus subhirtella* 'Autumnalis'
3. *Quercus robur*

Proposed Shrub planting

Proposed shrubs to be planted in a more informal setting as compared to Neighbourhood centre, with landscape more closely associated with individual plots within hedged front boundaries of houses.



Prunus 'Amanogawa'



Carpinus betulus 'Fastigiata'



Quercus robur

Suggested shrub species (or similar approved):

Key Plan with highlighted Residential Neighbourhood



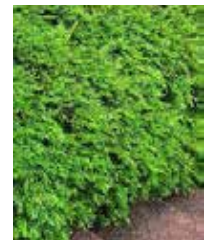
Crataegus monogyna
(Hawthorn)



Hebe emerald green



Hebe emerald green

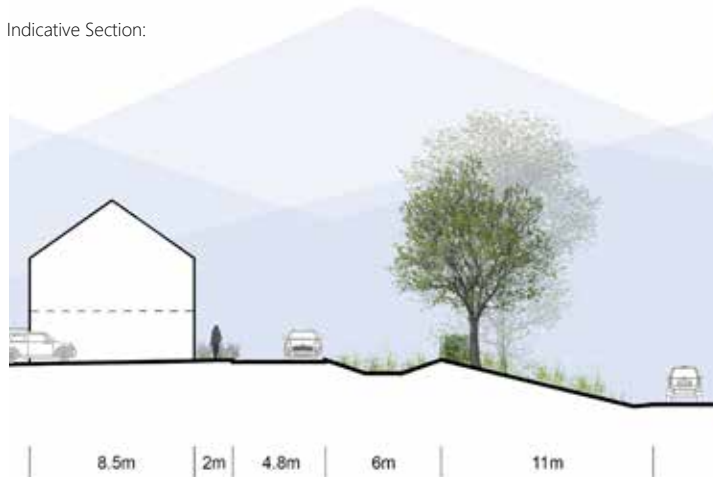


Lonicera nitida 'may green'

Southern and eastern rural edge

5.8.6 This encompasses the relatively more visually sensitive, lower density southern section of Breach Lane and the eastern residential edges along the A47 Clickers Way.

Indicative Section:



Images indicating potential appearance:



Indicative Plan Extract:



Southern and eastern rural edge character area

Category:	Defining characteristics:
Scale and Massing	Limited to 2-storey development where fronting on to strategic landscaping and the wider countryside.
Density and Use	Complementing the above, residential development at lower densities where fronting on to landscape buffers and the countryside beyond, typically in the range of 25-35dph.
Access and Movement	Streets and Lanes on the edge of built development to have single sided footways on development side, or shared surface. Parking will be provided on-plot and designed to be integrated within the rural edge character, typically with garages (where provided) set-back between homes and making maximum use of parking spaces between homes to minimise visual impact (refer to low density example image on Page 44). Due to the lower density of homes along these edges, this should be easily achieved.
Public realm	This area is the transition between the adjacent countryside and the new neighbourhood to the north and west, and the public realm should be very simple, with minimalist geometry. An emphasis on simple, natural materials is key to linking the edge with rural areas and villages beyond.
Architectural design	Potential for larger properties on nonlinear individually designed plots. Opportunities for vernacular or high quality modern interpretation provided that it satisfies the requirements for the sensitive context adjacent to the designated park/garden. Detailing of individual elements within designs to be of high quality.
Facing Materials	Predominantly brick with the potential for some render or potentially high quality, contemporary materials such as wood-effect cladding and metal or ceramic cladding. Traditional roofs to be a mix of grey, red and brown tiles. Living roofs may also be acceptable on garages/outbuildings.
Landscaping and Boundaries	Within this character area boundary treatments will also be tailored to help strengthen the more rural and informal character. Boundary treatments will be more typical of village edges incorporating a greater extent of soft landscape using native planting elements including hedgerows and trees to help soften and filter views of the development edge, including some use of field-type boundary fences and using fewer walls.

Southern and eastern rural edge

Landscape Specification

Proposed tree planting to reflect and enhance the tree cover along the wider countryside and edge. More ornamental trees of a smaller growing habitat to be planted within property boundary and individually within hedgerows.

Individual tree species (or similar approved):

1. *Quercus petraea*
2. *Alnus glutinosa*
3. *Quercus robur*



Quercus petraea



Quercus robur



Alnus glutinosa

Proposed Shrub planting

Proposed shrub planting to reflect and complement existing native species along rural edge. Planting to be informal to reinforce the character of the rural edge.

Suggested species (or similar approved):



Crataegus monogyna
(Hawthorn)



Hebe emerald green



Hebe emerald green



Lonicera nitida 'may green'

Key Plan with highlighted Southern and Eastern Rural edge



Building and Hardscape Materials

Wall



Red brick



Brown brick



Cement render

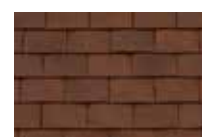
Roof



Grey interlocked roof tiles

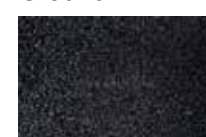


Orange interlocked roof tiles



Red interlocked roof tiles

Ground



Black Tarmac



Brindle Block pavers

Employment area

5.8.7 A distinct area west of the north-eastern gateway to the site, designed to accommodate a range of different types of business space.

Images indicating potential appearance: of employment buildings



Employment Area Character Area

Category:	Defining characteristics:
Scale and Massing	Buildings up to 17m tall (to the ridge-line). Within the area of the site immediately adjacent to existing homes on Mill Lane and Union Mill Close, height will be restricted to 12m to the ridge-line to retain residential amenity. Different buildings for different employment uses are likely to vary in height as well as in scale and massing. The tallest buildings should be located within areas identified for focal buildings.
Density and Use	The employment area will support a range of different types of employment buildings, including logistics, light industrial and office. Use classes E(g), B2, B8. E class uses more likely to be suitable in areas close to existing or proposed residential uses
Access and Movement	The employment area will be accessed directly from the newly formed northern / eastern gateway to the site from Clickers Way. The area is also linked to the rest of the site by road and pedestrian / cycle links. Carriageway to be 7.3m between the A47 junction and the employment area to accommodate commercial vehicles.
Public realm	A well designed public realm will play a key role in helping to deliver cohesion to this area, which will be occupied by a variety of different building types.
Architectural design	This will be determined in detail at the RM stage. Additional design effort and thought to create attractive frontage to primary and secondary streets and main A47 gateway.
Facing Materials	As for the residential neighbourhoods, the principle is to make use of a cohesive palette of sustainable, traditional and contemporary materials and textures within the employment area that help reinforce a sense of place and help distinguish the employment area as a distinct but complementary area within the development. Locally sourced materials should be used where possible. Greater design emphasis and material quality should be placed on the more prominent buildings fronting the north eastern gateway to the site as identified in the placemaking principles plan.
Landscaping and Boundaries	This should complement the overall detailed landscape design for the employment area and use a consistent palette throughout, likely to include hedgerow and tree planting to provide cohesion with the surrounding site. Proposals will need to be enhanced where they front primary and secondary streets and the main A47 frontage.



Indicative
Section

7.9m | 2m | 7.3m | 3m | 12m | 6m | 4.8m | 4.8m | 6m | 4.8m | 9m | 18m



Indicative Plan Extract:

Material Matrix

5.8.8 The matrix summarises the proposed hard and soft landscape treatment for the site to reinforce the proposed character areas and the placemaking hierarchy.

			Neighbourhood centre and community hub	Residential neighbourhoods	Southern and eastern rural edge
Wall Materials	Red		YES	YES	YES
	Brick Orange		YES	YES	NO
	Brown		NO	YES	YES
	Cement Render		YES	NO	YES
	Timber Effect		NO	NO	YES
	Stone		YES	NO	NO
	Metal Cladding		YES	NO	NO
Paving	Tarmac		YES	YES	YES
	Block Pavers Grey		YES	NO	NO
	Block Pavers Brindle		YES	YES	YES

			Neighbourhood centre and community hub	Residential neighbourhoods	Southern and eastern rural edge
Roof Materials	Grey		YES	YES	YES
	Orange		NO	NO	YES
	Red		NO	YES	YES
	Brown		YES	YES	NO
	Smooth Grey		YES	NO	NO
	Metal Roofing		YES	NO	NO
Boundary Treatment	Trees		YES	YES	YES
	Formal Hedges		YES	NO	NO
	Informal Hedges		NO	YES	YES
	Railings		NO	YES	YES
Fencing	Picket fencing		NO	YES	NO