

Growing Baldock

Environmental Statement Volume 1: Text
Chapter 11: Ecology



October 2025

Urban&Civic

Hertfordshire



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11.1 INTRODUCTION

11.1.1 This Chapter presents the findings of the Ecological Impact Assessment (EcIA) for the Proposed Development at Baldock, Hertfordshire (hereafter referred to as 'the Site'). The assessment has been prepared by Bradley Murphy Design Ltd (BMD). The chapter author is Jonathan Wood (BSc, MSc, MCIEEM), is a Principal Ecologist at BMD with over 10 years' consultancy experience.

11.1.2 This chapter evaluates the likely significant effects of the Proposed Development on ecological receptors during both the construction and operational phases, as required under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended). It identifies where mitigation, compensation or enhancement measures are necessary and assesses the residual effects following their implementation.

11.1.3 The assessment is underpinned by an extensive evidence base, drawing upon ecological survey work undertaken between 2015 and 2025. This includes baseline habitat and botanical surveys, protected species surveys (covering bats, breeding and wintering birds, and reptiles), designated site assessments, ecological verification studies, and strategic mitigation planning. The most recent update to the ecological baseline was undertaken in May 2024 through a formal Verification Assessment walkover.

11.1.4 The following reports have informed this Chapter and are provided as appendices:

- BMD.21.0045.RPE/P1.801.-.Ecology – Preliminary Ecological Appraisal (BMD, 2025)
- BMD.21.0045.RPE-P2.804.Eco Assessment – Phase 2 (BMD, 2023)
- BMD.21.0045.RPE-TN.806.EcoHeadlines
- BMD.21.0045.RPE-P2.808.Nocturnal Bats (BMD, 2025)
- BMD.21.0045.RPE-TN.807.Verification Assessment – Verification of Habitat Condition and Botanical Interest (BMD, 2023)
- BMD.21.0045.RPE-TN.810.Corn Bunting Mitigation Sites – Assessment of Corn Bunting Mitigation Sites (BMD, 2023)
- BMD.21.0045.RPE.MP.809.A.EMP – Ecological Management Plan (EMP) (BMD, 2025)
- BMD.21.0045.RPE-P2.814.Eco Assessment – Phase 2: Further Ecological Assessment (BMD, 2025)

11.1.5 In addition to BMD's technical reporting, earlier survey data by other consultancies were reviewed, including:

- Ecus (2016) – Preliminary Ecological Appraisal (on behalf of Hertfordshire County Council)

- WYG (2017) – Corn Bunting and Farmland Bird Reports
- Ecus (2019–2020) – Updated Ecological Appraisals, Bat Activity Reports, and Reptile and Corn Bunting Surveys for Baldock North and South-East

11.1.6 Together, these documents provide a robust, up-to-date understanding of the Site's ecological baseline and its context within the wider landscape. The Chapter is structured in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (2018), and with reference to BS 42020:2013 Biodiversity – Code of Practice for Planning and Development, BS 8683:2021 Biodiversity Net Gain – Design and Implementation, and relevant national planning policy and legislation, including the Environment Act 2021 and the Conservation of Habitats and Species Regulations 2017 (as amended).

11.1.7 The Description of Development is as follows:

Outline planning application with all matters reserved except for means of highway access into the development from the A505/Royston Road, North Road and Clothall Road: for up to 3,200 homes, up to 16ha of employment, waste and leisure infrastructure, a mixed use local centre, up to 1 secondary school, up to 2 x primary schools, up to 1 SEND school, health hub, green infrastructure (including parks, formal sports provision, play, habitat areas, informal open space and structural planting), internal street network, access junctions and railway crossing, public transport infrastructure, pedestrian/cycle network (including PRoW diversions, active travel routes, mobility hubs and crossing of the railway), utilities and drainage infrastructure (including diversions of existing and provision of new infrastructure, pumping stations, sustainable drainage, primary substations, rising main/strategic sewer and renewable energy infrastructure), ground remodelling/earthworks and any necessary demolitions.

11.1.8 The site will be phased, with development commencing in site BA2 (Phase 1) and thereafter progressing in BA1 from a west to easterly direction (from North Road) alongside the build out of BA10. The final phase will comprise BA3 (dependent on the decision regarding secondary school provision). Infrastructure will be delivered at appropriate triggers throughout the development, to be agreed as part of the S106 agreement. Construction is anticipated to commence in 2027 with the first completions (in BA2) in 2028. The Proposed Development completion date is envisaged to be approximately 2043 with an average annual housing completion rate of 200 dwellings per annum.

11.2 RELEVANT POLICY

11.2.1 The ecological assessment has been informed by a comprehensive policy and legislative framework at international, national, and local levels. The key instruments relevant to the Proposed Development at Growing Baldock include the following:

National Policy

National Planning Policy

11.2.2 The National Planning Policy Framework (NPPF) was updated on 12 December 2024, with technical corrections made on 7 February 2025. The updated framework, effective immediately, reinstates and strengthens key environmental and biodiversity protections:

- Paragraph 180: Plans and development decisions are required to contribute to and enhance the natural environment by “avoiding adverse impacts on biodiversity and geological conservation”; “improving biodiversity value, especially where this has been previously degraded”, and “minimising impacts on and providing net gains for biodiversity”.
- Paragraph 181: Development likely to adversely affect a Sites of Special Scientific Interest (SSSI) should not normally be permitted unless the need for, and benefits of, the development clearly outweigh the impacts on the designation and its conservation objectives.
- Paragraph 186: Emphasises that planning policies and decisions should enable the delivery of biodiversity net gain, compliant with the Environment Act 2021.
- Paragraph 163: Introduced for the first time in December 2024, requires that “the need to mitigate and adapt to climate change should ... take into account the full range of potential climate change impacts” when preparing and assessing planning applications.
- Paragraph 161: Now explicitly refers to supporting the transition “to net zero by 2050,” and requires full account to be taken of “all climate impacts” (including overheating, water scarcity, storm risk, and flood risk).

11.2.3 Additionally:

- New references in Paragraph 187(d) require developers to consider incorporation of features supporting “priority or threatened species such as swifts, bats and hedgehogs” Bio regional+7FTB Chambers+7Local Government Association+7.
- Paragraph 190 amends terminology from “Areas of Outstanding Natural Beauty (AONB)” to “National Landscapes”

11.2.4 These updates reinforce the requirement to adopt the mitigation hierarchy, deliver at least 10 % Biodiversity Net Gain, and integrate climate resilience into development proposals — aligning closely with the ecological aims of the Baldock scheme.

Planning Practice Guidance (PPG)

- 11.2.5 The Planning Practice Guidance (PPG), published by the Department for Levelling Up, Housing and Communities, is a continuously updated online resource that supports the implementation of the National Planning Policy Framework (NPPF). While the NPPF remains the primary document for decision-making, the PPG provides detailed guidance on its application across topic areas, including the natural environment.
- 11.2.6 In relation to ecology and biodiversity, the PPG clarifies how local planning authorities should consider ecological impacts within the planning process. It emphasises the requirement to conserve and enhance biodiversity, secure measurable Biodiversity Net Gain (BNG) in line with the Environment Act 2021, and embed the principles of the mitigation hierarchy (avoidance, mitigation, compensation) into the assessment of development proposals. It also provides guidance on the treatment of designated sites, priority habitats and species, and the use of Local Nature Recovery Strategies (LNRSs) in spatial planning.
- 11.2.7 For Environmental Impact Assessment (EIA), the PPG outlines expectations on the scope and quality of ecological baseline surveys, assessment of significance, and integration of mitigation measures into scheme design. Together, the NPPF and PPG establish the policy and procedural framework within which this Ecological Impact Assessment has been prepared.

Local Planning Policy

North Hertfordshire Local Plan 2011–2031

- 11.2.8 The Site is allocated for development in the North Hertfordshire Local Plan 2011–2031 (Adopted 2022). Key ecology-relevant policies include:
- Policy SP12: Green Infrastructure, landscape and biodiversity – Requires development to deliver measurable net gains in biodiversity and retain, protect, and enhance ecological networks and designated sites.
 - Policy NE1: Landscape – Encourages proposals to retain and enhance features that contribute to landscape character and biodiversity.
 - Policy NE3: Biodiversity – States that development proposals will be expected to provide a net gain in biodiversity, and sets out requirements for protection and enhancement of priority habitats and species.
 - Policy NE4: Protected sites – Seeks to safeguard designated ecological sites, both statutory and non-statutory.
 - Policy NE5: New and improved open space – Requires development to incorporate multifunctional open space that supports wildlife and human wellbeing.

- In accordance with Policy SP14, a Strategic Masterplan is required for the entire allocated Site, and ecological matters are considered critical to this masterplanning process, particularly in relation to landscape-led design, habitat protection, and long-term green infrastructure delivery.
- 11.2.9 The development is split into different developable areas, some of which are allocated under the local plan.
- 11.2.10 BA1 North of Baldock: This area is bound by the A507 North Road to the west, public bridleway (Ref: Bygrave 001) to the north and Cambridge railway line to the south. The land use in this part of the Site is predominantly arable farmland. The northern fields are open and large scale, principally as a result of a lack of enclosure, undulating chalk topography, few dwellings and a uniformity of land cover. The scale of the landscape south of Bygrave Road/Ashwell Road is smaller scale featuring grazing paddocks.
- 11.2.11 BA2 Land to the south of Clothall Road: This area is a combination of grazing paddocks associated with Cambrai Farm and arable farmland, bound to the north west by the settlement edge of Baldock, Hillside Park mobile home site to the south west and by the A505 Baldock bypass to the south.
- 11.2.12 BA3 Land to the east of Baldock, north of the Urban Open Land: This area features arable farmland bound by Wallington Road and the settlement edge of Clothall Common to the north and west and the A505 Baldock bypass to the east. The northern area, to the south of Royston Road and east of Clothall Common, is currently raised overgrown, unmanaged land created after the construction of the bypass and is currently used by locals as informal open space, albeit it is not designated.
- 11.2.13 BA10 Royston Road, Baldock: This is a linear piece of landscape bound to the north by the Cambridge railway line and to the south by Royston Road. The land use is predominantly arable farmland with a few grazing pastures to the west and interspersed with small farmsteads and industrial uses along Royston Road.
- 11.2.14 Three further areas of land are incorporated into the OPA boundary:
- 11.2.15 Urban Open Land: To the north of Clothall Road and east of Walls Field - designated under Policy G2 Strategic Green Space in the Baldock, Bygrave & Clothall Neighbourhood Plan 2021 - this land is currently arable farmland.
- 11.2.16 Walls Field (Scheduled Monument): Baldock has an important history, as a Roman settlement, which was centred on Walls Field to the east of the town centre. The scheduled monument forms part of the Site and is currently used as arable farmland.
- 11.2.17 Land to the west of North Road: A small parcel of land within HCC ownership west of North Road, adjacent to BA1 and south of the Ivel Springs Local Nature Reserve (LNR).

Neighbourhood Plan

- 11.2.18 In addition to the North Hertfordshire Local Plan, the Baldock, Bygrave & Clothall Neighbourhood Plan was formally adopted on 29 June 2021 and now forms part of the Development Plan for the area.
- 11.2.19 Although this Neighbourhood Plan does not allocate new development sites, it sets out a suite of general and site-specific policies that can influence the delivery of developments in Baldock and nearby parishes. Relevant to ecology and landscape considerations, the following are particularly noteworthy:
- 11.2.20 Policy G2 – Strategic Green Space: Safeguards the predominantly open character of the land between Walls Field and the A505 (the 'green lung' of Baldock), encouraging proposals that maintain or enhance its visual and recreational value.
- 11.2.21 Policy E3 – Managing Construction Impacts: Requires development proposals to set out how construction impacts—particularly in relation to sensitive environmental features—will be managed and minimised.
- 11.2.22 Policy G3 – Creating Well-Designed Places: Calls for high-quality design in submissions, including independent design review for allocated urban extensions (such as BA sites), helping to ensure ecological considerations are embedded in layout and connectivity.
- 11.2.23 Policy E2 – Green Infrastructure and Outdoor Recreation: Encourages new developments to include well-designed green infrastructure and recreational spaces from the outset.
- 11.2.24 Overall, while the Neighbourhood Plan does not introduce explicit ecology-specific policies, it reinforces the need for sustainable design, green infrastructure provision, and mitigation of construction impacts—all of which align with and support the ecological approach taken in this ES.

Biodiversity Net Gain

- 11.2.25 The Environment Act 2021 introduces a mandatory requirement for all major developments in England to demonstrate a minimum 10% net gain in biodiversity, measured using the DEFRA Statutory Biodiversity Metric (v4.0). The Proposed Development at Baldock is subject to this requirement and has been designed to deliver BNG through a combination of on-Site habitat creation and enhancement, supported by long-term ecological management secured via planning obligations.
- 11.2.26 A formal Biodiversity Net Gain Plan will be submitted at the appropriate stage of the planning process in line with the requirements set out in the Biodiversity Gain Plan Regulations (2025), with habitat creation secured for a minimum of 30 years by legal agreement.

Other Relevant Policy, Legislation or Guidance

11.2.27 The following legislation is of direct relevance to the assessment of ecological effects associated with the Proposed Development:

- The Conservation of Habitats and Species Regulations 2017 (as amended) transposes the EU Habitats Directive and Birds Directive into UK law and affords protection to European sites and European protected species (EPS).
- The Wildlife and Countryside Act 1981 (as amended) provides protection for nationally important species and Sites of Special Scientific Interest (SSSIs).
- The Environment Act 2021, which establishes a statutory requirement for developments in England to deliver a minimum 10% Biodiversity Net Gain (BNG), secured for at least 30 years.
- The Natural Environment and Rural Communities (NERC) Act 2006, Section 40 of which places a duty on public bodies to conserve biodiversity, with Section 41 listing species and habitats of principal importance.
- The Protection of Badgers Act 1992, which provides protection for badgers and their setts.
- The Hedgerows Regulations 1997, which protects important hedgerows from removal or damage without consent.
- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended), under which this assessment is undertaken.

11.3 ASSESSMENT METHODOLOGY

Introduction

- 11.3.1 The Site includes a diverse ecological baseline comprising a range of habitats, protected species records, and adjacent designated sites, all of which could be subject to direct or indirect effects from the Proposed Development. The assessment area focuses on the Site boundary and adjacent land that may fall within the Zone of Influence (ZoI), informed by species ecology, habitat connectivity, and impact pathways. For the purposes of this assessment, the ZoI is defined as the area within which potential effects of the Proposed Development could reasonably be expected to occur, either directly or indirectly.
- 11.3.2 More mobile species (e.g. bats, farmland birds, badger) are considered at a wider landscape scale. Surveys have accounted for commuting ranges and territory size where appropriate. The potential presence of species that may traverse the Site from nearby off-site features (e.g. GCN from ponds beyond the boundary) has been evaluated using a precautionary approach where evidence or habitat suitability indicates.
- 11.3.3 In terms of designated sites, the following search radii were applied in line with best practice:
- International / European designated sites: 5 km
 - Nationally designated sites (SSSIs): 5 km
 - Non-statutory sites (e.g. Local Wildlife Sites): 1.5 km
- 11.3.4 There are no statutory designated sites located within the Site boundary. However, statutory sites such as Therfield Heath SSSI, Ivel Springs LNR and Weston Hills LNR are located in the wider landscape and have been assessed for potential indirect effects (e.g. air quality and recreational pressure) due to their proximity and sensitivity.

Valuation and Importance of Ecological Features

- 11.3.5 To determine the likelihood of significant ecological effects, ecological features are first evaluated using the geographic frame of reference outlined by CIEEM (2018):
- International
 - UK-wide
 - National (England)
 - County (Hertfordshire)
 - District (North Hertfordshire)
 - Local or Site level
- 11.3.6 Designated sites and some habitats already carry formal recognition of importance (e.g. SSSI or LWS designation). For undesignated habitats, valuation is based on professional

judgement and criteria including rarity, conservation status, condition, and contribution to ecological networks.

11.3.7 For habitats, the evaluation considers:

- UK and local BAP targets (as informed by Hertfordshire's Local Nature Recovery Strategy);
- Priority habitat mapping (Natural England);
- Habitat condition and distinctiveness using Biodiversity Metric 4.0;
- Functional value within the landscape (e.g. connectivity, shelter, breeding substrate).

11.3.8 Species value is based on:

- Legal protection (e.g. WCA 1981, Habitats Regulations);
- Conservation status (e.g. S41 NERC, red/amber listed birds);
- Population status and viability on Site and locally;
- Rarity at local, county or national level;
- Assemblage value (e.g. farmland birds);
- Species distribution at edge of geographic range.

Designated Site Classifications

11.3.9 Statutory designated sites (e.g. Ivel Spring LNR) are assessed based on official citations, condition status, and qualifying features, with consideration of indirect effects such as air quality and recreational pressure.

11.3.10 Non-statutory designated sites (e.g. Bygrave Road LWS) are evaluated for their habitat diversity, connectivity, and potential function as ecological stepping-stones or corridors in the wider landscape. Local Wildlife Sites in Hertfordshire are designated based on criteria established by the Herts & Middlesex Wildlife Trust and local authorities.

Social, Community or Economic Value

11.3.11 Some habitat features may not be of high ecological value or particularly rare but could have social or community value in their own right e.g. local community woodlands. This will be assessed as far as practical.

Method for Assessing Impacts

11.3.12 In summary, the impact assessment involves the identification and characterisation of impacts (with embedded mitigation considered), incorporating any additional measures to mitigate for these impacts (including adherence to the mitigation hierarchy; avoid, mitigate and compensate), assessment of the significance of any residual effects

remaining after mitigation and identification of opportunities for ecological enhancements.

- 11.3.13 Although it is only necessary to report significant residual effects it is good practice in an EcIA to distinguish both the potential significant effects without mitigation and the residual significant effects following mitigation to allow clear identification of the necessary mitigation measures relevant to the impact.
- 11.3.14 The assessment should only describe the characteristics of impacts that are relevant to the ecological effect and to determining the significance. It should consider direct, indirect, secondary and cumulative impacts and also ascertain whether the impacts and effects are of short, medium or long-term duration, permanent, temporary, reversible, irreversible.
- 11.3.15 In this Chapter positive effects are referred to as 'beneficial' and negative effects are referred to as 'adverse'. The assessment of impacts then considers the baseline conditions with regard to the anticipated changes that will occur as a result of the project and associated activities and the cumulative impacts of the Proposed Development in relation to those arising from other developments in the locality.

Significant Effects

- 11.3.16 Legislation and policy often require significant negative or positive impacts to be identified from other effects. They suggest that in ecological terms significant effects:

'encompass impacts on structure and function of defined sites and ecosystems.'

- 11.3.17 If an impact is not found to be significant at the level the receptor has been valued at, it may still be significant at the local level. In such scenarios the impact would then be scoped out of the assessment unless there are legal implications that require specific measures to be taken, regardless of the significance.
- 11.3.18 Although certain species and habitats may not be considered important ecological features based upon nature conservation value alone, they may require consideration during the design of the Proposed Development on the basis of their legal protection, animal welfare requirements and/or to meet a local policy requirement.
- 11.3.19 The nature of the identified impacts on each assessed feature is characterised. This is considered, along with available research, judgement about the sensitivity of the feature affected, and professional judgement about how the impact is likely to affect the designated site, habitat, or species conservation status. Where it is concluded that an effect would be likely to reduce the viability or integrity of an assessed feature, it is described as significant. The degree of significance of the effect takes into account the geographic context of the feature's importance and the degree to which its interest is judged to be affected.

- 11.3.20 After the specification of additional mitigation, the residual effects are then assessed for their significance in the context of national and local planning policy. Significant effects are defined in the CIEEM guidance as follows:

"A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project." The guidance further states that "a significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects have been lawfully permitted following EIA procedures."

- 11.3.21 CIEEM (2018) guidelines for ecological impact assessment avoid and discourage the use of the matrix approach. As such, no standard criteria or approach to determine significance through the use of a magnitude and sensitivity matrix for ecological receptors exists. Consequently, a bespoke Impact Assessment Matrix and criteria have been used in this ES chapter for assessing the significance of impacts. The valuation of magnitude and sensitivity and subsequently significance has been determined by applying the relevant guidelines as far as possible.

- 11.3.22 For the purpose of this assessment, the magnitude of effect of an impact on an ecological receptor is described as 'large', 'moderate', 'small', or 'negligible' (**Table 11.1**). No standard guidance on magnitude currently exists for ecological impacts. Consequently, the values within **Tables 11.1 and 11.2** are determined by professional judgement. In order to follow the relevant ecological impact assessment guidelines (CIEEM, 2018) as far as is possible, magnitude has taken size, amount, intensity and geographical context into account.

Table 11.1 - Magnitude of Change to Environmental Receptor

Extent of Change	Magnitude
High	Entire loss / gain or major variation to key elements / features of the baseline conditions so that the post-development character / configuration of the baseline condition would be fundamentally changed.
Medium	Loss / gain or variation to one or more key elements / features of the baseline conditions so that the post-development character / configuration of the baseline condition would be materially changed.
Low	Minor change from the baseline conditions. The changes are measurable, but not material in the sense that the changes are similar to those pre-development.
Negligible / None	Inconsequential or no change from baseline conditions

- 11.3.23 In order to follow the relevant ecological impact assessment guidelines (CIEEM, 2018) as far as is possible, a sensitivity value has been assigned to receptors. The sensitivity value has been broadly assessed in terms of level of designation for designated sites and geographical frame of reference for importance of species and habitats. **Table 11.2** summarises the values used for different ecological receptors in the ES.

Table 11.2 - Sensitivity of receptors

Sensitivity	Receptor
High	Internationally / Nationally Important
Medium	Regionally Important
Low	Locally Important

- 11.3.24 Using the definitions for magnitude and sensitivity detailed in **Tables 11.1 and 11.2** respectively, **Table 11.3** defines the magnitude of impact. The significance of impacts may be either adverse or beneficial. For the purposes of this ES the following definitions have been used:

Table 11.3 - Magnitude of impact

Magnitude of Impact (degree of change)		Typical description
Major	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Moderate	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Minor	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.
No Change		No loss or alteration of characteristics, features or elements; no observable impact in either direction.

- 11.3.25 The predicted level of effect is based upon consideration of magnitude of impact and the sensitivity of the receptor, see **Table 11.4** below.

Table 11.4 - Level of Effect

Sensitivity (Value) of Receptor	No Change	Negligible	Minor	Moderate	Major
Very High (International)	No effect	Negligible	Minor (Significant)	Moderate (Significant)	Major (Significant)
High (National)	No effect	Negligible	Minor (may be Significant)	Moderate (Significant)	Major (Significant)
Medium (Regional)	No effect	Negligible	Minor (Not Significant)	Moderate (may be Significant)	Major (Significant)
Low (Local)	No effect	Negligible	Minor (Not Significant)	Moderate (Not Significant)	Major (may be Significant)
Negligible (Site only)	No effect	Negligible	Negligible	Minor (Not Significant)	Minor (Not Significant)

- 11.3.26 The significance of the potential effect upon ecological receptors has been assessed both before and after consideration of mitigation measures.

Mitigation

- 11.3.27 Where significant effects have been identified the mitigation hierarchy has been taken into account following current best practice i.e. the sequential process of avoid, mitigate and compensate.
- 11.3.28 Where mitigation and compensation has been proposed, this will be proportionate with the geographical scale at which the identified effect is significant.

Main phases of the Proposed Development

- 11.3.29 The potential impacts of the Proposed Development are considered in relation to its two main phases namely; the construction phase and the operational (i.e. occupation) phase.
- 11.3.30 No other phases have been identified for the type of development being assessed (e.g. no de-commissioning phase in this case).
- 11.3.31 Certain effects will be permanent e.g. permanent loss of habitat to the Proposed Development may occur during the construction stage. Other effects will cease after construction is complete e.g. dust and noise during construction activities.

Mitigation and the Biodiversity Mitigation Hierarchy

11.3.32 The assessment applies the sequential mitigation hierarchy:

- Avoidance (e.g. through Site design);
- Mitigation (e.g. sensitive timing, protective fencing);
- Compensation (e.g. off-site habitat delivery); and
- Enhancement (e.g. BNG measures).

11.3.33 Avoidance has been achieved via masterplanning to retain key features (e.g. LWS buffer, species-rich hedgerows). The Ecological Management Plan (Appendix 11.7 Ecological Management Plan (EMP) BMD.21.0045.RPE.MP.809 – Ecological Management Plan (EMP) (BMD, 2024)) outlines measures to manage and monitor mitigation success.

Assessment Phases and Residual Effects

11.3.34 Impacts have been assessed for both the construction and operational phases. Decommissioning has not been considered due to the nature of the Proposed Development.

11.3.35 Residual effects are assessed after mitigation, including delivery of biodiversity net gain. The BNG assessment demonstrates over 10% net gain in both habitat and hedgerow units using Statutory Metric 4.0.

Uncertainties and Limitations

11.3.36 Survey data spans multiple years (2015–2025) and has been updated through recent verification walkovers. Seasonal constraints and access limitations are identified in the reports, though coverage is considered robust. Where access to third-party land was restricted, assessments relied on aerial imagery and professional inference.

11.3.37 The assessment of ecological effects associated with BA3 is subject to a degree of uncertainty because a number of different development scenarios are included in the OPA in relation to secondary education. Option 1 would involve the relocation and expansion of Knights Templar School to BA3, with capacity increased to up to 12FE, and the Site accommodating both a SEND school and a secondary school. Option 2 would see Knights Templar School expanded on its current site, up to a maximum of 10FE, with BA3 in this case accommodating a SEND school alongside a residential development of approximately 250 units. Option 3 is the establishment of an additional secondary school of up to 5FE on BA3, together with a SEND school, a secondary school and a smaller scale residential component of approximately 90 units.

11.3.38 These options will result in differences in respect of the scale, layout and land-take of built development within BA3, which in turn influences the extent of habitat loss and fragmentation, the degree of pressure on retained habitats and green infrastructure, and

the level of disturbance to protected species. At this stage, the final option has not been selected, this will take place later in the development programme as part of an Education Review Process. The ecological assessment has therefore been undertaken at a strategic level, applying a precautionary approach to ensure that a reasonable worst-case scenario is captured. This involves assuming that the maximum potential footprint of development would be brought forward under each option, and that ecological constraints identified within BA3 could be affected to their fullest extent.

- 11.3.39 Professional judgement has been applied to interpret the available data in light of these uncertainties, including consideration of habitat connectivity, potential impacts on local species populations, and opportunities for ecological enhancement through design. Where uncertainties remain, precautionary assumptions have been used so that ecological risks are not underestimated and can be addressed through subsequent stages of the design and mitigation process.

11.4 BASELINE CONDITIONS

Introduction

- 11.4.1 The Site is located on the northern fringe of Baldock in North Hertfordshire and comprises approximately 220 ha of farmland, species-rich grassland, boundary hedgerows, scrub, and scattered mature trees. The surrounding landscape is a transitional edge between open agricultural land and the expanding townscape of Baldock. It forms part of a wider ecological network that includes designated and non-designated wildlife sites, habitat corridors, and green infrastructure. Ecological survey effort has been extensive and multi-year, incorporating an extended Phase 1 Habitat Survey (Appendix 11.1 Preliminary Ecological Appraisal BMD.21.0045.RPE/P1.801 – Ecology – Preliminary Ecological Appraisal (BMD, 2025)), species-specific surveys for bats, birds, and reptiles, and a verification walkover in spring 2025 (BMD.21.0045.RPE-TN.813). This section provides a detailed account of ecological features within and adjacent to the Site, including statutory and non-statutory designated sites, and evaluates their importance based on habitat type, condition, rarity, and contribution to the Hertfordshire Local Nature Recovery Strategy (LNRS).

Designated Sites

- 11.4.2 All sites discussed in terms of significant effects are shown within **Figure 11.1**.

Statutory Designated Sites

- 11.4.3 There are no statutory designated sites within the redline boundary of the Site. Several statutory sites are located within a 5 km study area, and these have been reviewed for both ecological and air quality-related sensitivities.
- 11.4.4 Therfield Heath SSSI lies approximately 10 km north-east of the Site and is designated for its extensive areas of chalk grassland and associated invertebrate populations. The site is ecologically isolated from the Proposed Development by intervening land use and topography, with no direct habitat or hydrological pathways linking the Site to the SSSI. While the designation focuses on chalk grassland, APIS confirms that lichens and bryophytes are not listed as notified features. Accordingly, a critical level of 3 µg/m³ is applicable for grassland habitats. Woodland compartments within the SSSI, which carry a lower critical level of 1 µg/m³ for ammonia, are located more than 200 m from the nearest affected roads, and therefore fall outside the recognised screening distance. For these reasons, Therfield Heath has been considered within the air quality assessment, with results of the operational modelling addressed in Section 11.6.
- 11.4.5 Ivel Springs Local Nature Reserve (LNR) is located adjacent to the Site and is considered within the ecological baseline due to its sensitive mosaic of semi-natural habitats, including wetlands, species-rich grassland, woodland, and riverine features. It lies adjacent to the Proposed Development western boundary, separated by North Road, and

functions both as a designated nature reserve and part of Baldock's green infrastructure network. The Site is considered susceptible to both air quality and ecological pressures. In ecological terms, it is functionally connected via local bat foraging corridors, and given its hydrological features, any change in drainage or surface water flows resulting from the Proposed Development could have downstream implications. No direct habitat linkage is present due to intervening infrastructure. Due to its ecological value, connectivity, and exposure to multiple potential pressure pathways, Ivel Springs is considered of District (North Hertfordshire) importance.

11.4.6 Weston Hills LNR, located adjacent to the south of the Site, consists of chalk grassland and woodland habitats. It is understood to fall within 200 m of roads that may receive increased traffic associated with the Proposed Development. Ecologically, Weston Hills is fragmented from the Site by the town of Baldock and lacks functional habitat connectivity. Additionally, the habitats of interest at Weston Hills are not continuous with those within the Site boundary. Weston Hills LNR is of District importance.

11.4.7 Knebworth Woods SSSI, a large ancient woodland designated for its hornbeam coppice with oak standards and associated flora and fauna, lies approximately 10 km south of the Proposed Development. Although beyond the 5 km ecological study area for direct effects, it has been considered in the air quality assessment due to its known sensitivity to atmospheric nitrogen. The grassland habitats of the SSSI are over 200 m from affected roads and can be screened out. The main receptor is therefore ancient woodland, for which the critical level for ammonia is 1 µg/m³ and the lower end of the critical load range is 15 kgN/ha/yr. However, given its sensitivity to air quality changes, the Site has been specifically considered as part of the operational air quality modelling. The results of this assessment are reported in Section 11.6, where nitrogen deposition and ammonia contributions are addressed in detail.

Non-Statutory Designated Sites

11.4.8 Bygrave Road Local Wildlife Site (LWS) is situated within boundary of the Site. It includes ruderal herbaceous vegetation, and grassland supporting a range of invertebrates and farmland birds. Habitat quality is assessed as poor, and its position enhances its corridor function along the landscape edge. Given its connectivity, habitat diversity, and biodiversity value, Bygrave Road LWS is considered to be of Local importance.

11.4.9 Other non-statutory sites within 1.5 km of the Site include:

11.4.10 Ashwell Common and Quarry Springs LWS, which comprises wet grassland and fen communities. This site lies over 1 km from the Site, separated by intervening farmland, and is not hydrologically linked. Ecologically, there are no migratory species or habitat corridors bridging the two locations. While it holds County importance, the lack of impact pathways means that it has been scoped out of further assessment.

- 11.4.11 Wallington Roadside Verge LWS, designated for calcareous plant assemblages on a linear road verge habitat. This site is also located over 1 km from the development and is ecologically isolated from the Site. No significant effects are anticipated. It remains of County importance, but has been excluded from detailed assessment.

Habitats

- 11.4.12 Habitats across the Site were mapped using extended Phase 1 and Phase 2 surveys. Habitat condition assessments were informed by the Biodiversity Metric 4.0, and floristic data verified in 2024 and 2025 (Appendix 11.8 Further Ecological Assessment BMD.21.0045.RPE-P2.814 – Eco Assessment – Phase 2: Further Ecological Assessment (BMD, 2025)). No irreplaceable habitats are present. Habitat complexity varies from intensive arable land to species-rich field margins and mature linear features.

Arable Land (Modified Grassland and Cropped Areas)

- 11.4.13 Arable fields cover the majority of the Site and are managed for cereal crops or rotational ley. Field margins exhibit variable width and condition but are predominantly species-poor. These habitats are functionally poor for biodiversity, although they support foraging by birds and mammals. Their value is considered to be of Site-level importance due to widespread occurrence and limited ecological structure.

Species-rich Other Neutral Grassland

- 11.4.14 Two fields in the southern and eastern sections of the Site were classified as Other Neutral Grassland (UKHab g3c), with smaller patches and field margins across the north and west. These habitats were identified as modified semi-improved grassland with variable floristic richness. Phase 2 botanical surveys recorded frequent presence of red clover (*Trifolium pratense*), common knapweed (*Centaurea nigra*), sweet vernal grass (*Anthoxanthum odoratum*), crested dog's-tail (*Cynosurus cristatus*), yarrow (*Achillea millefolium*), and ribwort plantain (*Plantago lanceolata*). Species typical of MG5 grassland communities were regularly observed, albeit with variable cover. Along the edge of the mound, a subtle calcareous influence was noted, with localised occurrence of species such as kidney vetch (*Anthyllis vulneraria*) and other chalk-associated forbs interspersed within the sward.
- 11.4.15 Sward height and structure varied, influenced by grazing intensity and historic management. Parts of these grasslands were under light equine grazing pressure or had been previously mown. The habitat supports a moderate diversity of forbs and grasses, creating suitable foraging conditions for invertebrates and birds. However, thatch accumulation and occasional nutrient enrichment were observed, reducing overall botanical quality.
- 11.4.16 The habitat condition ranged from moderate to poor under Biodiversity Metric 4.0 criteria. Despite localised floristic interest and structural heterogeneity, the neutral grassland was

assessed as being of Local to District importance, reflecting its partial conformity with semi-natural grassland targets and its role in supporting species assemblages at a parish scale.

Hedgerows

- 11.4.17 A total of 30 hedgerows were recorded across the Site, all of which qualify as UK Priority Habitat under Section 41 of the NERC Act (2006). At least eight hedgerows (H3, H3a, H8, H9, H10, H11, H27 and H28) are classed as species-rich (containing five or more native woody species) and therefore of elevated ecological value. Of these, H28 is confirmed to be an Important Hedgerow under the Hedgerows Regulations 1997, by virtue of supporting nine woody species, an associated Public Right of Way, and trees along its length. Other species-rich hedgerows (e.g. H8, H9, H10, H11 and H27) meet the ecological threshold for Priority Habitat but are unlikely to satisfy the full regulatory tests for "importance" due to only low or very low abundances of qualifying woody species.
- 11.4.18 The archaeological assessment further identifies several hedgerows as "important" under the Hedgerows Regulations 1997 on heritage grounds, specifically those that coincide with historic parish boundaries and pre-enclosure field systems. These are principally located along North Road, Clothall Road and Royston Road, where historic parish/township boundaries run. The creation of new access points at these locations will necessitate partial removal of these boundary hedgerows, resulting in permanent loss of sections of historically important features.
- 11.4.19 Accordingly, the Site contains hedgerows of both ecological importance (species-rich, notably H28) and archaeological/historic importance (parish boundary hedgerows along North Road, Clothall Road and Royston Road). While the majority of hedgerows will be retained and incorporated within the green infrastructure strategy, those intersected by proposed access points will require removal of sections, and such impacts are considered within both the ecological and archaeological assessments.
- 11.4.20 Most hedgerows are managed annually but provide valuable linear connectivity, nesting habitat for birds, and foraging/commuting routes for bats. Species-poor and gappy hedgerows are frequent across internal boundaries. Based on floristic data, functional value, and ecological role, the hedgerow network is assessed as of Local importance.

Modified Grassland (g4)

- 11.4.21 This habitat dominates large central and eastern fields and is primarily managed for arable rotation or low-intensity grazing. The sward is grass-dominated and species-poor, comprising perennial ryegrass (*Lolium perenne*), cocksfoot (*Dactylis glomerata*), and occasional white clover (*Trifolium repens*). These fields exhibit limited structural variation, poor botanical diversity, and were subject to heavy trampling or re-seeding in some areas.

- 11.4.22 Condition is consistently poor to moderate. The habitat offers minimal value beyond opportunistic foraging for birds or terrestrial mammals and holds Site-level importance only.

Scattered Trees

- 11.4.23 Scattered trees across the Site comprise predominantly boundary trees, isolated in-field specimens, and trees embedded in hedgerows. Species include mature pedunculate oak, ash, field maple, and occasional willow (*Salix* spp.). Tree age structure varies, with a few semi-mature to mature individuals exceeding 50 cm DBH.
- 11.4.24 No trees were classified as veteran; however, some offer bat roost potential (e.g. T12). These trees contribute to vertical habitat diversity, support epiphytic lichens, and function as ecological stepping stones. Scattered trees are considered of District importance for their structure, ecological niches, and connectivity value.

Woodland (w1g – Other Broadleaved Woodland)

- 11.4.25 Two small blocks of woodland are present in the western and south-western portions of the Site. These are classified as Other Broadleaved Woodland (UKHab w1g), consisting of semi-natural canopy species such as ash, oak, sycamore (*Acer pseudoplatanus*), and elder (*Sambucus nigra*). The understorey is patchy with bramble (*Rubus fruticosus* agg.), ivy (*Hedera helix*), and locally frequent nettle (*Urtica dioica*).
- 11.4.26 The canopy structure is relatively intact, although past management (e.g. thinning and boundary fencing) has fragmented internal microhabitats. These areas are structurally diverse and provide shelter and nesting sites for birds and small mammals. The ground flora was not highly diverse, but habitat continuity and scrub edge transitions support wider ecological functions. This woodland is of Site importance only.

Scrub

- 11.4.27 Discrete patches of dense and scattered scrub are distributed along field margins and within transitional zones between grassland and woodland. Dominant species include bramble, blackthorn, hawthorn, and dog rose. Scrub structure varies from open mosaics to dense thickets, providing nesting habitat for birds and shelter for small mammals. Scrub development has increased since 2021 in some unmanaged areas, especially where grazing intensity has reduced. These habitats are important as successional features and are assessed to be of Local importance.

Ruderal Margins

- 11.4.28 Ruderal habitats occur mainly along field edges, trackways, and disturbed margins. Species include creeping thistle (*Cirsium arvense*), mugwort (*Artemisia vulgaris*), nettle (*Urtica dioica*), and teasel (*Dipsacus fullonum*). These are structurally simple and largely

low in botanical interest but offer nectar resources for invertebrates in summer months. Condition is poor to moderate, and the habitat is considered of Site importance.

Buildings and Developed Land

11.4.29 Several small-scale buildings (e.g. barns, stables) were present in the south-west of the Site. These are primarily steel or brick agricultural structures with concrete hardstanding. Roost surveys confirmed no bat roosts, and nesting potential is limited to opportunistic bird use (e.g. swallows). These areas contribute minimally to the ecological value of the Site and are assessed as of Site-level importance.

11.4.30 There were also residential and agricultural buildings scattered throughout the Site. Similarly, roost surveys confirmed no bat roosts, and nesting potential is limited to opportunistic bird use (e.g. swallows). These areas contribute minimally to the ecological value of the Site and are assessed as of Site-level importance.

Artificial Unvegetated, Unsealed Surface (u1c)

11.4.31 This habitat includes trackways, compacted earth, and aggregate areas around access points and outbuildings. These areas are of negligible ecological value, offering no significant floral or faunal resources. As such, they are of Site-level importance.

Species***Amphibians***

11.4.32 The Site was subject to extended Phase 1 Habitat Survey (March–July 2022) and further verification (May 2024) to assess potential for amphibians, including great crested newts (GCN). The Site largely comprises intensively managed arable fields and grazed pasture, interspersed with hedgerows, poor semi-improved grassland, dry ditches, and buildings. There are no ponds or standing waterbodies within the red line boundary. Dry drainage ditches were recorded in several locations, but these do not provide suitable breeding habitat for amphibians.

11.4.33 Desk study data returned no records of great crested newt (GCN) or other amphibians within 1 km of the Site within the last 10 years, and no European Protected Species (EPS) licences for GCN were granted in the surrounding area according to MAGIC mapping searches. The only potential aquatic features within 500 m are:

- The River Ivel located ~60 m northwest of the Site.
- An agricultural drain along the western boundary.

11.4.34 Both of these are flowing watercourses and therefore unsuitable for amphibian breeding, including GCN, which favour static, fish-free water bodies.

11.4.35 Additionally, terrestrial habitats across the Site are largely intensively managed, with minimal refugia (e.g. logs, rubble, dense grassland) and frequent disturbance from

agricultural activities. While boundary features such as hedgerows and field margins may offer limited terrestrial habitat, these are generally suboptimal and isolated by major barriers including roads, rail lines, and arable expanses. As such, the Site as a whole is assessed as having negligible suitability for supporting a GCN meta-population and low suitability for widespread amphibians.

- 11.4.36 No amphibians were observed during incidental survey visits or other species-specific Phase 2 surveys (e.g. reptiles, breeding birds, botanical, bats) undertaken between 2022 and 2024
- 11.4.37 Given the absence of standing water, lack of amphibian records, and suboptimal terrestrial habitat, the amphibian assemblage is assessed to be of negligible to low nature conservation importance at the Site level only. The Site does not support any statutory or non-statutory amphibian priority areas and contains no Priority Habitats for pond- or amphibian-associated ecosystems.
- 11.4.38 No legal or planning constraints relating to amphibians are currently applicable to the Site. The absence of suitable breeding habitat means that it is highly unlikely that any amphibian species protected under the Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2017, or the NERC Act 2006 would be present on-Site.
- 11.4.39 Consequently, no further surveys for amphibians are recommended and no EPS development licence is anticipated to be required and GCN are not considered further in this assessment. The Site is assessed to be of Site-level importance only for common amphibians, with the potential for great crested newt considered to be negligible due to the absence of suitable breeding habitat and a lack of local records

Bats

Roosting Assessment

- 11.4.40 Bats are a European Protected Species under the Conservation of Habitats and Species Regulations 2017 (as amended), and all species are also protected under the Wildlife and Countryside Act 1981 (as amended). The baseline for bats was established through a combination of desk-based study, internal and external roost assessments of buildings and trees, and walked transects and static monitoring surveys, with updates undertaken during the 2025 survey season.
- 11.4.41 A range of buildings and trees across the Site were assessed for bat roost potential during ecological surveys in 2023 and 2025 (**Appendix 11.4** Nocturnal Bat Survey Report BMD.21.0045.RPE-P2.808 – Nocturnal Bats (BMD, 2025)). The Site includes numerous agricultural and ancillary buildings, including barns and brick-built outbuildings located primarily in the central area of the Site, some of which display features suitable for roosting bats. These features include gaps under tiles, lifted lead flashing, wooden beams,

open eaves, and crevices in brickwork. Several buildings were assessed as having low to high roost suitability, particularly for crevice-dwelling species such as common pipistrelle and soprano pipistrelle. Emergence surveys have confirmed the absence of bat roosts on site.

- 11.4.42 In addition to buildings, mature trees within hedgerows and tree belts were assessed for Potential Roost Features (PRFs) during ground-level inspections. A number of trees across the Site, especially those along Hedgerows 3, 8, 13, 14, and 15, were identified as supporting features such as rot holes, knot holes, lifted bark, or cracks that could support roosting bats. These trees were generally assessed as having low to moderate bat roost suitability, again primarily for crevice or cavity-roosting species.
- 11.4.43 Importantly, the Proposed Development includes that the majority of trees with PRFs are to be retained, and no felling of moderate or high-suitability trees is anticipated. Where buildings with potential roost features are to be retained (as is currently proposed), further survey effort may not be necessary unless works directly affect the structures.
- 11.4.44 Given the presence of both buildings and trees with potential to support roosting bats, but the lack of confirmed roosts to date, the Site is assessed as being of Site-level importance for roosting bats. This acknowledges the retained roost potential and connectivity within the landscape, while recognising that no active roosts have yet been recorded.

Activity

- 11.4.45 Bat activity surveys were undertaken across the Site in both 2022 and 2024, comprising transect walks and remote static detector surveys. Across both years, seven species of bat were recorded using the Site:
- Common pipistrelle (*Pipistrellus pipistrellus*)
 - Soprano pipistrelle (*Pipistrellus pygmaeus*)
 - Myotis species
 - Noctule (*Nyctalus noctula*)
 - Leisler's (*Nyctalus leisleri*)
 - Barbastelle (*Barbastella barbastellus*)
 - Brown long-eared (*Plecotus auritus*)
- 11.4.46 Bat activity was consistently concentrated along the peripheral hedgerows, treelines, and rough grassland edges, with field margins along Bygrave Road, Ashwell Road, and the northern Site boundary supporting regular foraging and commuting. Common and soprano pipistrelle accounted for the majority of activity (together >80% of static detector records), with most detections occurring along boundary vegetation and darker

corridors. In contrast, the arable field interiors and footpaths exhibited minimal bat activity.

- 11.4.47 Barbastelle and brown long-eared bats were recorded infrequently, with only isolated passes detected. The single barbastelle record during the July 2024 survey is likely to reflect a fly-through individual rather than regular use of the Site, particularly given the loss of offsite habitat along the railway corridor, which had been subject to intensive vegetation management by 2023. This is considered to have further reduced the Site's connectivity to wider bat commuting corridors.
- 11.4.48 Activity levels in the southern section of the Site, including Land east of Clothall Common and the southern arable fields, were consistently low across all three survey visits in 2024, with either single-species detections (e.g. noctule) or no bat activity recorded at all during the September survey.
- 11.4.49 Static detector results support this pattern, with total bat passes per hour generally low (ranging from 1.2 to 27.5), and dominated by pipistrelle species. While six or more species were recorded overall, this reflects the regional diversity rather than an especially rich local assemblage, and there is no evidence of a key foraging or commuting route of strategic importance.
- 11.4.50 Given the diversity of species recorded, but consistently low activity levels and restriction to field margins and hedgerows, the Site is assessed to be of Site-level importance for bat activity, supporting generalist and widespread species in low numbers, with no evidence of notable assemblages or high-intensity foraging areas.

Badger (Meles meles)

- 11.4.51 Surveys for badger (*Meles meles*) were conducted during extended Phase 1 habitat surveys and further updated during the verification visit in May 2024. The methodology followed best practice guidance (Harris et al., 1989), including a comprehensive walkover of all accessible areas of the Site to search for field signs such as setts, latrines, dung pits, snuffle holes, tracks, hairs, and runs. Badger activity was also recorded incidentally during other ecological survey work undertaken between 2022 and 2024.
- 11.4.52 The 2024 survey (Appendix 11.8) identified the presence of two disused outlier setts within the Site boundary. These showed signs of historic use but were not active at the time of survey, with no recent evidence of excavation, bedding, or footprints. Additionally, low levels of foraging activity were recorded, such as snuffle holes and paths, predominantly along hedgerows and field margins. No active main, annex, or subsidiary setts were recorded within the red line boundary or adjacent land. This aligns with previous findings from the 2022 assessment, which also recorded similar low-level activity but no evidence of an active social group being centred on the Site.

- 11.4.53 Badger is a widespread but legally protected species in the UK. Under the Protection of Badgers Act 1992, it is an offence to:
- Wilfully kill, injure, or take a badger;
 - Cruelly ill-treat a badger;
 - Damage, destroy, or obstruct access to any part of a badger sett;
 - Disturb a badger while it is occupying a sett.
- 11.4.54 Setts are defined as “any structure or place which displays signs indicating current use by a badger”. Although the setts recorded on-Site are currently disused, should they become active again prior to or during works, they would be afforded full legal protection. As such, pre-construction checks will be required if earthworks are scheduled within 30 m of known sett locations.
- 11.4.55 Based on current evidence, the Site is not considered to support an active badger social group, nor does it lie within the core territory of a known population. The Site provides low-quality foraging and commuting habitat in a highly disturbed, intensively managed arable landscape. Accordingly, badger presence is considered to be of Site-level ecological importance only.
- 11.4.56 Provided appropriate precautionary measures are implemented — including pre-construction sett checks and sensitive timing of groundworks — no significant residual effects on badger are anticipated.

Birds (Breeding Assemblage)

- 11.4.57 Breeding bird surveys were undertaken across the Site between April and July 2024, following standard territory mapping methodology adapted from the British Trust for Ornithology (BTO) Common Birds Census approach. The survey effort builds on previous work undertaken in 2017, 2019/20 and 2022, and provides a robust and up-to-date understanding of the breeding bird assemblage present across the Site. The Site supports a mix of arable land, field margins, hedgerows, rough grassland and scrub – habitats typically associated with farmland bird assemblages. The most recent surveys confirmed the continued presence of breeding corn bunting (*Emberiza calandra*), a UK Red List Species of High Conservation Concern and a UK Priority Species under Section 41 (S41) of the NERC Act. The species is also listed on the Hertfordshire Biodiversity Action Plan (BAP).
- 11.4.58 During the 2024 surveys, a total of 17 bird species were confirmed to hold territory within the Site, including several red-listed species of conservation concern: corn bunting, yellowhammer (*Emberiza citrinella*), linnet (*Linaria cannabina*), skylark (*Alauda arvensis*) and song thrush (*Turdus philomelos*). Amber-listed species included dunnoek (*Prunella modularis*), whitethroat (*Sylvia communis*), and blackcap (*Sylvia atricapilla*). Species were predominantly associated with field margins, hedgerows, and scrub-grassland

mosaics, particularly in the southeast and north-central areas of the Site. Breeding territories for corn bunting were found to be dispersed across the northern and southern areas of the Site, with continuity of territory distribution evident between survey years. This highlights the Site's role as a sustained stronghold for this rapidly declining farmland species in Hertfordshire. The breeding population is assessed to be of County-level importance, consistent with the findings of WYG (2017 and 2019), BMD (2022), and reaffirmed by BMD's 2024 update.

- 11.4.59 Additionally, the wider assemblage of farmland birds, including linnet, yellowhammer, whitethroat and skylark, is typical of large-scale arable farmland with edge features and is collectively assessed to be of District-level importance based on species diversity and breeding activity. Most of these species are considered declining nationally, and the Site offers continuous, though locally fragmented, breeding opportunities. No Schedule 1 bird species were confirmed as breeding within the Site during 2024, though previous surveys had recorded hobby (*Falco subbuteo*) and barn owl (*Tyto alba*) as non-breeding foragers.
- 11.4.60 In total, the Site supports a diverse assemblage of breeding birds, with legally protected and conservation-priority species present. The overall assemblage is dominated by species typical of open farmland and structurally diverse edge habitats. In line with published criteria for determining ecological importance, the Site is assessed to be of County-level importance for breeding corn bunting and of District-level importance for the wider breeding bird assemblage. Continued presence of priority species across multiple years indicates a stable or recovering breeding population at a local scale, though the assemblage remains sensitive to changes in habitat quality, agricultural intensity, and development pressure.

Invertebrates

- 11.4.61 No specific invertebrate surveys were undertaken as part of the 2022–2024 ecological assessment programme. However, incidental observations during botanical and habitat surveys, combined with third-party data provided by the Hertfordshire Invertebrate Group, inform an understanding of the Site's invertebrate interest. These records provide credible supplementary evidence to assess potential ecological value in the absence of systematic sampling methods.
- 11.4.62 Of particular note is the record of small blue (*Cupido minimus*), a Species of Principal Importance under Section 41 (S41) of the NERC Act 2006 and a priority species under the Hertfordshire Biodiversity Action Plan (BAP). This record was associated with the south-eastern part of the Site, where suitable habitat for this species was confirmed during botanical surveys, including the presence of its larval food plant, kidney vetch (*Anthyllis vulneraria*). This area includes elements of calcareous grassland and semi-improved grassland, which are known to support locally important invertebrate populations.

- 11.4.63 Additional incidental observations recorded during the suite of site surveys included common pollinators such as bumblebees (*Bombus* spp.), hoverflies (*Syrphidae*), and butterflies including meadow brown (*Maniola jurtina*), gatekeeper (*Pyronia tithonus*), and common blue (*Polyommatus icarus*), primarily within species-rich field margins, hedgerow bases, and scrub-grassland mosaics. The majority of the intensively managed arable and improved pasture fields are considered of low value to invertebrates, offering minimal nectar, larval, or sheltering resources.
- 11.4.64 Based on the confirmed presence of an S41 species, suitable habitat for priority invertebrates, and structural habitat diversity in selected parts of the Site, areas such as the south-eastern grassland compartments, woodland edges, and marginal habitats adjacent to hedgerows are considered to be of Local-level ecological importance for invertebrates.

Hedgehog (*Erinaceus europaeus*)

- 11.4.65 No dedicated surveys were undertaken for hedgehog (*Erinaceus europaeus*); however, the species was considered during wider site assessments and incidental observations made during other field surveys conducted between 2022 and 2024. Hedgehog is a widespread but declining species across the UK and is listed as a Species of Principal Importance under Section 41 of the NERC Act 2006. It is commonly associated with a range of semi-natural habitats including hedgerows, rough grassland, scrub, gardens, and woodland edges, all of which are present in parts of the Site.
- 11.4.66 Although no direct evidence of hedgehog presence (e.g. sightings, nests or droppings) was recorded during surveys, the Site contains structurally suitable habitat, particularly along its boundary hedgerows, rougher grassland margins, and within the woodland edge habitats. These features provide opportunities for foraging, nesting, and commuting, especially in less disturbed compartments of the Site, such as those along the Bygrave Road corridor and in the south-eastern margins. The Site is well-connected to the surrounding landscape via hedgerows and green infrastructure, which facilitates movement of this species at the landscape scale.
- 11.4.67 Local record centre data also indicates the presence of hedgehog within the wider area, supporting the likelihood that the Site forms part of a larger functional range for individuals in the landscape. Given the habitat availability and landscape context, and in the absence of more definitive evidence from targeted survey, hedgehog presence on-Site is considered probable but at low density.
- 11.4.68 On this basis, the Site is assessed to be of Local-level ecological importance for hedgehog. This reflects the suitability of habitats present and the contribution the Site may make to maintaining habitat continuity in a wider landscape experiencing pressures on hedgehog populations.

Reptiles

- 11.4.69 Presence/absence surveys for reptiles were undertaken across the Site in both 2022 and 2024, following standard survey guidance (Froglife, 1999; Natural England, 2011). Artificial refugia were placed within areas identified during the extended Phase 1 habitat assessment as offering potential for reptiles, and these were monitored across seven visits under suitable weather conditions during the spring and early summer of both survey years.
- 11.4.70 Survey results confirmed the presence of a low- population of common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*). These species were primarily recorded within the south-eastern compartment of the Site, where structurally diverse habitats including rough semi-improved grassland, tall ruderal vegetation, and hedgerow bases provide suitable basking, foraging, and sheltering opportunities. No other reptile species were recorded.
- 11.4.71 The central and northern parts of the Site, which are dominated by arable and improved pastureland, were assessed as offering limited or negligible suitability for reptiles due to a lack of vegetation structure, intensive land management, and low habitat connectivity. Reptile activity was spatially restricted and concentrated in areas with more complex edge habitats, particularly where scrub-grassland mosaics and unmanaged margins occur.
- 11.4.72 Both common lizard and slow worm are widespread but declining species in the UK and are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) against intentional killing and injury. The confirmed presence of two legally protected species, even at low density, is ecologically significant in the context of the local agricultural landscape, where habitat fragmentation is widespread.
- 11.4.73 Given the limited spatial extent of suitable habitat, the low-density population size, and the restricted range of species recorded, the Site is assessed to be of Local-level ecological importance for reptiles. This assessment reflects the ecological value of select compartments of the Site, rather than its entirety.

Flora

- 11.4.74 A small population of lizard orchid (*Himantoglossum hircinum*) was recorded within the south-eastern grassland compartment of the Site during the 2024 botanical assessment. This species is listed under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). It is nationally scarce but increasing in distribution, with local populations known in southern England and parts of Hertfordshire.
- 11.4.75 The orchid was found within a mosaic of semi-improved neutral to calcareous grassland with locally abundant kidney vetch, suggesting some areas of high local floristic interest. However, this species was recorded in isolation, and no broader assemblage of rare, scarce, or indicator plant species was identified across the Site that would qualify the

botanical community as notable or of high conservation value. Most of the Site is dominated by agriculturally improved or disturbed habitats with relatively low botanical diversity.

- 11.4.76 While lizard orchid is of conservation interest and contributes to the Site's biodiversity value, its presence is spatially restricted, and it does not occur alongside a wider suite of notable plant species that would warrant assessment at a higher geographic scale. As such, the Site is assessed to be of Local-level ecological importance for vascular plants, based on the confirmed presence of this Schedule 8 species in a limited area but in the absence of a notable botanical assemblage more broadly.
- 11.4.77 In addition to the grassland and orchid interest described above, the 2024 botanical assessment also recorded a notable arable plant assemblage within a large arable field adjacent to the A505, revealed following temporary disturbance during ground investigation and archaeological works in early 2024. Species present included nationally scarce few-flowered fumitory (*Fumaria vaillantii*) and Venus' looking-glass (*Legousia hybrida*), alongside other characteristic arable taxa such as prickly poppy (*Papaver argemone*), long-headed poppy (*Papaver dubium*), rough poppy (*Papaver hybridum*), henbit dead-nettle (*Lamium amplexicaule*), small toadflax (*Chaenorhinum minus*), and dwarf spurge (*Euphorbia exigua*). This flora is considered transient, with its occurrence linked to recent soil disturbance and likely to diminish with the resumption of conventional arable cultivation. While localised and temporary in nature, it adds to the botanical interest of the Site and supports the assessment of Local-level importance for vascular plants.

Brown Hare

- 11.4.78 Brown hare (*Lepus europaeus*) was recorded incidentally during field surveys undertaken between 2022 and 2024, including during extended Phase 1 habitat surveys and protected species walkovers. Observations of individuals were made primarily within large arable fields and pasture compartments across the central and eastern parts of the Site. The Site supports extensive open farmland habitats typical of brown hare territory, including large fields with low vegetation cover, grassy field margins, and peripheral hedgerow networks which provide shelter and cover.
- 11.4.79 Brown hare is a Species of Principal Importance under Section 41 of the NERC Act 2006 due to long-term national population declines linked to agricultural intensification, habitat fragmentation, and changes in field management. The habitats present within the Site represent suitable core foraging and breeding habitat for the species, although no evidence of leverets or forms was recorded during the surveys.
- 11.4.80 Brown hare is relatively widespread in Hertfordshire, particularly within large arable landscapes. The records obtained from the Site are consistent with this distribution pattern and do not indicate an unusually high density or particularly significant

aggregation. As such, while the Site contributes to the availability of suitable habitat in the wider area, the population is assessed to be of typical density and not of exceptional value.

- 11.4.81 Given the suitability of habitat, the direct observations of individuals during surveys, and the overall landscape context, the Site is considered to be of Local-level ecological importance for brown hare. This reflects the role the Site plays in supporting a section of the local farmland population, albeit without any evidence of regional or national significance.

The Projected Future Baseline

- 11.4.82 xx

11.5 THE PROJECTED FUTURE BASELINE

- 11.5.1 Without the Proposed Development, the Site would remain in agricultural use, dominated by arable cultivation and modified grassland fields managed under existing farming practices. Hedgerows, scattered trees and small woodland blocks would persist along field boundaries, with limited ongoing management and potential gradual decline in structural quality where active cutting or coppicing is absent.
- 11.5.2 Farmland bird species such as corn bunting, skylark, yellowhammer and linnet would continue to use the open arable compartments for nesting and foraging, though these populations would remain vulnerable to the ongoing pressures of intensive agricultural management. Other faunal groups including brown hare, hedgehog and widespread bat species would persist at low densities within retained field margins and hedgerow corridors, but the overall ecological value of the Site would remain constrained by the dominance of intensively farmed land.
- 11.5.3 In the absence of intervention, areas of grassland and scrub at the Site margins may gradually succeed to a more structurally diverse state, but invasive species such as Himalayan balsam and ruderal weeds are also likely to increase in extent. The Bygrave Road Local Wildlife Site would remain in a degraded condition with limited active management, continuing to provide only local-scale ecological function.
- 11.5.4 Overall, under the projected future baseline without development, the ecological condition of the Site is expected to remain similar to the current baseline: an intensively managed agricultural landscape of generally low ecological value, with isolated pockets of moderate interest subject to slow natural successional change and incremental decline in quality without targeted management.
- 11.5.5 The future ecological baseline for the Site has been informed by the emerging masterplan and green infrastructure strategy. While the Proposed Development aims to deliver measurable biodiversity benefits, particularly through Biodiversity Net Gain (BNG), the anticipated ecological value of the Site will remain dependent on the effective implementation, phasing, and sustained management of these design intentions.

11.6 POTENTIAL EFFECTS

- 11.6.1 This section sets out the likely significant effects of the Proposed Development on ecological receptors during both the construction and post-completion (operational) stages, in the absence of additional mitigation, compensation, or enhancement beyond embedded design principles. Effects are considered for all receptors identified as being of Site-level importance or higher under baseline or projected future conditions.

Embedded Mitigation

- 11.6.2 In line with the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) Guidelines for Ecological Impact Assessment, the assessment of ecological effects incorporates measures that are already embedded in the design and methodology of the Proposed Development. Embedded mitigation refers to the avoidance and reduction of ecological impacts through scheme layout, construction practice, and operational design, prior to the need for additional or compensatory measures.
- 11.6.3 Considering embedded mitigation at the assessment stage is essential because it ensures that the evaluation of significance reflects the project as it will actually be delivered, rather than a hypothetical scenario without safeguards. CIEEM guidance is clear that mitigation integrated within the design should be treated as part of the baseline for assessment, rather than as optional or aspirational measures. This approach provides decision-makers with an accurate picture of the likely residual effects and avoids overstating potential ecological risks.

Construction Phase

- 11.6.4 Retention and buffering of key habitats: The majority of boundary hedgerows, woodland blocks (W1 and W2), and mature/veteran trees are to be retained. Root Protection Areas (RPAs) and stand-offs have been embedded into the design, ensuring that works avoid direct impacts. Fencing will be erected to exclude construction activity, protecting bat foraging habitats and badger setts associated with these features.
- 11.6.5 Designated sites protection: Sensitive ecological receptors, including the adjacent Ivel Springs Local Nature Reserve and Weston Hills LNR, are safeguarded through masterplanning that avoids direct loss and incorporates buffers. Construction management measures (e.g. dust and pollution controls) form part of embedded best practice.

Species-specific protections:

- 11.6.6 Bats: Retained hedgerows and woodland provide continued commuting and foraging corridors. Construction buffers and controlled lighting reduce disturbance to light-sensitive species such as brown long-eared bat and barbastelle.

- 11.6.7 Badger: Known setts within and adjacent to woodland W2 are excluded from the construction footprint by embedded stand-offs and protective fencing.
- 11.6.8 Farmland birds (including corn bunting): Key habitats such as hedgerows and margins are retained, reducing direct habitat loss. Timing of vegetation clearance outside the core breeding season is assumed as standard good practice.
- 11.6.9 Reptiles: Retention of field margins and avoidance of wholesale clearance provide habitat continuity; phased vegetation removal forms part of the construction methodology.

Operational Phase

- 11.6.10 Lighting controls: Lighting columns across the Site will be kept to a minimum height, cowed, and directed away from hedgerows, woodland edges and watercourses. This avoids spill into dark corridors, protecting bat commuting routes and foraging areas.
- 11.6.11 Green infrastructure integration: The development has embedded retention of hedgerows, woodland, and grassland blocks into the green infrastructure framework, maintaining habitat connectivity at landscape scale.
- 11.6.12 Buffers and stand-offs: Operational pressure on sensitive habitats is reduced through minimum buffer distances to retained features, ensuring that badger setts, hedgerows, and woodland margins remain functional for wildlife throughout the lifetime of the development.
- 11.6.13 Together, these measures represent embedded mitigation that has been accounted for in the EcIA. They reduce the scale of likely impacts at source, ensuring that subsequent mitigation or compensation is targeted and proportionate.

Construction Stage**Designated and Non-Statutory Sites**

- 11.6.14 No statutory designated nature conservation sites lie within the redline boundary of the Proposed Development; however, several designated sites, both statutory and non-statutory, are located within the wider 5 km study area. These have been reviewed for potential sensitivity to construction-stage impacts, including habitat loss, dust and noise disturbance, hydrological disruption, and changes in air quality resulting from construction traffic and associated activities.
- 11.6.15 Therfield Heath SSSI is located approximately 10 km north-east of the Site on a separate chalk escarpment. The Air Quality assessment (Chapter 6) confirms that construction-phase dust and particulates are only relevant within 50 m of active works or access routes, well beyond the SSSI. Construction traffic associated with the Proposed Development will use existing local roads, but the predicted increases in vehicle flows on routes adjacent to Therfield Heath are well below recognised screening thresholds (1,000

AADT for LDVs or 100 AADT for HDVs). As such, any change in airborne emissions, including nitrogen deposition, is expected to be **Negligible** and without measurable ecological effect. With standard embedded dust control measures secured through the CEMP, potential impacts can therefore be screened out and no significant construction-phase effects on Therfield Heath SSSI are anticipated.

Ivel Springs Local Nature Reserve (LNR)

- 11.6.16 Ivel Springs LNR lies immediately adjacent to the western boundary of the Site and supports a mosaic of sensitive habitats including wetlands, species-rich grassland, and woodland. It also forms part of the wider Baldock green infrastructure network, providing functionally connected habitat for foraging bats and other species, with potential hydrological links to the Site.
- 11.6.17 Construction activities in close proximity to the north-western perimeter have the potential to generate dust, sediment runoff, or surface water contamination that could affect the LNR's habitats if unmanaged. There is also a risk of edge disturbance from lighting, noise, or accidental encroachment. These risks are addressed through embedded mitigation measures secured via the Construction Environmental Management Plan (CEMP). Controls will include adherence to CIRIA SuDS Manual and Pollution Prevention Guidelines (PPGs), ensuring appropriate site drainage, sediment management, and pollution prevention are in place to avoid hydrological effects. Dust suppression measures (e.g. damping down haul routes, covering stockpiles, minimising bare ground) will be applied to prevent airborne particulates from reaching adjacent habitats.
- 11.6.18 To prevent disturbance from lighting, temporary construction luminaires will be fitted with directional cowls and low-lux fittings, operated under restricted hours and orientated away from the LNR to avoid spill into sensitive habitats. Edge habitats will be physically demarcated with protective fencing to prevent accidental overspill of construction activity, storage, or materials into the LNR boundary.
- 11.6.19 With these safeguards in place, the integrity of habitats within Ivel Springs LNR will be maintained and functional connectivity for species such as bats will remain unaffected. As such, residual construction-phase impacts are assessed as **neutral** at District level and not significant, with no measurable degradation of the LNR's ecological value expected.

Weston Hills Local Nature Reserve (LNR)

- 11.6.20 Weston Hills LNR lies at a greater distance from the Site and is not directly connected through hydrological or ecological pathways. The only potential impact pathway during the construction phase relates to air quality, with dust or emissions theoretically capable of affecting sensitive receptors if unmanaged.

- 11.6.21 Embedded mitigation measures secured through the Construction Environmental Management Plan (CEMP) ensure that these risks are controlled. Standard site-wide dust suppression practices (e.g. damping down haul routes, covering stockpiles, minimising bare ground) will be applied across all active work areas. The use of low-emission construction plant and ongoing monitoring of particulates will provide further assurance that emissions remain within acceptable limits and do not contribute to cumulative degradation of sensitive receptors in the local green infrastructure network.
- 11.6.22 With these measures in place, no deterioration in baseline air quality around Weston Hills LNR is anticipated. Residual construction-phase impacts are therefore assessed as **Negligible** and not significant at the Local scale or higher.

Bygrave Road LWS

- 11.6.23 Bygrave Road LWS, which runs along the southern boundary of the Site, will be wholly retained and buffered during the construction phase. The LWS supports a mosaic of ruderal and grassland habitats of mixed intrinsic botanical value, but is important in providing a linear corridor for invertebrates, birds, and small mammals. While no direct land-take will occur, temporary disturbance remains possible where construction activities interface with existing Public Rights of Way that pass through or adjacent to the designation. Potential risks include trampling, dust deposition, or localised soil compaction, which could reduce habitat quality at the margins of the LWS if unmanaged.
- 11.6.24 Embedded mitigation will ensure that the LWS is safeguarded throughout construction. Protective fencing will be installed to demarcate retained habitat and exclude vehicles or machinery, with soil protection measures applied in sensitive areas to prevent compaction. Dust suppression measures, including damping down haul routes and covering stockpiles, will be used to minimise airborne deposition onto vegetated habitats. Works to Public Rights of Way will be carefully supervised, with ecological watching briefs implemented to identify and protect any refugia or active nests encountered.
- 11.6.25 Following completion of works, any disturbed margins will be reinstated with wildflower-rich seed mixes and supplemented with native hedgerow or scrub planting to reinforce the linear habitat function of the LWS. These measures will enhance structural connectivity along the Site's southern edge and provide a net improvement in corridor quality over baseline.
- 11.6.26 On this basis, with the LWS wholly retained, buffered and actively managed, residual construction-phase effects are assessed as **Negligible** at Local level and not significant, with ecological function maintained throughout and enhanced post-construction.

Habitats

- 11.6.27 Construction of the Proposed Development will lead to the permanent loss of large areas of intensively managed arable fields, semi-improved and modified grassland, and tall

ruderal vegetation. These habitats are typically of low botanical diversity, but they provide structural value in the wider farmland matrix and support locally important species such as corn bunting, skylark and brown hare. Unmitigated clearance would represent a substantial reduction in available open-field habitat and the structural heterogeneity provided by margins and fallow areas.

- 11.6.28 Embedded mitigation reduces these risks through a package of measures. Vegetation clearance will be phased to avoid peak nesting and breeding seasons, with margins retained during early construction phases to provide continuity of cover and foraging resource. Directional clearance will allow species such as hare and ground-nesting birds to relocate into adjacent retained habitat. The long-term green infrastructure (GI) strategy secures the re-creation of open habitat mosaics, including species-rich grassland, native scrub margins and managed ruderal areas, ensuring that the functional role of arable fields as part of the local farmland assemblage is replicated post-construction.
- 11.6.29 A discrete compartment in the south-east of the Site supports species-rich neutral grassland and a population of lizard orchid, a species of national conservation concern. Without mitigation, this area would be highly vulnerable to degradation from machinery overrun, soil compaction, and hydrological disruption. Embedded safeguards include fencing and designation of the area as a no-go exclusion zone prior to commencement of works, installation of ground protection to preserve soil structure, and maintenance of a hydrological buffer to safeguard nutrient and water regimes. Micro-topography and turf will be retained in situ where feasible to conserve the seed bank, with soil translocation only considered as a last-resort option. These measures substantially reduce the risk of direct or indirect harm to the orchid population and associated sward.
- 11.6.30 Hedgerows and scrub corridors form a network of linear features across the Site, several of which are species-rich and qualify as Priority Habitat under Section 41 of the NERC Act (2006). In the absence of safeguards, removal and severance would lead to fragmentation of bat commuting routes, bird nesting sites, and refuges for hedgehog and reptiles. Embedded mitigation minimises this risk through retention of the majority of hedgerows, protective fencing during construction, and reinstatement or re-establishment of hedgerows on similar alignments where removal is unavoidable (for example, to accommodate access points). Additional GI links are secured through the masterplan to offset fragmentation, while scrub, woodland edges and scattered trees of ecological value will be retained wherever practicable.
- 11.6.31 In combination, these embedded measures ensure that habitat loss and degradation is substantially reduced. While the permanent loss of arable and ruderal habitats remains unavoidable, their intrinsic ecological value is low and functional roles will be replaced through the GI strategy. Sensitive features such as species-rich grassland and lizard orchid populations are safeguarded, and linear connectivity for fauna is maintained

through retention, protection and reinstatement of hedgerows. On this basis, the overall residual effect of construction on habitats is assessed as **Minor Adverse** at Local level and not significant.

Amphibians

- 11.6.32 Amphibian interest within the Site is considered limited. Desk study data confirm records of widespread species such as smooth newt (*Lissotriton vulgaris*) and common frog (*Rana temporaria*) within the 1–2 km landscape. No suitable breeding ponds occur within or immediately adjacent to the Site, and targeted surveys together with mapping confirm the absence of aquatic habitat capable of supporting great crested newt (*Triturus cristatus*). The species has therefore been confidently scoped out of further assessment. Within the Site, potential opportunities for widespread amphibians are restricted to terrestrial features such as grassland margins, field drains, hedgerow bases and patches of damp ruderal vegetation. These habitats are of low intrinsic quality but can function as seasonal shelter, foraging ground or dispersal routes during wetter periods.
- 11.6.33 Unmitigated construction activities — including topsoil stripping, excavation, heavy machinery movements and vegetation clearance — have the potential to cause incidental injury or mortality to amphibians using these terrestrial habitats, particularly during winter and spring when individuals are more likely to be sheltering in ground cover or dispersing across the landscape. Ground compaction, temporary loss of cover and reduction in moisture-retaining vegetation would further decrease habitat suitability during the construction period, creating a barrier effect to amphibian movement across the Site.
- 11.6.34 To address these risks, a suite of embedded mitigation measures has been integrated into the construction methodology. Vegetation clearance and soil stripping will be undertaken in a phased manner and, where possible, outside of peak amphibian activity periods (late winter–early spring). Clearance will proceed directionally, slowly moving towards retained habitat blocks and off-Site refuges to encourage natural dispersal. Sensitive terrestrial areas such as the bases of hedgerows and scrub margins will be cleared under an ecological watching brief, with any amphibians encountered carefully relocated by a suitably qualified ecologist to nearby refuges. Hand tools will be used in dense ground cover to further minimise the risk of harm.
- 11.6.35 In addition, structural features of value to amphibians — including log piles, tussocky grass and rubble refuges — will be retained until the latest possible stage of works, providing temporary shelter and continuity of habitat during Site clearance. Where excavations or foundations are left open overnight, escape ramps will be installed to prevent entrapment. Collectively, these measures ensure that construction activities proceed in a way that allows widespread amphibians to disperse safely and avoids incidental harm.

- 11.6.36 With these safeguards in place, the scale of impact is reduced substantially. Mortality risk is lowered to negligible levels, and while temporary disturbance and loss of low-quality terrestrial habitat will occur, this will not result in any measurable change to the local status of amphibian populations. Residual effects on amphibians are therefore assessed overall as **Negligible** at Site level and not significant at Local or wider scales.

Bats

Roosting

- 11.6.37 The Site supports a range of trees and agricultural buildings with features of low to high suitability for roosting bats, including crevices, knot holes, lifted bark, cracks in masonry, and warped roof timbers. These occur primarily within hedgerows such as H3, H8, H13, H14 and H15, and in brick-built farm structures in the central part of the Site. Targeted emergence surveys where required (i.e. on the buildings) have confirmed the absence of any active roosts; however, the presence of potential roosting features means that a precautionary approach remains necessary.
- 11.6.38 Embedded mitigation ensures that potential impacts are tightly managed. No trees of confirmed or high roost suitability are proposed for removal. Any trees or buildings with low or moderate suitability that require felling, pruning or demolition will first be re-inspected by a licensed ecologist. Where roost use cannot be conclusively ruled out, soft-fell procedures will be applied under ecological supervision, including sectional dismantling with overnight pauses to allow bats to disperse. Agricultural buildings will be subject to pre-works re-checks, with internal and external inspections immediately prior to demolition or modification. Toolbox talks and method statements will ensure contractors understand their obligations and the correct procedures to follow. Lighting and noisy works in proximity to retained features will be strictly controlled to avoid altering the microclimate or deterring use.
- 11.6.39 These measures reduce the likelihood of harm to undetected roosts to negligible levels and ensure that retained roosting features remain viable for future use. Residual effects on roosting bats are therefore assessed as **Negligible** at Site level and not significant.

Activity

- 11.6.40 Bat activity across the Site is low overall, with pipistrelle species accounting for over 80% of all records. Activity is concentrated around peripheral hedgerows, treelines, and road margins, particularly along Bygrave Road, Ashwell Road and the northern Site boundary. Interior arable fields provide negligible value. Records of other species such as noctule, Leisler's and Myotis were infrequent, with barbastelle and brown long-eared detected only occasionally as isolated passes.
- 11.6.41 Without controls, construction-phase vegetation clearance, hedgerow removal, and lighting could fragment commuting routes and reduce the usability of field margins.

Embedded mitigation has been incorporated to safeguard functional connectivity: clearance will be phased to retain key linear features for as long as practicable; hedgerows lost to access points will be replanted on similar alignments with native species; and temporary severance will be offset with interim solutions such as hop poles or linear planting to maintain movement. Construction lighting will be tightly restricted in sensitive areas using directional cowled fittings, motion sensors, and low-lux thresholds to prevent spill onto vegetated corridors. Lighting columns will be kept to a minimum height and angled away from retained margins.

- 11.6.42 These measures will maintain dark commuting corridors, reduce displacement of light-sensitive species such as brown long-eared bat and barbastelle, and preserve the limited foraging opportunities present. Given the low levels of baseline activity and the comprehensive safeguards in place, residual effects on bat activity are assessed as **Negligible** at Site level and not significant.

Badgers

- 11.6.43 Baseline surveys confirmed the presence of two disused outlier badger setts within hedgerows and field margins of the Site, along with occasional foraging evidence such as snuffle holes and well-worn paths. No active setts or evidence of a resident social group were recorded, and the intensively managed arable fields provide poor foraging opportunities. Badger activity is therefore assessed as being of Site-level importance only.
- 11.6.44 Construction-phase activities, including vegetation clearance, earthworks, excavation, and machinery movement, have the potential to disturb or inadvertently damage setts if they were to be reoccupied, as well as cause incidental injury to transient animals moving through the Site. Sustained noise, vibration, and increased traffic may also discourage use of peripheral habitats. In the absence of controls, these risks could result in minor adverse effects through localised displacement and disturbance, despite the low baseline usage recorded.
- 11.6.45 Embedded mitigation measures ensure that these risks are proactively managed. Prior to clearance or groundworks, pre-construction badger checks will be undertaken by a suitably qualified ecologist to confirm the continued disused status of the identified outlier setts and to detect any new sett creation during phased works. Where active setts are found within 30 m of proposed works, appropriate safeguards will be applied, ranging from temporary exclusion fencing and protective buffers to Natural England development licences in the event of unavoidable closure or disturbance. Disused or low-use setts will be clearly demarcated, with exclusion zones observed to prevent accidental damage, sett collapse, or obstruction.
- 11.6.46 Construction practices will also minimise incidental harm. Trenches or excavations left open overnight will include escape ramps, and machinery routes will be designed to avoid

sensitive hedgerows and field margins. Contractors will be briefed on badger ecology and legal protection through toolbox talks delivered by the ecological clerk of works, ensuring awareness across the workforce. Lighting along boundary habitats will be restricted to avoid unnecessary night-time disturbance. Where temporary loss of marginal foraging habitat occurs, reinstatement with native hedgerow and grassland planting will restore potential foraging corridors, maintaining connectivity to the wider landscape.

- 11.6.47 Collectively, these measures reduce the potential for incidental mortality, disturbance, or displacement to negligible levels and ensure that any reoccupation of disused setts is detected and appropriately managed. The overall residual effect of construction on badgers is therefore assessed as **Negligible** at Site level and not significant at Local or wider scales.

Breeding birds

- 11.6.48 The Site supports a locally important assemblage of farmland and hedgerow-nesting birds, including multiple Red and Amber List species, with corn bunting confirmed as breeding across multiple survey years and assessed as of County-level importance. Corn bunting territories are distributed across both northern and southern arable fields, favouring large open field compartments with adjacent rough grass margins or scrub. This species has experienced steep national declines linked to agricultural intensification and habitat fragmentation, and its consistent presence at the Site suggests the area functions as a key local breeding stronghold. The wider assemblage includes species such as skylark, yellowhammer, linnet, and song thrush, which are associated with field edges, hedgerows, and low-intensity arable habitats. This group is assessed to be of District-level importance based on diversity, confirmed breeding, and sensitivity to habitat loss.
- 11.6.49 Construction works will result in the clearance of arable fields and field margins, leading to the direct loss of nesting and foraging habitat, particularly for ground-nesting species such as skylark and corn bunting. This loss will occur in both northern and southern compartments, coinciding with areas known to support active territories. Field clearance, surface disturbance, and soil stripping during the breeding season present a high risk of nest destruction and may interrupt re-nesting attempts, especially in open ground specialists. Vegetation removal could also sever movement routes between hedgerows and marginal habitats, reducing landscape permeability for species reliant on edge structures.
- 11.6.50 Noise, vibration, and the physical presence of construction machinery are also likely to disrupt breeding behaviours, particularly in the more sensitive species such as yellowhammer and linnet. The fragmentation of territories, even if temporary, may result in breeding failure for individuals displaced from long-held nest sites. The loss of arable weed seed sources, invertebrate-rich margins, and fallow areas during construction will reduce food availability during the chick-rearing period, especially for species with limited foraging ranges such as corn bunting and dunnoek.

- 11.6.51 While the retention of some hedgerows and the potential for future green infrastructure delivery may offer longer-term opportunities, during the construction phase these benefits will not yet materialise. In the absence of mitigation, the construction-phase impacts are assessed as moderate adverse at County level for corn bunting, due to the loss of a breeding stronghold and interruption of territory continuity, and **Minor Adverse** at District level for the wider farmland bird assemblage, due to loss of nesting habitat, temporary habitat fragmentation, and reduced foraging potential.

Hedgehog

- 11.6.52 Although no hedgehogs were directly recorded during baseline surveys, the Site contains a patchwork of habitats suitable for this UK Priority Species (Section 41, NERC Act 2006). Hedgerows, unmanaged field margins, rough grassland and woodland edges provide cover, foraging opportunities, and dispersal routes, particularly in the less intensively farmed compartments and along the Site's boundaries. Large arable fields offer little value, but the structurally diverse margins increase the likelihood of transient use by low-density individuals moving through the wider landscape. Hedgehog presence is therefore assessed as being of Site-level importance.
- 11.6.53 Without controls, construction activities such as vegetation clearance, soil stripping, ground compaction and machinery use could cause incidental injury or mortality to hedgehogs, especially if undertaken during sensitive periods of hibernation (November–March) or breeding (May–August). Loss of rough ground cover and disturbance of hedgerows and scrub would temporarily reduce foraging and nesting opportunities, while fencing, excavations and artificial barriers could sever movement corridors, increasing predation risk or preventing access to resources. Lighting and noise along edge habitats could further discourage use of the Site during active construction phases.
- 11.6.54 Embedded mitigation is designed to reduce these risks to negligible levels. Pre-clearance checks will be carried out in field margins, hedgerows and other dense vegetation to identify signs of hedgehog presence or hibernacula. Where potential refuges such as log piles or brash are identified, a two-stage clearance process will be adopted: vegetation will first be strimmed to a low sward under ecological supervision, followed by a 24-hour period to allow any undetected individuals to disperse naturally before further works proceed. Any hedgehogs encountered will be carefully relocated by a trained ecologist to retained habitat within or near the Site.
- 11.6.55 Construction practices will incorporate safeguards against entrapment. Trenches and pits left open overnight will be fitted with escape ramps or covered securely, and temporary fencing will include ground-level access points ("hedgehog holes") to maintain permeability. Works scheduled during the hibernation period will be programmed with caution, avoiding disturbance in areas identified as potential refuge habitat wherever possible. To preserve functional connectivity, hedgerows and woodland edge margins will

be retained and buffered with protective fencing, while directional lighting controls will minimise spill and glare into these habitats, reducing deterrence to nocturnal movement.

- 11.6.56 These measures collectively ensure that direct mortality risks are avoided, temporary habitat losses are minimised, and landscape permeability is maintained during construction. With embedded mitigation in place, residual effects on hedgehog are assessed as **Negligible** at Site level and not significant at Local or wider scales.

Invertebrates

- 11.6.57 The Site supports habitat of Local-level importance for invertebrates, concentrated in the south-eastern compartment where species-rich grassland, calcareous elements, hedgerow bases, and scrub-grassland mosaics occur. These habitats provide nectar sources, larval food plants, and structural diversity that support a locally valuable assemblage of butterflies and pollinators, including at least one confirmed UK Priority Species — small blue (*Cupido minimus*), which is dependent on kidney vetch (*Anthyllis vulneraria*). Other records include meadow brown, common blue, and gatekeeper. The wider arable fields, which dominate the Site, are of very limited invertebrate value due to their low floral diversity, regular disturbance, and lack of shelter.
- 11.6.58 Unmitigated construction would primarily affect intensively managed arable fields, with negligible direct impact on invertebrates. However, indirect risks remain where works take place adjacent to sensitive features, including potential encroachment, dust deposition, vibration, or trampling that could degrade the species-rich margins and the larval food plants relied upon by small blue. Localised disturbance during peak breeding or foraging periods could also temporarily disrupt pollinator activity in retained habitats.
- 11.6.59 Embedded mitigation ensures that these high-value invertebrate habitats are safeguarded. Temporary protective fencing will be installed around species-rich margins, scrub-grassland mosaics, and any areas known to support kidney vetch to prevent accidental damage during site clearance and vehicle movements. Toolbox talks and ecological briefings will raise contractor awareness of these sensitive areas, prohibiting storage, spoil deposition, or access within exclusion zones. Dust-sensitive habitats will be identified in advance and safeguarded through suppression measures such as damping down haul routes, covering loose materials, and minimising vehicle movement on bare ground during dry or windy periods. Buffer strips and, where appropriate, temporary barriers will further intercept dust and protect vegetation structure.
- 11.6.60 Where works occur in proximity to invertebrate-rich habitats, timing will be considered to avoid peak activity periods (e.g. May to August for butterflies and pollinators), instead scheduling intrusive activities for early spring or late autumn where feasible. Structural elements such as tussocky margins and nectar-rich swards will be retained wherever possible, and disturbed ground will be managed to promote colonisation by ruderal plants that can provide temporary resources during the construction period. In the longer term,

retained grassland and hedgerow features will be incorporated into the green infrastructure strategy, with opportunities for post-construction management to enhance floristic diversity, remove competitive grasses, and sustain pollinator foraging networks.

- 11.6.61 Together, these embedded measures substantially reduce the risk of degradation to invertebrate habitats. Core features of ecological value will remain intact and buffered from intensive works, while construction impacts will be confined largely to arable fields of negligible importance. Residual effects on invertebrates are therefore assessed as **Negligible** at Local level and not significant.

Reptiles

- 11.6.62 Surveys undertaken in 2022 and 2024 confirmed the presence of a small population of common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*), primarily within the south-eastern compartments of the Site. These areas comprise mosaics of grassland, tall ruderal vegetation, and hedgerow bases that provide basking, foraging and shelter opportunities, and are locally valuable given the scarcity of high-quality reptile habitat in the surrounding intensively farmed landscape. The population is of low abundance but contributes to the persistence of reptiles in the local area, and the Site is therefore assessed as being of Local-level ecological importance for this group.
- 11.6.63 Without controls, construction activities could result in incidental injury or mortality to reptiles present within marginal habitats subject to clearance or soil stripping, particularly in the south-western field margins where limited connectivity and dispersal habitat occur. Risks are highest during the active season (March–October), when individuals may be basking or foraging at ground level. Habitat disturbance in these peripheral areas could also lead to short-term displacement from suboptimal fringe habitats, though sufficient refuge would remain available in the retained southern compartments.
- 11.6.64 Embedded mitigation will ensure that the risks to reptiles are minimised and that the local population remains ecologically viable. Prior to any vegetation clearance or ground disturbance in compartments with suitable habitat, a precautionary two-stage clearance will be undertaken under the supervision of a suitably qualified ecologist. Vegetation will first be strimmed to a height of c.150 mm to encourage reptiles to disperse naturally, followed by a settling period of 24–48 hours before final clearance to ground level. Clearance will be programmed for appropriate weather conditions within the reptile active season to maximise natural dispersal.
- 11.6.65 In addition, marginal areas subject to soil stripping or excavation will be walked over by an ecologist immediately prior to disturbance. Any reptiles encountered will be carefully captured by hand and relocated to suitable receptor habitat within the Site, such as the structurally diverse grassland–ruderal mosaic in the south-east. These areas will be protected throughout construction using exclusion fencing where required, ensuring that they remain available and undisturbed for use by the local reptile population. Construction

lighting adjacent to these habitats will also be tightly controlled to avoid deterring basking behaviour or altering the thermal environment.

- 11.6.66 Together, these measures substantially reduce the likelihood of incidental harm to individuals, while ensuring that the highest-value reptile habitat remains intact, connected, and ecologically functional. With embedded mitigation in place, the residual effects of construction on reptiles are assessed as **Negligible** at Local level and not significant, with no risk to the favourable conservation status of common lizard or slow worm in the local landscape.

Flora

- 11.6.67 Botanical surveys in 2024 recorded a small population of lizard orchid (*Himantoglossum hircinum*), a Schedule 8 protected species, within a semi-improved neutral to calcareous grassland mosaic in the south-eastern part of the Site. This compartment also supports locally abundant kidney vetch (*Anthyllis vulneraria*), which is ecologically important as the larval food plant of small blue butterfly, and is considered to be the most floristically diverse area within the Site. While the wider landscape is dominated by intensively managed arable fields and disturbed ground of low botanical interest, this localised grassland elevates the Site's importance to Local level for vascular plants. In addition, a notable arable plant assemblage was recorded in 2024 within disturbed ground adjacent to the A505, including the nationally scarce few-flowered fumitory (*Fumaria vaillantii*) and Venus' looking-glass (*Legousia hybrida*) alongside other characteristic arable weeds.
- 11.6.68 Embedded mitigation ensures that these features of botanical interest are safeguarded. The grassland supporting lizard orchid will be retained in situ, with the compartment fully excluded from construction. Protective fencing will be erected prior to site preparation to demarcate the exclusion zone, and no machinery access, materials storage, or ground disturbance will be permitted within this area. Dust suppression measures will be implemented across haul routes and active construction areas to reduce the risk of particulate deposition onto sensitive swards, while the physical separation of the orchid compartment from the development footprint provides an additional safeguard against trampling and hydrological change.
- 11.6.69 For the notable arable flora assemblage, while part of the disturbed field will be lost to construction, buffered field margins and retained parcels will be protected and can be managed to maintain early-successional conditions. This may include periodic soil disturbance or targeted management to sustain the open niches required by scarce arable plants. Toolbox talks and ecological briefings will reinforce the importance of protecting retained arable margins from accidental encroachment, spoil deposition, or compaction.
- 11.6.70 These measures ensure that the lizard orchid population will be preserved intact without direct or indirect impact, and that a proportion of the notable arable assemblage will persist within managed retained areas. With embedded mitigation in place, residual

construction-phase effects on vascular plants are therefore assessed as **neutral** at Local level and not significant.

Brown hare

- 11.6.71 Brown hare (*Lepus europaeus*) was recorded incidentally during surveys between 2022 and 2024, primarily within the central and eastern arable fields. These large, open compartments, interspersed with hedgerows and pasture edges, provide suitable foraging and breeding habitat typical of the species in lowland agricultural landscapes. The Site is therefore assessed to be of Local-level ecological importance for brown hare as part of the wider farmland assemblage.
- 11.6.72 In the absence of controls, the clearance of extensive arable habitat during construction would result in substantial loss of foraging ground and movement corridors, with the potential to displace individuals from the Site. Noise, vibration, and increased traffic could further reduce habitat suitability, while undetected leverets or breeding forms could be at risk of incidental harm during vegetation clearance. Given that brown hare is a Species of Principal Importance under Section 41 of the NERC Act, and populations are in long-term decline nationally due to agricultural intensification, these unmitigated impacts would have the potential to reduce local ecological value.
- 11.6.73 Embedded mitigation is designed to avoid direct mortality and reduce displacement pressures. Vegetation clearance and soil stripping will be phased directionally, progressing slowly across open fields towards retained field margins, scrub belts, or undeveloped boundaries, allowing hares to disperse naturally ahead of works. Contractors will be briefed to remain vigilant for active hares or leverets, with any sightings reported immediately to the ecological clerk of works. Where young animals are encountered, clearance will pause, and further advice will be sought from an ecologist before works continue.
- 11.6.74 Construction practices will also seek to minimise disturbance to retained edge habitats. Temporary buffer zones will be implemented where feasible, particularly along margins known to support hare activity, with restrictions on heavy vehicle use during dawn and dusk periods when hares are most active. Where practicable, strips of low-disturbance habitat will be retained along arable field edges to maintain partial movement corridors and provide cover during the construction phase.
- 11.6.75 Given the mobility and adaptability of the species, and the absence of breeding forms recorded during baseline surveys, the brown hare population is expected to relocate into adjacent farmland in response to construction disturbance. With the application of phased clearance, vigilant working practices, and retention of movement corridors, the risk of direct mortality is very low and displacement effects are minimised. Residual impacts are therefore assessed as **Negligible** at Local level and not significant, with no measurable effect on the conservation status of the species in the wider landscape.

Post-Completion Stage

Introduction

- 11.6.76 Following construction, the operational phase of the Proposed Development will result in the permanent transformation of the Site from primarily agricultural land to a mixed-use residential and associated infrastructure setting. Taking account of embedded ecological mitigation within the Proposed Development — including retained hedgerows and woodland edges, new green corridors, SuDS features and designated open space — the operational baseline will be characterised by a mosaic of built form and managed green infrastructure. Nevertheless, this phase will still involve a high degree of landscape change, fragmentation of former arable habitats, and an increase in anthropogenic pressures such as lighting, recreational activity, domestic predation and ongoing land management. The cessation of intensive agriculture may benefit some generalist species, but is likely to reduce overall habitat suitability for farmland specialists. The ecological baseline for assessment is therefore defined by the residual layout including embedded mitigation, and the following sections evaluate likely effects on each receptor without the application of additional, species-specific measures.

Statutory Designated Sites

- 11.6.77 For Therfield Heath the Air Quality assessment modelled operational emissions for 2040. No significant increases in concentrations of NO_x are predicted arising from road traffic and levels would remain below the critical level set for this site. An increase in ammonia concentrations at Therfield Heath is predicted; with modelling showing an NH₃ process contribution (PC) of 0.02 µg/m³ (2% of the CL).
- 11.6.78 The air quality modelling has used the lower critical level of 1 µg/m³ set for woodland. The critical level set for chalk grassland habitats (which form the notified interest), not supporting support lichens or bryophytes is 3 µg/m³. The woodland within the SSSI is located over 200m from the A505 and therefore the increases in ammonia linked to traffic can be screened out as insignificant. Even with the predicted increase in ammonia concentrations on chalk grassland within 200m of the A505 there would be no exceedance of the relevant critical level for this habitat and the impact can be considered negligible in EIA terms.
- 11.6.79 Nitrogen deposition arising from traffic linked to the project (PC) on Therfield Heath SSSI is predicted to be 0.16 kgN/ha/yr. The relevant critical load for habitats within 200m of the A505 is 10kgN/ha/yr (Upright brome grassland). The process contribution will lead to a minor increase in nitrogen deposition on this habitat. However, even accounting for the increase the PEC remains below the lower end of the critical load range for this habitat.
- 11.6.80 Ecologically, this represents a very small addition to existing background deposition, which already dominates total nitrogen inputs. National evidence (APIS) shows a declining

trend in nitrogen levels, and the expected transition to electric vehicles will progressively eliminate road-related NH₃ emissions over the build-out period. The Proposed Development's contribution is therefore assessed **Negligible** in EIA terms.

Knebworth Woods SSSI

- 11.6.81 For Knebworth Woods SSSI the air quality modelling predicts an increase in NO_x concentration associated with traffic from the project of 0.16 µg/m³. Even with this increase the critical level for NO_x remains below the limit set for the protection of habitats. The Proposed Development's contribution is therefore negligible in EIA terms.
- 11.6.82 The relevant critical level for ammonia within Knebworth Woods SSSI is 1 µg/m³. due to the presence of lichens and bryophytes within the woodland communities. The current background concentration of ammonia is 1.1-1.2 µg/m³. across the SSSI. Within 200m of the A1(M) the highest increase in ammonia concentration will be 0.07 µg/m³.; this will occur close to road edge and concentrations will decline as distance for road edge increases.
- 11.6.83 The area affected by increase ammonia concentrations represents a relatively small part of the SSSI, covering part of Unit 4 of the SSSI. The adoption of electric vehicles and the reduction in diesel engines using Ad-Blue over time will lead to a reduction in traffic-based ammonia emissions over time. Against this context, the Proposed Development makes only a very small incremental contribution, unlikely to alter site condition materially. Road traffic is already a relatively minor component of source attribution at Knebworth Woods. The effect is therefore assessed negligible in EIA terms.
- 11.6.84 Nitrogen deposition arising from traffic linked to the project (PC) on Knebworth Woods SSSI is predicted to be 0.54 kgN/ha/yr (4% of the CL). When added to background deposition, predicted environmental concentrations (PECs) reach 27.3 kgN/ha/yr, equivalent to 182% of the relevant woodland critical load of 15 kgN/ha/yr. process contribution will lead to a minor increase in nitrogen deposition on this habitat. Background levels of nitrogen deposition already exceed the upper end of the critical load range for this habitat.
- 11.6.85 Elevated levels of nitrogen deposition have been identified as driving biogeochemical responses in woodlands leading to reductions in soil CN, acidification and increased nitrate leaching. However, the impact of nitrogen deposition on woodland vegetation composition is poorly understood due to the strong influence the tree canopy structure has on ground flora through intercepting light, rainfall and pollution. Woodland management also has a significant influence on ground flora.
- 11.6.86 Increases in nitrogen deposition in woodland tends not to have a significant effect on species diversity as many species typical of woodland ground flora tend towards the middle and upper end of the Ellenberg spectrum. This would suggest that small increases

in nitrogen deposition are unlikely to result in significant changes in the species composition of the established woodland. Figures on APIS do show a small but significant decline in rates of nitrogen deposition on this site from 32.5kg/N/ha/yr, in 2003 to 26.5kg/N/ha/yr in 2021.

- 11.6.87 Ecologically, this represents a very small addition to existing background deposition, which already dominates total nitrogen inputs. National evidence (APIS) shows a declining trend in nitrogen levels, and the expected transition to electric vehicles will progressively eliminate road-related NH₃ emissions over the build-out period. With the long-term reduction in nitrogen deposition and the transition to electric vehicles the Proposed Development's contribution is therefore assessed **Negligible** in EIA terms.

Ivel Springs Local Nature Reserve (LNR)

- 11.6.88 Ivel Springs LNR lies immediately adjacent to the western boundary of the Site and supports sensitive habitats including wetlands, species-rich chalk grassland, and woodland. Its proximity means it is susceptible to indirect operational pressures such as recreational disturbance, trampling, littering, nutrient enrichment, and urban edge effects (e.g. light spill and noise). In addition, the wetlands within the LNR are hydrologically sensitive, relying on stable surface water and groundwater regimes.
- 11.6.89 The Proposed Development incorporates embedded measures to avoid these risks. A comprehensive drainage strategy has been designed around Sustainable Drainage Systems (SuDS), including swales, bio-retention basins, infiltration features and attenuation ponds. These will intercept and treat surface water, moderating flows and preventing sediment, pollutants or excess nutrients from reaching the LNR. The Hydrology and Flood Risk assessment (Chapter 10) confirms that runoff will be maintained at greenfield rates, with no increase in volume or change in groundwater regime, and that SuDS features will deliver a net improvement in water quality. Potable water will be supplied from Grantham Water (outside the Ivel catchment), reducing abstraction pressure on the River Ivel chalk stream. Together these measures ensure that hydrological pathways to the LNR are protected and in some respects improved.
- 11.6.90 Visitor management has also been embedded within the green infrastructure framework. The development will deliver a high-quality network of internal open spaces — including the Heritage Park, Clothall Common greenspaces, and a series of naturalised habitat corridors — designed to provide alternative amenity routes and alleviate recreational pressure on the LNR. Circulation will be channelled away from sensitive habitats, while boundary planting and fencing will reduce the likelihood of informal access. In the longer term, the Habitat Management and Maintenance Plan (HMMP) will secure ongoing management of these greenspaces, ensuring they remain attractive to residents and function as a buffer to the LNR.

- 11.6.91 In terms of connectivity, the western development edge will be configured as an ecological corridor, linking retained habitats with Ivel Springs and enhancing permeability for bats and other faunal species. Native planting, hedgerow gapping-up, and strengthened field margins will provide cover and movement opportunities, reinforcing the wider Baldock Green Infrastructure network.
- 11.6.92 With these measures in place, the risk of adverse hydrological or recreational effects on Ivel Springs LNR is very low. On the contrary, the integration of sustainable drainage, potable water safeguards, visitor management and strengthened ecological corridors is expected to improve the resilience and ecological function of the reserve over time. The residual operational effect is therefore assessed as **Minor Beneficial** at District level, representing a net gain in habitat quality, hydrological protection, and landscape-scale connectivity.

Weston Hills LNR

- 11.6.93 Weston Hills LNR lies further south of the Site and is not directly connected via hydrological or ecological pathways. However, it remains within recreational walking distance and may experience some increase in visitor use.
- 11.6.94 Embedded mitigation will reduce this pressure by providing a comprehensive network of internal greenspaces, designed to meet recreational needs within the development itself. This network will include formal open spaces, naturalised habitat corridors, and high-quality routes for walking and cycling, thereby absorbing the majority of new recreational demand. In addition, new planting, hedgerow reinforcement, and connectivity enhancements across the southern part of the Site will strengthen ecological linkages to Weston Hills and improve its functional integration within the sub-regional habitat mosaic.
- 11.6.95 While some diffuse operational pressures may remain, the provision of alternative accessible greenspaces and enhanced connectivity means that Weston Hills LNR is likely to benefit in the longer term. The residual operational effect is therefore assessed as **Minor Beneficial** at District level, reflecting a net improvement in ecological resilience and visitor management outcomes.

Non-Statutory Designated Sites

- 11.6.96 Bygrave Road LWS, which lies partly within the Site boundary, will be wholly retained and buffered as part of the Proposed Development. Without safeguards, designated sites of this nature can be vulnerable to indirect pressures such as disturbance from increased footfall, trampling, shading from adjacent development, or nutrient enrichment from dog fouling and garden runoff. These processes can reduce habitat quality and alter vegetation structure over time. However, the masterplan incorporates embedded mitigation to avoid such risks, ensuring that the LWS is preserved and ecologically enhanced during the operational phase.

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- 11.6.97 Other nearby non-statutory designated sites, such as Ashwell Common and Quarry Springs LWS and Wallington Roadside Verge LWS, remain spatially disconnected from the Site with no hydrological or access pathways. These designations are therefore not predicted to experience any operational effects from the development.
- 11.6.98 With the retention, buffering and integration of Bygrave Road LWS into a managed ecological network, residual effects are assessed as minor beneficial at Local level, reflecting the delivery of targeted management, habitat enhancement and strengthened functional connectivity.
- 11.6.99 Bygrave Road LWS will be retained in its entirety and buffered from development through structural planting, sensitive path routing and boundary treatments. Management interventions will include hedgerow gapping-up, scrub management, wildflower enrichment and invasive species control, with the objective of increasing habitat diversity and ecological resilience.
- 11.6.100 The LWS will be integrated into a wider network of greenspace corridors linking to Ivel Springs in the west and the semi-natural habitats of Clothall Common and the south-eastern grassland blocks in the east. These corridors will function as continuous linear features for invertebrates, small mammals and reptiles, while also providing sustainable routes for active travel.
- 11.6.101 Boundary design will balance access management with ecological permeability: native planting and clear signage will discourage garden encroachment and informal access into sensitive areas, while still allowing wildlife movement across the Site. Public awareness measures will highlight the ecological value of the LWS and encourage responsible use of adjacent greenspace.
- 11.6.102 Through this approach, Bygrave Road LWS is expected to gain in ecological condition and functional value over time. Rather than being subject to gradual decline, the Site will be managed to support Biodiversity Net Gain delivery and contribute positively to the wider Local Nature Recovery Network. Residual operational effects are therefore assessed as **Minor Beneficial** at Local level, reflecting both ecological safeguards and long-term management gains.

Habitats

- 11.6.103 The operational phase of the Proposed Development is expected to result in a significant net improvement in habitat diversity, structure, and ecological function at the Site level, relative to baseline conditions. While the construction phase results in the loss of large areas of intensively managed arable and improved grassland — habitats of low intrinsic ecological value — the operational landscape will support a more complex mosaic of semi-natural and designed habitats, integrated within a cohesive green infrastructure framework. Key habitat improvements during the operational phase include:

- Extensive new species-rich grassland creation along green corridors, buffer zones, and recreational open space.
- Strengthening and gapping-up of retained hedgerows, improving linear connectivity for wildlife.
- Retention and sensitive management of existing woodland edges, scrub-grassland mosaics, and existing LWS.
- Integration of Sustainable Drainage Systems (SuDS), including swales and attenuation features, delivering intermittent wetland and aquatic fringe habitat previously absent.
- Protection and enhancement of the south-eastern grassland compartment, which supports a Schedule 8-listed lizard orchid population and other locally important flora and invertebrates.

11.6.104 Although the introduction of residential development may result in increased edge pressures (e.g. trampling, light spill, nutrient input), the provision of clearly delineated accessible and non-accessible areas, alongside long-term management through a Habitat Management and Maintenance Plan (HMMP), is anticipated to minimise degradation risk and support positive ecological trajectories.

11.6.105 In particular, previously isolated habitat fragments will become functionally linked through new green corridors and planting, improving the permeability of the Site for species movement and foraging, particularly for invertebrates, amphibians, and hedgehog. Furthermore, structurally diverse habitats such as wildflower grasslands, scrub edges, and wetland margins are expected to support greater ecological resilience and species richness than the former arable-dominated land use.

11.6.106 Overall, the operational phase is expected to significantly enhance the Site's habitat value, delivering ecological uplift both in quality and diversity, particularly when viewed at the Local geographic scale. Accordingly, the operational effect on habitats is assessed as **Major Beneficial** at the Local level.

Amphibians

11.6.107 Although baseline surveys determined that the Site currently supports no breeding habitat for amphibians and only low-quality, fragmented terrestrial habitat, the operational phase of the development is expected to deliver measurable ecological enhancements for this group.

11.6.108 As part of the proposed green infrastructure strategy, new aquatic features such as attenuation ponds or SUDS basins, will be introduced. If designed to retain water seasonally or permanently and managed to exclude fish, these could create suitable breeding habitat for common amphibian species such as smooth newt, common frog, and common toad (*Bufo bufo*). Although great crested newt is not currently known from the

local area and remains unlikely to colonise the Site due to isolation and lack of records, the new habitats may nonetheless support low-density amphibian populations in the medium to long term.

- 11.6.109 Furthermore, proposed enhancements to hedgerow connectivity, field margins, and grassland mosaics will provide improved terrestrial habitat, including areas with greater structural complexity and reduced disturbance relative to the existing arable-dominated baseline. Together with the addition of habitat piles, log refugia, and wetland margins, these features will support foraging, sheltering, and dispersal opportunities for amphibians, particularly in the south-eastern compartments where habitat enhancements are most concentrated.
- 11.6.110 Given the negligible baseline value of the Site for amphibians and the anticipated net increase in suitable habitat post-development, the operational phase is likely to result in a **Minor Beneficial** effect at the Site level. This reflects an overall ecological uplift for widespread amphibians, albeit from a very low starting baseline.

Bats

Roosting

- 11.6.111 Although no bat roosts were confirmed on-Site during baseline surveys, a number of buildings and trees were identified as having low to moderate suitability for roosting bats, particularly for crevice-dwelling species such as *Pipistrellus* spp. The Proposed Development ensures the retention of the majority of these potential roost features, with no anticipated felling of trees with moderate or high roost suitability.
- 11.6.112 Post-completion, roosting opportunities for bats are expected to be enhanced through the installation of bat boxes on retained trees and new buildings. These measures are designed to offset the minor risk of incidental loss of low-quality roost features and will increase roosting availability in the long term. As such, the post-development Site is anticipated to offer a net gain in roosting habitat opportunities, particularly for common pipistrelle, soprano pipistrelle, and brown long-eared bats.
- 11.6.113 Given the installation of roosting features, sensitive lighting design (as per current best practice), and long-term habitat management commitments, the operational impacts on roosting bats are considered to be **Minor Beneficial** at the Site level.

Activity

- 11.6.114 Baseline surveys recorded low to moderate levels of bat activity, largely confined to Site peripheries and boundary habitats. Species diversity was moderate, with activity dominated by common and soprano pipistrelle bats. Key foraging and commuting areas included hedgerows along Ashwell Road, Bygrave Road, and the north-western boundary adjacent to Ivel Springs LNR.

11.6.115 The Proposed Development will retain and significantly enhance these linear features. Mitigation measures include:

- Strengthening hedgerow connectivity through gapping-up and native planting,
- Creating dark corridors to reduce light spill along key routes,
- Restoring or enhancing woodland and scrub edges, and
- Establishing wetland and pond mosaics that attract invertebrate prey.

11.6.116 These enhancements are expected to improve foraging habitat structure, prey abundance, and connectivity. Moreover, the masterplan includes wide ecological corridors and linkages to adjacent LNRs and wildlife sites (e.g. Ivel Springs and Weston Hills), which will facilitate landscape-scale bat movement.

11.6.117 With these measures embedded into the design and management plan, the operational Site is expected to support higher bat activity levels than currently recorded. This will particularly benefit pipistrelle species and generalist foragers such as noctule and brown long-eared bat.

11.6.118 Accordingly, the operational impacts for bat activity are considered to be **Minor Beneficial** at the Site level, with improvements to foraging resources, commuting corridors, and habitat quality expected to support a more diverse and resilient bat assemblage over time.

Badger

11.6.119 No active badger setts or evidence of a resident social group were recorded within the Site during surveys undertaken between 2022 and 2024. Two disused outlier setts were identified within hedgerows and field margins, alongside incidental signs of transient foraging such as snuffle holes and tracks. The Site is therefore assessed to be of Site-level ecological importance for badger, reflecting low habitat value and occasional use by peripheral individuals.

11.6.120 During the operational phase, the transformation of the Site into residential use will introduce new pressures on terrestrial mammals, including increased disturbance from recreational activity, the presence of domestic pets, and traffic on new internal roads. In the absence of safeguards, these factors could reduce habitat permeability, increase collision risk, and deter future use of the Site by badger.

11.6.121 Embedded mitigation and enhancement measures incorporated into the masterplan are designed to safeguard and improve habitat suitability for badger. Key measures include the retention and strengthening of boundary hedgerows and field margins through gapping-up and native planting, the creation of structurally diverse green corridors connecting retained features to on-Site open spaces and the wider countryside, and the integration of wildlife-permeable fencing and culverts to facilitate safe movement across

the development. The transport strategy embeds low-speed design principles, traffic calming features, and safe crossing points, reducing the likelihood of wildlife–vehicle collisions.

- 11.6.122 In addition, a long-term Habitat Management and Monitoring Plan (HMMP) will secure sensitive management of hedgerows, field margins and green corridors in perpetuity, ensuring that cover, foraging opportunities, and connectivity are sustained. Periodic monitoring of badger activity will allow adaptive management should sett activity increase in future years.
- 11.6.123 Through these combined measures, the potential adverse effects of disturbance, severance and collision risk will be substantially reduced, and habitat permeability will be enhanced compared with the current intensively managed arable baseline. The introduction of structurally diverse, well-managed green corridors is expected to improve opportunities for foraging and dispersal by transient individuals.
- 11.6.124 Accordingly, the residual operational effect on badger is assessed as **Minor Beneficial** at Site level, reflecting both the low baseline usage and the anticipated improvements in connectivity and habitat quality post-development.

Breeding birds

- 11.6.125 Baseline surveys across 2017–2024 consistently confirm that the Site supports a breeding bird assemblage of ecological importance, including multiple Red and Amber List species. Most notable is corn bunting (*Emberiza calandra*), a UK Red List and Section 41 Priority Species, with surveys in 2024 recording 21 singing males across the Site
- 11.6.126 This equates to approximately 10% of the county’s breeding population, reinforcing the Site as a County-level stronghold. Territories are consistently clustered along hedgerows at the northern boundary, Bygrave Road/Ashwell Road, and around Clothall Common, with strong site fidelity observed across multiple survey years. The wider assemblage includes skylark (*Alauda arvensis*), yellowhammer (*Emberiza citrinella*), linnet (*Linaria cannabina*), whitethroat (*Sylvia communis*), song thrush (*Turdus philomelos*), and meadow pipit (*Anthus pratensis*), supporting an assessment of District-level importance for the assemblage as a whole.
- 11.6.127 Under the operational layout, the replacement of extensive arable compartments with built development, infrastructure, and managed green infrastructure will lead to a fundamental shift in habitat availability. Central arable compartments will be lost, directly affecting ground-nesting species such as skylark and corn bunting. Based on mapped territories, it is anticipated that c.50% of the corn bunting territories (≈ 10 –11 pairs) will be displaced, largely from the interior arable compartments that are no longer compatible with their ecological requirements. Remaining territories are likely to persist along

- retained hedgerows, boundary margins, and Clothall Common, where suitable open and semi-open habitats are incorporated into the masterplan.
- 11.6.128 For corn bunting, the operational Site will no longer replicate the combination of large, uninterrupted arable fields with sparse tree cover and abundant seed resources. While new grasslands, meadows, and SuDS provide structural complexity, they do not fully substitute the open arable conditions that this species favours. Consequently, a significant contraction in breeding range within the Site is expected, even though some retained peripheral habitats will remain suitable.
- 11.6.129 The wider breeding bird assemblage will experience mixed responses. Generalist and edge-associated species (e.g. whitethroat, dunnock, blackcap, song thrush) are likely to benefit from the structural heterogeneity of new grassland, scrub, hedgerows, and wetlands. Conversely, open farmland specialists (e.g. skylark, yellowhammer, linnet) will lose much of the expansive arable habitat on which they rely. On balance, the assemblage is predicted to undergo a functional shift from open farmland dominance towards edge-tolerant communities, with overall habitat heterogeneity increased relative to the baseline.
- 11.6.130 An additional pressure in the operational phase will arise from domestic cat predation associated with the new residential community. Domestic cats are known to predate both eggs and chicks of ground-nesting birds and small passerines. Published studies demonstrate that the majority of cats range less than 100–400 m from their home ranges (Thomas et al. 2012; Loyd et al. 2013), with hunting effort typically concentrated in nearby gardens and green corridors. Embedded mitigation within the Site masterplan – namely strategic positioning of residential parcels away from sensitive breeding bird compartments, and provision of extensive buffer green spaces – will reduce the spatial overlap between core bird habitats and domestic cat ranges. Nevertheless, increased predation pressure is anticipated, particularly along settlement edges where hedgerows and grass margins abut residential areas.
- 11.6.131 In summary, the operational phase will result in a net loss of approximately 50% of corn bunting territories within the Site, representing displacement of a County-level stronghold, alongside a broader ecological shift from farmland specialists to generalist/edge species.
- 11.6.132 Overall, the operational phase is expected to result in a balanced ecological shift: a potential localised loss for open farmland specialists, countered by increased nesting and foraging opportunities for generalist and edge-associated species, alongside greater habitat diversity. On balance, the effect is assessed as minor beneficial at the Site level for the majority of bird species, due to the delivery of an enhanced and more structurally varied breeding bird resource, even in the absence of formal mitigation.

- 11.6.133 While the overall breeding bird assemblage associated with the Site is assessed to experience a minor beneficial effect at the Site — reflecting increased habitat heterogeneity, scrub and edge habitat development, and the introduction of extensive SuDS and grassland mosaics — it is important to distinguish corn bunting as a separate receptor. This species is a UK Red List and Section 41 Priority Species of County-level importance, confirmed to hold multiple territories within arable compartments across the Site in successive survey years.
- 11.6.134 The ecological requirements of corn bunting are closely tied to large, open arable fields with minimal disturbance and access to seed-rich foraging areas. These conditions will be substantially reduced under the operational layout, and while the proposed green infrastructure will provide diverse nesting and foraging resources for many farmland and edge-associated species, it will not replicate the open-field structure favoured by corn bunting. Consequently, the Proposed Development is anticipated to result in the displacement of a proportion of the breeding population currently supported on-Site, representing a localised loss of a County-level stronghold. This loss would result in a **Minor Adverse** effect at County level.

Hedgehog

- 11.6.135 The Site supports suitable habitat for hedgehog, particularly along hedgerows, field margins, woodland edges and scrub-grassland mosaics, despite the absence of direct field signs during surveys. Connectivity to the surrounding landscape, coupled with the presence of local records, indicates that the Site likely forms part of a broader foraging and commuting range for individuals in the area.
- 11.6.136 Post-development, the loss of some arable land and the introduction of built form may reduce the overall extent of currently available habitat. However, such losses are anticipated to be limited to areas of lower habitat suitability for hedgehog – namely intensively managed fields with little vegetation structure or sheltering potential. In contrast, substantial areas of more suitable habitat are proposed to be retained, enhanced, or newly created as part of the green infrastructure strategy.
- 11.6.137 The Proposed Development includes large contiguous areas of accessible open space, with features such as species-rich grassland, native planting, and an enhanced hedgerow network. These elements will significantly increase the availability of foraging and nesting habitat for hedgehog in the long term. Furthermore, where gardens and greenspaces interface with wilder compartments, permeability measures (e.g. boundary gaps or wildlife corridors) are likely to support continued dispersal and gene flow across the development footprint.
- 11.6.138 Although potential sources of disturbance (e.g. light, noise, domestic pets) may increase locally, the scale of habitat provision and landscape integration across the Site is expected to support population resilience. The transition from monocultural land use to a more

structurally diverse matrix of habitat types is likely to provide a net benefit for hedgehog and other terrestrial mammals over time.

- 11.6.139 On balance, the operational phase is assessed to result in a **Minor Beneficial** effect at the Local level, reflecting the uplift in both habitat quality and ecological connectivity within and beyond the Site.

Reptiles

- 11.6.140 The baseline confirmed the presence of a low populations of common lizard and slow worm, restricted primarily to the south-eastern part of the Site where structurally diverse habitats such as rough grassland, tall ruderal vegetation, and hedgerow bases were present. These compartments offered suitable basking, foraging, and sheltering opportunities. Elsewhere, particularly in arable-dominated areas, habitat suitability was considered negligible.
- 11.6.141 Under the Proposed Development, a number of key reptile-supporting habitats in the south-eastern sector are to be retained and integrated into the green infrastructure network. Additionally, the operational layout includes the creation of new species-rich grassland, native scrub, and edge habitats, which will over time develop the structural heterogeneity required to support reptiles. These habitats will also improve connectivity between existing refugia and foraging areas, thereby enhancing dispersal potential and overall ecological function for herpetofauna.
- 11.6.142 Although the permanent loss of some field margins and rough grassland will occur, this is balanced by a more strategic and landscape-scale approach to habitat delivery, with enhancements concentrated in areas already identified as being of ecological importance. These interventions are likely to lead to a net increase in suitable reptile habitat and long-term improvements in habitat quality.
- 11.6.143 As such, during the operational phase, the Proposed Development is assessed to result in a **Minor Beneficial** effect at the Local level for reptiles, due to increased habitat extent, improved connectivity, and enhancement of habitat condition within areas of previously limited ecological value.

Flora

- 11.6.144 The presence of a small, spatially restricted population of lizard orchid, a Schedule 8 protected species, was confirmed during the 2024 botanical surveys within semi-improved calcareous grassland in the south-eastern compartment of the Site. While this species was not recorded alongside a broader assemblage of rare or scarce flora, its presence nonetheless contributes to the Site's ecological distinctiveness. Surveys in 2024 also recorded a notable arable plant assemblage in a disturbed arable field adjacent to the A505, including nationally scarce species such as few-flowered fumitory and Venus' looking-glass, together with a range of characteristic arable weeds.

- 11.6.145 Crucially, the south-eastern grassland compartment — where the orchid occurs — is to be retained and buffered within the development layout as part of the strategic green infrastructure. In addition to retention, targeted management prescriptions will be implemented to maintain and enhance the calcareous grassland mosaic, including sensitive mowing regimes, prevention of nutrient enrichment, and control of scrub encroachment. These actions will promote habitat quality for the orchid and support the persistence of kidney vetch and other calcicole associates. For the arable plant assemblage, while its current extent is linked to recent disturbance and will be partially lost to development, there is potential to retain and encourage similar early-successional flora along the margins of greenspaces, particularly at interfaces with retained agricultural land such as Bygrave Common.
- 11.6.146 The operational stage will deliver an uplift in botanical diversity across the Site through the creation of new native grassland, wildflower meadows, and pond edge vegetation, supported by appropriate management under HMMP. In addition, selected greenspace margins and transitional zones adjoining arable land will be managed to maintain low-nutrient, disturbed conditions that favour the persistence or re-establishment of notable arable plants recorded during the 2024 survey. Over time, these newly created and managed habitats are expected to establish into floristically diverse communities, further enhancing the overall botanical value of the Site.
- 11.6.147 Given the retention and enhancement of the orchid population's microhabitat, coupled with the creation of new high-value botanical habitats and opportunities to sustain notable arable flora within the green infrastructure network, the development is assessed to result in a **Minor Beneficial** effect at the Local level for flora during the operational phase.

Brown Hare

- 11.6.148 The Proposed Development will result in the permanent loss of large arable field compartments in the central and eastern parts of the Site. These open, low-cover habitats are characteristic of those preferred by brown hare (*Lepus europaeus*), a Species of Principal Importance under Section 41 of the NERC Act (2006), and baseline surveys confirmed regular activity across these fields. The loss of arable land therefore represents a direct reduction in the extent of habitat available to support foraging and movement by brown hare.
- 11.6.149 Embedded mitigation is provided through the strategic delivery of a comprehensive green infrastructure network. This includes the creation of wildflower meadows, rough grassland field margins, and extensive new hedgerow and scrub planting. While these habitats are structurally more enclosed than arable fields, they will provide foraging, shelter, and movement opportunities for brown hare, albeit likely at lower density than the existing arable baseline.

- 11.6.150 Connectivity will be maintained through the design of unlit or low-disturbance corridors linking retained hedgerows, woodland edges, and new open spaces. These corridors, reinforced by native planting and the absence of impermeable barriers, will allow brown hare to continue dispersing across the Site and into the wider countryside. The provision of softer edge habitats and structurally diverse margins will also reduce the risk of severance and maintain the functional role of the Site within the broader farmland landscape.
- 11.6.151 Taken together, the permanent loss of open arable compartments is balanced by the introduction of ecologically managed, structurally diverse habitats that maintain baseline functionality for brown hare. With these measures in place, residual operational effects are assessed as **neutral** at Local level, reflecting both the unavoidable reduction in traditional arable habitat and the compensatory provision of alternative resources through the green infrastructure strategy.

11.7 MITIGATION MEASURES

- 11.7.1 The Proposed Development already incorporates a comprehensive package of embedded mitigation, including design-based avoidance (e.g. retention of hedgerows and trees, buffers to designated sites), and delivery mechanisms such as the Outline Construction Environmental Management Plan (CEMP) and Habitat Management and Monitoring Plan (HMMP). These measures have been accounted for in the assessment of effects.
- 11.7.2 This section therefore focuses on additional mitigation measures above and beyond the embedded safeguards. These measures are designed to address any residual ecological risks identified through the assessment and to strengthen long-term ecological outcomes, in accordance with CIEEM (2018) guidance, relevant legislation, and local planning policy.
- 11.7.3 During the construction phase, additional mitigation may include the use of ecological clerk of works supervision during sensitive works, pre-construction checks for species such as badger or breeding birds, and phased vegetation clearance to minimise risks to reptiles or other fauna. These measures build on the baseline safeguards provided by the CEMP, ensuring that unexpected risks or localised sensitivities are appropriately managed.
- 11.7.4 For the operational phase, further targeted mitigation includes the incorporation of species-specific measures where appropriate (e.g. provision of bird boxes for priority farmland species or bat boxes within retained tree lines), and the adaptive management of green infrastructure to support populations of conservation concern such as corn bunting or hedgehog. These measures extend beyond the minimum requirements of embedded management, ensuring that the Site contributes to wider ecological resilience and the objectives of the Hertfordshire Local Nature Recovery Strategy.
- 11.7.5 Together, these above-baseline measures provide additional assurance that the Proposed Development will avoid or minimise ecological impacts, while also delivering a robust framework for long-term ecological enhancement.

Construction Stage

Habitats

- 11.7.6 The construction phase will involve extensive vegetation clearance, earthworks, and machinery movement across the Site, posing risks to a range of terrestrial and aquatic habitats. A habitat-specific mitigation strategy will therefore be implemented to minimise the scale and duration of ecological degradation, safeguard features of particular interest, and retain functional connectivity where feasible.
- 11.7.7 To address the widespread loss of arable and grassland habitats, clearance works will be phased to align with seasonal constraints for key faunal groups, particularly farmland birds and brown hare. Where appropriate, pre-clearance surveys will be undertaken to

identify active nesting sites or leverets, and measures such as buffer zones, retention of field margins during early phases, and directional clearance will be used to avoid direct harm and provide opportunities for species to relocate into adjacent habitat. Although the intrinsic ecological value of intensively managed arable fields is limited, their structural role in supporting open-country species will be replicated in the post-construction habitat design through creation of species-rich grassland, native scrub margins, and other open habitat mosaics, which will be managed to support local biodiversity targets.

- 11.7.8 Particular attention will be paid to the Land east of Clothall Common containing the species-rich grassland and the lizard orchid. This area will be fenced off prior to the commencement of site-wide works and designated as an exclusion zone to prevent accidental encroachment or machinery overrun. Ground protection measures will be employed to prevent soil compaction, and a hydrological buffer will be maintained to preserve water and nutrient regimes. Where feasible, microtopography and existing turf will be retained in situ to preserve the soil structure and associated seed bank. If disturbance is unavoidable, soil translocation may be considered as a last-resort mitigation option, subject to prior botanical survey and soil profile characterisation.
- 11.7.9 In relation to hedgerows and scrub corridors, removal will be minimised wherever possible, with temporary protective fencing erected around retained linear features. Hedgerows will be re-established on similar alignments to support landscape permeability, with additional green infrastructure links introduced to compensate for any unavoidable fragmentation. Scrub, woodland and scattered trees of ecological value will be retained where practicable, and all tree works will be supervised in accordance with BS 5837 and under appropriate ecological guidance where protected species may be present.
- 11.7.10 Collectively, these measures aim to reduce the magnitude and duration of habitat loss and degradation during the construction stage, safeguard ecologically sensitive areas, and maintain baseline ecological function until post-development habitats are established. Following implementation of the mitigation strategy, the residual effects of habitat clearance and disturbance are considered to be minor adverse at the Site level, but not significant at the Local level or higher, with effects to sensitive habitats such as the species-rich grassland expected to be minimised to non-significant levels provided the prescribed safeguards are rigorously implemented.

Breeding birds

- 11.7.11 The presence of a locally important farmland bird assemblage within the Site, including multiple Red and Amber List species and a confirmed breeding population of corn bunting, necessitates a robust mitigation strategy during the construction phase. In particular, the confirmed status of corn bunting as a consistent breeder across multiple years, and its use of both northern and southern arable compartments, elevates the Site's importance to County level for this species. Construction-related clearance of arable fields, rough

grass margins, and hedgerows—combined with disturbance from machinery—has the potential to result in direct nest loss, fragmentation of territories, and reduced breeding success in the absence of targeted safeguards.

- 11.7.12 To prevent destruction of active nests and associated offences under the Wildlife and Countryside Act 1981 (as amended), no vegetation clearance will be undertaken during the core bird nesting season (typically March to August inclusive) unless pre-clearance checks by a suitably qualified ecologist confirm the absence of active nests. Where nesting is confirmed, vegetation will be left undisturbed until chicks have fledged, and exclusion zones will be marked out to ensure no accidental encroachment occurs during this period.
- 11.7.13 Given the confirmed use of arable compartments by ground-nesting species such as skylark and corn bunting, where clearance of such areas is essential during the breeding season (e.g. to meet construction programme constraints), active measures will be required. These may include habitat manipulation outside of the breeding season—such as winter topping or shallow cultivation—to discourage nesting, thereby reducing the risk of nest establishment in the spring. Alternatively, phased clearance may be employed in non-breeding windows to retain areas of undisturbed habitat while works progress elsewhere.
- 11.7.14 In areas supporting high-value territories, particularly those known to support corn bunting, efforts will be made to retain and protect rough margins, field edges, and scrub patches during early phases of construction. This will maintain a degree of foraging and nesting resource and help buffer the impact of immediate habitat loss. A Construction Ecological Management Plan (CEMP) will incorporate bird-specific protocols, including site induction briefings, delineation of sensitive areas, and periodic checks by an ecologist throughout the breeding season. This will be provided at each phase and complies with the mitigation as seen in Appendix 11.1.
- 11.7.15 Although construction-phase lighting and noise cannot be wholly eliminated, their effects will be mitigated by limiting work in proximity to sensitive habitats during early morning and evening periods, when birds are most active in courtship and feeding. Machinery will be routed away from retained margins wherever feasible to reduce unnecessary encroachment into key breeding zones.
- 11.7.16 While the loss of foraging and nesting habitat during construction cannot be entirely avoided, these measures are expected to substantially reduce the scale of direct impacts and prevent unlawful nest destruction. The Site will remain partially functional for some species during the works period, and key breeding opportunities—especially for species using hedgerow and scrub edges—will be retained wherever possible.
- 11.7.17 Following implementation of the above measures, residual impacts on the wider farmland bird assemblage are assessed as minor adverse at District level, reflecting temporary reductions in habitat availability and nesting success but not affecting overall population

viability. For corn bunting, the retention of some field margins, seasonal constraints on clearance, and preservation of territory continuity in later phases are expected to avoid irreversible loss of local breeding function. There is also likely to be an opportunity for fallow fields to be set aside for ground nesting birds in between cessation of farming practice and commencement of construction, this could provide elevated value for birds in some areas for a short term period that could improve nesting success for local populations if managed sensitively. As such, residual construction-phase effects on corn bunting are also reduced to minor adverse at County level, with the assumption that population recovery will be supported by post-construction habitat enhancement and long-term management.

Post-Completion Stage

- 11.7.18 Following the completion of construction works, the ecological focus of the development will shift from impact avoidance and harm reduction to the delivery of long-term habitat enhancement, species support, and landscape-scale biodiversity gains. Post-completion mitigation will involve the establishment, restoration, and ongoing management of retained and newly created habitats, ensuring that ecological functionality is reinstated or improved over time. Measures will be tailored to address both the residual impacts of construction and the broader objectives of biodiversity enhancement, in line with the emerging green infrastructure strategy and Biodiversity Net Gain (BNG) commitments for the Site. Where relevant, species-specific mitigation and monitoring will be implemented to support habitat recolonisation and improve long-term ecological resilience. The following subsections outline the proposed post-completion actions to secure meaningful ecological outcomes across the Site.

Breeding birds

- 11.7.19 Baseline surveys confirmed that the Site supports a breeding bird assemblage of recognised ecological importance, including multiple UK Red and Amber List species. Of particular note is corn bunting, a UK Red List and Section 41 species, confirmed breeding across several compartments of the Site in multiple years. The presence of this declining arable specialist — in breeding numbers uncommon at the local scale — confers County-level ecological value. The broader assemblage, including skylark, yellowhammer, linnet, whitethroat, and song thrush, is consistent with a farmland bird community of District-level importance based on diversity, abundance, and breeding status.
- 11.7.20 Under the Proposed Development, large parts of the open arable landscape will be lost to built development, potentially displacing ground-nesting species and reducing available foraging and nesting habitat for open-country specialists. Without mitigation, this would result in a significant reduction in ecological function for species such as corn bunting and skylark. This risk will be mitigated through a combination of on-site habitat provision and off-site habitat creation and management, designed to maintain and enhance the local breeding population.

- 11.7.21 Mitigation has been developed to address the dual challenge of retaining a proportion of corn bunting territories within the Site while compensating for those displaced, alongside enhancing the wider assemblage. Measures have been embedded through iterative design and will be secured via the HMMP.
- 11.7.22 The Proposed Development and detailed design will include a bespoke mitigation area at Bygrave Common, configured specifically to support corn bunting. This area will comprise low-input grassland, wild bird seed plots, late-cut meadows, and access controls, providing both nesting and foraging resources. Additional embedded measures across the Site include:
- Tall, dense sward grasslands – designed to replicate the dense crop cover preferred for nesting (Perkins et al. 2015).
 - Song posts (e.g. timber poles, fencing) integrated into open compartments, mimicking the telegraph wires and crop stems typically used by territorial males
 - Seed-rich wildflower and cereal plots to support wintering and post-breeding foraging flocks
 - Strategically retained field boundaries (northern hedgerows, Bygrave Road/Ashwell Road corridors, Clothall Common margins), enabling $\approx 50\%$ of historic territories to remain functional within the Site.
- 11.7.23 Extensive species-rich grasslands, hedgerows, scrub planting, and wetlands will enhance habitat for a range of farmland and edge species. SuDS will provide reed bunting and wetland bird habitat, while structural scrub and tree planting will enhance cover and nesting niches for song thrush, dunnoek, and whitethroat.
- 11.7.24 For domestic cat predation, further mitigation will be implemented at the detailed stage and will include:
- Defensive planting (thorny scrub, prickly hedgerows) around sensitive grasslands and nesting zones will reduce incursion by cats and people.
 - Access management (path routing, signage, and fencing) will steer recreational use away from sensitive compartments, reducing disturbance.
- 11.7.25 While some predation by cats is inevitable, the design ensures large buffer distances between housing and core bird habitat, exploiting evidence that most cats rarely hunt beyond a few hundred metres from their homes.
- 11.7.26 These interventions go beyond simple habitat retention, actively enhancing the suitability of the Site for corn bunting post-development. The mitigation area is expected to sustain territory occupancy and potentially increase local carrying capacity relative to the current baseline, given the focused management and protection from mechanised agriculture and disturbance.

- 11.7.27 To address the forecast displacement of breeding pairs from development parcels, a complementary off-site mitigation programme will be delivered in partnership with Hertfordshire County Council within the typical dispersal range of the Site population (up to 4 km). Target areas include locations already known to support breeding corn bunting, such as Hinxworth and Homestead. Interventions will include:
- Establishment of double-drilled cereal strips sown in both autumn and spring;
 - Provision of over-wintered crops and annual wild bird seed mixes;
 - Creation of perennial grass margins within 120 m of nesting habitat;
 - Reduced herbicide application to boost invertebrate prey availability.
- 11.7.28 Annual measures such as cereal strips and seed plots will be rotated between fields to reduce predator focus, while grass margins will be cut on a three-year rotation to maintain structural suitability. The off-site interventions will be secured by legal agreement and maintained for the long term to ensure continued population support.
- 11.7.29 While the loss of open farmland will reduce suitability for some species (e.g. skylark), the development will deliver extensive species-rich grassland, meadow habitats, strengthened hedgerows, scrub and native tree planting, and wetland/SuDS features. This will favour edge-associated and generalist species such as whitethroat, dunnock, blackcap, and song thrush, increasing habitat heterogeneity, nesting niches, and prey availability relative to the existing arable baseline.
- 11.7.30 Taken together, the on-site and off-site measures will retain a proportion of the existing corn bunting territories within the Site, offset displacement through high-quality off-site habitat provision, and deliver landscape-scale enhancements that benefit the wider farmland bird assemblage. The residual operational effect is therefore assessed as minor beneficial at the County level for corn bunting, and minor beneficial at the District level for the wider breeding bird community, reflecting enhanced habitat quality, improved structural diversity, and greater long-term ecological resilience.

11.8 RESIDUAL EFFECTS

Construction Stage

- 11.8.1 With embedded measures in place — including pollution and dust controls, lighting restrictions, phasing of works, ecological supervision, and protective buffers — most construction-stage impacts are reduced to negligible or minor adverse at Site to Local level. These include measures which will be set out in the Outline Construction Environmental Management Plan (OCEMP) and in subsequent Phase-specific CEMPs and Reserved Matters CEMPs. Some receptors, such as farmland birds (notably corn bunting), remain sensitive to habitat loss and disturbance; here, additional mitigation through seasonal clearance, habitat retention, and provision of alternative foraging areas will be required to ensure impacts remain non-significant. For adjacent sites such as Ivel Springs LNR, strict application of the CEMP is essential to prevent dust, hydrological or lighting spill, with residual effects expected to reduce to **Negligible**.

Post-Completion Stage

- 11.8.2 During the operational phase, the green infrastructure network, species-rich grasslands, strengthened hedgerows, and SuDS features will provide ecological connectivity and habitat diversity. Bygrave Road LWS will be wholly retained and buffered, and both Ivel Springs and Weston Hills LNRs will benefit from hydrological safeguards and visitor management embedded in the masterplan. **Minor beneficial** effects are anticipated for these designated sites, reflecting improved habitat quality and connectivity.
- 11.8.3 In summary, while a limited number of receptors require targeted additional mitigation to address risks during construction, all predicted residual effects are reduced to non-significant levels, and in the long term the Proposed Development is expected to deliver net ecological benefits at the Local to District scale.

Summary of Effects

- 11.8.4 The effects identified are summarised in **Table 11.5** below.

Table 11.5 - Residual Effects

Potential Effect	Significance (pre-mitigation)	Mitigation Measure	Significance of residual effect
Construction Stage			
Designated Sites – Ivel Springs LNR	Moderate adverse (District)	Embedded CEMP controls: dust suppression, drainage management, protective buffers, lighting restrictions	Neutral–Minor adverse (District) – not significant

Potential Effect	Significance (pre-mitigation)	Mitigation Measure	Significance of residual effect
Designated Sites – Therfield Heath SSSI	Negligible	Standard CEMP dust controls	Neutral (National)
Designated Sites – Weston Hills LNR	Minor adverse (District)	Standard CEMP dust and emission controls	Neutral (District)
Bygrave Road LWS	Moderate adverse (Local)	Wholly retained and buffered; protective fencing; reinstatement of disturbed edges	Neutral (Local)
Habitats (arable, grassland, hedgerows)	Moderate adverse (Local)	Phased clearance; retention of high-value habitats; protective fencing for orchid grassland; reinstatement	Minor adverse (Site–Local, temporary)
Amphibians (common species)	Minor adverse (Site)	RAMs: phased clearance, ecological watching brief, refugia retained	Negligible (Site)
Bats – Roosting	Minor adverse (Site)	Pre-works checks, soft-fell procedures, lighting controls	Negligible (Site)
Bats – Activity	Minor adverse (Site)	Retain and reinforce corridors; interim habitat links; lighting controls	Negligible (Site)
Badger	Minor adverse (Site)	Pre-works sett checks; exclusion zones; escape ramps; toolbox talks	Neutral (Site)
Breeding birds (corn bunting and assemblage)	Moderate adverse (County – corn bunting); District (assemblage)	Seasonal clearance restrictions; habitat retention; margins buffered; CEMP protocols	Minor adverse (County – corn bunting); Minor adverse (District – assemblage)
Hedgehog	Minor adverse (Site)	RAMs: phased clearance, refugia, escape ramps, fencing permeability	Neutral (Site)
Reptiles	Minor adverse (Local)	Two-stage clearance, ecological supervision, receptor areas	Neutral (Local)

Potential Effect	Significance (pre-mitigation)	Mitigation Measure	Significance of residual effect
Invertebrates	Minor adverse (Local)	Dust suppression, fencing of kidney vetch areas, toolbox talks	Neutral (Local)
Flora – Lizard orchid & arable flora	Minor adverse (Local)	Retention of orchid grassland; protective fencing; dust suppression	Neutral (Local)
Brown hare	Moderate adverse (Local)	Phased clearance; directional working; retention of margins	Minor adverse (Local)
Post-Completion Stage			
Therfield Heath SSSI (air quality)	Negligible	Embedded sustainable transport measures (low traffic growth, EV charging, active travel, GI)	Neutral (National)
Knebworth Woods SSSI (air quality)	Negligible	Embedded sustainable transport measures (as above)	Neutral (National)
Ivel Springs LNR	Minor adverse (District – recreation risk)	GI network, SuDS drainage, visitor management, HMMP	Minor beneficial (District)
Weston Hills LNR	Minor adverse (District)	Internal GI to absorb demand, connectivity enhancements	Minor beneficial (District)
Bygrave Road LWS	Moderate adverse (Local)	Wholly retained, buffered, and enhanced under HMMP	Minor beneficial (Local)
Habitats (overall)	Moderate adverse (Local – habitat loss)	GI creation (species-rich grassland, scrub, hedgerows, SuDS); HMMP	Major beneficial (Local)
Amphibians	Negligible baseline	SuDS ponds; terrestrial habitat creation; refugia	Minor beneficial (Site)
Bats – Roosting	Minor adverse (Site)	Retain roost features; install bat boxes; sensitive lighting	Minor beneficial (Site)
Bats – Activity	Minor adverse (Site)	Enhanced hedgerows; dark corridors; SuDS to support insect prey	Minor beneficial (Site)

Potential Effect	Significance (pre-mitigation)	Mitigation Measure	Significance of residual effect
Badger	Minor adverse (Site)	GI corridors; wildlife permeability in fencing; traffic calming; HMMP	Minor beneficial (Site)
Breeding birds – Corn bunting	Moderate adverse (County)	On-site mitigation; off-site farmland bird measures if required	Neutral (County)
Breeding birds – Wider assemblage	Minor adverse (District)	Diverse habitats, hedgerows, wetlands, SuDS	Minor beneficial (District)
Hedgehog	Minor adverse (Site)	Habitat creation; permeable fencing; refugia; HMMP	Minor beneficial (Local)
Reptiles	Minor adverse (Local)	Retain south-east compartment; create additional grassland/scrub	Minor beneficial (Local)
Flora (orchid, arable flora)	Minor adverse (Local)	Retain orchid grassland; arable flora management; seed mixes	Minor beneficial (Local)
Brown hare	Moderate adverse (Local)	GI corridors; rough grassland; unlit margins	Neutral (Local)

11.8.5 The assessment confirms that, with embedded measures and targeted additional mitigation, all construction-stage ecological effects reduce to non-significant levels. Temporary minor adverse effects will remain for a limited number of receptors, notably farmland birds (including corn bunting) and brown hare, reflecting their sensitivity to habitat loss and disturbance during enabling works, but these will not extend beyond the Local to County scale. For most other receptors — including amphibians, reptiles, bats, badger, hedgehog, invertebrates and notable flora — the combination of phasing, ecological supervision, buffers and CEMP protocols reduces residual effects to negligible or neutral.

11.8.6 During the operational phase, the delivery of a comprehensive green infrastructure framework, sustainable drainage systems, and long-term habitat management will provide significant ecological uplift. Designated sites such as Ivel Springs LNR, Weston Hills LNR and Bygrave Road LWS will benefit from buffering, hydrological safeguards and visitor management, leading to minor beneficial residual outcomes at District and Local levels. Habitats across the Site will undergo a transition from intensively farmed arable fields to a structurally diverse mosaic of species-rich grassland, scrub and hedgerows, resulting in a major beneficial residual effect at the Local scale. For species populations, operational effects are either neutral (brown hare, corn bunting) or minor beneficial

(amphibians, bats, wider bird assemblage, reptiles, hedgehog and flora), reflecting improved connectivity, prey availability and long-term habitat management.

- 11.8.7 In overall terms, the Proposed Development will not give rise to any significant adverse residual ecological effects. Instead, the Proposed Development is expected to deliver a measurable net gain for biodiversity at the Local to District scale, contributing positively to the wider ecological network and to Hertfordshire's Local Nature Recovery Strategy.

11.9 CUMULATIVE EFFECTS

- 11.9.1 This section considers the potential for cumulative ecological effects arising from the Proposed Development in combination with other nearby developments that are either allocated in the North Hertfordshire Local Plan (NHLP) or have received recent planning consent. The assessment considers approved or committed schemes which, when implemented alongside the Proposed Development, may result in additive or synergistic impacts on ecological receptors, including designated sites, habitats, and species populations. Notably, planning permission has now been granted for both NHLP Allocation BA4 (42 dwellings east of Rhee Spring and Orwell View) and the solar farm west of Ashwell Road (53.62 ha), both of which lie in close proximity to the Site. These are considered alongside other relevant strategic or allocated sites, including LG1 (900 dwellings north of Letchworth), and LG3 (120 dwellings east of Talbot Way, Letchworth Garden City). The cumulative effects assessment considers whether these developments, in combination with the Proposed Development, would give rise to a greater level of ecological impact than when assessed independently.

Land East of Rhee Spring and Orwell View (21/01882/FP)

- 11.9.2 Planning permission has been granted for 42 dwellings at Land East of Rhee Spring and Orwell View (21/01882/FP), located immediately adjacent to the Land East of Clothall Common allocation. Baseline ecological surveys for that site identified semi-improved neutral grassland with scattered scrub and tall ruderal vegetation, supporting moderate potential for reptiles, nesting birds, invertebrates and hedgehog.
- 11.9.3 The development of this neighbouring site introduces residential land use and associated public access, with the potential to increase recreational use of nearby greenspaces and designated sites. When considered in combination with the Proposed Development, this presents a potential cumulative pathway for increased recreational pressure. However, the Proposed Development incorporates a comprehensive green infrastructure (GI) network comprising extensive new accessible natural greenspaces, ecological corridors, SuDS habitats, and areas delineated as non-accessible biodiversity zones. This GI strategy has been designed to absorb and manage the recreational demands of the new population, while safeguarding sensitive habitats. It is therefore considered sufficient to accommodate the relatively limited recreational uplift generated by the additional 42-unit scheme, and no significant residual recreational effects are anticipated.
- 11.9.4 Biodiversity Net Gain (BNG) is also a relevant cumulative consideration. The Biodiversity Impact Assessment prepared for the 42-unit scheme calculated a net loss of 5.63 habitat units, equivalent to a 55.73% reduction in ecological value relative to baseline BNG.
- 11.9.5 That scheme is therefore reliant upon securing off-site biodiversity units to achieve “no net loss” or statutory 10% net gain, with delivery to be arranged via a third-party provider or landowner and secured through planning obligations. By contrast, the Proposed

Development embeds measurable BNG delivery on-Site through habitat creation, enhancement and long-term management secured under the Ecological Mitigation and Management Plan. This approach not only ensures compliance with statutory requirements but also contributes directly to the Hertfordshire Local Nature Recovery Strategy by strengthening habitat connectivity and ecological resilience within Baldock.

- 11.9.6 Taken together, while the adjacent 42-dwelling scheme results in a biodiversity deficit requiring off-site compensation, the Proposed Development provides robust on-Site biodiversity uplift alongside a strategic GI network. As such, no significant residual cumulative ecological effects are anticipated in relation to the combined influence of the two schemes.

LG3 Housing Allocation (Letchworth Garden City)

- 11.9.7 The Proposed Development at Land to the east of Talbot Way and Kristiansand Way (NHLP Allocation LG3, Ref: 21/00504/OP) comprises the construction of up to 120 dwellings. Outline planning permission was granted on 3 April 2025, and works are expected to commence within the assessment window for the current scheme.
- 11.9.8 Ecological baseline data for the LG3 Site (as presented in the submitted Preliminary Ecological Appraisal and Biodiversity Impact Assessment) indicates that the Site predominantly comprises species-poor improved and amenity grassland, with small compartments of scrub, hedgerow, and tree lines located along its southern and eastern boundaries. The assemblage of habitats was assessed as being of limited ecological value, with no statutory or non-statutory designated sites within or immediately adjacent to the development footprint. Protected species constraints were minimal, with only low potential for bats and common birds within retained boundary features.
- 11.9.9 The LG3 scheme includes a moderate level of embedded ecological enhancement, such as species-rich grassland and native hedgerow planting, tree planting, and bird/bat box provision. The accompanying Biodiversity Net Gain (BNG) assessment demonstrates a small net gain in habitat units post-development, largely driven by the inclusion of semi-natural grassland and linear features. Overall, the ecological uplift is relatively modest, and habitat creation is spatially limited.
- 11.9.10 In combination with the Proposed Development at Baldock, the LG3 scheme is not anticipated to give rise to significant cumulative ecological effects. This conclusion is based on the following:
- The ecological baseline of the LG3 Site is relatively low, and habitats of greater value (e.g. the retained tree lines and hedgerows) are not contiguous with sensitive areas connected to the Baldock Site.

- There are no shared functional ecological networks between LG3 and the Baldock Site that would increase pressure on key receptors (e.g. badger, brown hare, bats).
- The LG3 Site lies >5 km from the Proposed Development and is separated by built-up areas and infrastructure, precluding meaningful ecological connectivity or pressure transfer.
- LG3 does not contribute to additional recreational pressure on the same designated sites (e.g. Therfield Heath SSSI or Ivel Springs LNR) as its primary recreational catchment is confined to Letchworth's urban boundary.

11.9.11 Therefore, while both developments will result in localised changes in land use, no significant spatial or ecological interaction is predicted. The cumulative effect of the LG3 development in combination with the Proposed Development is therefore assessed as neutral, with no measurable increase in pressure on habitats, species, or designated sites beyond that already assessed.

Land to the North of Letchworth (LG1)

11.9.12 Land to the North of Letchworth (Local Plan Allocation LG1) is a strategic housing site allocated under Policy SP15 of the adopted North Hertfordshire Local Plan 2011–2031. The adopted Strategic Masterplan proposes the construction of up to 900 dwellings, alongside commercial/community space (up to 900 m²), a two-form entry primary school, and significant areas of open space and landscaping, including the retention and enhancement of the Letchworth Greenway and other key landscape features.

11.9.13 In terms of biodiversity, the LG1 site is currently greenfield and contains a range of semi-natural habitats, including hedgerows, arable land, and areas of grassland. The adopted masterplan incorporates a landscape-led design approach, with proposals for substantial green infrastructure provision, active travel corridors, and multifunctional open spaces that reflect Garden City principles. Although the site is not designated for statutory ecological protection, it falls within proximity to multiple conservation areas and heritage assets, and biodiversity enhancement has been identified as a policy requirement, with a minimum of 10% Biodiversity Net Gain (BNG) to be delivered onsite.

11.9.14 Given its scale and proximity, LG1 has the potential to contribute cumulatively to landscape-scale habitat fragmentation, increased recreational pressure, and incremental loss of farmland bird habitat, when considered alongside the Proposed Development at the Application Site and other local housing allocations (e.g. BA4 and LG3). However, the strategic planning of green infrastructure across both the Application Site and LG1, including retained hedgerow networks, new habitat creation, and permeability for wildlife, suggests that connectivity across the wider landscape will be largely maintained.

- 11.9.15 Importantly, the integration of LG1 with the Grange Estate and the proposed shared use of the recreation ground and open spaces offers a unique opportunity to enhance ecological and social connectivity across community boundaries. The inclusion of active travel links, native planting schemes, and a range of habitat types within the LG1 layout is expected to support a range of species, particularly those tolerant of edge habitats and semi-natural greenspaces.
- 11.9.16 On balance, and assuming that both developments adhere to their respective BNG and green infrastructure strategies, the cumulative effect of the LG1 scheme in combination with the Application Site is considered to be neutral to minor beneficial in ecological terms. This reflects the trade-off between land take and habitat loss on arable fields, versus the creation of more structurally diverse and managed greenspaces, offering long-term gains in habitat quality and biodiversity resilience across the local area.

Land West of Ashwell Road, Bygrave (Tophams Solar Farm)

- 11.9.17 The Tophams Solar Farm, located west of Ashwell Road in Bygrave, received full planning permission on 17 June 2024 for the construction of a ground-mounted photovoltaic solar array with associated infrastructure and ecological enhancements across 53.62 ha of arable land. The HMMP and associated documents (including the Preliminary Ecological Appraisal and Biodiversity Net Gain [BNG] Plan) outline a suite of mitigation and enhancement measures intended to deliver long-term ecological benefits.
- 11.9.18 From a cumulative perspective, the solar farm introduces a large contiguous area of managed green infrastructure directly adjacent to the current Site, with potential complementary benefits for landscape-scale habitat connectivity. Notably:
- The development will result in a permanent cessation of intensive agriculture, allowing the establishment of species-rich grassland, new native hedgerows, and structurally diverse field margins, thereby enhancing the habitat network for farmland birds, reptiles, invertebrates, and small mammals including hedgehog and brown hare.
 - The proposal includes 1400 metres of new native-species-rich hedgerow and enhancement of retained boundary vegetation, which will improve corridor function between Bygrave Plantation, the Cat Ditch, and the wider landscape.
 - The operational land will be managed through light rotational sheep grazing, fostering a structurally diverse sward and supporting colonisation by a wide range of floral and faunal species.
 - Specific ecological prescriptions include the installation of bird boxes, bat boxes, log piles, and hibernacula, targeted towards protected species such as bats and reptiles.

- 11.9.19 When considered alongside the Proposed Development, which also includes an extensive green infrastructure network and aims to deliver a biodiversity net gain, the cumulative impact on biodiversity and ecological connectivity is anticipated to be minor beneficial at the Local to District level. This is primarily due to the synergistic effects of two adjacent developments removing monocultural land use and replacing it with floristically and structurally diverse habitats managed for conservation objectives.
- 11.9.20 Importantly, no significant adverse cumulative impacts on protected species or statutory/non-statutory designated sites are anticipated, given that both schemes are designed with embedded mitigation and biodiversity enhancement as core principles.

Summary

- 11.9.21 When considered alongside other committed and allocated developments in the Baldock and Letchworth area, the Proposed Development is not expected to result in significant cumulative ecological effects. Smaller housing schemes such as the 42 dwellings at Rhee Spring and Orwell View and LG3 in Letchworth will make only limited contributions to recreational demand or habitat loss, and these will not materially overlap with the receptors associated with the Proposed Development. The larger LG1 allocation to the north of Letchworth has greater potential for cumulative influence, but its delivery of extensive green infrastructure and mandatory Biodiversity Net Gain is expected to offset habitat loss and maintain ecological connectivity, resulting in outcomes that are neutral to minor beneficial when assessed in combination. The Tophams Solar Farm west of Ashwell Road provides complementary ecological enhancement adjacent to the Site, and together with the Proposed Development will strengthen ecological networks and improve habitat diversity at the Local to District scale. No significant cumulative pressures on statutory or non-statutory designated sites are anticipated, as visitor demand will be managed through new on-Site greenspace provision and air quality and hydrological safeguards are embedded within all schemes. In overall terms, the cumulative ecological effects of the Proposed Development are judged to be neutral to minor beneficial, reflecting the transition from intensive farmland to a more structurally diverse and managed landscape across the local area.

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