Ecological Impact Assessment

Bold Forest Garden Village

Avison Young (UK) Ltd

3 Brindleyplace, Birmingham B1 2JB

Prepared by:

SLR Consulting Limited

5th Floor, 35 Dale Street, Manchester, M1 2HF

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Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
Interim	22 August 2025	Shona Redman	Kate Vincent	
1	22 October 2025		Jess Colebrook	Bob Edmonds
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Basis of Report

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Executive Summary

An Ecological Impact Assessment (EcIA) and Biodiversity Net Gain (BNG) assessment have been undertaken to inform a masterplan framework for a multi-plot residential development at Bold Forest Garden Village. The Site is located north of Gorsey Lane in St Helens, Merseyside (central Ordnance Survey (OS) grid reference: SJ 53825 92292).

The Site consisted of arable fields and horse-grazed pasture with hedgerow and ditch boundaries, scattered ponds and occasional blocks of scrub and woodland. The Site boundary also includes Tunstalls Farm Local Wildlife Site (LWS). The Site is bordered on all sides by roads and urban development bar a stretch of woodland along the north-west boundary.

Ecological features taken forward for assessment were:

- Designated sites - Mersey Estuary Special Protection Area (SPA), Mersey Estuary Ramsar, Colliers Moss Common Local Nature Reserve (LNR), Tunstalls Farm LWS;
- Habitats - hedgerows, treelines, woodland, mixed scrub, ditches, ponds;
- Invasive non-native species (INNS);
- Amphibians (including great crested newt (GCN));
- Reptiles;
- Birds (breeding and wintering);
- Bats (roosting, foraging and commuting);
- Badger;
- Hedgehog; and,
- Brown hare.

The masterplan has been designed in accordance with the mitigation hierarchy, the Biodiversity Gain hierarchy, and the key results of ecological surveys and assessments. Key habitats and corridors will be retained including Tunstalls Farm LWS, woodland, hedgerows, ditches and ponds.

Potential impacts to ecological features include loss of Functionally Linked Land (FLL) for wintering birds in relation to Mersey Estuary SPA and Ramsar, habitat damage through construction or increased recreational pressure, risk of spreading INNS, habitat loss and fragmentation, and harm or disturbance of protected and notable species.

Proposed mitigation measures include:

- Additional ecological assessments for each planning application under the masterplan including Habitats Regulations Assessment (HRA), INNS survey and management plan, breeding and winter bird surveys, bat surveys and pre-construction badger survey.
- Leaflets to educate residents on the responsible use of local greenspaces;
- Site-wide GCN master plan with each development plot to have a European Protected Species Mitigation Licence, demonstrating it contributes to the master plan;
- Mitigation licences for roosting bats on a case-by-case basis, if required;
- Precautionary working methods in relation to reptiles, nesting birds, badger, hedgehog and brown hare; and

- Wildlife-friendly lighting strategy.

Compensation and enhancement measures are also proposed, including:

- Enhancement of Tunstalls Farm LWS through rewetting, overseeding of grassland and woodland planting;
- On-site landscaping including species-rich native hedgerows, broadleaved woodland, other neutral grassland, seasonally wet grassland, individual trees, native mixed scrub, allotments and amenity areas;
- Bird boxes integrated into minimum 25% of dwellings;
- Bat boxes integrated into minimum 25% of dwellings;
- Hedgehog highways through all solid garden fences; and,
- Off-site arable provision for farmland birds, also benefitting brown hare.

The masterplan was assessed as having significant negative effects in the short- to medium-term due to habitat loss. However, all residual effects were assessed as not significant or significant positive in the long-term, and there would be no contravention of wildlife legislation.

It is anticipated that through detailed design, the Site could achieve a minimum 10% Biodiversity Net Gain. Each plot that comes forward under the masterplan will be required to demonstrate it can achieve a minimum 10% BNG on its own merit to be granted planning permission in accordance with the prevailing legal and policy framework at the time of the planning application.

Table of Contents

Tables in Text

Figures in Text

Figures

1.0 Introduction

SLR Consulting Ltd (SLR) was commissioned by Avison Young (UK) Ltd to complete an Ecological Impact Assessment (EcIA) and Biodiversity Net Gain (BNG) Assessment for the area of land located within Bold Forest Garden Village (BFGV), located north of Gorsey Lane in St Helens, Merseyside (central Ordnance Survey (OS) grid reference: SJ 53825 92292), hereafter referred to as 'the Site'. These surveys and assessments are required to inform a masterplan framework for the Site which is included as an allocation for residential development in the St Helens Borough Council Local Plan Up To 2037 (the Local Plan)[1]. The EcIA has been informed by the following ecological investigations; the results of which are reported within this document:

- Preliminary Ecological Appraisal (PEA) including ecological desk study and water vole (*Arvicola amphibius*) surveys (Appendix B);
- great crested newt (GCN) (*Triturus cristatus*) surveys (Appendix C);
- wintering bird surveys (Appendix D); and
- bat surveys and Habitat Suitability Modelling (HSM) (Appendix E).

These data have been supplemented through the review of documents produced to date for individual parcels[2] within the masterplan area including:

- PEA of Parcel 8[3]; and,
- Technical Note for Parcels 9, 13 and 14[4].

Parcel numbers are displayed in Figure 1.

1.1 Background

The Site is allocated for residential development under St Helens Borough Council Local Plan Up to 2037. The EcIA and BNG assessment have been produced to outline the likely impacts on biodiversity and ecology from the preferred option masterplan, presented as Appendix F. If approved, individual developers would then be required to submit their own planning applications when bringing a plot forward for development. Each plot will be required to show it has been designed in line with the overarching masterplan and each individual planning application will be supported by updated, detailed ecological surveys. The impact assessment presented in this report is deemed sufficient to assess the overall likely impacts of the masterplan area, but does not consider discrete, localised impacts that each individual development (or parcel) within it may have e.g. which specific trees may be removed. These impacts will be covered by the EcIA produced for each plot and its associated planning application.

A PEA for the Site was undertaken by The Mersey Forest in 2024, and this report has been relied upon to produce this EcIA. SLR were subsequently commissioned in 2025 to conduct an ecological assessment of the Site, including a BNG assessment and impact assessment. To inform this, GCN and bat surveys were undertaken between April and June 2025. In

[1] https://www.sthelens.gov.uk/media/4315/St-Helens-Borough-Local-Plan-up-to-2037/pdf/Local_Plan_Written_Statement_-_FINAL_adoption_version.pdf?m=1658409100420

[2] The term 'parcel' is used in this EcIA in the context of landownership parcels. The term 'plot' is used in the context of the proposed multi-plot development, in line with accepted planning terminology and accepting that each development plot may not directly align with landownership parcel boundaries.

[3] RSK Biocensus (2024), *2486885 Gorsey Lane St Helens – Preliminary Ecological Appraisal Report Rev 00.*

[4] Stantec (2024), *33313520900 Forest Garden Village, Bold, Saint Helens Technical Note.*

addition, Avian Ecology undertook wintering bird surveys between February and March 2025, the results of which have been incorporated into this EcIA.

1.2 Site Description

The 146.7ha Site is located on the south-eastern outskirts of St Helens, a town in Merseyside. The Site boundary is shown in Figure 1. The Site was split into 15 parcels based upon landownership for the surveys. These are also shown in Figure 1. This EcIA covers all 15 parcels, as dictated by the red line boundary (RLB) displayed in Figure 1. The Site is situated within the Bold Forest Park Area Action Plan (AAP) area[5].

The Site is predominantly arable fields and horse-grazed pasture with hedgerow and ditch boundaries, scattered ponds and occasional blocks of scrub and woodland. The Site boundary also includes Tunstalls Farm Local Wildlife Site (LWS) (formerly known as Field North of Gorsey Lane LWS) to allow for its close consideration of impacts and create opportunities for ecological enhancement. The Site is bordered on all sides by roads and urban development bar a stretch of the north-west boundary which is bordered by a public access area of woodland along an old railway line.

The wider landscape comprises urban areas associated with St Helens town to the north and west. Conversely, the landscape to the east and south is primarily agricultural, with areas of woodland associated with Clock Face Country Park (separated from the Site only by Gorsey Lane) and Griffin Wood to the south, and Bold Moss Wood to the north-east.

1.3 Details of the Proposed Development

The preferred option masterplan is provided in Appendix F and comprises 25 developable plots which are targeted to provide up to 3000 residential dwellings. In addition, the masterplan includes local community facilities including a school, local shops, community centre and health centre, community gardens, sports facilities, play areas and areas of Public Open Space (POS). Access would be achieved via new roads off Gorsey Lane, Neills Road and Bold Road.

The masterplan has been designed in collaboration with multiple technical teams, including Ecology, such that key constraints have been considered and avoided where possible. These design decisions are described further in Section 4.1.

1.4 Purpose of this Report

The purpose of this EcIA is to:

- describe the baseline data collection and assessment methods used;
- summarise the baseline ecological conditions;
- identify and describe all potentially significant ecological effects associated with the proposed development;
- set out design, mitigation and compensation measures, where necessary, and how these will be delivered;
- provide an assessment of the significance of any residual effects; and
- identify appropriate enhancement measures and how these will/ could be delivered.

[5] https://www.sthelens.gov.uk/media/2393/Bold-Forest-Park-AAP-2017/pdf/Bold_Forest_Park_AAP_2017.pdf?m=1644495175680

1.5 Evidence of Technical Competence and Experience

Details of surveyor competence and experience is provided in Appendices A to D.

Preparation of the EcIA report has been undertaken by SLR Senior Ecologist Shona Redman BSc (Hons) MSc. Shona is a Full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) (MCIEEM) and has over seven years' experience as a professional ecologist. She holds a Natural England Level 1 class licence to survey for GCN and a Natural England survey licence for barn owl (*Tyto alba*). She is experienced in ecological assessments including EcIA and BNG.

This report has been subject to Quality Assurance review as per SLR's policies by Dr Kate Vincent CEnv, MCIEEM, Technical Director at SLR with 20 years of ecological consulting experience. The final report has been subject to review and authorisation in accordance with SLR's internal quality assurance procedures.

1.6 Relevant Legislation and Policy

Relevant Legislation and National Planning Policy is summarised in Appendix A.

The Site sits within St Helens Borough Council planning authority. A summary of relevant local planning policy is described below.

1.6.1 St Helens Borough Local Plan Up to 2037[1]

1.6.1.1 Policy LPA08: Green Infrastructure

"1. Green Infrastructure in St Helens Borough comprises a network of multi-functional natural assets, including green space, trees, woodlands, mosslands, grasslands and wetlands, located within urban, semi-urban and rural areas. This network is capable of delivering a wide range of environmental and quality of life benefits for local communities and forms an important element of the Liverpool City Region (LCR) Ecological Network.

2. The Council will work with other organisations where necessary to:

> *a) expand tree cover in appropriate locations across the Borough to improve landscape character, water and air quality and the value of trees to wildlife;*
>
> *b) strengthen and expand the network of wildlife sites, corridors and stepping stone habitats to secure a net gain in biodiversity;*
>
> *c) improve and increase the connectivity of the Greenway network;*
>
> *d) increase the accessibility of open space within walking distance of housing, health, employment and education establishments to promote healthy lifestyles;*
>
> *e) reduce the risk of flooding, improve river water quality and riverine and riparian habitats within the Sankey Catchment; and*
>
> *f) ensure that development proposals on strategic employment and housing sites incorporate holistic Green Infrastructure Plans.*

3. Developers will be required to provide long-term management arrangements for new and existing green infrastructure within development sites.

4. Development that would contribute to or provide opportunities to enhance the function of existing green infrastructure and its connectivity from residential areas, town, district and local centres, employment areas and other open spaces, will be encouraged. Development that would result in the loss, fragmentation or isolation of green infrastructure assets will be refused. The only exceptions to this will be where it has been demonstrated that:

a) appropriate protection or retention of Green Infrastructure assets cannot be achieved in the pursuit of wider planning objectives;

b) the development would bring benefits that would override the resultant harm; and

c) there are no realistic alternatives to the proposed development that would avoid such harm.

In such cases, mitigation, for example, in the form of incorporating the identified Green Infrastructure assets into the scheme design and layout through a masterplanning process to maintain the key Green Infrastructure assets and connections, and / or as a last resort compensatory provision will be required."

1.6.1.2 Policy LPA11: Bold Forest Garden Suburb

The Site is allocated for residential development under Policy LPA11.

"The Bold Forest Garden Suburb site (identified as site 4HA in Policy LPA04) is allocated for housing development, with an indicative site capacity of 2,988 dwellings, of which a minimum of 510 dwellings will be delivered during the plan period. The site boundaries are set out in the appendix 5 site 4HA profile and on the Policies Map.

1. Development of the site should deliver the following requirements:

Housing

a) At least 30% of homes to be delivered on site should fall within the definition of 'affordable housing' in accordance with Policy LPC02, with the affordable housing mix reflecting Policy LPC02, part 3), unless up-to-date and robust evidence indicates otherwise;

b) Provide an appropriate mix and standard of housing to meet local needs in accordance with policy LPC01;

c) Deliver at least 10% of the site's energy needs from renewable and / or other low carbon energy sources in accordance with Policy LPC13, part 4), unless this is shown to not be practicable or viable;

Design and Layout

d) The development of this site should be consistent with the vision, aims, objectives and policies of the Bold Forest Park Area Action Plan (2017);

e) The layout must avoid causing excessive noise or disturbance to occupiers of existing dwellings and businesses within or around the site and for users of walking and cycling routes and open spaces;

Social Infrastructure

f) Contributions towards primary and secondary school provision in the area, to meet the identified need for additional school places, through the extension of existing schools and / or delivery of new school facilities;

g) Provision of a new GP surgery within the development, which could be in the form of the relocation and expansion of an active practice onto the site;

h) Provide a small local centre containing community and retail facilities;

Play, Open Space and Green Infrastructure

i) Provision of an accessible, comprehensive, high quality and connected network of multi-functional green spaces in accordance with a Green Infrastructure Plan to be provided as part of the comprehensive masterplan approach for the whole site as required by Policy LPA04.1, section 2 f);

j) Retention of existing and provision of new high quality, well designed and accessible open space and play space provision in accordance with Policies LPC05 and LPD03. Details of how open spaces will be subsequently maintained will need to be considered through the masterplanning process;

Landscape and Biodiversity

k) The development must provide a well landscaped setting including extensive green links through and around the site, and tree planting to reduce impact on the landscape and promote the objective of the BFPAAP to increase tree cover by 30% across the Bold Forest as a whole;

l) Any adverse impacts on biodiversity interests within the existing Local Wildlife Site (LWS 108 as indicated on the Policies Map) and the proposed extension to this must be either avoided or minimised. Any resultant harm must be adequately mitigated;

Access and Highways

m) Provision of safe access arrangements for the site;

n) Creation of a permeable layout with a range of highways provided through the site with access via the B5204, Neills Road and Gorsey Lane;

o) Provision of a bus service through the site between Clock Face and St Helens Junction, and the layout of the site must be compatible with this;

p) Provision of a permeable network of foot, bridleway, and cycle routes through the site to facilitate access between homes, workplaces, recreational facilities, and other key services in the area. These must, where necessary, be segregated to ensure safety and include new provision in line with Policy INF6 "Creating an Accessible Forest Park" of the Bold Forest Park Area Action Plan 2017;

q) Provision of any other measures necessary to secure suitable access to the site by walking, cycling and public transport such as:

> *i. The provision of new accessible bus stops to an agreed specification through the site so that none of the proposed dwellings are more than 400 metres walking distance from a bus stop; and*
>
> *ii. A financial contribution towards the improvements of St Helens Junction station;*

r) Masterplanning of site must take into account the opportunity to expand the Greenway network, and make provision for this in line with Policy LPC07, and the accompanying Figure 7.1; and

s) Masterplanning of the site must be informed by the findings of the Bold Forest Garden Suburb Transport Review (August 2019) and any other relevant evidence.

2. As above, financial contributions or the provision of on-site infrastructure for education, health and offsite highway works may be required. The detailed infrastructure requirements to support the delivery of the site will be further assessed through the comprehensive masterplanning process.

3. In accordance with Policy LPA04.1, section 2), any planning application for development within the site will need to accord with a single comprehensive masterplan covering the whole of the Bold Forest Garden Suburb site, and to be approved by the Council, which will need to set out the listed details in sub-sections a) to i) as a minimum. Any proposal will need to demonstrate how it complies with this masterplan in order to ensure a comprehensive, co-ordinated, and well-designed development is delivered with the necessary supporting infrastructure."

1.6.1.3 Policy LPC06: Biodiversity and Geological Conservation

"1. In accordance with NPPF paragraph 174, the Council is committed to ensuring the protection and enhancement of St Helen's biodiversity and geological assets and interests. In order to do this, the Council will have regard to the following hierarchy of nature conservation sites when making planning decisions, according to their designation as follows:

- *International and European Sites*
- *Sites of Special Scientific Interest*
- *Local Wildlife Sites*
- *Local Nature reserves*
- *Local Geological Sites*
- *Priority Habitat(s)*
- *Impact on Legal Protected Species and/or priority Species*

The following hierarchy of sites and habitats are found in the Borough:

I) International

- *Functionally Linked Land (FLL) for sites of international nature importance (European Sites) including the Ribble and Alt Estuaries Special Protection Area (SPA), Martin Mere SPA, the Mersey Estuary SPA, Liverpool Bay SPA.*

II) National

- *Sites of national nature importance, which in St Helens Borough include 2 Sites of Special Scientific Interest, Stanley Bank Meadow and Highfield Moss.*

III) Local

- *Sites of local nature and geological importance, which in St Helens Borough include Local Nature Reserves (LNRs), Local Wildlife Sites (LWSs) and Local Geology Sites (LGSs).*

In addition, priority habitats and species, and legally protected species.

European sites

2. Development that is likely to have a significant effect (either alone or in combination with other plans or projects) on one or more internationally important site(s), including any areas of supporting habitat that are functionally linked to the site(s), must be accompanied by sufficient evidence to enable the Council to make a Habitats Regulations Assessment. Adverse effects should be avoided, or where this is not possible, be mitigated to protect the integrity of the site(s). Development that would adversely affect the integrity of one or more internationally important site(s) will only be permitted where there are no alternative solutions and there are imperative reasons of overriding public interest, and where suitable compensatory provision has been made. Any mitigation or compensatory provision must be assessed in a project–related Habitats Regulations Assessment and be fully functional before any likely adverse effect arises.

<u>Other protected sites, habitats and species</u>

3. Development that would cause significant harm to a Site of Special Scientific Interest (SSSI), Local Wildlife Site, Local Nature Reserve, Local Geological Site, Priority Habitat(s), legally Protected Species and / or Priority Species, without adequate mitigation, will be refused.

4. Development that would be likely to cause any harm to ecological or geological interests will only be permitted in:

a) Sites of Special Scientific Interest where there are no alternatives and where the benefits of the development would clearly outweigh any harm to the nature conservation value of the site and its broader contribution to the Liverpool City Region (LCR) ecological network; and

b) Local Sites (Local Wildlife Sites, Local Nature Reserves and Local Geological Sites) and Priority Habitats: where the benefits of the development would clearly outweigh any harm to the nature conservation value of the site (or Priority Habitat) and its broader contribution to the LCR Ecological Network.

Mitigation, replacement or other compensatory provision

5. Where necessary to avoid harm, appropriate mitigation, replacement or other compensatory provision will be required. The location of such measures will be targeted, using the following sequential approach (with (a) being the preferred approach and (d) being the least preferred):

a) on the development site;

b) locations within the immediate locality and /or supporting LCR Ecological Network;

c) locations that fall within the LCR Nature Improvement Area and within the Borough; and lastly

d) locations that fall within the LCR Nature Improvement Area but outside the Borough.

This sequential approach will also apply to the delivery of Biodiversity Net Gain improvements to be delivered in line with new development, in accordance with the Environment Act.

Evidence requirements

6. Development proposals that would affect a nationally or locally designated nature conservation site, Priority Habitat(s), legally protected species or Priority Species must be supported by an Ecological Appraisal and include details of any necessary avoidance, mitigation and / or compensation proposals, and of any proposed management measures.

7. Further details concerning the implementation of this policy will be set out in the Council's proposed Nature Conservation Supplementary Planning Document."

1.6.1.4 Policy LPC07: Greenways

"1. The Council will work with other organisations to protect and enhance the strategic network of greenways shown on the Policies Map. Its objectives in this regard will be to:

a) provide a continuous off-road network of footpath, cycle and bridleway routes that will be publicly accessible and that will provide linkages between main urban areas and between urban areas and the countryside;

b) give additional definition and protection to the network of wildlife corridors and historic and archaeological resources;

c) contribute to the sub-regional network of cross boundary green infrastructure corridors; and

d) support economic development by improving the appearance of the area and helping people to travel sustainably between homes and workplaces.

2. Development proposals that would affect a Greenway will be refused if they would:

a) prejudice the continuity of public access to the greenway;

b) harm the integrity of the Greenway in terms of off-road linkages, character or amenity;

c) harm the appearance of the Greenway; or

d) impair the integrity of the Greenway as a wildlife corridor or its resilience to development pressures and climate change.

3. The Council will support the expansion of the Greenway network, including through the provision of new routes, such as those set out in Figure 7.1, subject to the availability of funding and other feasibility requirements being met."

1.6.1.5 Policy LPC08: Ecological Network

"1. The Council will, working where necessary with other organisations, seek to ensure greater resilience of the natural environment and secure a net gain in biodiversity. To this end it will seek to strengthen those elements of the Liverpool City Region (LCR) Ecological Network, including wildlife sites, wildlife corridors, and 'steppingstone' habitats that fall within the Borough.

2. The LCR Nature Improvement Area (NIA) is an area within which particular priority will be given to habitat management, enhancement, restoration, and creation. Development within the part of the NIA that lies within St Helens Borough will be permitted where it would:

a) enable or contribute towards the effective functioning of the NIA; and

b) contribute to the creation and / or management of habitats as set out in the NIA Focus Area Profiles."

1.6.1.6 Policy LPC10: Trees and Woodland

"1. The Council will, working where necessary with the Mersey Forest and other partner organisations, seek to increase the extent of tree cover across the Borough and to protect and enhance the multi-purpose value of trees, woodlands, and hedgerows.

2. New development, as appropriate having regard to its scale and nature, will be required to include the planting of new trees, woodlands, hedgerows and / or financial contributions towards off-site provision. Arrangements should be made for any tree(s) or hedgerow(s) that are planted to be replaced in the event of failure or damage within a prescribed period.

3. Proposals for new development will only be permitted if they would conserve, enhance and / or manage existing trees, woodlands, and hedgerows as appropriate, for example by being laid out to provide adequate spacing between existing trees and buildings and including long term management proposals.

4. Any development proposal that would affect a site containing tree(s) or woodland must be accompanied by a tree survey and an arboricultural constraints/implications report, produced to the current British Standard, to enable the effect of the development on the tree(s) to be properly assessed and appropriate tree protection measures to be identified. Any approved tree protection measures must then be maintained throughout the period of any demolition and / or construction works.

5. Development resulting in the loss or deterioration of any area of ancient woodland or of any ancient or veteran tree will be refused unless there are wholly exceptional circumstances in which the need for, and benefits of, the development would clearly outweigh any resultant loss and a suitable mitigation strategy exists.

6. Development proposals should be designed and laid out in a manner that would retain any tree subject to a Tree Preservation Order, any other protected tree, any other tree of

value including any veteran tree, trees of value as a group, any tree of substantive heritage value or any length of hedgerow, unless it can be justified for good arboricultural reasons or there is a clearly demonstrated public benefit that would outweigh the value of the tree(s) and or hedgerow(s). Where any tree is justifiably lost its replacement will normally be required on at least a 2 for 1 ratio, with impacts on woodlands mitigated in line with Policy LPC06. Any tree(s) planted must be replaced in the event of failure or damage during a prescribed period.

7. Proposals that would enhance the value and / or contribution of woodland in respect of recreational or educational needs; health; the landscape or townscape; heritage; biodiversity; tourism; and / or economic regeneration will be supported."

1.6.2 Bold Forest Park Area Action Plan[2]

1.6.2.1 Policy BFP ENV1: Landscape Character

"St. Helens Council in partnership with The Mersey Forest and the Forestry Commission, will endeavour to enhance landscape character by increasing levels of tree cover up to 30% of the area of Bold Forest Park.

To meet this target, new development in the Forest Park will be expected to contribute to increasing tree cover through on-site landscaping or where appropriate, by contributions towards off-site provision within the AAP area. Implementation will be guided by St. Helens Landscape Character Assessment, taking in a range of issues including:

- *Landscape amenity;*
- *Wildlife Habitat including farmland bird habitat;*
- *Land use;*
- *Background noise amelioration, and;*
- *Heritage.*

This policy will interlink to Policy BFP ENV2 Ecological Network."

1.6.2.2 Policy BFP ENV2: Ecological network

"St. Helens Council and its project partners will, within a woodland and farming framework, enhance biodiversity in Bold Forest Park by developing an ecological network which reduces habitat fragmentation and increases the resilience of wildlife in the Forest Park by:

1. Identifying and safeguarding sites of importance for biodiversity and geological conservation;

2. Identifying and safeguarding Priority Habitats including:

- *Unimproved grassland*
- *Hedgerows and Field Margins*
- *Ponds and wetlands*
- *Woodland*
- *Brooks*
- *Raised Mire*
- *Lowland Heath*

3. Identifying and safeguarding Priority Species including:

- *Great Crested Newt*
- *Brown Hare*
- *Corn Bunting*
- *Brown Long-eared Bat*
- *Noctule Bat*
- *Myotis spp Bat*
- *Pipistrelle Bat*
- *Water Vole*
- *Dragonflies*
- *Skylark*
- *Bluebell*
- *Grey Partridge*
- *Lapwing*

4. Increasing connectivity between priority habitats by creating corridors and stepping stones. Sensitivity mapping will be employed to identify habitats at risk from visitor disturbance and opportunities to integrate the ecological network with recreational features such as cycleway, bridleway and footpath networks will be utilised to reduce habitat fragmentation."

1.6.3 Supplementary Planning Documents (SPD)

St Helens Borough Council also has two relevant SPDs:

1. Biodiversity, adopted June 2011[6]
2. Trees and Development, adopted June 2008[7]

These documents go into further details around the mitigation / compensation expectations of developments in relation to biodiversity and trees in the region.

1.6.4 North Merseyside Biodiversity Action Plan (BAP)[8]

The North Merseyside Local BAP (LBAP) lists 44 habitat and species action plans. Those of most relevance to the Site are:

Habitats

- lowland mixed broad-leaf woodland;
- wet woodland;
- urban trees;
- urban grasslands;
- ponds;
- field boundaries; and

[6] https://www.sthelens.gov.uk/media/2398/Biodiversity-June-2011/pdf/Biodiversity_SPD_2011.pdf?m=1644495738700

[7] https://www.sthelens.gov.uk/media/2411/Trees-and-Development-June-2008/pdf/Trees_and_Development_SPD_2008.pdf?m=1644496381370

[8]

- urban green infrastructure.

Species

- corn bunting (*Millaria calandra*);
- grey partridge (*Perdix perdix*);
- lapwing (*Vanellus vanellus*);
- skylark (*Alauda arvensis*);
- song thrush (*Turdus philomelos*);
- urban birds;
- bats;
- brown hare (*Lepus europaeus*);
- water vole;
- common lizard (*Zootoca vivipara*);
- great crested newt
- dragonflies;
- bluebell (*Hyacinthoides non-scripta*); and
- purple ramping-fumitory (*Fumaria purpurea*).

2.0 Methodology

2.1 EcIA Study Area

This EcIA covers the assessment of potential impacts of the proposal residential masterplan upon statutory and non-statutory designated sites and protected and notable habitats and species. The scope of this EcIA, i.e. the collection of baseline data, evaluation of ecological resources and description and assessment of the significance of impacts, follows guidelines set out by CIEEM[9] and references therein.

The baseline ecological surveys covered all land within the Site with the exception of two small parcels of land, as set out in Section 2.2.4. The Site boundary with parcel boundaries and reference numbers is shown in Figure 1. Parcel 15 has been excluded from this assessment on the basis that there are ongoing landowner discussions and this parcel is unlikely to be included in the masterplan design. As such, it has been excluded from the EcIA and BNG assessment.

The study area was extended for certain ecological features, as described in Section 2.2. Ecological surveys have been based upon the relevant guidance for each feature concerned; further details are provided in the following sections.

2.2 Baseline Data Collection

2.2.1 Desk Study

A desk study was undertaken by The Mersey Forest in 2024, with full methods presented in the PEA report provided as Appendix B. In summary, this included a search for statutory designated sites within 2km of the Site, and a search for priority habitats, ancient woodland and priority species within 1km of the Site on Natural England's MAGIC website[10]. In addition, biological records from within 2km of the Site's central point were obtained from Merseyside Biobank in July 2024. These included records of protected, notable and invasive species.

To supplement the above, SLR undertook the following in 2025:

- a request for bat records within 7km of the Site from Merseyside BioBank and RECORD to inform the HSM;
- an extended search for Internationally designated sites (SPA, Special Areas of Conservation (SAC) & Ramsar) within a 10km radius of the Site using the MAGIC website; and
- a search for European protected species licences (EPSLs) within 2km of the Site using the MAGIC website.

St Helens Borough Council provided wintering bird atlas 2008-2011 data for bird species in tetrads overlapping the Site (SJ59F and SJ59G).

[9] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester.

[10] Natural England. (2023). Multi-Agency Geographic Information for the Countryside. www.magic.defra.gov.uk

2.2.2 Field Surveys

2.2.2.1 UK Habitat Survey and Condition Assessments

The Mersey Forest undertook a habitat survey of the Site, including Tunstalls Farm LWS between April and September 2024. Habitats were categorised and mapped following the UK Habitat Classification (UKHab) methodology[11]. Condition assessments were undertaken of each habitat, in line with the DEFRA Statutory Biodiversity Metric Habitat Condition Assessment criteria[12].

A search was made for invasive non-native species (INNS) listed on Schedule 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended) or Schedule 2 of the Invasive Alien Species (Permitting and Enforcement) Order (IAS) 2019, such as Himalayan balsam (*Impatiens glandulifera*) and Japanese knotweed (*Reynoutria japonica*).

Full details of the habitat survey methodology can be found in Appendix B.

2.2.2.2 Hedgerow Survey

Alongside the UKHab survey, hedgerows across the Site were assessed against the Hedgerows Regulations 1997[13], to determine whether they qualify as ecologically 'important'. Hedgerows can also qualify as 'important' on heritage grounds, but this was not within the scope of the ecological hedgerow survey.

Full details of the hedgerow survey methodology are presented in Appendix B.

2.2.2.3 Protected and Notable Species Assessment

Habitats and features with the potential to support protected and/ or nature conservation priority[14] fauna, together with any field signs of such species were searched for. In particular, given the geographic location of the Site, the habitats present and connectivity to the wider landscape, consideration was given to the Site's suitability for:

- invertebrates;
- fish;
- GCN and other amphibians;
- wintering and breeding birds;
- bats;
- water vole; and
- other notable mammals.

2.2.2.4 Great Crested Newt Surveys

Ponds across the Site were subject to three types of survey between 2024 and 2025:

- Habitat Suitability Index (HSI) assessments by The Mersey Forest in 2024 and SLR in 2025 to assess the suitability of each pond for GCN[15];

[11] UK Hab Ltd (2023). *UK Habitat Classification Version 2.0* (at https://www.ukhab.org).

[12] Statutory biodiversity metric tools and guides - GOV.UK (www.gov.uk)

[13] The Hedgerows Regulations 1997

[14] i.e. those species and habitats identified in local, regional or national biodiversity priority lists, including, but not limited to the policies set out in Section 1.6 and Appendix A

[15] Oldham, R.S., Keeble, J., Swan, M.J.S., and Jeffcote, M. (2000) Evaluating the Suitability of Habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10: 143-155.

- Environmental DNA (eDNA) water sampling of ponds by SLR in April and May 2025 to determine presence or absence of GCN[16]; and
- Presence / likely-absence and population size-class surveys by SLR between April and June 2025 of all ponds that tested positive or indeterminate for GCN DNA to establish presence / likely-absence or a population size-class[17].

Full details of the GCN survey methodology can be found in Appendix C.

2.2.2.5 Wintering Bird Surveys

Three wintering bird surveys were undertaken by Avian Ecology across the Site in February and March 2025. All bird species using the Site or flying overhead were recorded, with a specific focus on qualifying species of the Mersey Estuary SPA.

Full details of winter bird survey methodology can be found in Appendix D.

2.2.2.6 Bat Surveys and Modelling

Full details of bat survey methodology can be found in Appendices B and E, but a summary is provided below.

Habitat Suitability Assessments

As part of the PEA, The Mersey Forest assessed the suitability of the Site for foraging and commuting bats and categorised the suitability of trees across the Site for roosting bats. Habitats were assessed as having high, moderate, low or negligible suitability in accordance with Collins (2016)[18].

Static Monitoring

Twelve full spectrum bat detectors (Titley Scientific Anabat Swift) were deployed across the Site for ten consecutive nights in each of April, May and June 2025. A judgemental paired approach was used to ensure a representative sample of habitats were surveyed. Twelve detectors were considered sufficient each month to sample six locations in habitat typically considered good for bats, and six locations in typically less suitable habitat, whilst being sufficiently spaced (at least 100m apart) such that they did not interfere with each other or record the same bats.

The detectors were deployed in suitable weather conditions for bats, as per best practice guidelines[19]. The detectors were deployed in different locations each month to gain the best coverage of the Site, to inform and refine the HSM (i.e. a total of 36 locations were sampled). A figure displaying these locations is provided in Appendix E.

Sound files were analysed using automated identification software (British Trust for Ornithology (BTO) Acoustic Pipeline). Sound files were then manually checked by an ecologist experienced in bat analysis to confirm identification. This involved checking all non-common pipistrelle sound files, all no ID files, and a sample 10% of common pipistrelle sound files. This was undertaken to ensure that bat calls were not missed, and to ensure a high level of accuracy with respect to species identification.

[16] Biggs, J et al. (2014). *Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA*. Freshwater Habitats Trust, Oxford.

[17] English Nature (2001), Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.

[18] Collins, J. (ed.) (2016) Bat surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.

[19] Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines. Fourth Edition. Bat Conservation Trust, London.

Habitat Suitability Modelling

Habitat suitability was modelled for six bat species/ species groups: whiskered/Brandt's bat *Myotis mystacinus/brandtii*, Daubenton's bat M*. daubentonii*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, noctule *Nyctalus noctula*, and brown long-eared bat *Plecotus auritus*. Species occurrence records were collated from the desk study and static activity survey described above. All records were filtered to retain only those with positional accuracy of 100 m or better.

A suite of environmental variables known to influence bat ecology was prepared at a consistent spatial resolution across the study area. The combination used follows established approaches that integrate climate, land cover, and structural variables to capture the multi-scale ecological drivers of bat distributions[20].

Species distribution models were developed using a Maximum Entropy (MaxEnt) framework, implemented in Python. Models were trained and validated using cross-validation, with predictive performance assessed by the Area Under the Curve (AUC) statistic. Final predictions were mapped across the Study Area, producing continuous habitat suitability surfaces ranging from 0 (lowest suitability) to 1 (highest suitability).

2.2.2.7 Water Vole Surveys

The Mersey Forest undertook a search for water vole field signs along all ditches in the Site in April and August 2024, in line with best practice guidance[21]. Field signs searched for included burrows, feeding remains, latrines and footprints.

Full details of the water vole survey methodology can be found in Appendix B.

2.2.3 Biodiversity Net Gain Assessment

2.2.4 Limitations

2.2.4.1 Desk Study

Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is, therefore, possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

2.2.4.2 Field Surveys

Minor limitations relating to specific surveys are detailed in Appendices A to D. However, the most significant limitations to this EcIA are presented below for clarity.

Access

Access was not granted to Parcels 12 or 15 (see Figure 1 for locations) for any of the ecological surveys. However, as presented in Section 2.1, Parcel 15 has been excluded from this assessment on the basis it is unlikely to be included in the masterplan. Preliminary views on the suitability of Parcel 12 for protected species were made from a distance but

[20] Bellamy, C., Scott, C., & Altringham, J. (2013). Multiscale, presence-only habitat suitability models: fine-resolution maps for eight bat species. PLoS ONE, 8(1), e54186

[21] Dean, M. (2021) *Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys.* Pelagic Publishing: Exeter.

detailed surveys in this area was not possible, and assumptions had to be made on the habitat classifications and condition scores for the BNG assessment.

Data Deficiency

An external organisation was due to undertake wintering bird surveys across the Site. However, due to resourcing issues, these surveys could not be fulfilled. Avian Ecology were then commissioned to carry out wintering bird surveys for the remainder of the season but due to these delays, only three surveys could be completed between February and March 2025, missing the peak winter bird survey season. Similarly, there is an absence of breeding bird survey data, Therefore, a precautionary approach to the impact assessment in relation to wintering birds and breeding birds has been taken, and field data have been supplemented with additional desk data from the Lancashire Bird Report 2023[22].

2.2.4.3 BNG Assessment

The BNG assessment has been undertaken with reference to a post-development scenario generated from spatial data and assumptions relating to habitat creation, enhancement and land use taken from the masterplan and proposed open space design at 7th October 2026, presented at Appendix H. Any changes to the masterplan after the BNG Assessment presented in Appendix H may affect the final predicted outputs of the statutory metric (Appendix K). It is recommended that BNG metric and report is revised where significant changes to the design are proposed. A single BNG scenario is presented

2.3 Assessment Approach

The ecological evaluation and impact assessment approach used in this report is based on Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland ("CIEEM guidelines") (CIEEM, 2018)[9].

2.3.1 Important Ecological Features

Ecological features can be important for a variety of reasons and the rationale used to identify them is explained in the text. Importance may relate, for example, to the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline.

2.3.1.1 Determining Importance

The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this case, relying on known/ published accounts of distribution and rarity where available, and professional experience:

- International;
- National (i.e. UK/ England etc.);
- Regional (i.e. North-west England);
- County (i.e. North Merseyside); and
- Local (i.e. within circa 5km).

The above frame of reference is applied to the ecological features identified during the desk study and surveys to inform this report.

[22] White, S.J. (ed.) (2023), Lancashire Bird Report 2023 The Birds of Lancashire and North Merseyside. Lancashire & Cheshire Fauna Society, Rishton.

The value of habitats has been measured against published selection criteria where available. Examples of relevant criteria include descriptions of habitats listed on Annex 1 of the Habitats Directive; descriptions of habitats of principal importance (HPI) for biodiversity under Section 41 (S41) of Natural Environment and Rural Communities (NERC) Act 2006; LWS Selection Criteria[23]; and Habitat Action Plans (HAPs) contained within the North Merseyside LBAP[5].

In assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Reference has therefore been made to published lists and criteria where available. Examples of relevant lists and criteria include species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive); species of principal importance (SPI) for biodiversity under S41 of the NERC Act 2006 and Birds of Conservation Concern (BoCC)[24].

For the purposes of this report ecological features of Local importance or greater, and/or subject to legal protection have been subject to detailed assessment. Effects on other ecological features are considered unlikely to be significant in legal or policy terms.

2.3.2 Impact Assessment

The impact assessment process involves the following steps:

- identifying and characterising potential impacts;
- incorporating measures to avoid and mitigate (reduce) these impacts;
- assessing the significance of any residual effects after mitigation;
- identifying appropriate compensation measures to offset significant residual effects (if required); and
- identifying opportunities for ecological enhancement.

When describing impacts, reference has been made to the following characteristics, as appropriate:

- Positive or negative;
- Extent;
- Magnitude;
- Duration;
- Timing;
- Frequency; and
- Reversibility.

The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat occupied by a species during the construction process. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or feature, e.g. the creation of hardstanding, which, in the absence of mitigation, could lead to flooding of adjacent habitats.

[23] MEAS (2008), North Merseyside Local Wildlife Sites Selection Guidelines.

[24] Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I.. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds. 114. 723-747.

Consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance:

- Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
- Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

2.3.3 Significant Effects

The concept of ecological significance is addressed in paragraphs 5.24 through to 5.28 of CIEEM guidelines. Significance is a concept related to the weight that should be attached to effects when decisions are made. For the purpose of EcIA, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

2.3.4 Cumulative Effects

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

As the project is only at masterplan development stage, construction timelines are currently unknown. As such, it is not possible to assess cumulative effects at this stage because it is not possible to know what other projects may occur at the same time. Instead, cumulative effects will be considered on a case-by-case basis as individual plots come forward for development.

2.3.5 Avoidance, Mitigation, Compensation and Enhancement

When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement.

It is important for the EcIA to clearly differentiate between avoidance, mitigation, compensation and enhancement and these terms are defined here as follows:

- Avoidance is used where an impact has been avoided, e.g. through changes in scheme design;

- Mitigation is used to refer to measures to reduce or remedy a specific negative impact *in situ;*
- Compensation describes measures taken to offset residual effects, i.e. where mitigation *in situ* is not possible; and
- Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

3.0 Baseline Ecological Conditions

3.1 Designated Sites

3.1.1 Statutory Designated Sites

The Site itself does not contain any statutory designated areas.

Two internationally designated sites were identified within the extended 10km search radius; Mersey Estuary SPA and Mersey Estuary Ramsar. Further details are provided in Table 3-1 below.

Table 3-1: International statutory designated sites within 10km of the Site

Site Name and Designation	Reason for Designation	Distance from Site[25]
Mersey Estuary Ramsar	Ramsar Criterion 5 – Internationally important assemblage of wintering waterfowl (regularly supports over 20,000). Ramsar Criterion 6 – Internationally important populations of shelduck (*Tadorna tadorna*), black-tailed godwit (*Limosa limosa*) and redshank (*Tringa totanus*) in spring/autumn, and of teal (*Anas crecca*), pintail (*Anas acuta*) and dunlin (*Calidris alpina*) in winter.	7.9km south-west
Mersey Estuary SPA	Regularly used by 1% or more of the GB population of golden plover (*Pluvialis apricaria*) in winter. Regularly used by 1% or more of the biogeographical populations of the following migratory species in any season: • Redshank (passage & winter) • Shelduck (winter) • Teal (winter) • Pintail (winter) • Dunlin (winter) • Black-tailed godwit (winter) Regularly used by over 20,000 waterbirds in any season.	7.9km south-west

The Site contains large areas of open, arable fields which provide suitable habitat for wintering birds, including qualifying species of Mersey Estuary SPA and Ramsar. It is possible the Site provides FLL to these designated sites. Mersey Estuary SPA and Mersey Estuary Ramsar are assessed as being of international importance and have been brought forward for further assessment.

There is one statutory designated area within 2 km of the Site; Colliers Moss Common LNR is *c*. 0.5km north of the Site and is designated for its areas of relict mossland with other habitats including lagoons, grassland, heathland, woodland and untreated colliery spoil which is being colonised. A diverse range of dragonflies has been recorded at the LNR. The Site is only *c*. 0.5km from this LNR and is connected via a woodland corridor. As such, there

[25] At closest point, measured 'as the crow flies'.

may be impacts on this designated site. Colliers Moss Common LNR is assessed as being of County importance and has been brought forward for further assessment.

Despite no SSSIs being within 2km of the Site, the Site sits within SSSI Impact Risk Zones (IRZs) for Mersey Estuary SSSI and Stanley Bank Meadow SSSI. However, the SSSI IRZ tool indicates residential developments in this location do not form development types that are likely to have a harmful effect on nearby terrestrial SSSIs and the SACs, SPAs and Ramsar sites they underpin. Despite this, Mersey Estuary SPA and Ramsar are brought forward for further assessment (as outlined above) due to the Site potentially forming FLL for qualifying bird species and due to potential impacts from increased recreational pressure.

3.1.2 Non-Statutory Designated Sites

There are 12 non-statutory designated sites within 2km of the Site, comprising 11 LWS and one NIA. The closest of these is Tunstalls Farm LWS which is located on-Site and is designated for its unimproved neutral grassland, marshy grassland, and standing water, and the presence of common comfrey (*Symphytum officinale*), fen bedstraw (*Galium uliginosum*), GCN and water vole. However, there have been no monitoring visits for GCN or water vole since 2016, and the most recent habitat monitoring survey in 2023[26] indicated the LWS is now in 'moderate' and declining condition with horse-grazed modified grassland and drying ponds and ditches.

The next closest non-statutory site is Clock Face Colliery country park pond LWS, located *c*. 0.2km south-east of the Site, separated by Gorsey Lane and significant areas of woodland. All remaining non-statutory sites are more than 0.4km from the Site (refer to Appendix B for further details on these sites). These eleven sites are sufficiently far from the Site and with an absence of hydrological connectivity or other obvious impact pathways, direct or indirect impacts on them are considered unlikely as a result of the proposals. They are therefore not brought forward for further assessment.

Tunstalls Farm LWS is located within the Site boundary and could therefore be impacted by the proposed development. Tunstalls Farm LWS is assessed as being of County importance and has been brought forward for further assessment.

3.1.3 Ancient Woodland and Priority Habitat Inventory

There are no areas mapped on MAGIC as ancient woodland within the Site or within a 1km buffer.

On MAGIC there are no areas mapped within the Site as a priority habitat but there are multiple areas mapped within a 1km buffer. In particular, there is an area of open mosaic habitats on previously developed land mapped adjacent to the northern Site boundary, but this is assigned low confidence and from reviewing aerial imagery, appears to have succeeded into dense scrub or woodland. There are several areas of broadleaved woodland mapped in Clock Face Country Park, just the other side of Gorsey Lane from the Site. However, this is a well-established country park with formalised footpaths and is unlikely to be impacted by the proposed development.

All other areas of priority habitat are distant from the Site and are unlikely to be impacted. As such, they have been removed from further assessment.

3.2 Habitats

The existing Site habitats are illustrated in Figure 2, with a summary of habitat types presented below. Further details regarding the baseline habitats are available in Appendix B.

[26] MEAS (2023), *Local Wildlife Sites Monitoring Form – Tunstall's Farm LWS*.

The arable field margins recorded in Appendix B have been reclassified for the purposes of this EcIA and BNG as other neutral grassland due to not appearing to have been sown or managed specifically for wildlife which is a criterion of the arable field margins classification.

Table 3-2 below presents a summary of the habitats recorded on the Site, their assigned level of importance for the purposes of this EcIA and whether they have been taken forward for further assessment.

Table 3-2: Habitat types recorded within the Site

Habitat	UKHab code	Status	Importance	Taken forward for assessment?	Justification
Cereal crops	c1c	-	Less than Local	No	Fields dominated by crops with less than local ecological importance.
Bracken	g1c	-	Less than Local	No	Patches of dense bracken (*Pteridium aquilinum*) with low ecological importance.
Other neutral grassland	g3c	-	Less than Local	No	Species-poor rough grass margins, containing common, widespread species typical of nutrient enriched soils.
Modified grassland	g4	-	Less than Local	No	Horse-grazed fields with low species diversity and containing common and widespread species.
Bramble scrub	h3d	-	Less than Local	No	Dominated by a single species with low ecological importance.
Mixed scrub	h3h	-	Less than Local	Yes	Comprises common and widespread species but provides habitats for a variety of fauna, and ecological connectivity.
Willow scrub	h3j	-	Less than Local	No	Dominated by a single species with low ecological importance.
Pond	r1g	HPI*, LBAP	Local	Yes	Priority habitat. Three ponds (P6/8, P-LWS-5/6 and P-LWS-7) support GCN and one (P7.2) supports common frog (*Rana temporaria*) and

Habitat	UKHab code	Status	Importance	Taken forward for assessment?	Justification
					common toad (*Bufo bufo*). All have inherent Local ecological importance.
Artificial unvegetated; unsealed surface	u1c	-	Negligible	No	Hardstanding with no ecological value.
Other woodland; broadleaved	w1g	-	Less than Local	Yes	Non-priority woodlands with low floral diversity but providing habitat for a range of fauna.
Native hedgerow	h2a6	HPI	Local	Yes	Priority habitat. Species-poor and not 'important' under the Hedgerows Regulations but providing important ecological connectivity and habitat for a range of fauna.
Line of trees	w1	HPI	Local	Yes	Priority habitat. Species-poor but providing important ecological connectivity and habitat for a range of fauna.
Ditch	r1g	-	Less than Local	Yes	Mostly dry and with low floral diversity but providing ecological connectivity.

*Only four ponds qualify as HPI ponds due to supporting populations of GCN or common toad. All ponds qualify as LBAP ponds.

3.3 Species

3.3.1 Plants

3.3.1.1 Protected and Notable Species

The desk study presented in Appendix B returned records of two protected plant species within 2km of the Site, as listed under Schedule 8 of the WCA 1981 (as amended); bluebell and purple colt's-foot (*Homogyne alpina*). Records of two notable plant species were also returned within 2km; dune helleborine (*Epipactis dunensis*) (LBAP) and juniper (*Juniperus communis*) (SPI).

No protected or notable plant species were recorded during the PEA (Appendix B); therefore, this species group has been removed from further assessment.

3.3.1.2 Invasive Species

The desk study (Appendix B) returned records of 13 INNS, as listed under Schedule 9 of the WCA 1981 (as amended) or Schedule 2 of the IAS 2019, within 2km of the Site including Himalayan balsam, Japanese knotweed, New Zealand pygmyweed (*Crassula helsmii*) and rhododendron (*Rhododendron ponticum*).

The PEA recorded a large area of Japanese knotweed northwest of Parcel 7, just beyond the Site boundary (Appendix B). In addition, the condition assessment sheets (Appendix I) recorded giant hogweed (*Heracleum mantegazzianum*) in grassland within Parcel 3. A single stand of Cotoneaster (*Cotoneaster* sp.) was recorded in Parcel 8 during RSK Biocensus' PEA in 2024. Parcel boundaries are displayed in Figure 1.

Incidental sightings of INNS were recorded during the GCN surveys, as presented in Appendix C. In summary, stands of Japanese knotweed were recorded adjacent to Pond P6.2, and just beyond the north-western boundary of the Site adjacent to Parcel 5. Furthermore, giant hogweed was observed in multiple places in Tunstalls Farm (Parcels 3 and 5), including adjacent to the access track, on spoil mounds and adjacent to agricultural buildings.

Detailed mapping of INNS has not taken place on the Site. However, given their invasive, fast-spreading nature, it is considered likely that the incidence of such species across the Site will have increased by the time construction commences.

Giant hogweed and Japanese knotweed are INNS listed under Schedule 9 of the WCA 1981 (as amended), and giant hogweed is also listed under Schedule 2 of the IAS 2019. Several species of Cotoneaster are listed as INNS under Schedule 9 of the WCA 1981 (as amended) and they can be difficult to identify down to species level. As such, it is prudent to assume that the Cotoneaster recorded is a listed INNS. INNS are not classified as important ecological features but are carried forward for further assessment due to their detrimental ecological impact and requirement for mitigation.

3.3.2 Invertebrates

The desk study (Appendix B) returned records of two protected invertebrate species within 2km of the Site, as listed under Schedule 5 of the WCA 1981 (as amended); small blue butterfly (*Cupido minimus*) and white-letter hairstreak (*Satyirum w-album*). The desk study also returned records of six S41 butterfly and moth species, and multiple dragonfly species (LBAP).

Invertebrates recorded during the PEA included craneflies, grasshoppers, ladybirds, and a range of common bee and butterfly species (Appendix B). Small blue butterfly and white-letter hairstreak are unlikely to be present on the Site due to the Site not containing suitable habitat or foodplant for them (chalk grassland, and elm (*Ulmus* sp.), respectively). However, the Site contains suitable habitat for notable species including dragonflies, buff ermine (*Spilosoma luteum*), sallow (*Xanthia icteritia*) and wall (*Lasiommata megera*), primarily focused around Tunstalls Farm LWS, ponds and hedgerow boundaries.

Most of the Site is cropland and horse-grazed pasture which is unlikely to support rare invertebrates or a notable assemblage, and habitats on the Site are frequently found in the local area. The Site is assessed as being of Less than Local importance to invertebrates. As such, invertebrates are unlikely to be significantly impacted upon by the proposals and are not discussed further in this report.

3.3.3 Fish

The desk study (Appendix B) returned three records of common barbel (*Barbus barbus*), four records of European eel (*Anguilla anguilla*) and three records of bitterling (*Rhodeus sericeus*) within 2km of the Site.

Ponds within the Site were identified as potentially suitable for supporting tench (*Tinca tinca*) due to their muddy bottoms and stable water conditions (Appendix B). Small fish, likely three-spined stickleback (*Gasterosteus aculaeatus*), were recorded in Ponds P3.6, P5.2 and P11 during the GCN surveys (Appendix C), and P13 contains artificial stocked fish due to its previous use as a fishing pond. However, none of these are protected or notable in the UK.

Habitats on the Site were not deemed suitable to support protected or notable fish species due to their habitat condition and lack of connectivity with habitats that support protected or notable fish species. The Site is assessed as being of Less than Local importance to fish. As such, fish are unlikely to be significantly impacted upon by the proposals and are not discussed further in this report.

3.3.4 Amphibians

The data search returned 76 records of GCN, 69 records of common toad (SPI), 65 records of common frog and 95 records of smooth newt (*Lissotriton vulgaris*) within 2km of the Site (Appendix B). Notable locations of GCN records include within Tunstalls Farm LWS and Clock Face Country Park.

The 2025 GCN surveys (Appendix C) identified 23 ponds across the Site containing water. These ranged in suitability (as per the HSI methodology) for GCN between 'average' and 'poor'. eDNA sampling of these ponds returned the following results:

- Positive for GCN in three ponds (P6/8, P-LWS-5/6 and P-LWS-7);
- Indeterminate for GCN in eleven ponds; and
- Negative for GCN in nine ponds.

Presence-absence surveys of the 11 indeterminate ponds did not identify GCN presence and, therefore, they were assumed absent from these ponds.

Population size class surveys identified small populations of GCN in P6/8 (peak count 7) and P-LWS-5/6 (peak count 2). A small population of GCN was assumed in P-LWS-7 due to no GCN being observed during these surveys.

A single male smooth newt was recorded in P3.2 and a single female smooth/palmate newt (*Lissotriton helvetica*) was recorded in P7.2. Common frog and common toad larvae were also both recorded in P7.2.

In addition to aquatic habitat, the Site contains suitable terrestrial habitat for amphibians, though this is largely limited to Tunstalls Farm LWS and boundary habitats.

The Site supports GCN and common amphibian species. However, most of the ponds were assessed as having below average suitability for GCN and much of the Site is unsuitable for amphibians (arable and modified grassland fields). Suitable aquatic and terrestrial habitats are common in the local area and are well connected to the Site. As such, the Site is assessed as being of no more than Local importance to GCN and other amphibians. However, due to their legal protection amphibians, including GCN, are taken forward for further assessment.

3.3.5 Reptiles

The data search returned no records of reptiles within 2km of the Site. Reptiles were not discussed in the PEA report (Appendix B) and email correspondence received from The Mersey Forest on 22nd November 2024[27] confirmed this was because habitats on Site were deemed unsuitable to support reptiles. However, the RSK Biocensus report regarding Parcel

[27] Responses to queries produced via email by Airren Martin (The Mersey Forest) to Shona Redman on 22/11/2024.

8 only, recorded suitable habitat for reptiles including hedgerows, scrub, rough grassland, ditches and ponds, and this report also states that the surrounding habitat contains greater suitability for reptiles, particularly Tunstalls Farm LWS.

The arable and modified grassland fields which comprise most of the Site are of poor quality for reptiles due to their homogeneous nature, generally flat topography and lack of basking spots. However, the boundary hedgerows, ditches, treelines, scrub and woodland provide some suitable habitat for reptiles, particularly within Tunstalls Farm LWS. The Site is well connected to further suitable habitat in the wider landscape and as such, there is potential for reptiles to be on Site. The Site is considered to be of Less than Local importance to reptiles, however, due to their protected status and the possibility of being present in the Site, reptiles are taken forward for assessment.

3.3.6 Birds

The desk study (Appendix B) returned 252 records of notable bird species (SPI under the NERC Act 2006 or LBAP). Many of these are also Red or Amber listed under BoCC 5[22]. In addition, the desk study returned records of five bird species that are listed under Schedule 1 of the WCA 1981 (as amended) and which under this legislation, receive additional protection against disturbance whilst nesting. These species were: barn owl, kingfisher (*Alcedo atthis*), little ringed plover (*Charadrius dubius*), peregrine (*Falco peregrinus*) and quail (*Coturnix coturnix*).

3.3.6.1 Breeding Birds

Most of the Site provides suitable habitat for nesting birds, including scrub, hedgerows and woodland for passerine species, and cropland for ground nesting, farmland species. No suitable nesting habitat for any of the Schedule 1 bird species returned by the desk study was identified on the Site with the exception of quail. Quail is noted as a “scare summer visitor” to the west of the area covered by the Lancashire Bird Report 2023[20], and there is, therefore, a possibility of quail breeding in the Site.

Breeding bird surveys have not been undertaken across the Site. However, the PEA was undertaken between April and September 2024 during the typical bird nesting season and common passerine species were incidentally recorded, as well as species typical of a farmland assemblage. A summary of species incidentally recorded is provided in Table 3-3 below.

Table 3-3: Bird species recorded during the PEA survey of the Site

Common name	Latin name	Conservation Status	Status as per Lancashire Bird Report 2023[20]
Blackbird	*Turdus merula*	-	Abundant breeding resident and winter visitor; common double passage migrant, more evident in autumn.
Blue tit	*Cyanistes caeruleus*	-	Abundant breeding resident.
Buzzard	*Buteo buteo*	-	Fairly common breeding resident.
Carrion crow	*Corvus corone*	-	Common breeding bird. Some southward movement in October.
Chaffinch	*Fringilla coelebs*	-	Abundant breeding bird, passage migrant and winter visitor.

Common name	Latin name	Conservation Status	Status as per Lancashire Bird Report 2023[20]
Dunnock	*Prunella modularis*	SPI, Amber	Abundant breeding resident and uncommon double passage migrant.
Fieldfare	*Turdus pilaris*	WCA1, Red	Common to abundant winter visitor and passage migrant.
Goldfinch	*Carduelis carduelis*	-	Common breeding resident, passage migrant and winter visitor.
Great tit	*Parus major*	-	Abundant breeding resident.
Greenfinch	*Chloris chloris*	Red	Common but declining breeding resident. Some autumn movement.
House martin	*Delichon urbicum*	Red, LBAP	Common and widespread breeding bird and passage migrant.
Jackdaw	*Corvus monedula*	-	Common breeding resident, some autumn movement.
Lapwing	*Vanellus vanellus*	SPI, Red, LBAP	Abundant but decreasing winter visitor, common breeder. International importance: 20000. National importance: 6200.
Linnet	*Linaria cannabina*	SPI, Red	Common but declining breeding resident. Double passage migrant, common winter flocks in the west.
Magpie	*Pica pica*	-	Abundant resident.
Meadow pipit	*Anthus pratensis*	Amber	Abundant breeding bird, especially in the east, and double passage migrant; scarce in winter.
Reed bunting	*Emberiza schoeniclus*	SPI, Amber	Common breeding bird and winter visitor. Double passage migrant.
Robin	*Erithacus rubecula*	-	Abundant breeding resident, autumn passage migrant and winter visitor.
Skylark	*Alauda arvensis*	SPI, Red, LBAP	Common breeding bird and passage migrant.
Starling	*Sturnus vulgaris*	SPI, Red, LBAP	Abundant breeding bird, double passage migrant and winter visitor.
Whitethroat	*Sylvia communis*	Amber	Common breeder, mostly in the west. Common double passage migrant.

Common name	Latin name	Conservation Status	Status as per Lancashire Bird Report 2023[20]
Willow warbler	*Phylloscopus trochilus*	Amber	Abundant breeding bird and double passage migrant.
Woodpigeon	*Columba palumbus*	Amber	Abundant breeding resident; widespread winter flocks.
Wren	*Troglodytes troglodytes*	Amber	Abundant breeding resident, passage migrant and winter visitor.
Yellowhammer	*Amberiza citrinella*	SPI, Red	Fairly common but decreasing resident, mostly in the south. Scarce autumn passage migrant.

In addition, skylarks were recorded displaying during the wintering bird surveys (Appendix D) and this is indicative of early breeding activity.

On a precautionary basis in the absence of breeding bird survey data, the Site is assessed as being of up to County importance to breeding birds due to containing suitable nesting habitat for quail, a scarce summer visitor to the county, and due to the incidental recording of species noted as decreasing in the county. Yellowhammer is described as a decreasing resident, mostly found in the south of the reporting area within which the Site sits.

3.3.6.2 Wintering Birds

The Site contains large arable fields with areas of open water, suitable for roosting and foraging birds over winter.

The winter bird surveys captured the end of the wintering period (February and March), so peak activity was missed. Results showed no use of the Site by species which are qualifying species of the Mersey Estuary SPA or Ramsar and these species were not returned in the wintering bird atlas data. However, several species associated with the Mersey Estuary SPA and Ramsar (i.e. contributing to the 20,000 waterbird total) were recorded foraging and roosting with the Site, particularly black-headed gull (*Chroicocephalus ridibundus*) (peak count 200) and lapwing (peak count 13). These species were primarily recorded in the north and south-west of the Site. Both species are described as abundant winter visitors in the Lancashire Bird Report 2023, however, lapwing is described as decreasing in this regard. Full survey results are provided in Appendix D.

Wintering bird atlas data from 2008-2011 for the 4km^2 that includes Clock Face Country Park LWS (OS Tetrad Grid Reference: SJ59F) has been provided by MEAS to SHBC. These data have been reviewed alongside those bird data collected within the site boundary and other historical records collected through Desk Study. The data provided do not include any records of SPA qualifying interest feature species (see Table 3-4 below).

Table 3-4 below presents the status of each qualifying species of Mersey Estuary SPA or Mersey Estuary Ramsar as per the Lancashire Bird Report 2023. Although some of these species are more common in coastal areas, some have been recorded further east and others do not appear to be geographically confined within the reporting area of Lancashire and North Merseyside. Even though not recorded on Site during February and March, they could feasibly use the Site for roosting or foraging.

Table 3-4: Local conservation status of qualifying species of Mersey Estuary SPA and Ramsar and which could feasibly use the Site for roosting or foraging

Common name	Latin name	Site for which species is a qualifying feature (in which season)	Status as per Lancashire Bird Report 2023[20]
Black-tailed godwit	*Limosa limosa*	Mersey Estuary Ramsar (passage) Mersey Estuary SPA (winter)	Very common passage migrant and winter visitor. Rare breeder. International importance: 470. National importance: 430.
Dunlin	*Calidris alpina*	Mersey Estuary Ramsar (winter) Mersey Estuary SPA (winter)	Abundant passage migrant and winter visitor. Scarce breeding bird. International importance: 9500 (subsp. *schinzii*), 13300 (subsp. *alpina*). National importance: 3500.
Golden plover	*Pluvialis apricaria*	Mersey Estuary SPA (winter)	Abundant on passage and in winter near coasts. Scarce breeding bird. International importance: 8000. National importance: 4000.
Pintail	*Anas acuta*	Mersey Estuary Ramsar (winter) Mersey Estuary SPA (winter)	Common winter visitor to coast and western wetlands. Has bred. International importance: 600. National importance: 200.
Redshank	*Tringa totanus*	Mersey Estuary Ramsar (passage) Mersey Estuary SPA (winter and passage)	Very common passage and winter visitor. Fairly common breeding birds. International importance: 2800. National importance: 1200.
Shelduck	*Tadorna tadorna*	Mersey Estuary Ramsar (passage) Mersey Estuary SPA (winter)	Common winter visitor of coastal sites, common breeder. Scarce in east. International importance: 2500. National importance: 470.
Teal	*Anas crecca*	Mersey Estuary Ramsar (winter) Mersey Estuary SPA (winter)	Very common winter visitor to western wetlands, smaller flocks in east. Rare breeding species. International importance: 5000. National importance: 4300.

Given that the surveys missed the peak winter period, there remains some uncertainty over the extent of use by wintering birds associated with the Mersey Estuary SPA/Ramsar. However, based on the low numbers recorded and absence of qualifying species, the Site is considered, on a precautionary basis, to be of up to regional importance for wintering birds. Consequently, a Habitats Regulations Assessment (HRA) will be undertaken to assess the potential role of the Site as FLL to the Mersey Estuary SPA/Ramsar and fully assess the importance of the Site for wintering birds.

3.3.7 Mammals

3.3.7.1 Bats

The extended 7km data search undertaken (Appendix E) returned 951 bat records of at least 11 different species, the closest of which was a noctule *Nyctalus noctula*) along the northern Site boundary. Other species returned in the data search were Brandt's bat (*Myotis brandtii*), brown long-eared bat (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), Leisler's bat (*Nyctalus leisleri*), Nathusius' pipistrelle (*Pipistrellus nathusii*), Natterer's bat (*Myotis nattereri*), serotine (*Eptesicus serotinus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and whiskered bat (*Myotis mystacinus*).

The largest core sustenance zone (CSZ) associated with any of these species is 4km[28]. There are six recorded roosts within 4km of the Site, the majority are for common pipistrelle (which has a CSZ or 2km), the remainder for unidentified species. The closest roost is about 350m northwest of the Site.

Activity surveys have recorded at least five species at the Site, including:

- common pipistrelle - recorded at all locations,
- noctule – recorded at 28 of the 33 locations sampled.
- soprano pipistrelle – recorded at 22 of the 33 locations sampled;
- Myotis species – recorded at 22 of the locations sampled and
- brown long-eared bat – recorded at 16 of the locations sampled.

Potential Roosting

There are no buildings or other structures within the Site. There are mature trees across the Site including within areas of woodland, lines of trees and areas of scrub. These were assessed in the PEA as having low to moderate suitability for roosting bats, in line with Collins (2016) (Appendix B). Particular features of interest highlighted in the PEA included a line of trees in Parcel 6 (moderate suitability), woodland in Parcel 11 (moderate suitability), woodland around ponds in Parcels 3, 5, 6, 7, 8 and 9 (low to moderate suitability), and scrub within Tunstalls Farm LWS.

Detailed survey work has not been undertaken to determine the presence/ absence of roosting bats at trees within the Site. Based upon their roosting preferences, trees with potential roost features could be used in future by any of the bat species that have been recorded at the Site, and this could include maternity or hibernation roosts.

Referring to the CIEEM Bat Mitigation Guidelines[29], maternity or hibernation roosts of the species noted above would be considered of up to County level importance.

Foraging and Commuting

It is considered that the Site offers moderate to high suitability habitat for commuting and foraging bats due to the arable fields and horse-grazed pasture with hedgerow and ditch boundaries, scattered ponds and occasional blocks of scrub and woodland.

Activity levels were found to be highest by boundary hedgerows and woodland edges.

[28] Refer to table 3.5 within the BCT Bat Survey Guidelines (2023)[19]

[29] Reason, P.F. and Wray, S. (2025). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.2. Chartered Institute of Ecology and Environmental Management, Ampfield.

Habitat suitability modelling suggests that the Site is likely to be important for local populations of Myotis species, brown long-eared bat and noctule in particular, based on the relative lack of habitat suitability in the wider countryside.

Important of Survey Area to Bats

Using the CIEEM Bat Mitigation Guidelines[29] the assemblage of bat species at the Site is of County importance. It is however recognised that this is only one of three elements that the CIEEM guidelines consider, the other two being the importance of roosts and the importance of commuting and foraging habitats.

Therefore, the value of the Site to local bat populations and the importance of the bat assemblage present (which will use a much wider area than just the Site) are considered separate. To illustrate; ten species recorded flying though a site once versus one rare species being resident would result in vastly different assemblage scores, neither of which would capture the importance of the Site to the local bat population.

Taking all available data into account the Site has been valued as being of up to County importance to roosting, foraging and commuting bats. This recognises the above foraging and commuting assemblage is present and that up to County level importance roosts may occur.

3.3.7.2 Badger

Badger (*Meles meles*) was not discussed in the PEA (Appendix B). However, the desk study returned seven records of badger within 2km of the Site, between 2007 and 2022. During GCN and bat surveys undertaken by SLR in 2025, most of the Site was observed to be suitable for badger, including arable fields and modified grassland for foraging, and woodland, scrub and hedgerows for sett building. However, no incidental field signs were observed.

Badger could be present on the Site or may excavate new setts within suitable habitat at any time. Abundant suitable habitat exists in the local area, particularly to the south and east, and this is well connected to the Site. Therefore, the Site is assessed as being of Less than Local importance to badger (if present), but they are taken forward for further assessment due to their legal protection.

3.3.7.3 Otter

Otter (*Lutra lutra*) was not discussed in the PEA report (Appendix B). However, email correspondence received from The Mersey Forest[27] confirmed this was because habitats on Site were deemed unsuitable to support this species. Furthermore, the desk study returned no records of this species within 2km of the Site.

Otter is assumed to be absent from the Site and has, therefore, been removed from further assessment.

3.3.7.4 Water Vole

The data search returned 55 records of water vole within 2km of the Site, between 1981 and 2009.

Water vole are listed as one of the designatory features of Tunstalls Farm LWS. However, monitoring of the LWS has not occurred since 2016 and during the 2024 PEA, the ditches in the LWS were found to be partially dry (Appendix B). Ditch 3-5 in the PEA (WB10 in Figure 2) was identified as having optimal habitat for water vole due to optimal water levels, vegetation and surrounding terrestrial habitat. Most of the other ditches on the Site were dry and unsuitable for water vole but did provide optimal foraging opportunities if they were to contain water in future years. No water vole field signs were observed, and they are

assumed to be absent from the Site. Water vole has therefore been removed from further assessment.

3.3.7.5 Other Mammals

West European Hedgehog

The data search returned 36 records of West European hedgehog (*Erinaceus europaeus*) within 2km of the Site, between 1970 and 2021. The PEA identified patches of willow and bramble scrub as of particular importance to hedgehog (Appendix B), but the majority of the Site provides suitable habitat for this species, including arable fields and modified grassland for foraging, and woodland, scrub and hedgerows for commuting, refuge and hibernation.

Hedgehogs were observed in numerous locations across the Site during the GCN surveys (Appendix C) including near P5.1, P7.2, and within Tunstalls Farm LWS near P-LWS-2 and P-LWS-5/6. Hedgehogs were observed in different habitat types including on the edge of an arable field, within horse-grazed pasture and in woodland. Despite this, the maximum of one individual was observed each evening and the locations recorded were all within an area of *c*. 9.5ha which could be the home range of a single individual[30].

The Site contains large areas of suitable habitat, is known to support hedgehog and is well connected to further suitable habitat in the wider landscape. As such, the Site is considered of Local importance to hedgehog, and this species is taken forward for further assessment.

Brown hare

The data search returned 56 records of brown hare, between 1972 and 2019. The Site contains suitable habitat for brown hare, including arable fields, longer field margins and woodland. Furthermore, a hare was observed passing through Parcel 6 during the PEA (Appendix B) and individual hares were also incidentally recorded in Parcels 2 and 13 during GCN surveys at the Site (Appendix C).

The Site contains large areas of suitable habitat, is known to support brown hare and is well connected to further suitable habitat in the wider landscape. As such, the Site is considered of Local importance to brown hare, and this species is taken forward for further assessment.

3.4 Summary of Important Ecological Features

Table 3-5 summarises the important ecological features in need of specific assessment as part of this EcIA.

Table 3-5: Summary of Important Ecological Features Subject to Detailed Assessment

Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
Mersey Estuary SPA	International	Protected site under Directive 2009/147/EC ‘the Birds Directive’
Mersey Estuary Ramsar	International	Protected site under The Convention on Wetlands
Colliers Moss Common LNR	County	Protected site under the National Parks and Access to the Countryside Act 1949

[30] Morris, P.A. (1987), A study of home range and movements in hedgehog (*Erinaceus europaeus*). *Journal of Zoology* **214**, 433-449.

Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
Birds – Wintering	Regional (precautionary in absence of complete survey data)	Some species are qualifying species of internationally designated sites. Some species are SPI under the NERC Act 2006, local priority species, or Red/Amber listed.
Tunstalls Farm LWS	County	Locally designated site of importance for nature conservation
Birds - Breeding	County (precautionary in absence of survey data)	All species are protected whilst nesting under the WCA 1981 (as amended) (some species are also protected from disturbance whilst nesting under Schedule 1); some species are SPI under the NERC Act 2006, local priority species or Red/Amber listed.
Hedgerows, treelines, woodland & mixed scrub	Local to Less than Local	Hedgerows and treelines are HPI under the NERC Act 2006. Woodland and mixed scrub has inherent value for a range of fauna
Ponds and ditches	Local to Less than Local	Ponds are a HPI under the NERC Act 2006 and a local priority habitat. Ditches have inherent value for a range of fauna and provide connectivity.
Amphibians	Local	GCN is a European and UK protected species (Habitats Directive and WCA 1981 (as amended)), Annex I species for which SACs can be designated, SPI under the NERC Act 2006 and a local priority species. Common toad is a SPI under the NERC Act 2006.
Bats – Roosting, foraging and/ or commuting	County	European and UK protected species (Habitats Directive and WCA 1981 (as amended)). Some are Annex I species for which SACs can be designated. Some species are SPI under the NERC Act 2006; all species are local priority species.
Hedgehog	Local	SPI under the NERC Act 2006
Brown hare	Local	SPI under the NERC Act 2006 and a local priority species.
Reptiles	Less than Local (if present)	Reptiles are protected from killing and injury under the WCA 1981 (as amended). Some are local priority species.
Badger	Less than Local (if present) (habitats have scope to support setts in the future)	Badgers, and their places of shelter and protection (i.e. setts) are legally protected under the Protection of Badgers Act 1992.
INNS (giant hogweed and Japanese knotweed)	N/A	Invasive species under WCA 1981 (as amended) and IAS 2019.

4.0 Assessment of Effects and Mitigation Measures

4.1 Design Principles and Embedded Mitigation

The following design principles and embedded mitigation have informed the assessment of impacts:

- Good practice environmental and pollution control measures and tree protection measures are employed with regard to current best practice guidance, and these will be detailed within a Construction Environmental Management Plan (CEMP): Biodiversity for each development plot, secured by a suitably worded condition, an example of which is provided in Appendix J. Such as, but not limited to, the following:
  - CIRIA C532, 'Control of water pollution from construction sites: guidance for consultants and contractors' (2001)[31]; and,
  - CIRIA C741, 'Environmental good practice on site guide' (2015 4th Ed.)[32]; and,
  - BS:5837:2012 'Trees in relation to design, demolition and construction – Recommendations'[33].
- The masterplan has been designed in accordance with the mitigation and biodiversity gain hierarchies, including retention of the most ecologically important areas and the creation of wildlife corridors between these areas. For example:
  - The three ponds with GCN presence have been retained and habitat corridors have been designed between them to allow GCN movement and ensure the populations do not become fragmented;
  - Tunstalls Farm LWS will be retained, protected and enhanced through proposed rewetting, overseeding of the grassland and woodland planting with an aim of reverting the area back to its original condition;
  - Land immediately west of Tunstalls Farm LWS will be retained and enhanced, with the aim of it becoming a potential extension to the LWS. This proposed area will also provide connectivity between the existing LWS and the off-site wooded old railway lane to the west;
  - Additional habitat corridors are proposed leading towards Clock Face Country Park to the south and woodland linking to Colliers Moss Common LNR to the north;
  - ;
  - All trees, hedges, ponds and ditches have been retained where they fall in areas of open space. There will be some loss of hedgerows and ditches to facilitate road access / crossing points, but these have been minimised as far as practicable;
  - A habitat corridor has been designed along a potential new Greenway identified under Policy LPC07 of the Local Plan[1]; and

[31] Masters-Williams, Heap, Kitts, Greenshaw, Davis, Fisher, Hendrie & Owens (2001), CIRIA C532, Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors.

[32] Charles, P, Edwards (2015), CIRIA C741, Environmental Good Practice On Site Guide (fourth edition).

[33] BSI Standards Publication (2012), BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

  - Minimum buffer zones have been implemented between developable areas and: Tunstalls Farm LWS (15m), retained ditches and ponds (10m), and retained hedgerows (5m).

- Landscaping measures are proposed within the masterplan to minimise loss of biodiversity on-site and enhance the Site, as based on the assumptions outlined in Appendix H:
  - Planting of 1170 trees in the public realm, with a further 160 trees within Tunstalls Farm LWS;
  - Planting of 1.37 ha broadleaved woodland;
  - Planting of 1.2 ha of native scrub;
  - Planting of 2.6 km of species-rich native hedgerow;
  - Seeding of 13.89 ha of flowering lawn mix, Emorsgate EL1[34] or similar;
  - Seeding of 25.39 ha of meadow mixture, Emorsgate EM2[35] or similar;
  - ;
  - Creation of 5.07 ha sustainable drainage system (SuDS) with marginal planting; and,
  - Creation of 1.59 ha of allotments.
- A suitably qualified Ecological Clerk of Works (ECoW) would be appointed for the construction period of each development plot, to ensure that ecological features are safeguarded. The role of the ECoW would include the following tasks:
  - to give toolbox talks to construction staff, e.g. an ecological induction, so staff are aware of the ecological sensitivities on the site, including but not limited to, INNS, GCN, and nesting birds, and the legal implications of not complying with the agreed working practices;
  - to undertake pre-construction surveys; and,
  - to oversee any ecologically sensitive works and advise on any arising ecological issues as required throughout the construction period.

Taking the above into account, the principal potential impacts of the proposed development are outlined in the following sections.

4.2 Statutory Designated Sites

4.2.1 Mersey Estuary SPA and Ramsar

4.2.1.1 Potential Impacts

The Site contains large areas of open arable fields, providing suitable habitat for wintering bird species, including potentially for qualifying species of Mersey Estuary SPA and Ramsar. Large areas of arable field will be inevitably lost to the proposed development. In the absence of complete winter bird survey data, a precautionary assessment is needed and the loss of this habitat type could cause the loss of FLL to the SPA and Ramsar.

[34] EL1 Flowering Lawn Mixture - Emorsgate Seeds (wildseed.co.uk)

[35] EM2 Standard General Purpose Meadow Mixture - Emorsgate Seeds

Furthermore, a proposed residential development of this size could result in damage to habitats within the Mersey Estuary SPA and Ramsar due to increased recreational pressure.

In the absence of mitigation, there is a risk of negatively impacting upon Mersey Estuary SPA and Mersey Estuary Ramsar through the loss of FLL for designatory winter bird species and through increased recreational pressure.

4.2.1.2 Proposed Mitigation Measures

A Habitats Regulations Assessment (HRA) will be undertaken for each development plot that comes forward. This will initially comprise a HRA Stage 1 Screening which will identify if the development is likely to have significant effects on the conservation objectives of Mersey Estuary SPA or Mersey Estuary Ramsar. If likely significant effects are identified, a Stage 2 Appropriate Assessment would be undertaken which will include consideration of any mitigation measures. Both Stage 1 and Stage 2 include consideration of in-combination effects with other projects or plans, including other plots within the BFGV masterplan area. Any mitigation measures identified through the HRA process must be secured through an appropriately worded condition for each development plot.

4.2.1.3 Significance of Residual Effects

With mitigation measures identified through the HRA process, no contravention of relevant wildlife legislation is anticipated, and, at this stage, significant impacts on the Mersey Estuary SPA and Ramsar site are not predicted; individual HRAs will be undertaken for each development to confirm no adverse effects on site integrity.

4.2.2 Colliers Moss Common LNR

4.2.2.1 Potential Impacts

Colliers Moss Common LNR is located only *c*. 0.5km north of the Site and is already well connected through a woodland strip. The LNR and aforementioned woodland strip form part of the Greenway network under Policy LPC07 of the Local Plan[1], and a potential new Greenway route is proposed under this Policy, crossing the BFGV Site to connect Colliers Moss Common LNR to the north with Clock Face Country Park to the south. This Greenway link is represented in the Preferred Option Masterplan provided as Appendix F. The proposed development will introduce up to 3000 residents to the area, as per targets set under Policy LPA11 of the Local Plan.

In the absence of mitigation, there is the potential for habitats within Colliers Moss Common LNR to be damaged through increased recreational pressure.

4.2.2.2 Proposed Mitigation Measures

The masterplan of the Site itself has been designed to contain ample areas of open space for recreation purposes. Furthermore, several green linkages have been designed into the plan, to encourage footfall towards multiple greenspaces in the local area e.g. Clock Face Country Park. These measures are intended to direct residents towards several greenspaces, not solely Colliers Moss Common LNR. In addition, the development will include an education element on the local greenspaces, the wildlife they support and how to responsibly visit such spaces. This is most likely to be delivered through leaflets provided to all new residents across the BFGV.

4.2.2.3 Significance of Residual Effects

With the above mitigation measures in place, impacts upon Colliers Moss Common LNR are considered to be not significant.

4.3 Non-Statutory Designated Sites

4.3.1 Tunstalls Farm LWS

4.3.1.1 Potential Impacts

The masterplan allows for the retention of the LWS in its entirety. The LWS will continue to be managed as an area solely for wildlife, with no planned public access to this space. There will therefore be no significant impacts to the LWS from recreational pressure during the operational stage.

With the implementation of the embedded mitigation outlined in Section 4.1, there are predicted to be no significant impacts to the LWS from damage during construction works.

Potential impacts to the GCN population present in the LWS are discussed separately in Section 4.6.1.

4.3.1.2 Proposed Mitigation Measures

No additional mitigation measures are proposed.

4.3.1.3 Significance of Residual Effects

With the implementation of the enhancement measures to the LWS presented in Section 4.9.1.1, impacts to Tunstalls Farms LWS are considered to be significant positive at the County level.

4.4 Habitats

4.4.1 Hedgerows, Treelines, Woodland and Mixed Scrub

4.4.1.1 Potential Impacts

Boundary hedgerows and treelines, and areas of woodland and mixed scrub will be retained, where practicable. However, the masterplan is estimated to result in small losses of mixed scrub, broadleaved woodland, native hedgerow and treelines to facilitate the development plots.

With the implementation of the embedded mitigation outlined in Section 4.1, there are predicted to be no significant impacts to retained hedgerows, treelines, woodland or scrub from damage during construction works.

Impacts to species which do, or may, use these habitat features are discussed in Section 4.6 below.

4.4.1.2 Proposed Mitigation Measures

No mitigation is proposed in relation to habitat loss. Compensation measures are proposed, as set out in Section 4.8.1.

4.4.1.3 Significance of Residual Effects

There will be a significant negative effect at the Less than Local scale in the short- to medium-term as a result of loss of hedgerows, treelines, woodland and scrub. However, with the implementation of the compensation measures presented in Section 4.8.1, there is predicted to be a significant positive residual effect at the less than Local level in the long-term.

4.4.2 Ponds and Ditches

4.4.2.1 Potential Impacts

All ponds on the Site will be retained. All ditches will be retained except for small stretches of ditch no more than 18m wide where road crossing points are required across the Site. However, P-LWS-4 and parts of WB9, WB15, WB16, WB18, WB19, WB20 and WB24 are likely to dry out based upon the current drainage strategy so would be functionally lost. In addition, up to 15 outfalls will be installed into existing ditches as part of the drainage strategy. It is assumed these will be no more than 5 m wide each and comprise standard pre-cast concrete outfalls. Therefore, impacts are assessed on a short construction period, a small permanent concrete footprint and small increase in development encroachment upon ditch riparian zones.

With the implementation of the embedded mitigation outlined in Section 4.1, there are predicted to be no significant impacts to retained ponds and ditches from damage during construction works, pollution or changes to water quality during either construction or operation.

Impacts to species which do, or may, use these habitat features are discussed in Section 4.6 below.

4.4.2.2 Proposed Mitigation Measures

No mitigation is proposed in relation to habitat loss. Compensation and enhancement measures are proposed, as set out in Section 4.8.1.

4.4.2.3 Significance of Residual Effects

There will be a significant negative effect at the Less than Local scale in the short- to medium-term as a result of loss of ditches and installation of outfalls. However, with the implementation of the compensation and enhancement measures presented in Section 4.8.1, there is predicted to be a not significant residual effect in the long-term.

4.5 Invasive Plant Species

4.5.1.1 Potential Impacts

There is a risk of INNS incidence across the Site increasing prior to construction commencing.

In the absence of mitigation measures, there is a risk of spreading INNS through the Site, and into off-Site areas through the movement of construction workers, equipment and vehicles.

4.5.1.2 Proposed Mitigation Measures

A pre-construction INNS survey of each development plot shall be undertaken by the ECoW to update the status of, and map extent of, INNS within and adjacent to the Site. Using these data, an invasive species management plan will be created for each development plot and incorporated into the CEMP: Biodiversity. Due to the injurious nature of giant hogweed, and the destructive effects that Japanese knotweed rhizomes can have on the built environment, the management plan is likely to focus on eradication rather than control measures.

4.5.1.3 Significance of Residual Effects

With the proposed mitigation in place, the risk of spreading invasive non-native species (INNS) will be reduced to a level where the residual effect is not significant.

4.6 Species

4.6.1 Amphibians

4.6.1.1 Potential Impacts

With the embedded mitigation and design decisions outlined in Section 4.1, the habitats of greatest value to amphibians will be retained and habitat corridors have been designed to ensure connectivity between the three GCN-positive ponds to prevent population isolation. Furthermore, habitat corridors have been designed leading to suitable areas of off-site habitat, for example, Clock Face Country Park where GCN have been recorded previously. As such, no significant impacts relating to habitat loss or habitat fragmentation are anticipated.

In the absence of mitigation, there is a risk of harming or disturbing GCN and other amphibians during Site clearance and construction which could lead to a detriment of Favourable Conservation Status (FCS) for GCN.

4.6.1.2 Proposed Mitigation Measures

European protected species mitigation licences (EPSMLs) will be required to allow works to proceed lawfully on the Site. In line with Natural England's guidance[36], a master plan will be provided with the first EPSML application for development within the multi-plot development site. The master plan would be used to help assess the overall impacts of the proposed development on the GCN population and the future mitigation across the whole project. It will help ensure in-combination effects across the entire Site have been considered and that mitigation and compensation measures are sufficient. Separate EPSML applications would then be required for each subsequent plot coming forward for development with each one referencing the overarching masterplan which will ensure a Site-wide approach to GCN mitigation and compensation.

Each EPSML would contain a mitigation strategy detailing required mitigation, compensation and enhancement in respect to all anticipated impacts on GCN. This mitigation would also safeguard other amphibians that may be present e.g. common toad. Mitigation is likely to include a trapping and translocation exercise, supervision of key work stages by an ECoW, reasonable avoidance measures (RAMs) and compensatory planting. The licence would also contain long-term management and monitoring requirements to ensure newly created habitats remain suitable for GCN.

4.6.1.3 Significance of Residual Effects

Although the exact mitigation is currently unknown at this stage, Natural England would not approve the master plan or grant an EPSML unless the mitigation proposals were sufficient to ensure FCS is maintained. The licence application(s) would contain consideration of how the proposed development meets the three criteria required to be granted a licence as well as an assessment of how mitigation proposals would maintain FCS. Detailed consideration of these factors is, therefore, not undertaken in this EcIA.

Ultimately the EPSML will ensure there will be no contravention of wildlife legislation and no significant residual impact upon GCN and other amphibians. Furthermore, it is likely that the EPSML and the compensation measures outlined in Section 4.8.1 would secure a significant positive residual effect at the Local level in the long-term as a result of improved habitat provision and connectivity on the Site compared with baseline conditions.

[36] Natural England (archived 05/06/2014) Guidance on great crested newt master plan requirements for phased or multi-plot development applications.

4.6.2 Reptiles

4.6.2.1 Potential Impacts

With the embedded mitigation and design decisions outlined in Section 4.1, the habitats of greatest value to reptiles will be retained.

In the absence of mitigation, there is a minor risk of harming reptiles (if present) during small-scale clearance of suitable habitat.

4.6.2.2 Proposed Mitigation Measures

A precautionary working method statement (PWMS) for each development plot will be detailed in the respective CEMP: Biodiversity, covering measures to be implemented during Site clearance and construction to safeguard reptiles including sensitive vegetation clearance methods.

4.6.2.3 Significance of Residual Effects

With the above mitigation measure in place, there would be no significant residual impact upon reptiles, and no contravention of wildlife legislation is anticipated.

4.6.3 Birds – Breeding

4.6.3.1 Potential Impacts

The Site has potential to support large numbers of nesting birds. Woodland, scrub and hedgerows have largely been retained in the masterplan design. However, the requirement for up to 3000 dwellings within the Site will inevitably lead to the loss of large areas of arable habitat. If unmitigated, construction activities have the potential to cause injury or mortality of breeding birds, and damage or destruction of eggs or nests during construction.

The masterplan could lead to the large-scale loss of habitat supporting an (up to) County important bird assemblage.

4.6.3.2 Proposed Mitigation Measures

To avoid the killing/ injury of birds and damage/ destruction of active nests during vegetation clearance and construction, Site clearance and vegetation removal will ideally take place outside of the main bird breeding season (which for most species extends from March to August inclusive). If this is not feasible, a search for active nests would first be undertaken by a suitably qualified ecologist within the 24 hours prior to vegetation clearance and building demolition. If an active nest was identified, it would be left in situ until the breeding attempt was concluded and the young had fledged.

No mitigation is proposed in relation to habitat loss. Compensation and enhancement measures are proposed, as set out in Sections 4.8.1 to 4.8.3. To further define compensation measures, a suite of breeding bird surveys between March and July will be required for each plot that comes forward under the masterplan.

4.6.3.3 Significance of Residual Effects

With the above measure in place, no contravention of relevant wildlife legislation is anticipated but there will be a significant negative effect in the short- to medium-term at the up to County level as a result of habitat loss. However, with the implementation of the off-site compensation measures presented in Section 4.8.3, there is predicted to be a not significant residual effect in the long-term.

4.6.4 Birds – Wintering

4.6.4.1 Potential Impacts

The Site contains large areas of open arable fields, providing suitable habitat for wintering bird species, including potentially for qualifying species of Mersey Estuary SPA and Ramsar. Large areas of arable field will be inevitably lost to the proposed development. In the absence of complete winter bird survey data, this could cause the loss of FLL to the SPA and Ramsar.

In the absence of mitigation, there is a risk of losing large areas of arable habitat which provide FLL for winter bird species associated with Mersey Estuary SPA and Mersey Estuary Ramsar.

4.6.4.2 Proposed Mitigation Measures

As described in Section 4.2.1.2, a HRA will be required for each development plot that comes forward under the masterplan to determine whether the development is likely to have significant effects on the conservation objectives of Mersey Estuary SPA or Mersey Estuary Ramsar. This will include consideration of whether the Site comprises FLL for qualifying species of these sites. This will need to be informed by a minimum of one full suite of winter bird surveys (September to March including passage periods), but consultees may request to see at least two full years of winter bird data to inform their decision-making process.

No mitigation is proposed in relation to habitat loss. Off-site compensation measures are proposed, as set out in Section 4.8.3.

4.6.4.3 Significance of Residual Effects

With the above measure in place, no contravention of relevant wildlife legislation is anticipated but there will be a significant negative effect in the short- to medium-term at the up to Regional level due to habitat loss. However, with the implementation of mitigation and off-site compensation measures (to be defined through the HRA process), there is predicted to be a not significant residual effect in the long-term.

4.6.5 Bats

4.6.5.1 Potential Impacts

General principles have been applied to retain habitats with the greatest likelihood of containing PRFs or to be used by foraging and/ or commuting bats i.e. woodland, lines of trees and hedgerows. Despite this, the masterplan is estimated to result in the loss of broadleaved woodland and treelines. This could result in roost destruction, injury or death of bats and disruption of key flightlines used to access foraging areas.

Indirect impacts to these same habitats are also possible from additional artificial lighting during construction and operation, and this can affect the foraging and commuting behaviour of bats. For example, slower flying broad winged species, such as brown long-eared bats and Myotis species have been shown to avoid routes illuminated with a variety of different street luminaires, which puts them at a competitive disadvantage, reducing their fitness and breeding success.

In the absence of mitigation, direct habitat loss and indirect disturbance could result in significant effects at the County level.

4.6.5.2 Proposed Mitigation Measures

Each planning application that comes forward under the masterplan will be supported by:

- bat surveys undertaken in accordance with current best practice at that time;
- Mitigation measures to minimise impacts to roosting, foraging and commuting bats, and compensation measures in the event impacts are unavoidable.

  If a bat roost is identified that would be directly or indirectly impacted by the development, then a European Protected Species Licence will be required to enable works to proceed lawfully. The Licence Method Statement, a draft of which is anticipated to be submitted with any planning application, will detail the mitigation and compensation required to maintain the favourable conservation status of the species affected.
- A lighting strategy will be designed to limit artificial light disturbance at retained and proposed woodland, hedgerows and treelines, in accordance with published best practice at that time (currently the ILP guidance note[37]). It is anticipated that the lighting strategy will:
  - Set out the sensitive design measures that have been included in the scheme design (such as but not limited to luminaire types, hoods, cowls and lighting heights).
  - include measures specific to the construction phase that can be incorporated into the CEMP and apply during construction only; and
  - detail measures specific to the operational phase that shall apply for the lifetime of the development.

4.6.5.3 Significance of Residual Effects

A licence to allow the destruction, damage or disturbance of a bat roost would not be granted by Natural England unless the mitigation proposals were sufficient to ensure FCS is maintained. The licence application would contain consideration of how the proposed development meets the three criteria required to be granted a licence as well as an assessment of how mitigation proposals would maintain FCS. Detailed consideration of these factors is, therefore, not undertaken in this EcIA. Ultimately a licence (if required) will ensure there will be no contravention of wildlife legislation and no significant residual impact upon roosting bats.

With the above measures in place, there will be a significant negative effect at the Less than Local scale in the short- to medium-term as a result of habitat loss and fragmentation during construction. However, with the implementation of the compensation measures presented in Section 4.8.1, there is predicted to be a significant positive residual effect at the Less than Local level in the long-term.

4.6.6 Badger and Hedgehog

4.6.6.1 Potential Impacts

There is a risk of badger excavating new setts both on and immediately adjacent to the Site.

In the absence of mitigation, there is a risk of harm to badger and hedgehog during construction, should animals become trapped in footings or other on-site hazards. There is also a risk of harm during Site clearance works.

[37] Institution of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), (2023) Guidance Note 08/23: Bats and Artificial Lighting in the UK

There is a risk of disturbing both species through artificial lighting during construction and operation.

There is a risk of large-scale habitat loss and habitat fragmentation for both species.

4.6.6.2 Proposed Mitigation Measures

A pre-construction badger survey of each development plot shall be undertaken by the ECoW to update the status of badger within and adjacent to the Site, no more than six months prior to construction within that plot.

A PWMS for each development plot will be detailed in the respective CEMP: Biodiversity, covering measures to be implemented during Site clearance and construction to safeguard badgers and hedgehogs. This will include measures such as covering excavations overnight or providing escape ramps, and sensitive vegetation clearance methods.

A lighting strategy will be designed to limit artificial light disturbance at retained and proposed woodland, hedgerows and treelines, in accordance with published best practice at that time. Primarily, this will focus on directing artificial light away from habitat corridors that are most likely to be used by such species. It will

- Set out the sensitive design measures that have been included in the scheme design (such as but not limited to luminaire types, hoods, cowls and lighting heights).
- include measures specific to the construction phase that can be incorporated into the CEMP and apply during construction only; and
- detail measures specific to the operational phase that shall apply for the lifetime of the development

The masterplan includes habitat corridors along key routes though the Site, and leading to suitable areas of off-site habitat, allowing passage of badger and hedgehog through the Site and into the surrounding areas. Habitat compensation and enhancement measures are also proposed, set out in Sections 4.8.1 and 4.8.2.

4.6.6.3 Significance of Residual Effects

With the above measures in place, there will be no contravention of wildlife legislation but there will be a significant negative effect at the Less than Local scale in the short- to medium-term as a result of habitat loss and fragmentation during construction. However, with the implementation of the compensation and enhancement measures presented in Sections 4.8.1 and 4.8.2, there is predicted to be a not significant residual effect in the long-term.

4.6.7 Brown Hare

4.6.7.1 Potential Impacts

In the absence of mitigation, there is a risk of harm to brown hare during construction, should animals become trapped in footings or other on-site hazards. There is also a risk of harm during Site clearance works.

There is a risk of large-scale habitat loss and habitat fragmentation.

4.6.7.2 Proposed Mitigation Measures

A PWMS for each development plot will be detailed in the respective CEMP: Biodiversity, covering measures to be implemented during Site clearance and construction to safeguard brown hare. This will include measures such as covering excavations overnight or providing escape ramps, and sensitive vegetation clearance methods.

Brown hare are unlikely to use the Site during the operation phase due to requiring large, open areas of habitat including arable fields, and their shy nature. However, off-site arable habitat compensation for birds will also benefit brown hare (see Section 4.8.3).

4.6.7.3 Significance of Residual Effects

With the above measures in place, there will be no contravention of wildlife legislation but there will be a significant negative effect at the Less than Local scale in the short- to medium-term as a result of habitat loss and fragmentation. However, with the implementation of the off-site compensation measures presented in Section 4.8.3, there is predicted to be a not significant residual effect in the long-term.

4.7 Cumulative Effects

As discussed in Section 2.3.4, the nature of the project being at masterplan development means it is impossible to determine when development on the Site may begin and, therefore, which other projects are appropriate to consider for cumulative effects. Instead, cumulative effects will be considered on a case-by-case basis in the EcIA for each development plot as it comes forward,

4.8 Proposed Compensation and Enhancement Measures

4.8.1 On-Site Habitat Compensation and Enhancements

4.8.1.1 Tunstalls Farm LWS

The most recent survey of the LWS identified that it was in ‘moderate’ and declining condition with many ponds and ditches having dried out, and the grassland being significantly horse grazed. The masterplan includes enhancements to the LWS, with the aim of restoring it to its original condition upon designation. Enhancement measures will include:

- Rewetting of the LWS, in consultation with a hydrologist, to restore marshy grassland. This may include the creation of shallow and seasonally flooded areas across the two western fields of the LWS. In the detailed design stage, these features will be designed to be as ecologically beneficial as possible with suitable gradients and vegetation, including pollution control features such as reedbeds or smaller basins upstream. The shallow nature of these basins would encourage the seasonal flooding of adjacent grassland during wet periods, thereby encouraging a marshy grassland representative of that present when the LWS was designated. Detailed design of these features will be led by the habitat requirements for wet grassland communities and subject to separate assessment of ecological and hydrological function and benefit; and
- Enhancement of the existing horse-grazed modified grassland fields to other neutral grassland through removal of grazing and overseeding with Emorsgate EM2 seed mix or similar. Management is anticipated to involve an annual cut-and-lift to gradually reduce nutrient load in the soil.

In addition to enhancement measures in the LWS, the fields west of the LWS will also be enhanced through overseeding of the grassland, removal of grazing, creation of attenuation features, woodland planting and creation of a wetland strip along the western boundary where the topography naturally directs surface water. This area will be protected from direct development-related impacts, with the exception of those designed to improve and benefit biodiversity and other ecosystem services. Public access will be managed through appropriate control measures, including ensuring the sensitive areas are not accessible to the public. The long-term intention is for this area to become an extension of the LWS,

providing similar habitats and a buffering function if not adopted as part of the formal designation.

4.8.1.2 Landscaping

As the project is only at masterplan stage, detailed landscaping proposals have not been developed, and these would be developed alongside each planning application that comes forward under the masterplan. However, the GI and BNG Plan (R4) provided as Appendix G indicates the creation of large areas of new habitat, including trees, woodlands, scrub, hedgerows and grasslands. Proposed areas of habitat creation are set out in Section 4.1 above.

In addition to the above, there is anticipated to be the enhancement of:

- 0.36 ha broadleaved woodland through removal of grazing pressure, thinning via removal of non-native species and planting with additional native species;
- 4.596 ha grassland through removal of grazing pressure and overseeding with a more diverse seed mix;
- 0.734 ha ponds through implementation of a 10m buffer zone, and the likelihood of additional ponds classifying as priority ponds due to terrestrial habitat improvements encouraging the spread of GCN across the Site;
- 5.5914 km ditches through removal of riparian encroachment and rewetting of some ditches through the drainage strategy.

As the project is not at detailed design, landscape specifications and management details are not yet specified. Assumptions made during this assessment in relation to species composition and management regimes are presented in Appendix H.

In addition, through the current drainage strategy, functionality of P6.2 is likely to be restored due to the directing of surface water drainage towards it. This will compensate for the functional loss of P-LWS-4. Similarly, the drainage strategy primarily focuses on using the existing ditch system. As such, several stretches of ditch across the Site are likely to convey more water than they currently do due to increased surface water run-off from impermeable substrates. This is likely to improve their ecological functionality.

4.8.2 On-Site Species Enhancements

4.8.2.1 Bird Boxes

Bird boxes shall be integrated into a minimum of 25% of properties across the masterplan area (approximately 750 boxes dependent upon final dwelling capacity).

The bird boxes will mostly face in an arc from north to east, and a range of designs will be used to benefit house martin (Vivara Pro WoodStone House Martin Nest[38]), starling (Starling Box – Smooth Brick[39]), house sparrow (*Passer domesticus*) (1SP Schwegler Sparrow Terrace[40]) and swift (*Apus apus*) (Ibstock Eco Habitat for Swifts[41]) within properties.

The boxes would provide an enhanced nesting resource for a range of hole-nesting species focusing on those species that have been recorded on Site previously and those species listed under the ‘Urban Birds’ Species Action Plan (SAP) of North Merseyside BAP.

[38] Vivara Pro WoodStone® House Martin Nest | NHBS Practical Conservation Equipment

[39] Starling Box - Smooth Brick | NHBS Practical Conservation Equipment

[40] 1SP Schwegler Sparrow Terrace | NHBS Practical Conservation Equipment

[41] Ibstock Eco-habitat for Swifts | NHBS Practical Conservation Equipment

4.8.2.2 Bat Boxes

Bat boxes shall be integrated into a minimum of 25% of properties across the masterplan area (approximately 750 boxes dependent upon final dwelling capacity).

The bat boxes shall comprise of Ibstock Enclosed Bat Box 'B'[42] or similar, suitable for a range of crevice-dwelling species that have been recorded on the Site and that are known to use bat boxes on residential properties. The boxes will be installed at a height of at least 4 metres and will mostly face south. All bat boxes will be integrated within the buildings (i.e. as part of the wall or roof) and will not be externally affixed. All will remain unlit.

The bat boxes shall result in an overall gain in the potential bat roosting resource.

4.8.2.3 Hedgehog Highways

Hedgehog highways would be created in all proposed garden fences, comprising minimum 15 cm x 15 cm gaps at the base of fencing. This will allow hedgehogs to gain unimpeded access across the Site and between gardens, to minimise habitat fragmentation effects. The access gaps shall be appropriately labelled with signs on both sides, to deter householders from blocking the purpose made gaps. An example of a hedgehog highway gap with appropriate labelling is shown in Plate 4-1. Hedgehog highway signs can be purchased from several manufacturers, such as The British Hedgehog Preservation Society.

Plate 4-1: Example Hedgehog Highway Fence Gap with Sign

4.8.3 Off-site Compensation

4.8.3.1 Arable Habitat for Farmland Birds

Off-site arable habitat provision will be required as compensation for:

- loss of habitat for breeding farmland birds; and,
- loss of habitat for wintering birds, including possibly as FLL to Mersey Estuary SPA and Mersey Estuary Ramsar.

42 Ibstock Enclosed Bat Box 'B' | NHBS Practical Conservation Equipment

The provision of arable habitats is not feasible within the masterplan due to competing land use objectives in the Site. As the Local Plan sets an objective for providing up to 3000 homes within the Site, there is not sufficient space to provide or retain functional examples of arable land.

The requirements for this compensation will be further refined following completion of breeding and wintering bird surveys, such that habitat provision will be appropriate and proportionate to the bird species and populations due to be impacted by habitat loss. However, as a minimum the compensation will include:

- large, open arable fields in low-input crop rotation with arable field margins and hedgerow boundaries to provide suitable habitat for a range of farmland birds recorded at the Site; and
- inclusion of skylark plots in any winter cereal fields.

Dependent on the results of the winter bird surveys and HRA process, it is possible that the off-site compensation will be required at a similar, or closer, distance to Mersey Estuary SPA and Ramsar, as the Site is, such that it does not fall outside the ranging distance of relevant qualifying species.

The mechanism for delivering this off-site compensation will be a Section 106 agreement between St Helens Borough Council and each developer as they come forward with planning applications under the masterplan. A strategic approach to the delivery of compensation measures for wintering birds may become possible if changes to national planning rules allow.

4.9 Summary of Effects

A summary of potential impacts, proposed mitigation, residual effects and, where relevant, proposed compensation measures is provided for each important ecological feature included in the assessment in Table 4-1. Table 4-1 also includes a summary of proposed biodiversity enhancements.

Table 4-1: Summary of Potential Impacts, Proposed Mitigation, Compensation and Enhancement Measures, and Residual Effects

Ecological Feature	Potential Impacts	Proposed Mitigation	Proposed Compensation & Enhancement	Means of Delivering	Residual Effects
Mersey Estuary SPA & Ramsar	Loss of FLL for designatory winter bird species.	Mitigation to be identified through a HRA for each development plot.	-	Planning Condition	No significant impacts anticipated at this stage.
Colliers Moss Common LNR	Damage to habitats through increased recreational pressure	POS and green links to be created across the Site, directing residents to multiple different greenspaces, on- and off-site. Education of new residents to encourage responsible use of greenspaces.	-	Planning Condition	Not Significant.
Tunstalls Farm LWS	None anticipated after consideration of embedded mitigation. Impacts to GCN population considered separately.	-	Enhancements are proposed to the LWS, to restore it back to its original condition upon designation: • Rewetting, in consultation with a hydrologist, to restore dried ponds, ditches and marshy grassland. • Enhancement of horse grazed modified grassland to other neutral grassland through overseeding and removal of grazing. • Enhancement of woodland to wet woodland through thinning, replacement planting and rewetting regime.	Section 106 Agreement	Significant Positive at County Level in the long-term.
Hedgerows, treelines, woodland & mixed scrub	Small-scale habitat loss of hedgerows, treelines, woodland and mixed scrub.	-	Planting of 1,330 individual trees in public realm. Planting of 3.218 ha broadleaved woodland and 0.171 ha wet woodland. Enhancement of 0.36 ha existing broadleaved woodland.	Section 106 Agreement	Significant Positive at Less than Local Level in the long-term.

Ecological Feature	Potential Impacts	Proposed Mitigation	Proposed Compensation & Enhancement	Means of Delivering	Residual Effects
			Planting of 14.12 km of species-rich native hedgerow. Planting of 3.136 ha of native scrub.		
Ponds & ditches	Small-scale habitat loss of ditches	-	Enhancement of 0.734 ha existing ponds and 5.5914 km of ditches, primarily through implementation of a 10m buffer zone with natural / semi-natural vegetation.	Section 106 Agreement	Not Significant.
INNS	Risk of spreading INNS within, and beyond, the Site.	INNS survey for each development plot. Invasive species management plan to be included within CEMP: Biodiversity for each development plot.	-	Planning Condition	Not Significant.
Amphibians	Risk of harm or disturbance during vegetation clearance	Master plan to be developed for entire Site outlining Site-wide impacts to GCN and approach to mitigation. Separate EPSMLs for each development plot, in accordance with the overarching master plan.	Overarching master plan for GCN and subsequent EPSMLs will further define these measures but current masterplan design includes the provision of terrestrial habitat including woodland, scrub, hedgerows and longer grassland, as well as the enhancement of aquatic habitats and rewetting of Tunstalls Farm LWS.	Planning Condition for mitigation. Section 106 Agreement for compensation & enhancement.	No contravention of wildlife legislation. Significant positive effect at Local level in the long-term.
Reptiles	Risk of harm during vegetation clearance	PWMS to be detailed within the CEMP: Biodiversity.	-	Planning Condition	No contravention of wildlife legislation and no significant residual negative effect.
Birds – Breeding	Risk of harm to nesting birds caused by vegetation clearance taking place during the	Clearance/ pruning of vegetation suitable for nesting birds will take place outside of the nesting bird season to avoid impacts on nesting birds.	Planting of 1,330 individual trees in public realm.	Planning Condition for mitigation	No contravention of wildlife legislation and

Ecological Feature	Potential Impacts	Proposed Mitigation	Proposed Compensation & Enhancement	Means of Delivering	Residual Effects
	nesting bird season (March to August inclusive). Large-scale habitat loss, particularly of arable habitats.	If any suitable bird nesting habitat requires removal or otherwise disturbing during the nesting season, this will be preceded by an inspection for nesting birds by the ECoW. If active nests are found to be present, clearance / disturbance must stop until the young have fledged.	Planting of 3.389 ha woodland including wet woodland. Planting of 14.12 km of species-rich native hedgerow. Planting of 3.136 ha of native scrub. Bird boxes incorporated into at least 25% of new properties during construction. Off-site arable provision including cropland, skylark plots, arable field margins and hedgerows. To be further refined following breeding bird surveys.	Section 106 Agreement for compensation	No significant residual negative effect.
Birds - Wintering	Large-scale habitat loss, possibly comprising FLL to Mersey Estuary SPA and Mersey Estuary Ramsar.	Mitigation to be identified through a HRA for each development plot. To be informed by up to two full years of winter bird survey data.	Off-site arable habitat provision. To be further refined following winter bird surveys and HRA process.	Planning Condition for mitigation Section 106 Agreement for compensation	No contravention of wildlife legislation and no significant residual negative effect.
Bats – Roosting, foraging and commuting	Risk of destroying, damaging or disturbing bat roosts, and risk of killing or injury bats. Disturbance to bats through artificial lighting in construction and operation. Small-scale loss of woodland edge and hedgerows.	Bat surveys for each development plot at appropriate time of year. Individual licences for impacts to bat roosts on a case-by-case basis, if required. Wildlife-friendly lighting strategy to be provided. Foraging and commuting habitats retained with buffers (15m for woodland).	Bat boxes incorporated into at least 25% of new properties during construction. Landscaping to include significant areas of suitable foraging habitat and suitable dark commuting corridors through the Site, including hedgerows, woodland, scrub and grassland.	Planning Condition	No contravention of wildlife legislation and no significant residual negative effect.

Ecological Feature	Potential Impacts	Proposed Mitigation	Proposed Compensation & Enhancement	Means of Delivering	Residual Effects
Badger & hedgehog	Risk of badger excavating new setts both on or immediately adjacent to Site. Harm to badger and hedgehog during Site clearance and construction. Disturbance to both species through artificial lighting in construction and operation. Large-scale habitat loss and fragmentation.	Pre-construction badger survey. PWMS to be detailed within the CEMP: Biodiversity. Wildlife-friendly lighting strategy to be detailed within the CEMP: Biodiversity.	Landscaping to include habitat corridors through the Site and creation of suitable habitat for both species including woodland, scrub, grassland and hedgerows. Hedgehog highways, 15 cm x 15 cm gap created within fences.	Planning Condition	No contravention of wildlife legislation and no significant residual effect.
Brown hare	Harm during Site clearance and construction. Large-scale habitat loss and fragmentation.	PWMS to be detailed within the CEMP: Biodiversity.	Off-site arable habitat compensation will benefit brown hare locally.	Planning Condition for mitigation Section 106 Agreement for compensation	No contravention of wildlife legislation and no significant residual effect.

5.0 Conclusion

An Ecological Impact Assessment (EcIA) has been undertaken to inform a masterplan framework for a multi-plot residential development at Bold Forest Garden Village.

The Site consists of arable fields and horse-grazed pasture with hedgerow and ditch boundaries, scattered ponds and occasional blocks of scrub and woodland. The Site boundary also includes Tunstalls Farm Local Wildlife Site (LWS). The Site is bordered on all sides by roads, with urban development prevalent to the north and west. The site is connected to wider countryside and semi-natural habitats, including woodlands, especially on the southern boundary, with important but narrower links to the north and east. The site supports a range of habitats and species typical of the habitats present and those of biodiversity interest, i.e. identified as important ecological features, have been subjected to detailed assessment.

The masterplan has been designed in accordance with the mitigation hierarchy, the Biodiversity Gain hierarchy, and the key results of ecological surveys and assessments. Key habitats and corridors will be retained including Tunstalls Farm LWS, woodland, hedgerows, ditches and ponds.

Potential impacts to ecological features include loss of Functionally Linked Land (FLL) for wintering birds in relation to Mersey Estuary SPA and Ramsar, habitat damage through construction or increased recreational pressure, risk of spreading INNS, habitat loss and fragmentation, and harm or disturbance of protected and notable species.

Proposed mitigation measures include:

- Additional ecological assessments for future planning applications within the masterplan area, including Habitats Regulations Assessment (HRA), Mandatory Biodiversity Net Gain Assessments (where exemptions do not apply), INNS survey and management plan, breeding and winter bird surveys, bat surveys and pre-construction badger survey.
- Leaflets to educate residents on the responsible use of local greenspaces;
- Site-wide GCN masterplan with each development plot to have a European Protected Species Mitigation Licence, demonstrating it contributes to the master plan;
- Mitigation licences for roosting bats on a case-by-case basis, if required;
- Precautionary working methods in relation to reptiles, nesting birds, badger, hedgehog and brown hare; and
- Wildlife-friendly lighting strategy.

Compensation and enhancement measures are also proposed, including:

- Enhancement of Tunstalls Farm LWS through rewetting, overseeding of grassland and woodland planting;
- On-site landscaping including species-rich native hedgerows, broadleaved woodland, other neutral grassland, seasonally wet grassland, individual trees, native mixed scrub, allotments and amenity areas;
- Bird boxes integrated into minimum 25% of dwellings;
- Bat boxes integrated into minimum 25% of dwellings;
- Hedgehog highways through all solid garden fences; and,

- Off-site arable provision for farmland birds, also benefitting brown hare.

The masterplan was assessed as having significant negative effects in the short- to medium-term due to habitat loss. However, all residual effects were assessed as not significant or significant positive in the long-term, and there would be no contravention of wildlife legislation.

It is anticipated that through detailed design and further optimisation of the habitat types, area and proposed habitat conditions, the Site could achieve a minimum 10% Biodiversity Net Gain. Each plot that comes forward under the masterplan will be required to demonstrate it can achieve a minimum 10% BNG on its own merit to be granted planning permission in accordance with the prevailing legal and policy framework at the time of the planning application.

Figure 1 Site Location Plan

Ecological Impact Assessment

Bold Forest Garden Village

Avison Young (UK) Ltd

SLR Project No.: 410.066257.00001

22 October 2025

Figure 2.1 – 2.6 UK Habitat Assessment Baseline

Ecological Impact Assessment

Bold Forest Garden Village

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Appendix A Relevant Legislation and Planning Policy

Ecological Impact Assessment

Bold Forest Garden Village

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Appendix B PEA Report (supplied separately)

Ecological Impact Assessment

Bold Forest Garden Village

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Appendix C GCN Survey Report (supplied separately)

Ecological Impact Assessment

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Appendix D Winter Bird Survey Report

Ecological Impact Assessment

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Appendix E Bat Survey Report

Ecological Impact Assessment

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Appendix F Preferred Option Masterplan

Ecological Impact Assessment

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Appendix G Draft Landscape GI and BNG Plan (R4)

Ecological Impact Assessment

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Appendix H Biodiversity Net Gain – Masterplan Design Stage Report

Ecological Impact Assessment

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Appendix I Baseline Habitat Condition Sheets

Ecological Impact Assessment

Bold Forest Garden Village

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Appendix J Example Planning Conditions

Ecological Impact Assessment

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22 October 2025

Below are some relevant examples of planning conditions from a separate multi-plot scheme that could be used to secure biodiversity mitigation at the BFGV site.

CEMP: Biodiversity

"Prior to the commencement of the development (including demolition, ground works, vegetation clearance) of each development zone, a construction environmental management plan for Biodiversity (CEMP: Biodiversity) shall be submitted to and approved in writing by the local planning authority. The CEMP (Biodiversity) shall include the following:

i. Update ecological surveys for protected species and habitats, which shall be of an appropriate type with survey methods following national good practice guidelines.

ii. Risk assessment of potentially damaging construction activities.

iii. Identification of biodiversity protection zones.

iv. Practical measures (both physical measures and sensitive working practices) to avoid, reduce or mitigate the impacts on important habitats and protected species during construction.

v. The location and timing of sensitive works to avoid harm to biodiversity features.

vi. The times during construction when specialist ecologists need to be present on site to oversee works.

vii. Roles, responsible persons and their required competencies and lines of communication.

viii. Use of protective fences, exclusion barriers and warning signs, and other materials to be used where relevant.

ix) initial aftercare and long-term maintenance (to make reference to and accord with provisions within the BNG MMP , which commences after construction period).

The approved CEMP shall be adhered to and implemented throughout the construction period strictly in accordance with the approved details, unless otherwise agreed in writing by the local planning authority.

Note that the CEMP would be a governing document during construction, with the BNG MMP to take over biodiversity management, monitoring and maintenance upon completion of construction."

Biodiversity Net Gain

"In conjunction with the strategic landscaping scheme and prior to the commencement of any development except for demolition a scheme ("Biodiversity Net Gain Management and Monitoring Plan" (BNG MMP)) for the delivery of a minimum of 10% biodiversity net gain at the site shall be submitted to and agreed in writing by the Local Planning Authority. The BNG MMP shall be written in accordance with good practice guidance (1) and include:

1) the project's biodiversity baseline assessment against which BNG outcomes are assessed and monitored;

2) the over-arching project BNG targets;

3) build-zone specific BNG targets that contribute to the total target;

3) the number of years to achieve and then maintain the BNG targets;

4) a programme detailing the long-term phases of management and monitoring activities (to include for the provision these measures for no less than 30 years);

5) a monitoring plan to inform decisions about management, by assessing whether progress towards the BNG targets is on track or whether changes to management are required to achieve the targets; and

6) the roles, responsibilities and required competencies of those involved with implementing and monitoring the BNG design during the construction and post-construction stages.

Quantification of biodiversity baseline and targets should use a transparent and easily understood metric, e.g. DEFRA BNG Statutory Metric.

The written approval of the Local Planning Authority will not be issued before the arrangements necessary to secure the delivery of the BNG MMP have been executed. The BNG MMP shall then be implemented in full accordance with the requirements of the approved scheme.

(1) Biodiversity Net Gain, A Practical Guide, 11.7.2. CIEEM, CIRIA, IEMA. Biodiversity net gain. Good practice principles for development. A practical guide. CIRIA C776a. London, 2019. Available at: https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf"

Appendix K Statutory Biodiversity Metric (supplied separately)

Ecological Impact Assessment

Bold Forest Garden Village

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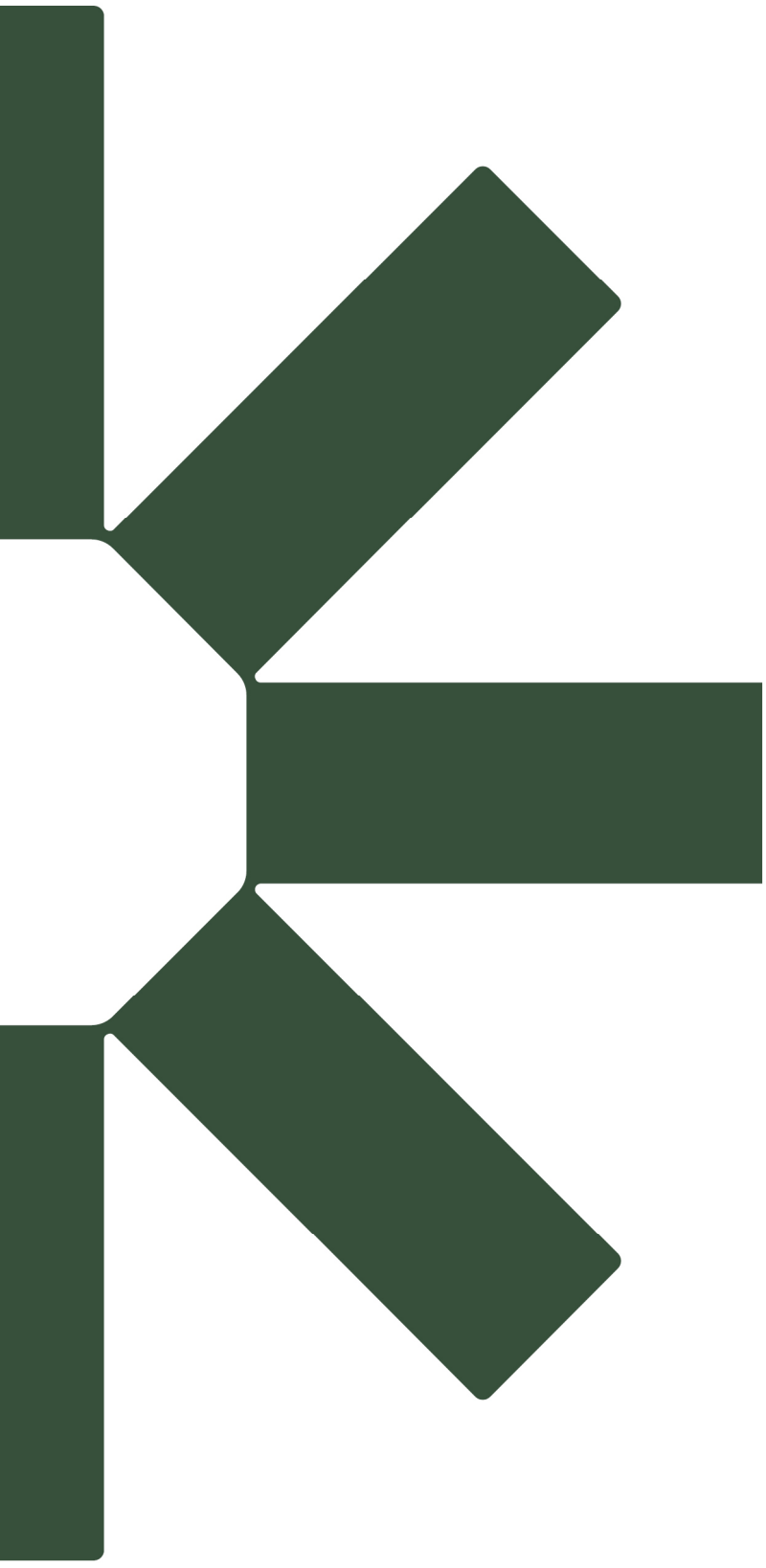
22 October 2025



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