

P28 Allington Lane - Hearts – Preliminary Ecological Appraisal

Eastleigh Borough Council

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Ecus Ltd

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Executive Summary

Ecus Limited (Ecus) was commissioned by Eastleigh Borough Council to undertake a Preliminary Ecological Appraisal (PEA) (Chartered Institute of Ecology and Environmental Management (CIEEM), 2017) for land east of Allington Lane, South Bishopstoke, Eastleigh, Hampshire, known as Allington Lane Hearts.

Eastleigh Borough Council (EBC) has recently acquired 243.23 hectares of agricultural land. Allington Lane Hearts is one of the parcels that comprises the overall 243.23 hectares. The land was purchased with the view to generate credits via biodiversity enhancement measures from Ecological Opportunities that developers could purchase in order to offset their nutrient outputs. It is understood that it is also possible to generate further credits from the land for other mitigation and/or consider the land for additional purposes.

Survey findings would support applications relating to the generation of further mitigation credits and/or inform additional uses of the land. Biodiversity net gain (BNG) baseline assessments are to be undertaken in readiness for mandatory 10% BNG in November 2023 as required by the new Environment Act (2021).

From the habitat survey (UKHabs), the baseline habitats within the survey area comprised:

- g3c 11 69 - Other neutral grassland – Scattered trees – Fence;
- w1f7 33 119 - Other lowland mixed deciduous woodland – Ancient woodland – Seasonally wet;
- g3c8 – *Holcus juncus* neutral grassland;
- w1g6 – Line of trees;
- u1d – Suburban/mosaic of developed/natural surface.

One pond (r1 41 – Standing open water – Freshwater) was located within the Site. This pond was assessed as being in **Good** condition.

Full botanical species lists are provided in **Appendix 3**.

The calculated BNG baseline for the Site is:

- Total habitat units (HU): 139.49
- Hedgerow units (HeU): 4.50

A map of the baseline habitats is provided in **Figure 2** and the raw BNG baseline data is provided in **Appendix 4**.

See **Section 5.1** for ecological constraints and mitigation options and **Section 5.3** for ecological opportunities.

1. Introduction

1.1 Scope

- 1.1.1 Ecus Limited (Ecus) was commissioned by Eastleigh Borough Council to undertake a Preliminary Ecological Appraisal (PEA) (Chartered Institute of Ecology and Environmental Management (CIEEM), 2017) for land at east of Allington Lane, South Bishopstoke, Eastleigh, Hampshire, known as Allington Lane Hearts.
- 1.1.2 This report details the results of a desk study, habitat survey and protected species assessment carried out on 11th January 2023 by experienced Ecus ecologists. The methodologies employed and all survey findings are described along with an evaluation and assessment of the ecological importance of the Site. Any requirement for further survey work and/or mitigation/enhancement is also detailed as required.
- 1.1.3 The PEA focussed on the Site which is defined by the red line 'Site boundary' on **Figure 1**.

1.2 Site description

- 1.2.1 The Site measures approximately 15.07 ha in area and includes neutral grassland, lowland mixed deciduous woodland, lines of trees and scrub and a woodland pond. The Site is located at National Grid Reference (NGR) SU 48130 16795 and its extent can be viewed on **Figure 1**. The habitat map is illustrated on **Figure 2** and the Site habitat photographs can be viewed in **Appendix 1**.
- 1.2.2 The Site is situated within a widely rural environment, with arable and pastoral land interspersed with small blocks of woodland and hedgerows encompassing much of the wider area surrounding the Site. The city of Southampton is located 2.5 km south west of the site, with the town of Eastleigh located 2 km north west.

1.3 Project scope

- 1.3.1 Eastleigh Borough Council (EBC) has recently acquired 243.23 hectares of agricultural land. Allington Lane Hearts is one of the parcels that comprises the overall 243.23 hectares. The land was purchased with the view to generate credits via biodiversity enhancement measures from Ecological Opportunities that developers could purchase in order to offset their nutrient outputs. It is understood that it is also possible to generate further credits from the land for other mitigation and/or consider the land for additional purposes.
- 1.3.2 Survey findings would support applications relating to the generation of further mitigation credits and/or inform additional uses of the land. Biodiversity net gain (BNG) baseline assessments are to be undertaken in readiness for mandatory 10% BNG in November 2023 as required by the new

Environment Act (2021).

1.4 Quality assurance

- 1.4.1 The habitat survey and protected species assessment was completed by Senior Ecologist Alex Hellyar BSc (Hons) and Assistant Ecologist Nicole Bell MSc BSc (Hons).
- 1.4.2 The associated PEA report was completed by Assistant Ecologist Nicole Bell MSc BSc (Hons).
- 1.4.3 Senior Ecologist Alex Hellyar has reviewed this report in accordance with Ecus' Quality Assurance policy.
- 1.4.4 The report was approved by Abel Drewett MSc CEnv MCIEEM, Technical Director for Ecology at Ecus.

2. Legislation

2.1.1 The primary purpose of the PEA was to identify any ecological constraints to the proposed works, including designated sites for nature conservation, habitats and species protected by legislation, namely, but not limited to:

- The Wildlife & Countryside Act 1981 (as amended) (“the WCA 1981”);
- The Conservation of Habitats and Species Regulations (EU Exit) 2019 (as amended) (“the Habitats Regulations”);
- The Protection of Badgers Act 1992;
- The Natural Environment and Rural Communities Act 2006 (“the NERC Act”); and
- The Environment Act 2021.

2.1.2 Further details for species protected by the above legislation are provided in **Appendix 2**.

3. Methodology

3.1 Data Consultation

- 3.1.1 Obtaining existing biological records is an important part of the PEA process, as it provides additional information that may not be apparent during a site visit and provides a more in-depth baseline from which to inform recommendations and mitigation.
- 3.1.2 Hampshire Biodiversity Information Centre (HBIC) provided recent (within the past 10 years) biological record data within 2 km of the Site, on behalf of Eastleigh Borough Council to inform the desk study for this project.
- 3.1.3 The data obtained from HBIC includes records of protected and notable species, invasive non-native species (INNS) and non-statutory designated sites for nature conservation.
- 3.1.4 In addition, Ecus used the Government's Multi-Agency Geographical Information for the Countryside (MAGIC) database (MAGIC, 2023) to identify statutory designated sites of international and European nature conservation importance within 10 km of the Site, other statutory designated sites within 2 km of the Site and any records of European Protected Species (EPS) mitigation licences granted within 2 km of the Site.
- 3.1.5 Information obtained from MAGIC and HBIC is included within the report where appropriate.

3.2 Site Survey

- 3.2.1 A habitat survey and protected species assessment was completed in accordance with industry guidelines (CIEEM, 2017 & Butcher *et al.*, 2020) on 11th January 2023.
- 3.2.2 Weather conditions and visibility considered suitable for the purpose of the survey (temperature = 10°C, wind = Beaufort 3, cloud = 50% cover, precipitation = intermittent mild to heavy rain). However, some areas were widely inundated with surface water from recent prolonged heavy rainfall, which may represent ground conditions and features (such as temporary waterbodies) that may only be present on a rare basis.
- 3.2.3 The Survey Area is shown by the red line boundary in **Figure 1**. Botanical species were recorded and a species list was compiled. Habitat type was categorised using the UKHab methodology.
- 3.2.4 The habitats within the Survey Area were identified to a Level 4 or Level 5 using the UKHab methodology.
- 3.2.5 This survey method aims to characterise habitats and communities present and is not intended to provide a complete list of all plants occurring across the Survey Area.

- 3.2.6 Evidence of protected species, species of nature conservation importance and notable, rare, or scarce species was recorded if field signs were present at the time of survey. Any evidence recorded is included within the report as appropriate and represented as Targets Notes (TN) in **Figure 3**. Photographs were taken of each habitat type and any features with potential to support protected or notable species.
- 3.2.7 Any habitats present which are listed under Section 41 of the NERC Act or the Local Biodiversity Action Plan (LBAP) were noted.
- 3.2.8 The importance of ecological features present within the Survey Area was determined based on the guidance given in CIEEM Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017).
- 3.2.9 Where possible, ecological features (habitats and species that could be affected by the proposed works) were assigned levels of importance for nature conservation. The hierarchy of importance used in this report scales from international, national, regional, county, local and lastly Site level where appropriate (CIEEM, 2017).

3.3 Biodiversity Net Gain Assessment

- 3.3.1 Biodiversity metric calculations provide a numerical score for the current baseline value (Habitat Units, Hedgerow Units and / or River (watercourse) Units) of the habitats on Site, in order for the potential impact of any proposed works to be quantitatively assessed.
- 3.3.2 The BNGA used the current biometric tool, the 'Biodiversity Metric 3.1 Auditing and accounting for biodiversity - Calculation Tool' (BM3.1) distributed by Natural England.
- 3.3.3 BM3.1 uses a classification system based mainly on the UK Habitat Classification System (UKHabs). Where applicable, habitats were subject to a condition assessment in accord with the Condition Assessment Sheets included within the 'Biodiversity Metric 3.1: Auditing and accounting for biodiversity – Technical Supplement 1a (2022)' produced by Defra.
- 3.3.4 Using the BM3.1 tool, habitat values are calculated based on whether they occur commonly or whether they are rare, their area (ha) (or length (km) for linear features such as hedgerows), condition and importance within the local area, usually identified from local relevant planning policies or documents. This gives individual pre-development Habitat Units (HU), Hedgerow Units (HeU) and River Units (RU).
- 3.3.5 The Minimum Mappable Unit (MMU) used was 25 m² for areas and 5 m length x 1 m width for linear features. Secondary codes were utilised, focusing on habitat features and land use. Under UKHab guidance, this MMU requires the mapping of linear features as polygons if they are wider

than 1m. This does not translate effectively into the Biodiversity Metric, which requires linear features to be inputted as lengths (km). As such, some of the polygon area features have required manual conversion into lengths for the purposes of the biodiversity baseline.

3.3.6 Habitat type has been digitised using QGIS version 3.28, 2022, see **Figure 2**.

3.3.7 The results of the BNG assessment will be detailed within **Section 4**.

3.4 Protected Species

3.4.1 Any evidence of, or potential for protected and/or otherwise notable species encountered during the survey was recorded. This included observations of field signs and an assessment of the suitability of the habitats present to support protected species.

Amphibians

3.4.2 A desk-based assessment was undertaken using a 1:25,000 scale OS map to identify all waterbodies within 250 m of the Site that are not separated by a significant barrier to amphibian dispersal (such as a major road or fast flowing watercourse).

3.4.3 As garden ponds within residential properties are often absent from OS map sources, aerial photography was also used to search for additional ponds.

3.4.4 Habitats present within the Site were assessed for their suitability to support amphibians including great crested newt (GCN) *Triturus cristatus*. The connectivity of any suitable habitat within the Site to other habitat within the surrounding area was assessed during the Site visit and through visual analysis of aerial imagery.

3.4.5 Waterbodies within the Survey Area were subject to a Habitat Suitability Index (HSI) assessment following guidance outlined in Amphibian and Reptile Group (ARG) UK Advice Note 5 (ARG, 2010) to assess suitability of waterbodies to support GCN.

Badger

3.4.6 Field signs of badger *Meles meles* within the Survey Area were recorded in accordance with the standard methodology outlined by Harris *et al.* (1989), which includes surveying for setts and for field signs such as latrines, hairs, foraging signs and pathways.

Bats

3.4.7 In accordance with the Bat Conservation Trust's best practice guidelines (Collins, 2016), the suitability of habitat features within the Survey Area to support roosting bats was categorised as negligible, low, moderate or high. This was based on the number and type of roosting features and

surrounding landscape character.

- 3.4.8 Any structures and trees present within the Survey Area were subject to an external visual assessment, undertaken from ground-level using binoculars. This approach enabled a search for the presence of Potential Roosting Features (PRFs) which could be used by roosting bats.
- 3.4.9 An individual tree or structure may have several PRFs associated with it. It is not always possible to confirm if a feature is used by bats, as bats may not use the feature frequently.
- 3.4.10 Habitats within the Survey Area were also assessed for their suitability to support foraging and commuting bats.

Birds

- 3.4.11 Species of birds noted incidentally during the survey were recorded and details of suitable habitats for nesting birds were recorded, including those species with enhanced statutory protection, where possible.

Fish

- 3.4.12 Any watercourses present within the Survey Area were assessed for their suitability to support protected and notable fish species such as Atlantic salmon *Salmo salar*, brown trout *S. trutta* and European eel *Anguilla anguilla*.

Hazel dormouse

- 3.4.13 Habitats within the Survey Area were assessed for their potential to support hazel dormouse *Muscardinus avellanarius*, including recording of plant species that could provide foraging and nesting habitat. The connectivity of any suitable habitat within the Survey Area to other habitat within the surrounding area was assessed during the survey and through studying aerial imagery.

Invertebrates (including white-clawed crayfish)

- 3.4.14 Habitats were assessed for their potential to support notable or protected terrestrial and aquatic invertebrates.
- 3.4.15 Any watercourses within the Survey Area were assessed for their suitability to support white-clawed crayfish *Austropotamobius pallipes*.

Otter

- 3.4.16 Watercourses and waterbodies within the Survey Area were assessed for their suitability to support otter *Lutra lutra*. This involved recording field signs such as: droppings (spraints), footprints, feeding remains, lying-up areas, holts, areas of habitat considered suitable for otters and actual

observations (Chanin, 2003).

- 3.4.17 Terrestrial habitats present within the Survey Area were also assessed for their suitability to support otter and for their connectivity to watercourses and other suitable habitat within the surrounding area.

Widespread Reptiles

- 3.4.18 The habitats present within the Survey Area were assessed for their suitability to support basking, foraging and hibernating reptiles. The connectivity of any suitable habitat within the Survey Area to other habitat within the surrounding area was assessed during the survey and through studying aerial imagery. Any incidental reptile encounters made during the survey were recorded.

Water vole

- 3.4.19 Watercourses and waterbodies within the Survey Area were assessed for their suitability to support water vole *Arvicola amphibius*. Any evidence of water vole was recorded, such as: burrows, latrines, footprints, runs in the vegetation, grazed 'lawns', feeding remains and actual sightings (Dean *et al*, 2016).
- 3.4.20 Terrestrial habitats present within the Survey Area were also assessed for their suitability to support water voles and for their connectivity to watercourses and other suitable habitat within the surrounding area.

Other protected and notable species

- 3.4.21 Habitats were additionally assessed for their potential to support other protected species, nationally or locally scarce species, or notable species.

Invasive non-native species (INNS)

- 3.4.22 Any evidence of invasive non-native plant species listed under Schedule 9 of the WCA 1981 was recorded during the survey including, but not limited to: Japanese knotweed *Reynoutria japonica*, hybrid knotweed *R. x bohemica*, giant hogweed *Heracleum mantegazzianum* and Himalayan balsam *Impatiens glandulifera*.
- 3.4.23 Evidence of invasive non-native animal species was also noted and any relevant recommendations have been made in Section 5.

3.5 Limitations

- 3.5.1 Every effort has been made to provide a comprehensive description of the Site and Survey Area, but the following specific limitations apply to this appraisal.

- 3.5.2 The survey undertaken was intended to provide a rapid assessment of the broad habitats present within the Survey Area and was not intended to replace detailed vegetation or protected species surveys. Where a greater level of information is necessary to inform an assessment, recommendations have been made to undertake further detailed survey.
- 3.5.3 Surveys of this type provide a snapshot of the Survey Area at the time of the survey.
- 3.5.4 The survey was completed in January, which is outside the optimal habitat survey period (May to September inclusive), but considered acceptable for this project due to the nature of the proposals and the common habitat types recorded. Many plant species would not be present at this time of year. However, it is considered that an adequate assessment of the habitats and protected/notable species potential of the Survey Area has been made.

4. Results and Discussion

4.1 Statutory Designated Sites for Nature Conservation

4.1.1 Hampshire Biodiversity Information Centre (HBIC) and MAGIC returned five records of sites designated at the international and/or European level located within 10 km of the Site. These Sites are detailed in **Table 1**.

Table 1: Statutory Sites of International and/or European level within 10 km of the Site.

Name and Designation	Reasoning for Designation	Distance and Direction from Site
River Itchen Special Area of Conservation (SAC)	H3260 Water courses of plain to montane levels with <i>R. fluitantis</i> S1044 Southern damselfly, <i>Coenagrion mercuriale</i> S1092 Freshwater crayfish, <i>Austropotamobius pallipes</i> S1096 Brook lamprey, <i>Lampetra planeri</i> S1106 Atlantic salmon, <i>Salmo salar</i> S1163 Bullhead, <i>Cottus gobio</i> S1355 Otter, <i>Lutra lutra</i>	860 m north-west
Solent Maritime SAC	H1110 Sandbanks which are slightly covered by sea water all the time H1130 Estuaries H1140 Mudflats and sandflats not covered by seawater at low tide H1150 Coastal lagoons H1210 Annual vegetation of drift lines H1220 Perennial vegetation of stony banks H1310 Salicornia and other annuals colonising mud and sand H1320 Spartina swards (<i>Spartinion maritimae</i>) H1330 Atlantic salt meadows (<i>Glauco-</i>	5.34 km south-east

Name and Designation	Reasoning for Designation	Distance and Direction from Site
	<i>Puccinellietalia maritima</i>) H2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("White dunes") S1016 Desmoulin's whorl snail, <i>Vertigo moulinsiana</i>	
Solent and Southampton Water Special Protection Area (SPA)	A complex major estuarine system consisting of coastal plain estuaries. Estuarine sediments within the site support rich populations of invertebrates that provide an important food source for wintering birds. The Solent as a whole exceeds 90,000 waders annually and the mudflats, coastal lagoons, shingle and saltmarsh provide vital feeding and roosting grounds for these. The shingle banks also provide important breeding grounds for terns. The Solent also supports 10-13% of world's population of dark-bellied Brent geese, and 30% of the UK population.	5.44 km south-west
Solent & Southampton Water Ramsar site	A complex major estuarine system consisting of coastal plain estuaries. Estuarine sediments within the site support rich populations of invertebrates that provide an important food source for wintering birds. The Solent as a whole exceeds 90,000 waders annually and the mudflats, coastal lagoons, shingle and saltmarsh provide vital feeding and roosting grounds for these. The shingle banks also provide important breeding grounds for terns. The Solent also supports 10-13% of world's population of dark-bellied Brent geese, and 30% of the UK population.	5.70 km south-west
Emer Bog SAC	H7140 Transition mires and quaking bogs	9.03 km north-west

4.1.2 There are no opportunities, specific to this land parcel, for local statutory designated sites to be improved as part of this scheme.

4.1.3 There were two statutory designated sites relating to nature conservation of national or less than national importance located within 2 km of the Site. These Sites are detailed in **Table 2**.

Table 2: Statutory Sites of Nature Conservation of National level within 2 km of the Site.

Name and Designation	Reasoning for Designation	Distance and Direction from Site
River Itchen Site of Special Scientific Interest (SSSI)	Played a significant role in the development of the theory of underfit streams that related change in stream activity to postglacial climatic change and reduced discharges. The characteristic features of underfit valleys are well-developed at the site and include sinuosity on a large scale.	860 m north-west
Moorgreen Meadows SSSI	The meadow is of exceptional scientific importance for its populations of marsh orchids <i>Dactylorhiza</i> , including an isolated population of Northern Marsh Orchid <i>D. purpurella</i> . Site is a good example of micro-evolution through hybridisation of the <i>Dactylorhiza</i> species present.	1.95 km south

4.2 Non-statutory designated sites

4.2.1 There were 31 non-statutory designated sites for nature conservation within 2 km of the Site, all of which are Sites of Importance for Nature Conservation (SINCs). One SINC was within the Site; details are listed in **Table 3** below.

Table 3: Non-Statutory Sites for Nature Conservation on or bordering the Site.

Name and Designation	Reasoning for Designation
Hearts Copse	Criteria 1A: Ancient Semi-natural Woodlands

4.2.2 There are opportunities for Hearts Copse be improved as part of this scheme.

4.3 Other important habitats

Ancient woodland

- 4.3.1 MAGIC identified seven ancient woodland sites within 2 km of the Site listed within the Ancient Woodland Inventory (AWI).
- 4.3.2 The closest of these records pertained to the Hearts Copse SINC that lies within the Site boundary.
- 4.3.3 It is understood that Hearts Copse could be improved to generate further credits.

Habitats of Principal Importance

- 4.3.4 Five Habitats of Principal Importance (HPI) were recorded within 2 km of the Site. These pertained to: deciduous woodland, traditional orchards, coastal and floodplain grazing marshland, lowland meadows and purple moor grass and rush pasture. The closest of these habitats were deciduous woodland which was located within the Site and coastal and floodplain grazing marshland which bordered the Site to the south.
- 4.3.5 Given the distance from the Site, it is considered that the Habitats of Principal Importance could be improved to generate further credits.

Aquatic habitats

- 4.3.6 Three waterbodies were identified within 250 m of the Site. These pertain to a small woodland pond located within Hearts Copse, one pond located at Chalcroft Farm 320 m east of the Site and one pond located 105 m east of the Site within a small patch of woodland.
- 4.3.7 Five watercourses were identified within 30 m of the Site, these all pertained to drainage ditches.
- 4.3.8 There is scope to improve the condition of the woodland pond within Hearts Copse, however there appeared limited hydrological connectivity within the local area.

4.4 Habitat Assessment

- 4.4.1 The habitats within the Survey Area are detailed below in order of size (largest area to smallest area). The descriptions should be read with reference to the habitat map (see **Figure 2**) and the habitat photographs in **Appendix 1**.

g3c – Other neutral grassland - Secondary codes: 11 Scattered trees, 69 fence

- 4.4.2 The Site was primarily dominated by other neutral grassland containing scattered trees (approximately 8.11 ha). Species recorded on Site related to this habitat include, but are not limited to: perennial rye grass *Lolium perenne*, sweet vernal grass *Anthoxanthum odoratum*, red fescue *Festuca rubra*, common comfrey *Symphytum officinale*, mugwort *Artemisia vulgaris*, bramble *Rubus fruticosus*, ragwort *Jacobaea vulgaris*, bristly ox-tongue *Helminthotheca echioides*, crosswort *Cruciata laevipes*, cleavers *Galium aparine*, chickweed *Stellaria media*, common daisy *Bellis perennis*, creeping thistle *Cirsium arvense*, field buttercup *Ranunculus arvensis* and curled

dock *Rumex crispus*.

4.4.3 A full species list is detailed in **Appendix 3**.

4.4.4 A condition assessment was completed, although the timing of the survey was completed outside the recommended time frame May - September inclusive and may need to be revisited. The grassland was assessed as having **Moderate** condition according to the criteria within the Biodiversity Metric 3.1 (Natural England, 2022a). This habitat was unable to achieve 'Good' condition as it was found to lack the composition of nine priority grassland habitat and associated indicator species per metre squared.

4.4.5 Other neutral grassland is not listed as a habitat under Section 41 of the NERC Act, or within the south Hampshire LBAP. Furthermore, given the habitat is not located within or in close proximity to a designated biodiversity opportunity area (BOA) this habitat is considered to have low strategic significance in relation to BNG.

w1f7 Other Lowland mixed deciduous woodland - Secondary codes: 33 Ancient woodland site, 119 Seasonally wet

4.4.6 Hearts Copse, a lowland mixed deciduous woodland and Ancient woodland site, covering approximately 3.86 hectares is located to the south of the Site. Canopy species within the woodland was dominated by oak *Quercus robur*, ash *Fraxinus excelsior* and field maple *Acer campestre*.

4.4.7 The woodland understorey comprised hazel *Corylus avellana* and crack willow *Salix × fragilis*. Field and ground layer species were sparse and included common ivy and bramble. A full species list is provided in **Appendix 3**.

4.4.8 The woodland was assessed as having **Moderate** condition according to the criteria within the Biodiversity Metric 3.1 (Natural England, 2022a), achieving a score of 30. A higher score was not awarded primarily due to the lack of veteran trees and sparse ground flora.

4.4.9 Two smaller patches of woodland, covering approximately 0.34 hectares of the Site were also present on the eastern and southern boundaries of the Site. These woodlands contained ash, oak, hazel and field maple with an understorey of blackthorn and bramble. Both of these woodlands were assessed as having **Moderate** condition.

4.4.10 Ancient woodland is listed as a HPI under the NERC Act and within the south Hampshire LBAP. The other lowland mixed deciduous woodland is therefore important for nature at the **National level** and will be a potential constraint to the proposed works if vegetation management is required.

4.4.11 Furthermore, given that Hearts Copse is a SINC designated specifically for the protection of Ancient

Semi-natural Woodlands, this habitat is considered to have high strategic significance in relation to BNG.

g3c8 Holcus juncus neutral grassland Secondary code 25 Coastal and floodplain grazing marsh

- 4.4.12 The survey area comprised one small parcel (approximately 1.63 ha) of Holcus-Juncus neutral grassland located within the south west corner of the Site.
- 4.4.13 Soft rush *Juncus effusus* was the dominant species within this habitat. Other abundant species included meadow foxtail *Alopecurus pratensis*, common sedge *Carex nigra*, sphagnum moss species *Sphagnum sp.*, sweet vernal grass *Anthoxanthum odoratum*, creeping buttercup *Ranunculus repens* and white clover *Trifolium repens*.
- 4.4.14 The condition score for this parcel was **Moderate**, due to failing several of the grassland condition criteria. The habitat was found to lack the composition of nine priority grassland habitat and associated indicator species per metre squared.
- 4.4.15 Holcus-Juncus neutral grassland is one of the neutral grassland types typical of poorly-drained permanent pastures in lowland areas. This habitat is not listed under the UKBAP or HBP's Biodiversity Strategy.
- 4.4.16 Floodplain grazing marsh is defined as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. This habitat is identified as being the most threatened and requiring conservation action under the UK Biodiversity Action Plan (UK BAP).
- 4.4.17 Furthermore, this habitat is recorded under the Hampshire Biodiversity Partnership's (HBP) Biodiversity Action Plan Habitat list. The importance of this habitat is primarily associated with the valuable resources provided for rare invertebrates, wintering and breeding birds. Therefore, this habitat is considered to have high strategic significance within BNG.

w1g6 - Line of trees

- 4.4.18 Numerous lines of trees were located along the boundary of the Site. The trees were deciduous broadleaved. An understorey cover consisting of bramble, blackthorn *Prunus spinosa*, dogwood *Cornus sanguinea* and ivy *Hedera helix* was present in the line of trees running along the northern and western extents of the Site.
- 4.4.19 Species that were visible included elder *Sambucus nigra*, ash, oak and field maple. A full species list is provided in **Appendix 3**.

- 4.4.20 A condition assessment and full species list were completed on all of the line of trees present on the Site.
- 4.4.21 Tree group 1 (western boundary of Site) was assessed as having **Moderate** condition. This tree group failed to achieve a good condition score as there was not an undisturbed naturally vegetated strip of at least 6m on both sides of the trees and there were substantially large gaps within the tree canopy.
- 4.4.22 Tree group 2 (northern boundary of Site) was assessed as having **Good** condition. This group of trees contained more than 70% native species, with a continuous tree canopy and a number of mature trees present. There was an undisturbed naturally vegetated strip of at least 6m on both sides of the trees and little evidence of damage from wild animals or human activity.
- 4.4.23 Tree group 3 (central) was assessed as having **Moderate** condition. This tree group failed to achieve a good condition score as there were substantially large gaps within the tree canopy.
- 4.4.24 Lines of trees is not listed as a habitat under Section 41 of the NERC Act, or within the south Hampshire LBAP.
- 4.4.25 Furthermore, given the habitat was not located within or in close proximity to a designated biodiversity opportunity area (BOA) this habitat is considered to have low strategic significance in relation to BNG.

u1d – Suburban / mosaic of developed / natural surface

- 4.4.26 The survey area comprised one small parcel (approximately 0.43 ha) of mosaic of developed / natural surface located on the south western boundary of the Site. A full species list is provided in **Appendix 3**.
- 4.4.27 Currently this habitat is not included within the BNG metric, however it can count towards the total baseline habitat units for the Site as **sparsely vegetated land, Ruderal-ephemeral (s 17)**.
- 4.4.28 The condition score for this habitat was **Poor**.
- 4.4.29 This habitat is not listed as a habitat under Section 41 of the NERC Act, or within the south Hampshire LBAP.
- 4.4.30 Furthermore, given the habitat is not located within or in close proximity to a designated biodiversity opportunity area (BOA) this habitat is considered to have low strategic significance in relation to BNG.

r1 – Standing open water and canals (Non priority pond) – Secondary code: 41 Freshwater

– *natural*

4.4.31 A small woodland pond of approximately 0.07 ha was located within Hearts Copse. The pond was relatively open, though did contain remnants of a fallen tree which created a lot of shading and was surrounded by good terrestrial habitat. Waterfowl were considered likely absent from the pond due to its location within the woodland, however a small population of common fish may be present.

4.4.32 The condition score for this habitat was **Good**.

4.4.33 This habitat is not listed as a habitat under Section 41 of the NERC Act, or within the south Hampshire LBAP.

4.4.34 Furthermore, given the habitat is not located within or in close proximity to a designated biodiversity opportunity area (BOA) this habitat is considered to have low strategic significance in relation to BNG.

4.5 Baseline Biodiversity Value

4.5.1 Baseline habitats within the Survey Area comprised g3c - Other neutral grassland, g3c8 - Holcus-Juncus neutral grassland, h3d - Bramble scrub, r1 – Standing open water and canals (41 Freshwater – natural), u1d – Suburban / mosaic of developed / natural surface, w1f7 Other Lowland mixed deciduous woodland and w1g6 - line of trees.

4.5.2 For this assessment the baseline habitat types and areas have been taken from the UKHabs survey carried out as part of the PEA for the Site (see **Figure 2**).

4.5.3 The Survey Area has been calculated at 15.07 ha. The habitat type, condition, areas and Habitat Units (HU) and Hedgerow Units (HeU) are provided within **Tables 4 & 5** below. Baseline habitats have produced an overall biodiversity value of 139.49 HU and 4.50 HeU for the Site.

4.5.4 The raw BNG data is provided in **Appendix 4**.

Table 4. Baseline area-based habitats, condition and Habitat Units

Habitat Type	Condition	Area (ha)	Habitat Units (HU)
Grassland 1 (Western field) g3c - Other neutral grassland	Moderate	3.63	29.04
Grassland 2 (Eastern field) g3c - Other neutral	Moderate	4.48	35.84

Habitat Type	Condition	Area (ha)	Habitat Units (HU)
grassland			
Grassland 3 (central g3c8 - Holcus-Juncus neutral grassland	Moderate	1.63	13.04
h3d - Bramble scrub	Condition Assessment N/A	0.63	2.52
r1 – Standing open water and canals (41 Freshwater – natural) (Not currently in BNG metric – inputted as Lakes – Ponds (Non- Priority Habitat))	Good	0.07	0.84
u1d – Suburban / mosaic of developed / natural surface (Not currently in BNG metric – inputted as sparsely vegetated land, Ruderal-ephemeral s17).	Poor	0.43	0.86
Woodland 1 – Hearts Copse w1f7 Other Lowland mixed deciduous woodland	Moderate	3.86	53.27
Woodland 2 – woodland corridor southwestern boundary w1f7 Other Lowland mixed deciduous woodland	Moderate	0.16	1.92
Woodland 3 – woodland corridor eastern boundary w1f7 Other Lowland mixed deciduous woodland	Moderate	0.18	2.16
Total Habitat Units (HU)			139.49

Table 5. Baseline Hedgerow Habitats, Condition and Hedgerow Units (HeU)

Habitat Type		Condition	Length (km)	Hedgerow Units (HeU)
w1g6 - line of trees	Group 1 – Western boundary	Moderate	0.22	0.88
	Group 2 – Northern boundary	Good	0.53	3.18
	Group 3 - Central	Moderate	0.11	0.44
Total Hedgerow Units (HeU)				4.50

4.6 Protected Species

Amphibians

- 4.6.1 HBIC returned 41 recent records (within the last ten years) of amphibians from within 2 km of the Site. These pertained to GCN *Triturus cristatus* and the common toad *Bufo bufo*.
- 4.6.2 Twenty-three of these records were great crested newt, with the closest record located 240 m east of the Site at the Chalcroft Farm Pond, in 2014.
- 4.6.3 MAGIC returned four granted European Protected Species (EPS) mitigation licences for GCN; these are detailed in **Table 6**.

Table 6: EPSM Licences relating to GCN within 2 km of the Site.

Licence Number	Date	Details	Distance and Direction from Site
2015-14283-EPS-MIT-1	22/04/2016 - 31/07/2019	Licence to allow damage and destruction of a resting place.	700 m west
2020-44604-EPS-MIT-1	01/05/2020 - 31/07/2028	Licence to allow damage and destruction of a resting place.	900 m north-east
EPSM2009-903		Licence to allow destruction of a resting	

Licence Number	Date	Details	Distance and Direction from Site
	17/06/2009 - 30/09/2009	place.	1.41 km north-east
2018-35734-EPS-MIT	16/08/2018 - 31/12/2025	Licence to allow damage and destruction of a resting place.	1.45 km north-east

4.6.4 MAGIC returned 46 GCN class licence survey returns from within 2 km of the Site. These dated between 19/04/2014 and 19/06/2016. The nearest of which was located 500 m south east of the Site.

4.6.5 Three potentially suitable waterbodies were identified within 250 m of the Site using MAGIC and aerial imagery. One pond was located within the Site boundary. Waterbodies outside of the Site boundary were not visited during the survey. Locations of these waterbodies are provided in **Table 7 below**.

Table 7. Waterbodies within 250 m

Waterbody No.	Location	Description
1	SU 48073 16741, within	A small woodland pond within Hearts Copse
2	SU 48615 16613, 250 m east	A small-medium sized pond within Chalcroft Farm
3	SU 47730 16989, 105 m east	A medium sized pond within P21 & P22 – Allington Lane North

4.6.6 A large network of drainage ditches were also present around the perimeter of arable field boundaries within 250 m of the Site.

4.6.7 Waterbodies within the Survey Area were subject to a Habitat Suitability Index (HSI) assessment following guidance outlined in Amphibian and Reptile Group (ARG) UK Advice Note 5 (ARG, 2010) to assess suitability of waterbodies to support GCN. **Table 8** below illustrates the results of the HSI Assessment. The full HSI Assessment can be found in **Appendix 5**.

Table 8: Habitat Suitability Index Assessment Results

Waterbody Ref. Number	NGR	Suitability Index Score	Suitability Index Score Category
Pond 1 (on site pond)	SU 48073 16741	0.88	Excellent

4.6.8 Hampshire does not currently lie within the new Natural England District Level Licencing (DLL) zone.

4.6.9 The Site provides suitable terrestrial habitat for GCN sheltering (including hibernation) within the lowland woodland and treeline bases as well as within the neutral grassland (within tall grassland and tussocks as well as the potential within small mammal burrows within the grassland). These habitats also provide potential to support foraging and dispersing amphibians including GCN.

4.6.10 The Site is likely to support common amphibian species due to the presence of ditches and suitable terrestrial habitat.

4.6.11 Due to the abundance of nearby records, suitable terrestrial habitat on Site and multiple ponds within close proximity to each other, it is considered GCN have the potential to be found on the Site.

Badger

4.6.12 HBIC returned 23 recent records of badger *Meles meles* from within 2 km of the Site. The closest record pertains to a badger located 1.7 km south from the Site, dated 2019.

4.6.13 No evidence of badger, including setts or fields signs such as latrines or hairs, were recorded during the survey.

4.6.14 The grassland and woodland habitats provided good foraging habitat for badger and it is possible that badger may use the boundary features for commuting across the wider landscape.

4.6.15 No evidence of badger, including setts or fields signs such as snuffle holes, latrines or hairs, were recorded during the survey. However, due to the transient nature of the species it is possible for a new sett to become established within suitable habitats (such as the woodland, scrub and boundary features) at any given time.

Bats

4.6.16 HBIC returned 1273 records of 10 bat species present within 2 km of the Site.

4.6.17 These include serotine *Eptesicus serotinus*, Myotis bat species *Myotis spp.*, Natterer's bat *Myotis nattereri*, Whiskered bat *Myotis mystacinus*, Daubenton's bat *Myotis daubentonii*, noctule *Nyctalus*

noctula, unidentified pipistrelle bat species *Pipistrellus spp.*, common pipistrelle *Pipistrellus pipistellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, unidentified long-eared bat species *Plecotus spp.* and brown long-eared bat *Plecotus auritus*.

- 4.6.18 The closest bat roost records pertained to brown long-eared bat, soprano pipistrelle and natterer's bat recorded within the Site boundary, dated 2020.
- 4.6.19 A search on MAGIC returned six records of granted EPS mitigation licences relating to bats within 2 km of the Site, the details of which are provided in **Table 9**.

Table 9: Granted EPSM licences for bats within 2 km of the Site

Licence number	Species	Approximate distance and direction from the Site	Licence impacts	Date
2015-16719-EPS-MIT	Common Pipistrelle.	670 m west	Licence to allow destruction of a resting place.	02/11/2015 - 31/10/2020
2019-39527-EPS-MIT	Common pipistrelle, brown long-eared bat, natterer's bat.	990 m north-east	Licence to allow destruction of resting and breeding place.	27/02/2019 - 22/02/2024
2016-22386-EPS-MIT	Common pipistrelle, soprano pipistrelle, brown long-eared.	1.20 km south-west	Licence to allow destruction of a resting place.	11/04/2016 - 30/04/2020
2019-39954-EPS-MIT	Common pipistrelle, soprano pipistrelle.	1.20 km north-east	Licence to allow destruction of a resting place.	20/03/2019 - 31/12/2024
2020-48450-EPS-MIT	Soprano pipistrelle.	1.40 km north-east	Licence to allow destruction of a resting place.	01/08/2020 - 31/12/2026
2019-42509-EPS-MIT	Common pipistrelle, serotine.	1.98 km south-west	Licence to allow destruction of a resting place.	05/09/2019 - 04/09/2029

- 4.6.1 It is possible that multiple bat species may use the Site's grassland, woodland and line of trees / scrub as linear commuting corridors and for foraging purposes.
- 4.6.2 During the survey all trees (excluding the interior of Hearts Copse) were assessed for their potential to support roosting bats. Six trees were identified, containing a number of potential roost features (PRFs). The details of these PRFs are detailed within **Table 10** below. The location of trees with

PRFs are shown on **Figure 3**.

Table 10: Potential Bat Roost Features present in Trees on Site.

Tree/Group ID	Tree Species	NGR	PRFs	Suitability	Overall Tree Suitability
1	English Oak	SU47778 16743	Ref 1: Spilt/crack in trunk void, 1.5 m high, facing south west. Ref 2: Split/crack in trunk void, 2 m high, facing south. Ref 3: Split/crack in trunk void, 3.5 m high, facing north west.	High High High	High
2	English Oak	SU47778 16738	Ref 4: Lifted bark, 3 m high, facing south east.	Low	Low
3	Ash (<i>Fraxinus excelsior</i>)	SU48315 16934	Ref 5: Knothole, 4.5 m high, facing south.	Moderate	Moderate
4	English Oak	SU 48327 16692	Ref 6: Fallen limb with cavity going into trunk, 4 m high, facing west. Ref 7: Split limb with void, 2 m high, facing north west. Ref 8: Fallen limb with knothole, 3 m high, facing north (pointing downwards).	High High Moderate	High

5	Ash	SU 48296 16731	Ref 9: Two woodpecker holes identified within close proximity, 6 m high, facing east.	Moderate	Moderate
6	Crack willow <i>(Salix × fragilis)</i>	SU 48126 16826	Ref 10: Poor condition tree with multiple broken limbs. Trunk leafing into voids within the stem, 3 m high, facing north.	Moderate	Moderate

4.6.3 A bat box was identified on Tree 4 (TN2) which demonstrates likely previous habitat enhancements for bats has been undertaken in the area.

4.6.4 Due to the abundance of nearby records and suitable habitat on-Site, it is considered that a good population of bats will likely use the site for commuting, foraging and roosting purposes.

4.6.5 In line with current guidance (Collins, 2016), Site habitats are considered to display overall moderate suitability for foraging and commuting bats. Given the relatively small size of the Site and the availability of larger areas of similar habitat adjacent the Site, habitats at the Site are considered to be of no greater than site level importance and for foraging, commuting and roosting bats.

Birds

4.6.6 In 2021, a re-assessment of Birds of Conservation Concern (BoCC) was published by Stanbury *et al.* (2021) which defined rare and threatened bird species on two lists (Red and Amber) describing the level of threat to each species of concern.

4.6.7 “Red” is the highest conservation priority, with species needing urgent action due to either a historical decline in breeding population, severe (>50%) decline in breeding or non-breeding population, or severe decline in breeding range over 50 years or more. “Amber” is the next most critical group, with species qualifying for this status as a result of either recovery from red list criterion, being classed as rare breeders in the UK, moderate (>25%) decline in breeding or nonbreeding population or moderate decline in breeding range over 25 years or more. These categories are followed by “Green”, indicating that the species are relatively unthreatened.

4.6.8 HBIC returned 3945 records of 80 bird species from within 2 km of the Site. These included 30 species that are protected under Schedule 1 of the WCA 1981, 26 species listed as Species of

Principal Importance (SPI) under Section 41 of the NERC Act, 63 species listed as Red or Amber in the Birds of Conservation Concern (BoCC) as detailed in **Appendix 6**.

4.6.9 No incidental sightings of birds were identified on Site. However, a number of bird nests were found present within the line of trees on the northern and eastern boundaries of the Site and within the woodland.

4.6.10 The woodland, understorey scrub and line of tree habitats on Site are likely to provide suitable foraging and nesting habitat for a common assemblage of birds.

4.6.11 Due to the abundance of nearby records, presence of existing nests and suitable habitats on-Site and in the surrounding area, it is deemed likely that bird species will use the site on a regular basis throughout the year.

Fish

4.6.12 HBIC returned no recent records of notable fish species from within 2 km of the Site.

4.6.13 No fish were identified in the pond on Site, however a small population of common species may be present.

Hazel dormouse

4.6.14 HBIC returned no recent records of hazel dormouse *Muscardinus avellanarius* from within 2 km of the Site.

4.6.15 A search on MAGIC returned no records of granted EPS mitigation licences relating to hazel dormice from within 2 km of the Site.

4.6.16 Dormice prefer dense hedgerows or woodland understorey with a broad range of associated native flowering and fruiting species to provide sufficient foraging opportunities throughout the dormouse active season.

4.6.17 The lowland mixed deciduous woodland within and adjacent to the Site offered multiple sources of food for hazel dormouse and provided sufficient, albeit not optimal, structure for nest creation.

4.6.18 A hazel dormouse nest tube (TN3) was identified within the woodland corridor situated on the eastern boundary of the Site.

4.6.19 A review of the distribution of hazel dormouse in the United Kingdom by the People's Trust for Endangered Species (2022) highlighted that the hazel dormouse is frequently abundant in Hampshire. Furthermore, Hampshire is considered a stronghold for hazel dormouse populations (PTES, 2022).

4.6.20 Despite the lack of nearby records, the Site offers some suitable habitat for hazel dormice within Hearts Copse and adjacent woodland / lines of trees, therefore their presence cannot be ruled out.

Reptiles

- 4.6.21 HBIC returned 29 recent records of reptiles from within 2 km of the Site. These pertained to grass snake *Natrix Helvetica* and slow worm *Anguis fragilis*. The closest record pertained to slow worm, located 1.1 km from the Site, dated 2020.
- 4.6.22 There were no reptile sightings recorded during the survey visit.
- 4.6.23 The Site contains suitable terrestrial habitat which could provide opportunities (foraging and sheltering) for widespread reptiles such as grass snake, common lizard and slow worm within the grassland, pond, woodland and line of trees. Some hibernation potential also exists beneath fallen trees, below hollows around tree roots and within brash piles such as TN1. The lines of trees within the Site offer suitable habitat connectivity from the Site to the wider area.
- 4.6.24 Evidence of small mammal presence including mole hills, gnawed acorns and an incidental sighting of a field vole suggests that prey is available on Site for common reptile species such as grass snake and adder *Vipera berus*.
- 4.6.25 Due to the abundance of nearby records and suitable habitat, it is considered widespread reptiles are likely to be present within the Site. The suitability of the Site habitats for rare reptile species (smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*) was negligible. Additionally, population distributions of such species are not known in the local area.

Riparian Species

- 4.6.26 HBIC returned 24 recent records of European otter *Lutra lutra* and nine recent records of water vole *Arvicola amphibius* within 2 km of the Site. The closest record was 1.6 km west, dated 2013.
- 4.6.27 A search on MAGIC returned no granted EPS mitigation licences relating to otter from within 2 km of the Site.
- 4.6.1 The Site does not support any suitable aquatic habitat for otter and water vole and limited suitable foraging/commuting/resting habitat.
- 4.6.2 The closest substantial running watercourse recorded is the River Itchen at 861 m to the north-west of the Site which has suitability to support riparian species.
- 4.6.3 Although otters have a large home range of up to 20- 40 km (depending if female or male), based on the lack of aquatic habitat connectivity on or in close proximity to the Site and the limited value of terrestrial habitats on Site, together with the availability of more suitable habitat associated with the River Itchen in the wider area; otter are considered unlikely to be encountered on Site.
- 4.6.4 General safeguards with regards to any future potential works on Site outlined for other species such as badger will safeguard otter in the unlikely event that they are found on Site at the time of the works.

Other protected and/or otherwise notable species

- 4.6.5 HBIC returned 17 recent records of Water Shrew *Neomys foediens* from within 2 km of the Site.
- 4.6.6 HBIC returned 16 recent records of Harvest Mouse *Micromys minutus* from within 2 km of the Site.
- 4.6.7 HBIC returned seven recent records of Yellow-necked Mouse *Apodemus flavicollis* from within 2 km of the Site.
- 4.6.8 HBIC returned 45 recent records of Western European Hedgehog *Erinaceus europaeus* from within 2 km of the Site.
- 4.6.9 The closest of these records pertained to a hedgehog located 890 m east from the Site in 2018.
- 4.6.10 The habitats on Site provide potential foraging and sheltering (including hibernation potential) habitat for species such as hedgehog within the grassland, woodland and line of trees.
- 4.6.11 An incidental sighting of a field vole was identified within the woodland corridor.
- 4.6.12 Due to the abundance of nearby records and suitability of habitats, it is considered the notable species listed above have the potential to be found on the Site.

Invasive non-native species (INNS)

- 4.6.13 HBIC returned no recent records of schedule 9 invasive non-native species (INNS) from within 2 km of the Site.
- 4.6.14 No INNS were identified on the Site.
- 4.6.15 Butterfly bush *Buddleia davidii* was present infrequently within the lines of trees. This shrub is an invasive species in certain environments, but is not listed on Schedule 9 of the Wildlife and Countryside Act (1981) (as amended).

5. Ecological Constraints, Opportunities and Recommendations

5.1 Constraints and Mitigation Measures

- 5.1.1 The ecological constraints identified in this report and recommended mitigation required to address the above are detailed in **Table 11** on the following pages. **This table should be read in conjunction with *Ecological Best Practice Measures & Methods of Working* (Ecus 2023).**
- 5.1.2 Further surveys and actions have been recommended for land parcel P28 where disturbance (i.e. construction/destructive works) are likely to occur.
- 5.1.3 Within land parcels where only habitat enhancements are planned, it is unlikely for further surveys to be required as impacts are considered unlikely to cause disturbance and/or harm to protected or notable species, if best practice working methods are followed.
- 5.1.4 The information contained within this report is valid for a period of 18 months from the date of the survey visit (CIEEM, 2019).
- 5.1.5 If the works have not been completed by July 2024, the Site should be re-surveyed and re-assessed to determine if there have been any significant changes.

Table 11: Ecological Constraints and Mitigation Measures

Feature/Constraint	Potential Impact and Effect	Action Required	Deliverable	Timing
Protected and notable species				
Amphibians	Disturbance of habitats on site that could injure or kill amphibians if present.	eDNA tests carried out on all suitable waterbodies within 250m of the Site (see Table 7). If results of the eDNA tests are positive for the presence of GCN, a European Protected Species (EPS) mitigation licence would be required (depending on the proposed works). Further population surveys of the identified ponds would likely be necessary to inform the application following best practice guidance (Langton <i>et al</i>, 2001), to assess the status of the GCN populations. If an EPS mitigation licence is required, the presence of GCN licensed Ecological Clerk of Works (ECoW) will likely be necessary during the vegetation removal, together with a mitigation and compensation strategy. Should a great crested newt be discovered on Site at any time, works must cease immediately and further ecological advice be sought. Best Practice Measures (BPMs) should be followed, as detailed within the Ecological Best Practice Measures & Methods of Working (Ecus 2023) document.	Further Surveys (eDNA survey). BPM is regards to common amphibians	Between mid-April and the end of June During works.
Badger	Potential disturbance to an active badger sett (if present) & foraging badger	Best Practice Measures (BPMs) should be followed, as detailed within the Ecological Best Practice Measures & Methods of Working (Ecus 2023) document.	BPM regarding badger	During works.

Feature/Constraint	Potential Impact and Effect	Action Required	Deliverable	Timing
		If an active badger sett is discovered within close proximity of a work area it is recommended that the area is cordoned off (at least a 30m buffer) and an ecologist contacted for advice. If impacts cannot be mitigated it may be necessary to apply for a license to disturb / destroy a badger sett from Natural England, with a further potential requirement to close the sett if directly within / near the footprint of the works.		
Commuting and foraging bats	Bats may be impacted by any artificial lighting during the works and any long-term/operational lighting additions.	Works should be carried out during daylight hours only, where possible. If not, a Sensitive Lighting Plan (Bat Conservation Trust, 2018) should be implemented for works carried out at night. • If required, additional artificial lighting must be minimised and directed away from dark / semi dark areas. • Tower lighting is not recommended. • Hoods must be fitted to all lights to prevent light spill behind or above the light. • Lights must be turned off when not in use. Best Practice Measures (BPMs) should be followed, as detailed within the Ecological Best Practice Measures & Methods of Working (Ecus 2023) document.	Sensitive Lighting Plan	During Works.
Roosting bats	Disturbance or destruction of a bat	If works are required on or near any trees identified	Bat surveys	Between May

Feature/Constraint	Potential Impact and Effect	Action Required	Deliverable	Timing
	roost	with moderate or high bat roost potential (see Table 10 and Figure 3), then a suite of nocturnal bat surveys / climbed tree inspections will be required. If a bat roost is confirmed, then an EPS mitigation license from Natural England will be required before works may commence. Any trees identified with low suitability will not require further survey but should be “soft felled” which involves cutting limbs and the trunk in section and carefully lowered to the ground using ropes and/or piles of brash to soften the impact. Any cavities or gaps should be left facing upwards for no less than 24 hours to allow bats the chance to escape.		and August.
Birds (nesting)	Trees and scrub provide suitable habitat for nesting birds. De-vegetation or removal of these could damage nests and /or cause injury to birds. Noise from works may disturb nesting birds and fledglings.	The main nesting season for birds is generally taken as being between March to August inclusive (weather dependent), however active nests have been recorded during all months of the year. Any works should be planned between September and January to reduce the likelihood of encountering nesting birds. If not possible to complete works outside of nesting bird season, nesting bird checks should be completed within 48 hours prior to works commencing. If an active nest is identified within the structure, the works must cease until the nest is no longer active or an exclusion zone established, which	Avoidance of nesting bird season. Nesting bird check	Completion of works during winter months, if possible. March to August & prior to works commencing, within 48 hours.

Feature/Constraint	Potential Impact and Effect	Action Required	Deliverable	Timing
		should be confirmed by an ecologist.		
Fish (if present) and aquatic life	The waterbody present within the Site and watercourses adjacent to the Site have the potential to be affected by the works.	Pollution Prevention Measures to be implemented to maintain the integrity of the waterbody/ watercourse/s.	Pollution Prevention Measures	During works.
Hazel dormouse	If major vegetation clearance works are proposed within woodland (both along the Site boundary and Hearts Copse) or lines of trees (with scrub understory) require severing to facilitate the proposed works, this may result in injury, killing or disturbance to hazel dormouse.	Hazel dormouse surveys undertaken in line with best practice guidance (Bright, P. <i>et al</i>, 2006). This will involve nest tubes being installed in suitable habitat such as woodland, lines of trees (with scrub understory) and hedgerows to be checked for dormouse presence (such as evidence of nest building) during appropriate months of the year. If evidence of hazel dormouse is identified an EPS mitigation licence may be required prior to works commencing, unless impacts on dormice can be avoided during the design phase.	Hazel Dormouse surveys.	Between April and November.
Reptiles	Disturbance of habitats on site could injure or kill reptiles if present.	Presence/likely absence surveys should be conducted in areas likely to be impacted by any destructive works. These surveys should be undertaken in accordance with current best practice guidance for reptiles (Froglife, 2015). Best Practice Measures (BPMs) should be followed throughout all works, as detailed within the Ecological Best Practice Measures & Methods of Working (Ecus 2023) document.	Reptile presence/likely absence surveys. BPMs regarding reptiles	Seven survey visits between March and October. During works.

Feature/Constraint	Potential Impact and Effect	Action Required	Deliverable	Timing
		Due to the type and scale of the proposals, a reptile translocation will not likely be required.		
Other Protected and/or Notable Species - Hedgehog Yellow necked mouse Harvest mouse Water shrew	Vegetation clearance works on Site have the potential to injure or kill hedgehog, if present.	'Ecological Best Practice Construction Guidance' should be implemented during construction and any vegetation clearance works to avoid harm to hedgehog and other notable species. As a precautionary measure, it is recommended that any excavations left overnight should be covered or have a suitable escape ramp, e.g. a long scaffold board, inserted to allow escape should a protected/notable species fall in. If hibernating hedgehog are found they should be left in place and an ecologist should be contacted for advice.	Ecological Best Practice Construction Guidance to be implemented during the works.	During works.
INNS				
All species	Spread of INNS across Site and/or wider area	Control of buddleja is advised, however there is no legal requirement. If vegetation clearance is to take place and INNS are identified on Site the following should be undertaken: INNS should be removed and disposed of appropriately either by uprooting young plants or cutting down larger specimens (undertaken by appropriately qualified personnel).	INNS Management Plan	In advance of and during works, when required.

Feature/Constraint	Potential Impact and Effect	Action Required	Deliverable	Timing
		• Roots may be dug out if appropriate and safe to do so. • All INNS waste materials must be removed from site and taken to a licensed waste facility; and, • Biosecurity measures, such as an onsite boot and tyre wash station, may be required, if deemed appropriate.		

5.2 Conclusions

- 5.2.1 The Site is dominated by neutral grassland, lowland mixed deciduous woodland, lines of trees, scrub and a woodland pond.
- 5.2.2 Further survey or actions have been recommended for a number of species and species groups to establish presence/likely absence. These further actions are recommended to inform any further constraints.
- 5.2.3 Ecological opportunities for the Site are discussed below.

5.3 Ecological Opportunities

- 5.3.1 Site specific ecological opportunities to generate further credits are detailed in **Table 12** on the following pages.

Table 12: Ecological Opportunities

Site Feature	Ecological Opportunities
Ancient Woodland	• Establish a permanent drainage channel around the perimeter / through the woodland to reduce / direct standing ground water. • Selectively thin low quality trees to improve the vitality of higher value trees and improve light permeability for ground flora. • Remove old pheasant pens and structures. • Remove bramble scrub and holly around the perimeter and within the woodland. • Enhance existing open glades (i.e. remove thin scrub in open glades) and establish new ones in targeted areas. • Clear out some rotting wood / fallen trees from around the woodland boundary. However, allow some deadwood to remain as this provides key habitats for saproxylic invertebrates. • Create a buffer to the woodland via new tree planting around the perimeter. • Control deer population to allow the ground flora, shrub layer and new tree growth to establish.
Other neutral Grassland	• Improve the grassland to a 'good' condition via means such as introducing new target species for the specific grassland habitat type (e.g., crested dog's-tail <i>Cynosurus cristatus</i>). • Minimise nutrient input by avoiding the use of fertilisers. • Reduce any damaging activities (i.e., excessive poaching or damaging levels of access/footfall). • Control the level of undesirable or invasive species (e.g., creeping buttercup, nettles and creeping thistle). • Any areas of scattered scrub within the neutral grassland should be replaced with larger areas of mixed scrub or a higher distinctiveness habitat. • Inclusion of small log piles within the grassland areas (although out of the way of any management activities such as cutting/grazing) will provide shelter and foraging opportunities for invertebrates and small mammals.
Pond	• Remove the fallen tree from the pond. • Remove low value trees and decaying wood from the perimeter of the pond. It is recommended that a buffer of around 15 m should be left unplanted, especially on the south side of the pond to ensure minimum shading.

Site Feature	Ecological Opportunities
	• Create more distinct banks with varied height ledges around the edge of the pond. • Establish new drainage channels / streams connecting the existing pond to the wider area. • Establish new riparian vegetation around the banks. This can be done by planting suitable species or using other techniques such as pre-sown coir rolls.
Amphibians	• See section above (Priority or Notable Habitats: pond). • Clear out fallen logs/debris from the bottom of the pond to create open areas for displaying males. • Retain and enhance hibernacula already on Site (i.e. tree branch pile) within the grassland and woodland habitats. • Enhance connectivity between the pond and grassland habitats on Site. Good cover such as long grass, rushes, hedges, treelines and scrub provide suitable dispersal habitats for GCN moving between pond sites and terrestrial hibernacula.
Badger	• Plant fruit bearing trees within line of trees and along fence and woodland boundaries.
Bats	• Gap up tree lines and enhance defunct fencing/hedgerows to create suitable linear corridors for foraging and commuting bats. • Bat boxes to be installed on retained trees or any new buildings to be placed on the Site.
Birds	• Retain mature trees, scrub, hedgerows and a good mix of habitats across the Site. • Plant fruit bearing trees within line of trees and mixed scrub. • Increase the diversity of seed providing plants across the Site in suitable habitats, such as plants from the thistle families. • Bird boxes to be installed on retained trees or any new buildings to be placed on the Site.

Site Feature	Ecological Opportunities
Hazel dormouse	• Manage deer population on Site to allow a better understory to develop within the woodland habitats. • Retain arboreal connection between habitats such as coppice blocks to allow dormice to travel throughout the woodland without coming to the ground.
Reptiles	• Retain and enhance hibernacula already on Site (i.e. tree branch pile) within the grassland and woodland habitats. New hibernacula should be placed away from areas likely to be disturbed or otherwise impacted by proposals.
Riparian species	• Create more distinct riparian zones (i.e. implement targeted riparian planting such as through the use of coir rolls) within the pond and any newly created drainage channels.
Other protected and/or notable species e.g. Hedgehog Harvest mouse Yellow necked mouse Water shrew	• Retain existing line of trees around the perimeter of the Site. • Gap up the defunct hedgerow/fencing on Site (i.e., establish hedgerows by planting a mixture of native species) to promote connectivity and provide a diverse food source for a range of fauna. • Improve and create waterbodies and drainage ditches.

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Figure 1: Site Location Map

Legend

 Site Boundary

Eastleigh Borough Council P28 Allington Lane - Hearts Preliminary Ecological Appraisal

Figure 1
Site Location Plan

• Unit 1 Woodlands Business Village • Coronation Road •
Basingstoke • RG21 4JX •
• tel: 01256 224 588 • www.ecusltd.co.uk •

Figure 2: Habitat Map

Table 12: Target Notes

Target Note	Description
TN1	Hibernacula (brash pile)
TN2	Bat box
TN3	Dormouse tube

Legend

 Site Boundary

 Target Notes

UKHab: Linear Features

 w1g6 - line of trees

 u1e 69 - built linear feature: Fence

UKHab: Polygons

 g3c - Other neutral grassland

 g3c8 - Holcus-Juncus neutral grassland

 w1f - Lowland mixed deciduous woodland

 h3d - Bramble scrub

 u1d - Suburban mosaic of developed/ natural surface

 r1 - Standing open water and canals

Secondary codes:

11: Scattered Trees

15: Rushes Dominant

17: Ruderal/ ephemeral

33: Ancient Woodland Site

41: Freshwater - Natural

119: Seasonally Wet

Eastleigh Borough Council

P28 Allington Lane - Hearts
Preliminary Ecological Appraisal

Figure 2
Habitat Map

• Unit 1 Woodlands Business Village • Coronation Road
• Basingstoke • RG21 4JX •
• tel: 01256 224 588 • www.ecusltd.co.uk •

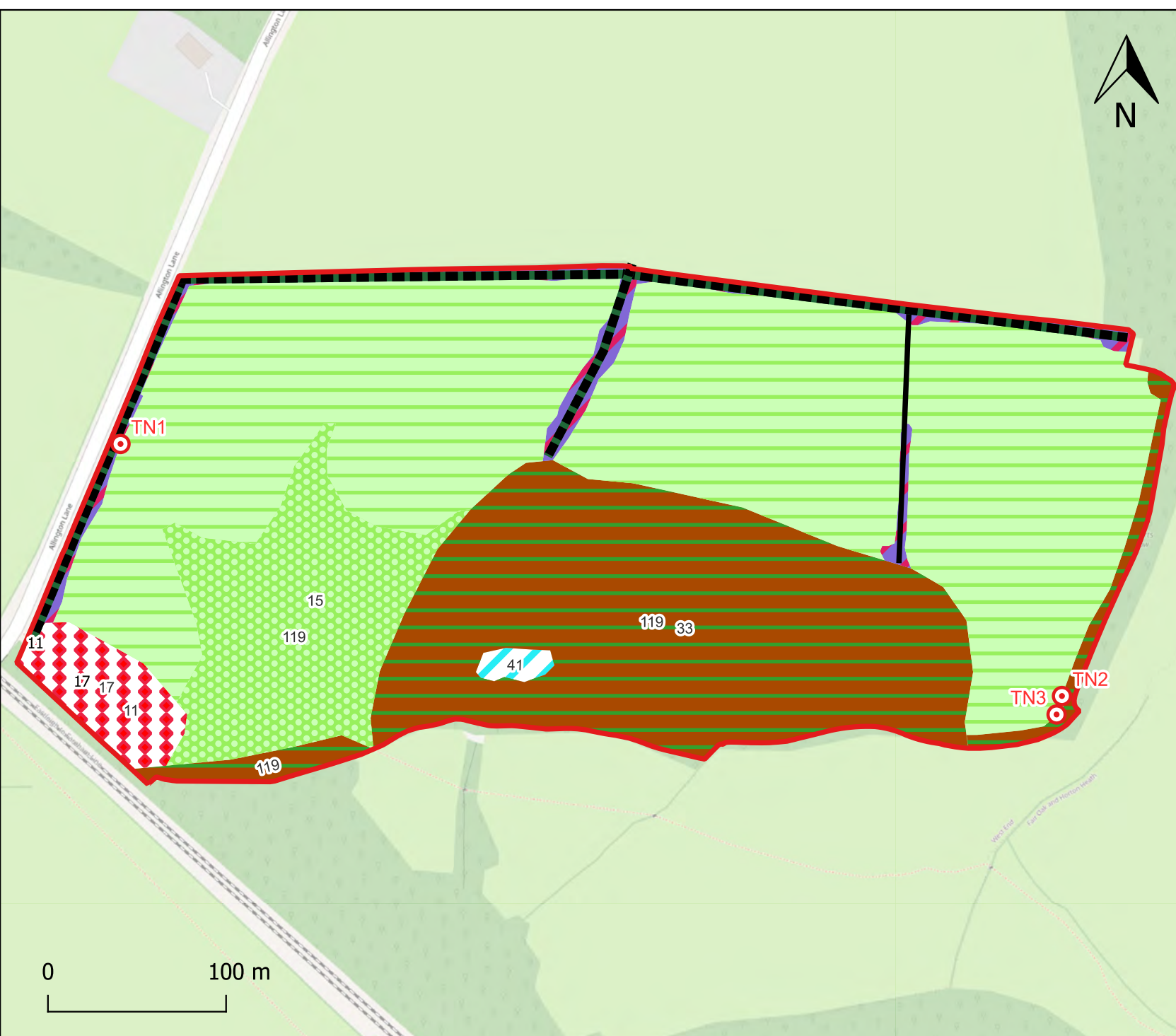


Figure 3: Trees with Bat Roost Potential

Legend

 Site Boundary

Bat Roost Suitability

 High

 Moderate

 Low



0 100 m

Eastleigh Borough Council P28 Allington Lane - Hearts Preliminary Ecological Appraisal

Figure 3
Trees with Bat Roost Potential

• Unit 1 Woodlands Business Village • Coronation Road
• Basingstoke • RG21 4JX •
• tel: 01256 224 588 • www.ecusltd.co.uk •

Appendix 1: Site Habitat Photographs



Plate 1. Hardstanding

Plate 2. Chain link boundary fence

Plate 3. Field boundary

Plate 4. Brash pile (TN1)



Plate 5. Tree line

Plate 6. Other neutral grassland

Plate 7. Woodland corridor

Plate 8. Pond located within woodland

Appendix 2: Legislation

This Appendix is intended as a brief guide to some of the relevant offences associated with protected species which are common constraints associated with development projects.

For full details of legislation relating to all habitats and species discussed within this report visit <http://www.legislation.gov.uk>.

Amphibians including great crested newt

Great crested newt *Triturus cristatus* (GCN) is protected under the Wildlife & Countryside Act 1981 (as amended) (“the WCA 1981”) and the Conservation of Habitats and Species Regulations 2017 (as amended) (“the Habitats Regulations”), and is therefore a European Protected Species (EPS).

It is illegal to kill, injure, capture, handle or disturb GCN, and the places they use for breeding, resting, shelter and protection are protected from being damaged or destroyed.

Natterjack toad *Epidalea calamita* is also an EPS and is afforded the same protection.

GCN, natterjack toad and common toad *Bufo bufo* are Priority Species under the Natural Environment and Rural Communities Act 2006 (“the NERC Act”).

The four widespread species of amphibian: the smooth and palmate newts, the common frog and common toad, are protected by Section 9 (5) of the WCA 1981 which prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy.

Badger

Badgers *Meles meles* and their setts are protected under the Protection of Badgers Act 1992 (“the PBA 1992”). It is an offence to kill, injure or take a badger from the wild. It is also an offence to destroy, damage or obstruct an active badger sett, or to disturb badgers within the sett.

Bats

All species of bat occurring within the UK are included in Schedule 2 of the Habitats Regulations. Under Regulation 43, bats are protected from deliberate capture, injury or killing, from deliberate disturbance and from damage or destruction of a breeding site or resting place (roost).

All UK bats are also included on Schedule 5 of the WCA 1981. It is an offence to intentionally or recklessly disturb bats while they are occupying a structure or place used for shelter or protection, or to obstruct access to any such place.

Bats are also listed as Priority Species under Section 41 of the NERC Act and certain species are Priority Species under the NERC Act.

Birds

All wild birds are protected under the WCA 1981 against destruction of the active nest.

It is illegal to kill, injure or 'take' any wild bird, take or damage the nest of any wild bird whilst in use or being built. The eggs of all wild birds are also protected.

The birds listed in Schedule 1 of the WCA 1981 are protected against disturbance whilst actively nesting.

Competent authorities must have regard for all bird species listed under Section 41 of the NERC Act which have potential to be impacted by proposed works.

In 2021, a re-assessment of Birds of Conservation Concern (BoCC) was published by Stanbury *et al.* (2021), which defined rare and threatened bird species on two lists (Red and Amber) describing the level of threat to each species of concern.

'Red' is the highest conservation priority, with species needing urgent action due to either a historical decline in breeding population, severe (>50%) decline in breeding or non-breeding population, or severe decline in breeding range over 50 years or more.

'Amber' is the next most critical group, with species qualifying for this status as a result of either recovery from red list criterion, being classed as rare breeders in the UK, moderate (>25%) decline in breeding or non-breeding population or moderate decline in breeding range over 25 years or more.

These categories are followed by 'Green', indicating that the species is not experiencing population declines. A species can be green-listed but can also be listed under Schedule 1 of the WCA 1981 due to risk of persecution.

Freshwater and migratory fish

Various freshwater and migratory fish species and their habitats are afforded legal protection under the WCA 1981, Salmon and Freshwater Fisheries Act 1975 and Eels (England and Wales) Regulations 2009.

The following fish receive various levels of protection under the WCA 1981: allis shad *Alosa alosa*, twaite shad *Alosa fallax*, vendace *Coregonus albula*, whitefish *Coregonus lavaretus* and Atlantic sturgeon *Acipenser sturio*. Atlantic sturgeon are also EPS.

Special areas of conservation (SACs), sites of special scientific interest (SSSIs) or Ramsar sites have features of special interest for freshwater or migratory fish, such as: Atlantic salmon *Salmo salar*, bullhead *Cottus gobio*, lamprey (brook, river and sea) (*Petromyzontiformes*), spined loach *Cobitis taenia*, European eel *Anguilla anguilla*.

Atlantic salmon, brown/sea trout *Salmo trutta*, river lamprey and European eel are listed as priority species under Section 41 of the NERC Act.

Eels are also protected by the Eels (England and Wales) Regulations 2009.

Hazel dormouse

Hazel dormouse *Muscardinus avellanarius* is protected under Schedule 5 of the WCA 1981, and under Schedule 2 of the Habitats Regulations, giving this species the same protection as GCN and bats.

Hazel dormouse is also listed as a Priority Species under the Section 41 of the NERC Act / Section 7 of the EWA.

Otter

Otter *Lutra lutra* is protected under Schedule 5 of the WCA 1981, and under Schedule 2 of the Habitats Regulations, giving this species the same protection as GCN and bats.

Otter are listed as Priority Species under the Section 41 of the NERC Act.

Reptiles

All UK reptile species are protected under Schedule 5 of the WCA 1981 against intentional killing or injuring.

Sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca* are further protected under Schedule 2 of the Habitats Regulations.

Slow worm *Anguis fragilis*, sand lizard, common lizard *Zootoca vivipara*, grass snake *Natrix helvetica* and adder *Vipera berus* are also listed as Priority Species under the Section 41 of the NERC Act.

Water vole

Water vole *Arvicola amphibius* is fully protected under Schedule 5 of the WCA 1981 making it an offence to intentionally kill, injure or take a water vole, intentionally or recklessly damage or destroy a place of shelter or protection, intentionally or recklessly disturb a water vole when it is occupying such a place, or intentionally or recklessly obstruct such a place.

Water vole are listed as Priority Species under the Section 41 of the NERC Act.

White-clawed crayfish

White-clawed crayfish *Austropotamobius pallipes* are partially protected under Schedule 5 of the WCA 1981, which makes it illegal to intentionally take them.

White-clawed crayfish are listed as Priority Species under the Section 41 of the NERC Act.

Invasive non-native species

Certain species of plants and animals that do not naturally occur in the UK have become established in the wild and represent a threat to the natural fauna and flora.

The WCA 1981 is the principal piece of legislation in the UK regarding invasive non-native species. It is an offence under Section 14 (2) to plant or otherwise cause to grow in the wild any species listed on Schedule 9, Part II of the Act. Schedule 9, Part II includes knotweed species *Fallopia* spp., Himalayan balsam *Impatiens glandulifera*, giant hogweed *Heracleum mantegazzianum*, cotoneaster species *Cotoneaster* spp., montbretia *Crocasmia* × *crocosmiiflora* and Rhododendron species *Rhododendron* spp. Section 14 also controls the spread of various animal species.

In accordance with Section 33 and 34 of the Environmental Protection Act 1990, if taken from their place of origin, any plant listed on Schedule 9, Part II of the WCA 1981 and their associated material (e.g. soil and ash) are classed as controlled waste.

Appendix 3: Botanical Species List

Other Neutral Grassland

Common Name	Scientific Name	DAFOR Scale
Bramble	<i>Rubus fruticosus</i>	O
Bristly oxtongue	<i>Helminthotheca echioides</i>	F
Chickweed	<i>Stellaria media</i>	O
Common comfrey	<i>Symphytum officinale</i>	O
Common daisy	<i>Bellis perennis</i>	O
Common fleabane	<i>Pulicaria dysenterica</i>	O
Creeping thistle	<i>Cirsium arvense</i>	F
Crosswort	<i>Cruciata laevipes</i>	O
Curled dock	<i>Rumex crispus</i>	F
Dandelion	<i>Taraxacum officinale</i>	O
Field buttercup	<i>Ranunculus arvensis</i>	F
Mugwort	<i>Artemisia vulgaris</i>	F
Perennial ryegrass	<i>Lolium perenne</i>	D
Ragwort	<i>Jacobaea vulgaris</i>	O
Red fescue	<i>Festuca rubra</i>	A
Teasel	<i>Dipsacus fullonum</i>	R
Timothy grass	<i>Phleum pratense</i>	O
White clover	<i>Trifolium repens</i>	O

Lowland mixed deciduous woodland

Common Name	Scientific Name	DAFOR Scale
Ash	<i>Fraxinus excelsior</i>	O
Blackthorn	<i>Prunus spinosa</i>	O
Bramble	<i>Rubus fruticosus</i>	O
Crack willow	<i>Salix × fragilis</i>	O
Field maple	<i>Acer campestre</i>	O
Hazel	<i>Corylus avellana</i>	O
Oak	<i>Quercus robur</i>	A

Holcus juncus neutral grassland

Common Name	Scientific Name	DAFOR Scale
Common sedge	<i>Carex nigra</i>	O
Creeping buttercup	<i>Ranunculus repens</i>	F
Meadow foxtail	<i>Alopecurus pratensis</i>	O
Soft rush	<i>Juncus effusus</i>	D
Spaghnum moss	<i>Sphagnum sp.</i>	LA
Sweet vernal grass	<i>Anthoxanthum odoratum</i>	O
White clover	<i>Trifolium repens</i>	F

Line of trees

Common Name	Scientific Name	DAFOR Scale
Ash	<i>Fraxinus excelsior</i>	O
Blackthorn	<i>Prunus spinosa</i>	A
Field maple	<i>Acer campestre</i>	F

Oak	<i>Quercus robur</i>	F
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Line of trees

Common Name	Scientific Name	DAFOR Scale
Ash	<i>Fraxinus excelsior</i>	O
Blackthorn	<i>Prunus spinosa</i>	F
Bramble	<i>Rubus fruticosus</i>	A
Dogwood	<i>Cornus sanguinea</i>	O
Elder	<i>Sambucus nigra</i>	O
Oak	<i>Quercus robur</i>	F

Mosaic of developed land / natural surfaces

Common Name	Scientific Name	DAFOR Scale
Bristly oxtongue	<i>Helminthotheca echioides</i>	F
Bramble	<i>Rubus fruticosus</i>	O
Burdock	<i>Arctium sp.</i>	A
Common daisy	<i>Bellis perennis</i>	O
Common dandelion	<i>Taraxacum officinale</i>	O
Common nettle	<i>Urtica dioica</i>	F
Creeping cinquefoil	<i>Potentilla reptans</i>	O
Crosswort	<i>Cruciata laevipes</i>	O
Dovesfoot cranesbill	<i>Geranium molle</i>	O
False oat grass	<i>Arrhenatherum elatius</i>	F
Field thistle	<i>Cirsium arvense</i>	O
Fools parsley	<i>Aethusa cynapium</i>	R
Garlic mustard	<i>Alliaria petiolata</i>	R
Ground ivy	<i>Glechoma hederacea</i>	O
Narrow leaved dock	<i>Rumex acetosa</i>	O
Perennial ryegrass	<i>Lolium perenne</i>	A
Ragwort	<i>Jacobaea vulgaris</i>	O
Ribwort plantain	<i>Plantago lanceolata</i>	O
Spear thistle	<i>Cirsium vulgare</i>	O
Vetch species	<i>Vicia sp.</i>	R

Appendix 4: BNG Baseline Raw Data

A-1 Site Habitat Baseline

Ref	Habitats and areas			Distinctiveness		Condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline Total habitat units
	Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		
1	Grassland	Other neutral grassland	3.63	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	29.04
2	Grassland	Other neutral grassland	4.48	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	35.84
3	Grassland	Other neutral grassland	1.63	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	13.04
4	Heathland and shrub	Bramble scrub	0.63	Medium	4	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	2.52
5	Lakes	Ponds (Non- Priority Habitat)	0.07	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.84
6	Sparsely vegetated land	Ruderal/Ephemeral	0.43	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.86
7	Woodland and forest	Lowland mixed deciduous woodland	3.86	High	6	Moderate	2	Formally identified in local strategy	High strategic significance	1.15	Same habitat required =	53.27
8	Woodland and forest	Lowland mixed deciduous woodland	0.16	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required =	1.92
9	Woodland and forest	Lowland mixed deciduous woodland	0.18	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required =	2.16
10												
11												
12												
13												
14												
Total habitat area			15.07									139.49

B-1 Site Hedgerow Baseline

Baseline ref	UK Habitats – existing habitats			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline Total hedgerow units
	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		
1	G1	Line of Trees	0.22	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness	0.88
2	G2	Line of Trees	0.53	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness	3.16
3	G3	Line of Trees	0.11	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness	0.44
4												
5												
6												
7												
8												
			0.86									4.50

Headline Results

On-site baseline	<i>Habitat units</i>	139.49
	<i>Hedgerow units</i>	4.50
	<i>River units</i>	0.00

Appendix 5: Habitat Suitability Index Calculator

HSI Calculator @Owen Crawshaw, 2015. All Rights Reserved. Use of This Resource (HSI Calculator) Within Published Work, Without Specific Accreditation of The Copyright Holder, is Strictly Prohibited.																							
	SI ₁		SI ₂		SI ₃		SI ₄		SI ₅		SI ₆		SI ₇		SI ₈		SI ₉		SI ₁₀		Product	HSI	Suitability
	Location		Pond Area		Pond Drying		Water Quality		Shade		Fowl		Fish		Ponds		Terrestrial Habitat		Macrophytes				
Select Options	→ Zone A	1	350m2	0.7	Rarely Dries	1	Good	1	0-60%	1	Absent	1	Absent	1	3	0.69	Good	1	16-20%	0.5	0.2275	0.8624	Excellent
															*within 1km radius								
<i>Disclaimer: The HSI Calculator is a tool to provide a general assesment of great crested newt Triturus cristatus habitat suitability in accordance with Oldham et al., 2000 and Brady, 2010. It is the responsibilty of the user to check the accuracy of the outputs. The copyright holder accepts no responsibility for reprecussions (financial and/or legal) resulting from inaccurate or incorrect outputs.</i>																							

Appendix 6: Notable Bird Species Records within 2 km of the Site

Common Name	Scientific Name	Legal and/or Conservation Status
Barn Owl	<i>Tyto alba</i>	Schedule 1 Part 1
Bittern	<i>Botaurus stellaris</i>	Amber, Schedule 1 Part 1, S41 NERC
Black Redstart	<i>Phoenicurus ochruros</i>	Amber, Schedule 1 Part 1
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Amber
Brambling	<i>Fringilla montifringilla</i>	Schedule 1 Part 1
Cetti's Warbler	<i>Cettia cetti</i>	Schedule 1 Part 1
Common Tern	<i>Sterna hirundo</i>	Amber
Corncake	<i>Crex crex</i>	Red, Schedule 1 Part 1
Crane	<i>Grus grus</i>	Amber, Schedule 9
Crossbill	<i>Loxia curvirostra</i>	Schedule 1 Part 1
Cuckoo	<i>Cuculus canorus</i>	Red, S41 NERC
Curlew	<i>Numenius arquata</i>	Red, S41 NERC
Dark-bellied Brent Goose	<i>Branta bernicla bernicla</i>	Amber, S41 NERC
Dartford Warbler	<i>Sylvia undata</i>	Amber, Schedule 1 Part 1
Fieldfare	<i>Turdus pilaris</i>	Red, Schedule 1 Part 1
Firecrest	<i>Regulus ignicapillus</i>	Schedule 1 Part 1
Golden Plover	<i>Pluvialis apricaria</i>	-
Goosander	<i>Mergus merganser</i>	-
Goshawk	<i>Accipiter gentilis</i>	Schedule 1 Part 1
Grasshopper Warbler	<i>Locustella naevia</i>	Red, S41 NERC
Great Black-backed Gull	<i>Larus marinus</i>	Amber
Great Crested Grebe	<i>Podiceps cristatus</i>	-
Green Sandpiper	<i>Tringa ochropus</i>	Amber, Schedule 1 Part 1
Greenshank	<i>Tringa nebularia</i>	Amber, Schedule 1 Part 1
Grey Heron	<i>Ardea cinerea</i>	-
Grey Partridge	<i>Perdix perdix</i>	Red, S41 NERC

Grey Wagtail	<i>Motacilla cinerea</i>	Amber
Hawfinch	<i>Coccothraustes coccothraustes</i>	Red, S41 NERC
Herring Gull	<i>Larus argentatus</i>	Red, S41 NERC
Hobby	<i>Falco subbuteo</i>	Schedule 1 Part 1
Hoopoe	<i>Upupa epops</i>	Schedule 1 Part 1
House Sparrow	<i>Passer domesticus</i>	Red, S41 NERC
Kingfisher	<i>Alcedo atthis</i>	Schedule 1 Part 1
Lapwing	<i>Vanellus vanellus</i>	Red, S41 NERC
Lesser Black-backed Gull	<i>Larus fuscus</i>	Amber
Lesser Redpoll	<i>Carduelis cabaret</i>	Red, S41 NERC
Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>	Red, S41 NERC
Linnet	<i>Linaria cannabina</i>	Red, S41 NERC
Little Egret	<i>Egretta garzetta</i>	-
Little Ringed Plover	<i>Charadrius dubius</i>	Schedule 1 Part 1
Marsh Harrier	<i>Circus aeruginosus</i>	Amber, Schedule 1 Part 1
Marsh Tit	<i>Poecile palustris</i>	Red, S41 NERC
Mediterranean Gull	<i>Larus melanocephalus</i>	Schedule 1 Part 1
Merlin	<i>Falco columbarius</i>	Red, Schedule 1 Part 1
Mistle Thrush	<i>Turdus viscivorus</i>	Red
Montagu's Harrier	<i>Circus pygargus</i>	Red, Schedule 1 Part 1
Nightingale	<i>Luscinia megarhynchos</i>	Red
Osprey	<i>Pandion haliaetus</i>	Amber, Schedule 1 Part 1
Oystercatcher	<i>Haematopus ostralegus</i>	Amber
Peregrine	<i>Falco peregrinus</i>	Schedule 1 Part 1
Pied Flycatcher	<i>Ficedula hypoleuca</i>	Amber
Pochard	<i>Aythya ferina</i>	Red
Red Kite	<i>Milvus milvus</i>	Schedule 1 Part 1
Redstart	<i>Phoenicurus ochruros</i>	Amber, Schedule 1 Part 1
Redwing	<i>Turdus iliacus</i>	Amber, Schedule 1 Part 1
Reed Bunting	<i>Emberiza schoeniclus</i>	Amber, S41 NERC

Ring Ouzel	<i>Turdus torquatus</i>	Red, S41 NERC
Sand Martin	<i>Riparia riparia</i>	-
Shelduck	<i>Tadorna tadorna</i>	Amber
Short-eared Owl	<i>Asio flammeus</i>	Amber
Shoveler	<i>Anas clypeata</i>	Amber
Siskin	<i>Carduelis spinus</i>	-
Skylark	<i>Alauda arvensis</i>	Red, S41 NERC
Snipe	<i>Gallinago gallinago</i>	Amber
Song Thrush	<i>Turdus philomelos</i>	Red, S41 NERC
Spotted Flycatcher	<i>Muscicapa striata</i>	Red, S41 NERC
Starling	<i>Sturnus vulgaris</i>	Red, S41 NERC
Tree Pipit	<i>Anthus trivialis</i>	Red, S41 NERC
Water Pipit	<i>Anthus spinoletta</i>	Amber
Water Rail	<i>Rallus aquaticus</i>	-
Wheatear	<i>Oenanthe oenanthe</i>	Amber
Whimbrel	<i>Numenius phaeopus</i>	Red, Schedule 1 Part 1
Whinchat	<i>Saxicola rubetra</i>	Red
Wood Sandpiper	<i>Tringa glareola</i>	Amber, Schedule 1 Part 1
Wood Warbler	<i>Phylloscopus sibilatrix</i>	Red, S41 NERC
Woodcock	<i>Scolopax rusticola</i>	Red
Woodlark	<i>Lullula arborea</i>	Schedule 1 Part 1, S41 NERC
Wryneck	<i>Jynx torquilla</i>	Schedule 1 Part 1, S41 NERC
Yellow Wagtail	<i>Motacilla flava</i>	Red, S41 NERC
Yellowhammer	<i>Emberiza citrinella</i>	Red, S41 NERC

