



Lindum Homes

Station Road, Waddington

PRELIMINARY ECOLOGICAL APPRAISAL

February 2023

THIS REPORT CONTAINS SENSITIVE ECOLOGICAL INFORMATION, IT IS THE RESPONSIBILITY OF THE LOCAL AUTHORITY TO DETERMINE WHICH SECTIONS SHOULD BE MADE PUBLICLY AVAILABLE

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1.0 NON-TECHNICAL SUMMARY

- 1.1 FPCR were commissioned by Lindum Homes to undertake a Preliminary Ecological Appraisal on Land at Station Road, Waddington to identify any potential constraints or opportunities for a proposed residential development and associated infrastructure.
- 1.2 An extended phase 1 habitat survey and desktop study were completed by FPCR to inform this assessment. The survey included a walkover of the site on 13th December 2022 mapping all habitats present along with their potential to offer suitable habitat for protected and notable species.
- 1.3 The site is dominated by arable land and species poor grassland which is considered to be of low nature conservation value. This is a common and widespread habitat supporting limited botanical diversity. Further survey of these habitat should be undertaken at an optimal time of year (April to September) to accurately assess the habitat conditions which will be used to inform the biodiversity net gain assessment.
- 1.4 Hedgerows formed the boundary of the site and field compartments. Nine of twelve hedgerows present comprised at least 80% native woody species and were therefore considered habitats of principal importance (NERC, S41). Two hedgerows are classified as 'Important' under the Hedgerow Regulations. It is anticipated boundary hedgerows will be retained in development proposals, however, there may be some loss of central hedgerows. Any retained hedgerows should be appropriately protected during works and any loss of hedgerows should be compensated for through appropriate planting, ensuring habitat corridors are maintained and enhanced.
- 1.5 Given the size of the site, nature of habitat and records of bats in the area, further bat activity surveys are recommended. These should be undertaken once per season (spring/summer/autumn) along with 5 nights of data collection with an automated static bat detector per season.
- 1.6 Potential for ground nesting birds was provided in the arable/grassland habitat, albeit in potentially low numbers given the nature and size of the site. To determine the likelihood of site usage by birds an initial single scoping survey is recommended. Further nesting habitat was provided in the trees and hedgerows. Any woody vegetation removal should be undertaken outside of the breeding bird season (March to August inclusive) If this is not possible, such vegetation should be checked prior to removal by a suitably experienced ecologist.
- 1.7 The site is considered to be of high suitability for badger foraging, commuting and sett creation. A pre-commencement badger survey to determine the presence of any new activity or setts is recommended.
- 1.8 Potential for onsite habitats to support other species including great crested newts, reptiles, water vole and otter was considered reasonably unlikely, and no further surveys are recommended.
- 1.9 The proposals should seek to provide a net gain in biodiversity demonstrated through an appropriate biodiversity impact assessment calculator. In addition, a range of additional enhancement should be introduced including bat and bird boxes and native species planting within landscape proposals.

2.0 INTRODUCTION

- 2.1 The following report has been prepared by FPCR Environment & Design Ltd. on behalf of Lindum Homes and provides a Preliminary Ecological Appraisal and summary of constraints and opportunities at a site off Station Road, Waddington (Central OS Grid Ref: SK 96226 65235) herein referred to as 'the Site'. This report details the findings of an extended Phase 1 Habitat Survey including initial observations of any suitable habitats for, or evidence of, protected species.
- 2.2 This Preliminary Ecological Appraisal is based on the Chartered Institute of Ecology and Environmental Management (CIEEM) guidance¹. The scope and objectives of this report are to:
- Present the findings of the extended phase 1 habitat survey and preliminary protected species assessment;
 - Identify the likely ecological constraints associated with the proposed development;
 - Identify any habitat retention, mitigation and/or compensation measures likely to be required;
 - Identify any additional surveys that may be required to further inform the development proposals; and to,
 - Identify the opportunities available within the proposals to deliver ecological enhancement.
- 2.3 A Preliminary Ecological Appraisal is not intended as a comprehensive submission document for a planning application. It does however provide the necessary basis to be converted into an Ecological Impact Assessment (EclA) to be produced at a later date or may form an appendix of such a document.

Site Location and Context

- 2.4 The land south of Station Road, Waddington, to the west of Brant Road, (hereafter referred to as the 'Site') comprised approximately 4ha of previously grazed grassland and a small area (>1ha) of dense scrub dissected by a series of hedgerows and ditches (OS Grid reference SK962652).
- 2.5 The Site was located to the West of the village of Waddington, Lincoln, approximately 6.4km south of Lincoln. Habitats in the wider area were dominated by arable land and urban residential areas of Waddington, with the RAF Waddington base situated approximately 1.7km to the East.

Site Proposals

- 2.6 The site proposals entail residential development with associated green infrastructure and amenities.

¹ CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

3.0 LEGISLATION AND POLICY

3.1 Detail on the relevant national policy and legislation for ecology in relation to development sites are provided in Appendix A. The national policy and legislation most relevant here are:

- The Conservation of Habitats and Species Regulations (“The Habitats Regulations”) (Amendment) 2017 in relation to the European Protected Species (EPS) great crested newt, (GCN), bats (all species) and dormouse; and European protected sites i.e. Special Areas of Conservation (SAC), Special Protection Areas (SPAs) and Internationally protected “Ramsar Sites” (collectively known as “Natura 2000 sites”). Annex II bat species of particular relevance in relation to SACs designated for bats.
- The Wildlife and Countryside Act 1981 (WCA) (as amended) in relation to all wild birds (including Schedule 1 species), other animals (notably Schedule 5 species), flora (those listed in Schedules 8 and 9) and Sites of Special Scientific Interest (SSSI);
- Protection of Badgers Act 1992;
- Natural Environmental and Rural Communities (NERC) Act 2006 in relation to various priority species and habitats;
- Hedgerow Regulations 1997 made under Section 97 of the Environment Act 1995;
- National Planning Policy Framework (NPPF) (2019);
- The Environment Bill (2021);
- Local Nature Reserves (LNR) as designated most recently by the NERC Act 2006;
- Non-statutory protected local sites including County Wildlife Sites (CWS), Sites of Importance for Nature Conservation (SINC), Local Wildlife Sites (LWS) and Ancient Woodland Inventory (AWI) sites;
- Local Biodiversity Action Plans (LBAP); and
- Birds of Conservation Concern (BoCC).

4.0 METHODOLOGY

- 4.1 In order to compile existing baseline information, relevant ecological information was requested from both statutory and non-statutory nature conservation organisations including:
- Multi Agency Geographic Information for the Countryside (MAGIC)²;
 - Greater Lincolnshire Nature Partnership (GLNP).
- 4.2 Further inspection of colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) was also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.
- 4.3 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:
- 5km around the application area for sites of International Importance (e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites).
 - 2km around the application area for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs)) and species records (e.g. protected, Local Biodiversity Action Plan (LBAP) or notable species).
 - 1km around the application site for sites of County Importance (e.g. Biological Heritage Sites Local Wildlife Sites).
- 4.4 When reporting consultation data, records were filtered to include only those from the previous ten years (since 2011), however, professional judgement has also been used and older records included where deemed appropriate to the overall assessment.

Extended Phase 1 Habitat Survey

- 4.5 A field survey was conducted on 13th December 2022. Survey methods followed the extended Phase 1 Survey (JNCC, 2010³) technique. This involved a systematic walkover of the site to classify the broad habitat types and identify any Habitats of Principal Importance (HPI) for the conservation of biodiversity as listed within Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006. Habitats were broadly mapped in the field using an OS base map.
- 4.6 Where feasible, target notes and species lists were compiled for individual areas and assessments of abundance were made using the DAFOR scale. Vascular plant nomenclature follows Stace (2010)⁴. Whilst the species lists collected should not be regarded as exhaustive, sufficient information was gained during the survey to enable classification and assessment of broad habitat types and identify features likely to be of interest.

² magic.defra.gov.uk

³ JNCC (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit. Peterborough: JNCC

⁴ Stace, C.A. (2010). New Flora of the British Isles. (3rd Ed.). Cambridge: Cambridge University Press

- 4.7 In addition, hedgerows were surveyed using the Hedgerow Evaluation and Grading System (HEGS)⁵. This method of assessment includes noting down canopy species composition, associated ground flora and climbers, structure of the hedgerow including height, width and gaps, along with associated features such as; the number and species of mature trees, banks, ditches and grass verges.
- 4.8 Each hedgerow was given a grade using HEGS with the suffixes '+' and '-', representing the upper and lower limits of each grade respectively. These grades represent a continuum on a scale from 1+ (the highest score and denoting hedges of the greatest nature conservation priority) to 4- (representing the lowest score and hedges of the least nature conservation priority) as follows:
- Grade 1 – High to very high value;
 - Grade 2 – Moderately high to high value;
 - Grade 3 – Moderate value;
 - Grade 4 – Low value.
- Hedgerows graded 1 or 2 are considered to be a priority for nature conservation.
- 4.9 Also, where appropriate, hedgerows were broadly assessed against the Wildlife and Landscape criteria contained within The Hedgerow Regulations 1997 to determine whether they qualified as 'Important Hedgerows'. This was achieved using a methodology in accordance with both the Regulations and DEFRA guidance. It should be noted that hedgerows may also qualify as Important under the Archaeology and History criteria of the Hedgerow Regulations 1997 Act, which is beyond the scope of this assessment.

Invasive Plants, Notifiable Weed Species and Other Notable Flora

- 4.10 Consideration was given as to the presence of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA 1981)⁶ and the presence of any notable weeds including those covered under the Weed Act 1959⁷ (where population is significant enough to be considered injurious).

Preliminary Protected Species Assessment

- 4.11 During the extended Phase 1 Habitat survey, observations, identification and signs of any species protected under the following list of Acts and Regulations (collectively referred to herein as 'Protected Species') were recorded. Details of survey methodologies are provided in Appendix B.
- Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
 - The Protection of Badgers Act 1992; and
 - The Conservation of Habitats and Species Regulations 2017 (as amended).
- 4.12 Consideration was also given to the existence and use of the site by other fauna listed as one or more of the following (collectively referred to herein as 'Notable Species'):

⁵ Clements, D. & Toft, R. (1992). Hedgerow Evaluation and Grading System (HEGS) – a methodology for the ecological survey, evaluation and grading of hedgerows. Countryside Planning and Management

⁶ Act of Parliament, (1981). The Wildlife and Countryside Act 1981 (as amended), London: HMSO.

⁷ Act of Parliament. (1959). The Weed Act 1959. London: HMSO.

- Species of Principal Importance (SPI) for the conservation of biodiversity in England on the Natural Environment and Rural Communities (NERC) Act, Section 41 (S41)
- Species listed on any Local Biodiversity Action Plan (LBAP) initiatives
- Red Data Book (RDB) species.

4.13 The likely presence or absence of protected and notable species has been assessed by a number of factors including the availability or suitable habitat, connectivity, known species distribution, local records and an understanding of the ecology and habitats requirement of the individual species assessed. Examples of the types of criteria for likely presence/absence used as part of this assessment are provided in Table 1.

Table 1: Criteria Used for Assessing Likely Presence/Absence of Protected/Notable Species

Likelihood of Presence	Example Criteria
Negligible	Where one or more of the following is true for the site: it offers no suitable habitat; it is isolated from known areas of suitable habitats/species presence; displays no evidence of use by the species in question; it is outside of the known local/regional/national distribution for the species; and there are no desk study records are present during the data search.
Low	Where one or more of the following is true for the site: the habitats present are of poor to moderate suitability; it is limited or restricted connectivity to areas of suitable offsite habitat or areas with known presence; it is in a location where the species distribution is known to be sparse at a local or regional scale; the desk study indicates the presence of the species in the locality in small to moderate numbers.
Moderate	Where one or more of the following is true for the site: the habitats present are of moderate to high suitability; it is clearly connected to suitable offsite habitat offsite habitat or areas with known presence; it is in a location where the species is known to be well distributed; the desk study indicates the presence of the species in the locality in moderate to good numbers.
High	Where one or more of the following is true for the site: the habitats present are of optimal suitability; it is adjacent to areas of suitable offsite habitat offsite habitat or areas with known presence; it is in a location where the species is known to be well distributed; there are field signs evidencing that a species has been present on the site; the desk study indicates the presence of the species has been historically present on or within the immediate vicinity of the site.
Present	The species was observed using the site during the extended phase 1 habitat survey or, where appropriate for certain species, field signs indicate the regular use of the site i.e. the presence of a badger sett.

Limitations

- 4.14 The habitat survey was undertaken in December which is a sub-optimal time for habitat surveying as many plant species will not be present. Sufficient information was gathered to determine broad habitat types, however, species lists should not be regarded as exhaustive. Further condition assessments of habitats present are recommended to be undertaken in the optimal survey season (April- September) to inform any Biodiversity Net Gain calculations.
- 4.15 This assessment aims to provide baseline ecological data for the site and as such presents an overview of the habitats and features present. Due to the transient and complex nature of

ecosystems, no investigation can provide a complete representation or prediction of the natural environment present, however every effort has been made to ensure an accurate description of the site in presented following best practice guidance, experience and professional judgement.

- 4.16 The phase 1 habitat map has been reproduced from detailed field notes and informed by aerial imagery, OS mapping and site maps provided by the client. The accuracy of this figure is therefore ultimately guided by the accuracy of these sources and can only be relied upon to a certain degree of resolution.
- 4.17 Given the transient nature of natural processes, the findings of this report should not be relied upon for more than 12 months from completion of surveys.

5.0 RESULTS

Desk Study

Designated Sites

- 5.1 Results of the desk study are shown on Figures 1 & 2: Designated Sites and Protected Species Plan.

Statutory Designated Sites

- 5.2 No internationally designated sites for nature conservation interest were located within a 10km radius of the Site.
- 5.3 No statutory designated national sites were located within a 2km radius of the site.

Non-Statutory Designated Sites

- 5.4 A number of non-statutory designated sites were located within 1km of the site boundary, none of the sites identified fell within the Site boundary. Details of these sites are provided in Table 2.

Table 2: Non-statutory Designated Sites

Site Reference/Name	Designation	Description	Proximity from site
River Witham, Bracebridge to South Hykeham	LWS	A 2.9km stretch of the River Witham and its banks. The channel is 10-14m wide, with embanked and flatter grassland on both sides. A range of wetland plants are present, associated with the river, a ditch and marshy land on the east bank.	400m West
North Hykeham Hayfield	LWS	Unimproved neutral grassland with scattered scrub and boundary hedgerows, an area adjoining the southern boundary appears to be seasonally flooded. Scrub is beginning to invade the grassland from the edges. Part of the north-eastern portion of the site is cultivated as an allotment with associated sheds and a strip close to the western edge is used for composting.	660m West
Waddington Grassland (Viking Way)	LWS	Calcareous pasture sloping down the western side of the Lincoln Cliff. Traces of ridge and furrow are present. A bank with scattered scrub occupies the eastern edge. A spring emerges near the eastern boundary, creating a damp flush and a small marshy area in the north of the site. A seasonal pond with poached edges is present on the western edge. The field is grazed by cattle.	770m East

Protected/Notable Species

- 5.5 A number of protected or notable species records from the previous 30 years were highlighted either within the site or the surrounding area by Lincolnshire Environmental Records Centre.

- 5.6 Two records of badger *Meles meles* were returned from GLNP, one of which was a sett record, approximately 800m from the site boundary, the other a live sighting, approximately 1km from the site boundary. Two records of water vole *Arvicola amphibius* were returned, both of which were of field signs, approximately 600m to the west, and 800m to the north-west of the site. No records of live sightings were returned.
- 5.7 Twenty-seven records of foraging bats; noctule *Nyctalus noctula*, brown long-eared *Plecotus auritus*, Daubenton's *Myotis daubentonii*, Nathusius' pipistrelle, *Pipistrellus nathusii* and common pipistrelle *Pipistrellus pipistrellus*, were returned from within 1km of the site boundary.
- 5.8 A record of great crested newts *Triturus cristatus* (GCN) was identified, however it was provided as a four-figure grid-reference, therefore, the exact location is unknown. The grid square is approximately 1.2km west from the site at its closest point. Common frog and smooth newt *Lissotriton vulgaris* records were also identified, both approximately 700m east, associated with Lakeside Nature Reserve.
- 5.9 Records of grass snake *Natrix helvetica* were identified approximately 700m east from the site, associated with Lakeside Nature Reserve. Additional records of grass snake and slow-worm *Anguis fragilis* were identified, both provided as four figure grid references, with the grid squares approximately 800m north-west and 200m west at their closest points respectively.
- 5.10 A single hedgehog *Erinaceus europaeus* record, provided as a four-figure grid reference, was identified within the same grid square as the site. Hedgehog records were also frequent within the wider landscape.
- 5.11 A single brown hare *Lepus europaeus* record was identified, however the record was provided as a four-figure grid reference and the exact location is unknown, with the grid square being approximately 800m to the north-west at its closest point.
- 5.12 One record of European eel *Anguilla anguilla* and one record of spined loach *Cobitis taenia* were identified approximately 500m and 600m to West of the site respectively.
- 5.13 29 species of birds were identified in the search area, however the majority of records provided are at tetrad (2km²) resolution, with lapwing *Vanellus vanellus* and tree sparrow *Passer montanus* potentially recorded within the site.
- 5.14 One record of small heath *Coenonympha pamphilus* was returned at four figure grid reference accuracy, with the closest point approximately 800m to the south-west of the site.

Extended Phase 1 Habitat Survey – Habitats

- 5.15 The locations of the habitats described below are illustrated in Figure 3: Phase 1 Habitat Plan. A botanical species list is provided in Appendix C.

Arable

- 5.16 Arable habitats formed the two larger field compartments to the south of the redline area proposed for development, within the blue line area of allocation, with narrow, rough grassland margins composed of grass and herb species found in the adjacent grassland compartments.



Photo 1: Predominantly grassland habitat with arable field compartment and hedgerow behind

Semi-Improved Grassland

- 5.17 In the western extent of the site adjacent to the off-site arable land, was a single field of semi-improved grassland, and a smaller compartment of semi-improved grassland and ruderal herb. The field was previously grazed and supported a grass dominant, species-poor sward. Grass species comprised abundant perennial rye-grass *Lolium perenne* and cock's-foot *Dactylis glomerata*. Yorkshire-fog *Holcus lanatus* was recorded at a lower abundance. A number of herb species were recorded, including common sorrel *Rumex acetosa*, common sow thistle *Sonchus oleraceus*, dove's-foot crane's-bill *Geranium molle*, creeping buttercup *Ranunculus repens*, broad-leaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense*, common nettle *Urtica dioica*, cleavers *Galium aparine*, common fleabane *Pulicaria dysenterica*, chickweed *Stellaria media*, common knapweed *Centaurea nigra*, white clover *Trifolium repens*, great plantain *Plantago major* and groundsel *Senecio vulgaris*.

Improved Grassland

- 5.18 The field compartment forming the eastern extent of the site comprised improved grassland, dominated by perennial rye-grass and was very species poor. Additional grass species included cock's-foot, Yorkshire-fog, false oat-grass *Arrhenatherum elatius* and meadow foxtail *Alopecurus pratensis*, and herbs comprised hemlock *Conium maculatum*, broad-leaved dock, creeping thistle, crane's-bill *Geranium sp.*, cleavers, red dead-nettle *Lamium purpureum*, common fleabane, chickweed and creeping buttercup. Sunflower *Helianthus annuus*, common ragwort *Jacobaea vulgaris*, bramble *Rubus fruticosus agg.*, common nettle, and cow parsley *Anthriscus sylvestris* were also present, associated with the grassland margins.

Ruderal Herb

- 5.19 The areas of ruderal herb in the westernmost field compartment were dominated by common nettle and cleavers, with additional species including bramble, weld *Reseda luteola*, creeping thistle, common ragwort and burdock *Arctium sp.*

Broadleaved Woodland

- 5.20 A small area of broadleaved woodland was present in the north-western corner of the site. Established trees formed the majority of the compartment, with some dead elm likely to be victims of Dutch elm disease. The canopy was dominated by English elm *Ulmus procera*, with frequent ash *Fraxinus excelsior* apple *Malus domestica* holly *Ilex aquifolium* and yew *Taxus baccata*.
- 5.21 Ground flora was not recorded in the woodland at the time of survey, however, the survey was undertaken at a sub-optimal time for woodland habitat.

Hedgerows

- 5.22 Twelve hedgerows were present within the wider site area, dividing and forming the boundaries of the field compartments. The majority of boundary hedgerows and those running through the site were species poor with frequent species comprising hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, dog-rose *Rosa canina* and ash. Two of the hedgerows on site (H5 and H12) are considered to be species rich, one running along the northern boundary and one running through the centre of the site.
- 5.23 All on-site and off-site hedgerows scored fairly highly on structure, with many 2-4m tall and >1m high, with a moderate number of standards throughout. However, all hedgerows scored poorly for associated features, with only a couple of the hedgerows supporting ditches or parallel hedgerows, and no hedge banks.
- 5.24 Hedgerow H5 and H12 were considered 'Important' under the Hedgerow Regulations (1997) they support at least 6 native woody species (average per 30m), one or more standards per 50m, less than 10% gaps, a ditch for over 50% of the hedgerow and connections scoring 4 points or more.
- 5.25 All hedgerows are Habitats of Principal Importance under section 41 of the NERC Act (2006) as they comprised >80% native woody species. Hedgerows were considered to range from low to high value, with the majority being of moderate value, when assessed using the Hedgerow Evaluation and Grading System. Table 3 provides a summary of the hedgerow survey results.

Ditches

- 5.26 Two ditches, associated with hedgerows, were present within the redline site boundary, with occasional pooled water of a depth <0.2m. Neither had aqueous vegetation present. Species present within ditches included invasive montbretia *Crocodymia x crocosmiiflora*, hemlock, ivy and tansy *Tanacetum vulgare*.

Table 3: Hedgerow Evaluation

Hedgerow ref.	Species composition	Trees	Associated Features / Notes	Average no. species per 30m section	HEGS Score	Habitat of Principal Importance under NERC Act (2006)	Important under wildlife and landscape criteria of Hedgerow REGS
H1	<i>Ls, Fs, Cm, Ps, Ca</i>	0	Less than 10% gaps	5	3+	No	No
H2	<i>Ls, Bp, Pa</i>	1	1 mature standard, silver birch and less than 10% gaps	3	3+	No	No
H3	<i>Cm, Rf, Rc</i>	1	One young standard, less than 10% gaps, parallel hedge within 15m	3	3	Yes	No
H4	<i>Cm, Rc, Rf, Fe, Ms, Ac</i>	9	One or more standards per 50m, less than 10% gaps	5	3+	Yes	No
H5	<i>Cm, Rf, Sn, Ac, Fe, Ps, Rc</i>	3	One or more standards per 50m, less than 10% gaps, ditch for over 50% of hedge	7	2	Yes	Yes
H6	<i>Ps, Cm, Rf, Fe</i>	0	Less than 10% gaps, ditch for over 50% of hedge	4	4+	Yes	No
H7	<i>Rf, Fe, Ps, Cm, Ss, Rc</i>	2	Less than 10% gaps, ditch for over 50% of hedge, parallel hedge within 15m	6	2+	Yes	No
H8	<i>Cm, Rf, Rc, Sn, Ms</i>	0	Connections scoring 4 points or more	3	4+	Yes	No

Hedgerow ref.	Species composition	Trees	Associated Features / Notes	Average no. species per 30m section	HEGS Score	Habitat of Principal Importance under NERC Act (2006)	Important under wildlife and landscape criteria of Hedgerow REGS
H9	<i>Cm, Rc, Sn, Rf, Fe</i>	5	One or more standards per 50m, less than 10% gaps, ditch for over 50% of hedge, connections scoring 4 points or more	5	-2	Yes	No
H10	<i>Cm, Ah, Lo</i>	1	Connections scoring 4 points or more	3	4+	No	No
H11	<i>Rf, Cm, Rc</i>	0		3	-3	Yes	No
H12	<i>Rf, Cm, Rc, Ia, Fe, Lp, Ag</i>	4	One or more standards per 50m, less than 10% gaps, ditch for over 50% of hedge, connections scoring 4 points or more	6	-2	Yes	Yes
<p><i>Cm Crataegus monogyna</i> Hawthorn, <i>Ps Prunus spinosa</i> Blackthorn, <i>Sn Sambucus nigra</i> Elder, <i>Fe Fraxinus excelsior</i> Ash, <i>Fs Fagus sylvatica</i> Beech, <i>Ah Aesculus hippocastanum</i> Horse-Chestnut, <i>Rc Rosa canina</i> Dog-Rose, <i>Ca Corylus avellana</i> Hazel, <i>Ac Acer campestre</i> Field Maple, <i>Up Ulmus procera</i> English elm, <i>Ls Leylandii sp.</i>, <i>Bp Betula pendula</i> Silver birch, <i>Pa Prunus avium</i> Cherry, <i>Rf Rubus fruticosus agg.</i> Bramble, <i>Ms Malus sylvestris</i> Crab apple, <i>Ss Salix sp.</i> Willow sp., <i>Ia Ilex aquifolium</i> Holly, <i>Lp Lonicera periclymenum</i> Honeysuckle, <i>Ag, Alnus glutinosa</i> Alder, <i>Lo Ligustrum ovalifolium</i> Garden privet.</p>							

Trees

- 5.27 A number of trees were recorded along the hedgerows on the boundary many of which were mature. Tree species present include ash, whitebeam *Sorbus aria*, hawthorn *Crataegus monogyna*, horse-chestnut *Aesculus hippocastanum*, field maple *Acer campestre*, elder *Sambucus nigra*, apple, English Elm, Holly, yew and privet *Ligustrum ovalifolium*. All of the trees present on site were observed to have negligible roosting potential for bats.

Fauna

Preliminary Protected Species Assessment

5.28 No significant mammal tracks or field evidence of protected species was observed within the site during the survey. The potential for the site to support protected and notable surveys has been assessed based on the desktop study results, the habitats present on site and their connectivity to suitable off-site habitats. Based on an evaluation of these factors, the habitats present on site are considered to have potential to support a small number of protected/notable species as discussed in Table 4 below.

Table 4: Preliminary Protected/Notable Species Assessment

Species	Relevant Legislation	Site Assessment	Likelihood of Presence
Bats	WCA, CHSR	The hedgerows and trees provide suitable foraging and commuting habitats for bats. Bats are a common species group that will range far for foraging, and it is therefore considered highly likely that bat species will be using the site as commuting and/or foraging habitat. Mature trees on the field boundaries were considered to provide negligible potential for roosting bats.	High
Nesting Birds	WCA	The site supports nesting opportunities for birds within hedgerows and trees. The off-site arable and on-site grassland habitats may provide nesting habitat for ground nesting farmland birds; however, it is likely to be in low numbers given the size of the site, and nature of the crop and grazed habitats.	High
Badgers	PBA	The core of the off-site arable habitats on site were sub-optimal for badgers, however, the hedgerows, arable margins and semi-improved grassland provides potential to support foraging badgers. Furthermore, the areas of scrub and trees in the north-western corner provide suitable sett creation habitat. The desktop study also indicates the presence of this species within the locality.	Moderate
Otter	CHSR, WCA	On-site habitats are of limited potential for this species, although ditches may provide sporadic commuting habitat connecting to the River Witham. No potential places of rest or shelter are likely to be provided by the habitats within the site.	Low
Water Vole	WCA	On-site habitats are very limited for this species, although ditches may provide occasional commuting habitat, they do not hold water year-round and provide negligible opportunity for foraging given the lack of aquatic vegetation.	Low
Great Crested Newt	CHSR, WCA	Aquatic habitats on site are limited to ditches with occasional shallow pools and no aquatic vegetation present, and terrestrial habitat is limited to the base of hedgerows, woodland and rough margins, and previously grazed grassland in the northern field compartments. The off-site southern field compartments are considered unsuitable for this species due to arable use. The closest GCN record identified was at least 1.2km from the site during the desktop study (exact location unknown). A single pond exists within 500m,	Low

Species	Relevant Legislation	Site Assessment	Likelihood of Presence
		located approximately 380m north-east of the site. Aerial imagery shows the pond to be surrounded by optimal terrestrial habitat. Station Road and urban development, between the pond and the site, provides a partial barrier to dispersal.	
Reptiles	WCA	The habitats on site were suboptimal for reptiles with grassland providing limited vegetation structure and being previously grazed. Hedgerows may provide connectivity and/or refuge throughout the site but are considered offer low potential to support this species group.	Low

KEY: CHSR - Conservation of Habitat and Species Regulations 2017 (as amended), WCA - Wildlife and Countryside Act 1981(as amended) , PBA – Protection of Badgers Act 1992.

6.0 DISCUSSION AND RECOMMENDATIONS

- 6.1 The results of this preliminary ecological appraisal of the site have been assessed against the most up-to-date understanding of the proposals. There are no detailed proposals regarding the site layout at this stage, however, it has been assumed that the majority of the arable and grassland fields and internal hedgerows will be lost to development.
- 6.2 It is anticipated that boundary hedgerows and trees can be retained within the layout of the site, with a potential loss of small sections to allow for access and visibility splays. Loss or partial loss of hedgerows H5 and H12 should be avoided wherever possible as they are classed as 'Important' under the Hedgerow Regulations and provide a species rich linear feature that is likely to support a range of wildlife.
- 6.3 Loss of trees should be avoided wherever possible, particularly along the boundaries, however, some loss of trees may be required. Where this is the case, any trees requiring removal within the bird breeding season would require further survey.
- 6.4 The invasive montbretia present within the site should be managed to avoid the spread of the species, following the relevant guidance and legislation on disposal where necessary.
- 6.5 Table 5 provides an overview of the potential ecological constraints associated with the site along with recommendations for avoidance, protection, mitigation and/or compensation measures that can be designed into the scheme as appropriate. The following ecological features identified during this appraisal are not considered to pose a constraint to the proposals and are therefore not discussed in Table 5.
- **Designated Sites** – The local designated sites are all considered to be sufficiently distant that they would not be impacted by effects associated with the scheme.
 - **Habitats of low conservation importance** – the off-site arable and on-site improved grassland habitats are considered to be of low nature conservation value. These habitats are very species poor, and all species recorded are common and widespread. The loss of the on-site improved grassland habitat is therefore not considered to be a constraint to proposals.
 - **Reptiles** – reptiles were considered very unlikely to be present on site and are therefore not considered to be a constraint to the proposals.
 - **Great Crested Newts** – There are no GCN records within 1km of the site and limited suitable terrestrial and aquatic habitat within the site boundary. A single off-site pond exists approximately 380m north of the site. Aerial imagery shows the pond to be surrounded by optimal terrestrial habitat. Station Road and urban development, between the pond and the site, provides a partial barrier to dispersal with traffic. It is therefore considered reasonably unlikely that GCN would disperse across urban areas and roads to utilise the sub-optimal habitats present onsite. The presence of GCN on-site is considered reasonably unlikely and therefore not considered to be a constraint to the proposals.
 - **Otters & Water Vole** – Although ditches present may offer sporadic commuting potential, it is unlikely the habitats within the site would support any places of rest or shelter. These species are therefore not considered to be a constraint to the proposals.
 - **Roosting Bats** – The trees present on site were assessed by a licenced bat worker (2018-38135- CLS-CLS) and provided negligible potential for roosting bats, therefore they are not considered to be a constraint to proposals.

Table 5: Potential Ecological Constraints and Recommended Mitigation/Further Survey

Ecological Feature	Potential Constraints	Recommended Mitigation/Further Work	Recommended timings
Hedgerows	Hedgerow H5 and H12 are considered 'Important' hedgerows under the Hedgerow Regulations (1997). All hedgerows are Habitats of Principal Importance under NERC S.41. It is anticipated there will be some loss of internal hedgerows. Furthermore, retained hedgerows will be in close proximity to the works and are therefore susceptible to damage either through direct above-ground damage or through damage to roots.	Suitable compensation through new hedgerow planting should be undertaken using native species, providing a net gain in biodiversity value. All retained hedgerows should be protected during works through the implementation of appropriate measures including root protection areas and protective fencing.	N/A
Bat Activity	The field compartments provided a limited resource owing to the dominance of species-poor grassland and arable habitats, however, the woodland and hedgerows are likely to support foraging and commuting bats. Records of foraging bats are known to exist within the wider area.	<p>Given the suitability of habitats for bats, further surveys should be undertaken to determine the levels of activity on the site. The site is considered to have low-moderate suitability for bats, therefore it is anticipated three survey visits would be sufficient to determine activity levels and assess potential impacts. However, further surveys may be required if these surveys reveal higher levels of bat activity than predicted by habitat alone, or Annex II species are recorded.</p> <p>Automated/static bat detector surveys would also be required across the site. One static location per transect, collecting data for five consecutive nights per season would be sufficient, providing higher levels of bat activity or Annex II species weren't recorded.</p> <p>It is also recommended that the proposals are guided by a Construction and Environment Management Plan informed by the results of bat surveys and includes a sensitive lighting strategy in accordance with best practice guidance.</p>	<p>One survey visit per season (spring – April/May, summer – June/July/August, autumn – September/October)</p> <p>One static per transect, for 5 consecutive nights</p>
Birds	The habitats onsite could support farmland bird specialists; however, the numbers are likely to be limited given the relatively low suitability of habitats (owing to size of site, crop type and grazing).	A single scoping survey is recommended to determine the likelihood of site usage by breeding birds.	Scoping survey – April

Ecological Feature	Potential Constraints	Recommended Mitigation/Further Work	Recommended timings
	<p>The site provides nesting opportunities for a range of common and widespread bird species utilising the trees and hedgerows.</p>	<p>Where removal of woody vegetation (trees and hedgerows) is necessary, this should take place outside of the bird breeding season to minimise the risk of disturbance to breeding birds. If this is not possible, such vegetation should be checked prior to removal by a suitably experienced ecologist. If active nests are found, vegetation should be left untouched and suitably buffered from works until all birds have fledged. Specific ecological advice should be sought prior to undertaking the clearance.</p>	<p>Avoid vegetation removal March - August</p>
<p>Badgers</p>	<p>The site offers suitable foraging and sett creation habitat for badgers. While no setts are currently present, it is possible new setts could be created prior to commencement.</p>	<p>A pre-commencement survey should be undertaken prior to development to ascertain the status of badgers within the site.</p>	<p>Prior to the commencement of construction</p>
<p>Hedgehogs</p>	<p>Habitats onsite provided some suitability for hedgehog, particularly within woodland and scrub habitats. Proposals could lead to a loss of temporary foraging habitat used by this species and could lead to hedgehogs becoming trapped and injured.</p>	<p>Any steep excavations should contain mammal ladders where they are left overnight with not shallower shallow areas to provide escape routes and prevent hedgehogs becoming trapped within the working areas. These should comprise planks of wood set at an angle that would allow hedgehogs to climb up them.</p>	<p>N/A</p>

Net Gain

- 6.6 Design of the development will be required to demonstrate a biodiversity net gain of habitats and linear features, calculated using the Defra Biodiversity Metric 3.1 (or the most-recent version at the time) as agreed with the local planning authority. Subsequent to the Environment Act 2021, a net gain in biodiversity value of 10% may be required to be delivered either within the site layout, utilising off-site land, or through the use of a 'bio-bank'.
- 6.7 The current site baseline equals 34.70 habitat units and 2.00 hedgerow units. This is based on non-detailed condition assessments with assumed conditions applied to each habitat type, as the initial walkover was completed during at an unsuitable time of year. It is therefore recommended that a site visit to undertake accurate condition assessments is completed during the optimal survey season (April-September) and the baseline conditions updated accordingly.
- 6.8 The Defra BNG metric includes trading rules which have been met to ensure that losses in higher distinctiveness habitats are not compensated for through the delivery of large areas of lower distinctiveness habitats ensuring that BNG does not lead to an overall loss of more biodiverse habitats.
- 6.9 Loss of habitats of moderate or high distinctiveness including woodland and scrub will result in a large loss of biodiversity units, whereas loss of low distinctiveness habitats including ruderal areas would result in loss of fewer biodiversity units. Therefore, any retention of habitats to include or enhance within the site layout as part of the green infrastructure proposals should favour high distinctiveness habitats with built development focused on areas of low distinctiveness habitats.

Habitat Enhancements

- 6.10 Furthermore, and in addition to Biodiversity Net Gain enhancements, the site offers a range of opportunities to incorporate enhancement features for a variety of faunal species. Table 6 provides a number of recommendations that could be easily incorporated within the scheme.

Table 6: Fauna Enhancement Opportunities

Target Species/ Groups	Enhancement Opportunities	Recommended Specifications
Bats	Given the presence of mature boundary trees around the site boundaries, there are opportunities available to introduce roosting opportunities for this group through the erection of suitable bat boxes. These can be installed during the operational phase of the proposals either on retained trees or the proposed buildings.	Schwegler (or similar alternative) 1F bat boxes placed on suitable trees.
Birds	A range of nest boxes suitable for generalist species should be affixed to retained mature trees around the site peripheries, whilst nest boxes suitable for urban species should be affixed to	A mixture of small hole (26mm and 32mm) nest boxes such as the 1B Schwegler nest box (or similar).

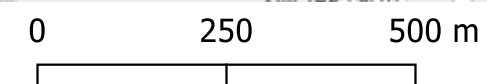
Target Species/ Groups	Enhancement Opportunities	Recommended Specifications
	dwellings around the development periphery.	
Amphibians	Any new ponds created should be designed to hold some degree of water throughout the year where feasible and should be planted with a diverse range of native species.	Pond planting should include a native species rich marginal vegetation seed mix that grades into species pond-edge or wet grassland seed-mix.
Invertebrates	Invertebrates would benefit from the inclusion of log piles and hibernacula designed for amphibians/reptiles but would also benefit from specific features such as insect houses.	Insect houses are readily available from online retailer, but larger features that are designed for a range of species should be used where possible, such as the 'Minibeast HQ.'
Hedgehogs	Hedgehog highways	13 x 13 gap in base boards to allow passage between gardens and appropriate signage to inform residents to prevent the holes being blocked.

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Key

-  Site Boundary
-  1km Buffer
-  Local Wildlife Sites (LWS)



client
Lindum Homes

project
Station Road,
Waddington

drawing title
CONSULTATION RESULTS PLAN -
DESIGNATED SITES

scale @A3
1:10,000

drawn
JLS

issue date
31/1/2023

drawing / figure number
Figure 1

rev
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Key

- Site Boundary
- 1km Buffer
- Mammals**
 - Eurasian Badger
 - European Rabbit
 - European Water Vole
 - West European Hedgehog
- Bats**
 - Unidentified bat sp.
 - Brown Long-eared Bat
 - Common Pipistrelle
 - Daubenton's Bat
 - Nathusius's Pipistrelle
 - Noctule Bat
 - Pipistrelle sp.
- Amphibians**
 - Common Frog
 - Smooth Newt
- Reptiles**
 - Grass Snake
- Invertebrates**
 - Bladder snails
 - Common Bladder Snail
 - Jenkins' Spire Snail
- Plants**
 - Apple
 - Barren Brome
 - Bristly Oxtongue
 - Common Mallow
 - Cut-leaved Crane's-bill
 - Greater Burdock
 - Large Bindweed
 - New Zealand Pigmyweed
 - Nuttall's Waterweed
 - Prickly Lettuce
 - Wall Barley
 - White Dead-nettle

Grid squares

- SK96M- Turtle Dove, Barn Owl, Canada Goose, Collared Dove, Fieldfare, Gadwall, Grey Partridge, Greylag Goose, House Sparrow, Kingfisher, Lapwing, Lesser Redpoll, Linnet, Little Egret, Little Owl, Mute Swan, Pheasant, Redwing, Reed Bunting, Skylark, Snipe, Song Thrush, Starling, Swift, Whooper Swan, Yellow Wagtail, Yellowhammer
- SK96S - Lapwing, Tree Sparrow
- SK96T- Yellow Wagtail, Lapwing, Tree Sparrow
- SK96N- Yellowhammer, New Zealand Pigmyweed

client
Lindum Homes

project
Station Road,
Waddington

drawing title
CONSULTATION RESULTS PLAN - NOTABLE
AND PROTECTED SPECIES

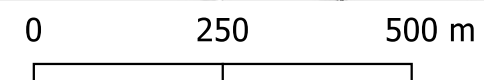
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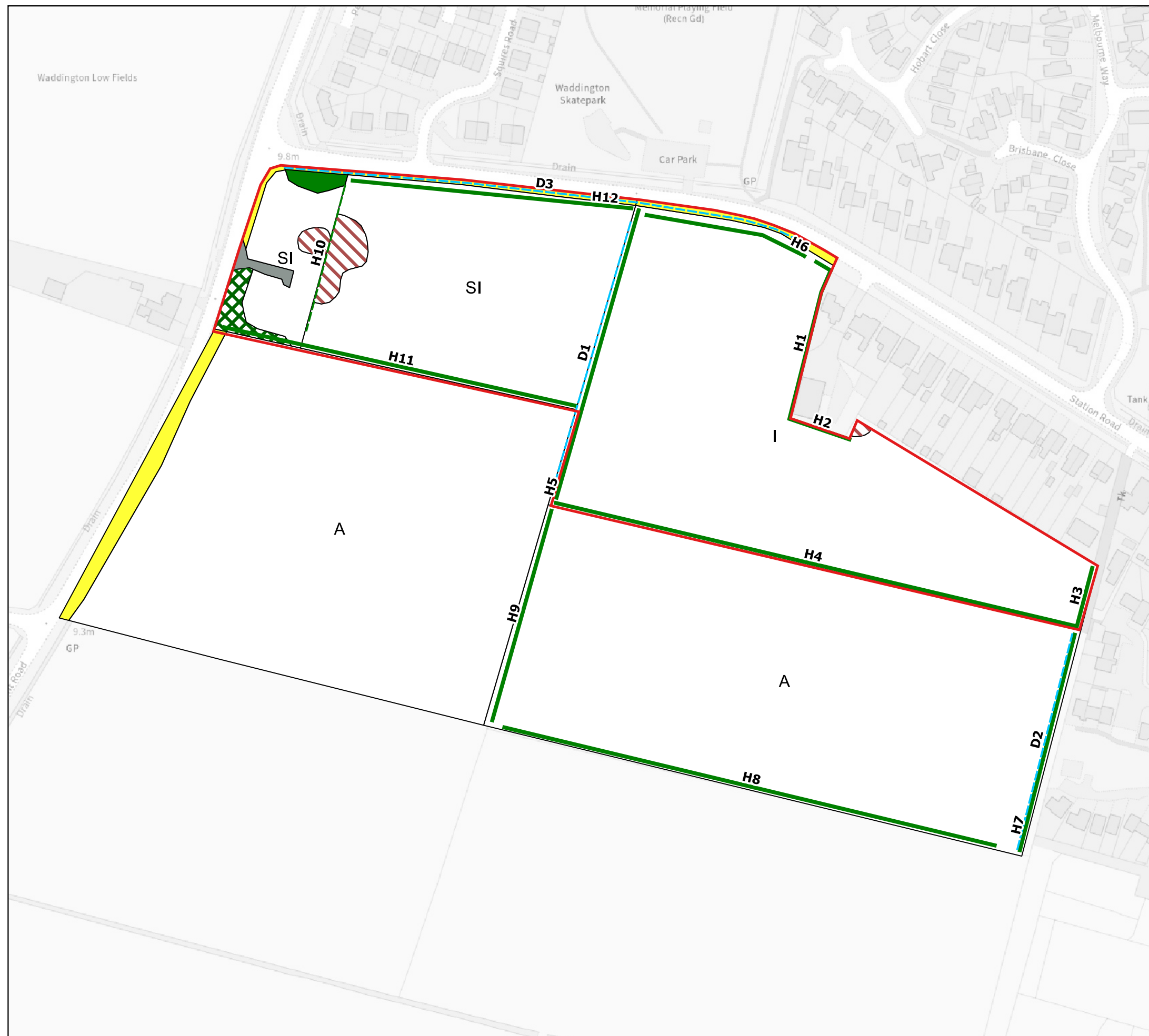
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Key

- Site Boundary
- Broadleaved woodland - semi-natural
- Built Environment: Buildings/hardstanding
- Cultivated/disturbed land - amenity grassland
- A Cultivated/disturbed land - arable
- I Improved grassland
- Other tall herb and fern - ruderal
- SI Poor semi-improved grassland
- Scrub - dense/continuous
- Intact hedge - species-poor
- Dry ditch
- Defunct hedge - species-poor



client
Lindum Homes
project
Station Road,
Waddington
drawing title
PHASE 1 HABITAT PLAN



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APPENDIX A: RELEVANT LEGISLATION, POLICY AND GUIDANCE

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

- 1.1 The Regulations ensure that the habitat and species protection and standards derived from EU law as per “The Habitat Regulations” Amendment will continue to apply after Brexit.

The Conservation of Habitats and Species Regulations (“The Habitats Regulations”) (Amendment) 2017

European Protected Sites

The Habitats Regulations ratifies into UK law the “Habitats Directive” (92/43/EEC) and the “Birds Directive” (79/409/EEC). It places a duty on the Secretary of State to propose a list of sites which are important for species listed in Annex I and II of the Habitats Directive respectively to the European Commission. Once the Commission and EU Member States have agreed that the sites submitted are worthy of designation, they are identified as Sites of Community Importance (SCIs). The EU Member States must then designate these sites as Special Areas of Conservation (SACs) within six years.

- 1.2 The Regulations require the compilation and maintenance of a register of European sites to include SACs as well as Special Protection Areas (SPAs) designated for birds and sites designated as internationally important wetlands under the Ramsar Convention known as “Ramsar Sites”. These three designations form a collective Europe wide network of internationally protected sites known as Natura 2000. All European sites are also designated under UK law as Sites of Special Scientific Interest (SSSIs; please see below).

Habitats Regulation Assessment

- 1.3 There is a requirement under EU law that Member States’ take measures to reach and maintain European Protected Sites’ at Favourable Conservation Status (FCS). An Appropriate Assessment is required for plans or projects that may potentially damage a European Protected Site. This is based on an assessment against a given European Protected Site’s Conservation Objectives. The process is commonly known as a Habitats Regulations Assessment (HRA).
- 1.4 The HRA must be conducted by, or on behalf of, the Competent Authority. The HRA process assesses plans or projects alone or in combination. It involves a four-stage approach as follows:
- Stage One: Screening - also known as the Test of Likely Significant Effect (TOLSE). If the Competent Authority cannot screen out a *likely significant effect*, an Appropriate Assessment is required.
 - Stage Two: Appropriate Assessment - the Competent Authority will only agree to plans or projects that will not affect the *integrity* of a European site also known as the “Integrity Test”.
 - Stage Three: Alternative Solutions - assesses any alternative solutions of a potentially damaging plan or project that failed the Integrity Test, and if it is determined there are no alternative solutions, the project cannot be agreed to and it will either need to be changed or refused.
 - Stage Four: The final stage may allow a plan or project to proceed if after failing stage three if it is for Imperative Reasons of Overriding Public Interest, and only if suitable compensatory measures are secured.

- 1.5 Any plan or project that may have a potentially damaging effect on a transient species or the habitat on which it relies (for example bats or birds), that is both a Qualifying Features of a European Protected Site and considered *functionally linked* with a European Protected Site, are required under law to be considered as part of any HRA process.

European Protected Species

- 1.6 The Habitats Regulations includes a list of animals and plant species taken from the Annex IV of the Habitats Directive that have a natural range which includes any area in Great Britain. These are collectively known as European Protected Species (EPS). The regulations make it an offence to deliberately capture, kill, disturb, take or destroy eggs of, or damage or destroy a breeding or resting place of animals listed in Schedule 2 of the Regulations, and to pick, collect, cut, uproot or destroy wild plants listed in Schedule 5 of the Regulations. All listed EPS are shown in Table 1 below. The Regulations also protect these species alive or dead and parts thereof from various forms of possession and trade.

Table 1: The Habitats Regulations Schedule 2 and Schedule 5 species

Schedule 2 – European Protected Animal Species		Schedule 5 – European Protected Plant Species	
Common name	Scientific name	Common name	Scientific name
Horseshoe bats – all species	<i>Rhinolophidae</i>	Shore dock	<i>Rumex rupestris</i>
Bats – all species	<i>Vespertilionidae</i>	Killarney fern	<i>Trichomanes speciosum</i>
Large blue butterfly	<i>Maculinea arion</i>	Early gentian	<i>Gentianella anglica</i>
Wild cat	<i>Felis silvestris</i>	Lady’s-slipper	<i>Cypripedium calceolus</i>
Dolphins, porpoises & whales - all species	<i>Cetacea</i>	Creeping marshwort	<i>Apium repens</i>
Hazel dormouse	<i>Muscardinus avellanarius</i>	Slender naiad	<i>Najas flexilis</i>
Pool frog	<i>Rana lessonae</i>	Fen orchid	<i>Liparis loeselii</i>
Sand lizard	<i>Lacerta agilis</i>	Floating-leaved water plantain	<i>Luronium natans</i>
Fisher’s estuarine moth	<i>Gortyna borelii lunata</i>	Yellow marsh saxifrage	<i>Saxifraga hirculus</i>
Great crested newt	<i>Triturus cristatus</i>		
Otter	<i>Lutra lutra</i>		
Lesser Whirlpool Ram’s-horn snail	<i>Anisus vorticulus</i>		
Smooth snake	<i>Coronella austriaca</i>		
Sturgeon	<i>Acipenser sturio</i>		
Natterjack toad	<i>Bufo calamita</i>		
Marine turtles	<i>Caretta caretta</i> <i>Chelonia mydas</i> <i>Lepidochelys kempii</i> <i>Eretmochelys imbricata</i> <i>Dermodochelys coriacea</i>		

- 1.7 These actions may be made lawful in certain circumstances through the granting of licences by the appropriate authority (Natural England). Licences must only be granted after the appropriate authority is satisfied that no satisfactory alternatives are available. In most circumstances, licences are only applied for and granted following full planning permission.
- 1.8 In determining whether or not to grant a licence Natural England must apply the requirements of The Conservation of Habitats and Species Regulations 2012 (amendment) and, in particular, the three derogation tests:
- Test 1: A licence can be granted for the purposes of “preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment”.
 - Test 2: The appropriate authority shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”.
 - Test 3: The appropriate authority shall not grant a licence unless they are satisfied “that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Wildlife and Countryside Act 1981 (as amended)

- 1.9 The Wildlife and Countryside Act 1981 (WCA) (as amended) is the principal legislation providing protection for wildlife in the UK. It prescribes legislation for wild birds, other animals, wild plants and non-native species. In addition, it provides for the designation of Sites of Special Scientific Interest (SSSI) in England.

Wild birds

- 1.10 The WCA as amended by Schedule 12 of the Countryside and Rights of Way Act 2000 makes it an offence (with exception to species listed in Schedule 2) to intentionally or recklessly:
- kill, injure, or take any wild bird;
 - take, damage or destroy the nest of any wild bird while that nest is in use or being built (also [take, damage or destroy the nest of a wild bird included in Schedule ZA1] under the Natural Environment and Rural Communities Act 2006); or
 - take or destroy an egg of any wild bird.
- 1.11 For birds listed on Schedule 1 of the WCA, protection extends to offences relating to the intentional or reckless disturbance of these birds while at their nests or their dependent young.

Other animals

- 1.12 The WCA (as amended) makes it an offence to (subject to exceptions) intentionally or recklessly kill, injure or take wild animals listed on Schedule 5 of the Act. For some species, the protection extends to interference with places used for shelter or protection, or disturbing animals occupying or obstructing access to such places. These species are regarded as “fully protected” and as well as the EPS species listed above include the mammal species water vole *Arvicola terrestris*, pine marten *Martes martes* and red squirrel *Sciurus vulgaris* as well as selected others from a range of species groups including, fish, butterflies, hemipteran bugs, beetles, crickets, dragonflies, moths, spiders, crustaceans, sea-mats, molluscs, Annelid worms and sea anemones (and allies).

- 1.13 There are seven species on Schedule 5 of the Act that not fully protected but are still protected against killing and injuring these include the common reptile species slow worm *Anguis fragilis*, viviparous lizard *Lacerta vivipara*, grass snake *Natrix helvetica* and adder *Vipera berus*.
- 1.14 Hedgehogs are protected under Schedule 6 of the Wildlife and Countryside Act 1981, making it illegal to kill or capture them using certain methods, and listed on S.41 of the NERC Act (2006).
- 1.15 The Act prohibits certain methods of killing, injuring, or taking wild animals, and numerous species are protected against sale only as well as other variations for example Atlantic stream (white-clawed) crayfish *Austropotamobius pallipes* are protected against taking and sale.

Vascular plants, bryophytes, lichens and fungi

- 1.16 With regards to native flora the Act makes it an offence to (subject to exceptions) intentionally or recklessly pick, uproot or destroy any wild plant listed in Schedule 8. Similarly, the Act prevents the sale, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Non-native species

- 1.17 The Act contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales.

Sites of Special Scientific Interest

- 1.18 The Act provides for the notification and confirmation of Sites of Special Scientific Interest (SSSIs). These sites can be identified for their flora, fauna, geological or physiological interest. In England, the power to confirm an SSSI lies with Natural England.
- 1.19 Laws protecting areas designated as SSSIs are described in Sections 28 to 33 of Part 2 of the Wildlife and Countryside Act 1981 (as amended). SSSIs are the principle statutory designation of sites in the UK and offences are enforced through Natural England. Offences include the following:

SSSI owners and occupiers

- carrying out, causing or allowing operations likely to damage an SSSI without Natural England consent.
- failing to keep to a management notice.
- failing to let us know about a change in ownership or occupation of land in an SSSI.

Public bodies

- carrying out or authorising operations likely to damage an SSSI without meeting the requirements to notify Natural England.
- failing to minimise any damage to an SSSI and if there is any damage, failing to restore it to its former state so far as is reasonably practical and possible.

Any person

- intentionally or recklessly damaging, destroying or disturbing any of the habitats or features of an SSSI.

- intentionally or recklessly damaging, destroying, obscuring or taking down a site notice put up on land within an SSSI.
- preventing a Natural England officer lawfully accessing an SSSI.

Protection of Badgers Act 1992

- 1.20 Badgers and their setts are protected under the Protection of Badgers Act 1992. This act is based on the need to protect badgers from persecution by baiting and deliberate harm or injury.

The act makes it an offence to:

- intentionally capture, kill or injure a badger;
- damage, destroy or block access to their setts;
- disturb badgers in setts;
- treat a badger cruelly;
- deliberately send or intentionally allow a dog into a sett; and
- bait or dig for badgers.

A sett is defined as:

“Any structure or place that displays signs indicating current use by a badger”.

Natural Environmental and Rural Communities (NERC) Act 2006

- 1.21 Section 40 of the NERC Act 2006 imposes a duty on every public authority to conserve biodiversity in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat.
- 1.22 Section 41 (S41) of the NERC Act 2006 requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England. The list (including 56 habitats and 943 species) has been drawn up in consultation with Natural England and draws upon the UK BAP List of Priority Species and Habitats. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006.

National Planning Policy Framework (NPPF) (2019)

- 1.23 The National Planning Policy Framework (NPPF) sets out the Government’s planning policy for England. As such, the NPPF must be a material consideration for local authorities when considering planning decisions. The following points highlight those policies/statements which particularly relate to ecology/biodiversity and the planning system.

Policy 15 – Conserving and enhancing the natural environment

170. The planning system should contribute to and enhance the natural and local environment by:

- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures

171. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

172. Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks. Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:

- a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;
- b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and
- c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

174. When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

176. The following should be given the same protection as habitats sites:

a) potential Special Protection Areas and possible Special Areas of Conservation;

b) listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Area of Conservation, and listed or proposed Ramsar sites.

177. The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Hedgerows

1.24 Hedgerows are designated as Habitats of Principal Importance under the NERC Act 2006. The National Planning Policy Framework (NPPF) emphasises the preservation, restoration and re-creation of priority habitats and ecological networks. Hedgerows are important components of ecological networks linking other important habitats and designated sites.

1.25 Hedgerows also receive statutory protection under the Hedgerow Regulations 1997 made under Section 97 of the Environment Act 1995, which came into force in 1997. The regulations introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

Local Biodiversity Action Plan (LBAP)

1.26 Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

Birds of Conservation Concern (BoCC)

1.27 The Birds of Conservation Concern (BoCC) is jointly prepared by the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

1.28 The report classifies birds according to the extent that they are known to be declining. The classifications are split into groups, Red, Amber and Green, with species classified as Red being those with the greatest declines. The criteria for classifications are presented in *Table 2*.

Table 2: BoCC species classification criteria

Red List Criteria	Amber List Criteria	Green List Criteria
Global Conservation Status - Species listed by BirdLife International as being Globally Threatened using IUCN criteria.	European Conservation status - Categorized as a Species of European Conservation Concern.	All regularly occurring species that do not qualify under any of the red or amber criteria are green listed.
Historical Decline - A severe decline in the UK between 1800 and 1995, without substantial recent recovery.	Historical Decline – Recovery - Red listed for Historical Decline in a previous review but with substantial recent recovery (more than doubled in the last 25 years).	Includes those species listed as recovering from Historical Decline in the last review that have continued to recover and do not qualify under any of the other criteria.
Breeding Population Decline - Severe decline in the UK breeding population size, of more than 50%, over 25 years or the entire period used for assessments since the first BoCC review, starting in 1969 (“longer-term”).	Breeding Population Decline - As for red list criteria and, but with moderate decline (by more than 25% but less than 50%).	
Non-breeding Population Decline - Severe decline in the UK non-breeding population size, of more than 50%, over 25 years or the longer-term.	Non-breeding Population Decline - As for red list criteria and, but with moderate decline (by more than 25% but less than 50%).	
Breeding Range Decline - Severe decline in the UK range, of more than 50%, as measured by number of 10 km squares occupied by breeding birds, over 25 years or the longer-term.	Breeding Range Decline - As for red list criteria and, but with moderate decline (by more than 25% but less than 50%).	
	Rarity - UK breeding population of less than 300 pairs, or non-breeding population of less than 900 individuals.	
	Localisation - At least 50% of the UK breeding or non-breeding population found in 10 or fewer sites.	
	International Importance - At least 20% of the European breeding or non-breeding population found in the UK.	

Relevant Planning Policy

National Planning Policy Framework (NPPF)

1.29 The latest version of the NPPF was published in February 2019 and replaces the first NPPF published in March 2012 and minor clarifications to the revised version published in July 2018.

1.30 The premise of ‘*presumption in favour of sustainable development*’ embedded within the previous versions of the NPPF has been carried forward to the current version. The NPPF considers that to achieve this, the planning system has three overarching objectives: economic, social and environmental. It considers these to be inter-dependent with a need for them to be mutually supportive of one another. For specific development proposals the NPPF considers applying a presumption in favour of sustainable development means:

“...c) approving development proposals that accord with an up to date development plan without delay...” [para.11].

“They [decision makers] should use the full range of planning tools available, including brownfield registers and permission in principle, and work proactively with applicants to secure developments that will improve the economic, social and environmental conditions of the area”. [para. 38.].

“When determining planning applications, local planning authorities should apply the following principles:

...d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.” [para. 175].

In terms of ‘environmental objects’ (one of the three core planning objectives), the NPPF states that:

“Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate”. [para 170].

APPENDIX B: DETAILED FAUNAL SURVEY METHODOLOGY

Badgers

- 1.1 As part of the extended phase 1 habitat survey suitable habitats within the site were searched for evidence of badger activity. The standard methodology was used, as outlined by Harris, Creswell and Jefferies (1991)¹. This involved a thorough search for evidence indicating the presence of badgers, including:
- setts, including earth mounds, evidence of bedding and runs between setts;
 - latrines, often located close to setts, at territory boundaries or adjacent to favoured feeding areas;
 - prints and paths or track ways;
 - hairs caught on rough wood or fencing; and
 - other evidence including snuffle holes, feeding and playing areas and scratching posts.
- 1.2 The identification of snuffle holes, scratching posts or feeding signs on their own is not necessarily conclusive evidence of the presence of badgers. A number of such signs may need to be seen in conjunction before they can be said to be conclusive of badger activity.
- 1.3 Where setts are found, their status and level of activity is noted. Sett status is broadly categorised as follows:
- *Main sett* – usually continuously used with many signs of activity around, a large number of holes and conspicuous spoil mounds.
 - *Annexe sett* – usually located close to a main sett and connected to it by well used paths. Annexes may not be continuously occupied.
 - *Subsidiary sett* – lesser used setts comprising a few holes and without associated well-used paths. Subsidiary setts are not continuously occupied.
 - *Outlier sett* – one or two holes without obvious paths. These are used sporadically.
- 1.4 Level of activity is described as:
- *Well used* – clear of debris, trampled soil mounds and obviously active, with signs of activity such as presence of prints, dislodged guard hairs around the entrances.
 - *Partially used* – some associated debris or plants at the entrance. Could be used with minimal excavation and usually with signs of activity within the vicinity, for example, badger pathways.
 - *Disused* – partially or completely blocked entrances.

¹ Harris, S., Creswell, P. and Jefferies, D., (1991). (Report) Surveying Badgers. The Mammal. Society, Bristol.

Bats

Ground-Based Tree Surveys

- 1.5 During the extended phase 1 habitat, trees that were considered likely to be directly affected by the proposals were assessed for the presence of Potential Roosting Features (PRF) for bats such as the following (Based on P16, British Standard 8596:2015 Surveying for bats in trees and woodland, October 2015):
- Natural holes (e.g. knot holes) arising from naturally shed branches or branches previously pruned back to a branch collar.
 - Man-made holes (e.g. cavities that have developed from flush cuts or cavities created by branches tearing out from parent stems).
 - Woodpecker holes.
 - Cracks/splits in stems or branches (horizontal and vertical).
 - Partially detached, loose or bark plates.
 - Cankers (caused by localised bark death) in which cavities have developed.
 - Other hollows or cavities, including butt rots.
 - Compression of forks with occluded bark, forming potential cavities.
 - Crossing stems or branches with suitable roosting space between.
 - Ivy stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk).
 - Bat or bird boxes.
 - Other suitable places of rest or shelter.
- 1.6 Certain factors such as orientation of the feature, its height from the ground, the direct surroundings and its location in respect to other features may enhance or reduce the potential value.
- 1.7 Trees were classified into general bat roost potential groups based upon the presence of these features. Table B.1 (below) broadly classifies the potential categories as accurately as possible as well as discussing the relevance of the features. This table is based upon Table 4.1 and Chapter 6 in Bat Surveys for Professional Ecologists: Good Practice Guidelines (J., Collins (Bat Conservation Trust), 2016).
- 1.8 Although the British Standard 8596:2015 document groups trees with moderate and high potential, these have been separated below (as per Table 4.1 in The Bat Conservation Trust Guidelines) to allow more specific survey criteria to be applied.

Table B.1: Classification and Survey Requirements for Bats in Trees

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey work / Actions
Confirmed Roost	Evidence of roosting bats in the form of live / dead bats, droppings, urine staining, mammalian fur oil staining, etc.	<p>A Natural England derogation licence application will be required if the tree or roost site is affected by the development or proposed arboricultural works. This will require a combination of aerial assessment by roped access bat workers (where possible, health and safety constraints allowing) and nocturnal survey during appropriate periods (e.g. nocturnal survey - May to August) to inform on the licence.</p> <p>Works to tree undertaken under supervision in accordance with the approved good practice method statement provided within the licence.</p> <p>However, where confirmed roost site(s) are not affected by works, work under a precautionary good practice method statement may be possible.</p>
High Potential	<p>A tree with one or more Potential Roosting Features that are obviously suitable for larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter protection, conditions (height above ground level, light levels, etc) and surrounding habitat.</p> <p>Examples include (but are not limited to); woodpecker holes, larger cavities, hollow trunks, hazard beams, etc.</p>	<p>Aerial assessment by roped access bat workers (if appropriate) and / or nocturnal survey during appropriate period (May to August).</p> <p>Following additional assessments, tree may be upgraded or downgraded based on findings.</p> <p>If roost sites are confirmed and the tree or roost is to be affected by proposals a licence from Natural England will be required.</p> <p>After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate.</p>
Moderate Potential	<p>A tree with Potential Roosting Features which could support one or more potential roost sites due to their size, shelter protection, conditions (height above ground level, light levels, etc) and surrounding habitat but unlikely to support a roost of high conservation status (i.e. larger roost, irrespective of wider conservation status).</p> <p>Examples include (but are not limited to); woodpecker holes, rot cavities, branch socket cavities, etc.</p>	<p>A combination of aerial assessment by roped access bat workers and / or nocturnal survey during appropriate period (May to August).</p> <p>Following additional assessments, tree may be upgraded or downgraded based on findings.</p> <p>After completion of survey work (and the presence of a bat roost is discounted), a precautionary working method statement may still be appropriate.</p>

Classification of Tree	Description of Category and Associated Features (based on Potential Roosting Features listed above)	Likely Further Survey work / Actions
		If a roost site/s is confirmed a licence from Natural England will be required.
Low Potential	A tree of sufficient size and age to contain Potential Roosting Features but with none seen from ground or features seen only very limited potential. Examples include (but are not limited to); loose/lifted bark, shallow splits exposed to elements or upward facing holes.	No further survey required but a precautionary working method statement may be appropriate.
Negligible/No potential	Negligible/no habitat features likely to be used by roosting bats	None.

* The Conservation of Habitats & Species Regulations 2010 (as amended) affords protection to “breeding sites” and “resting places” of bats. The EU Commission’s Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC, February 2007 states that these are places “where there is a reasonably high probability that the species concerned will return”.

APPENDIX C: BOTANICAL SPECIES LIST

Scientific Name	Common Name	Abundance
Hedgerows and Trees		
<i>Acer campestre</i>	Field Maple	R
<i>Aesculus hippocastanum</i>	Horse-chestnut	R
<i>Crataegus monogyna</i>	Hawthorn	A
<i>Fraxinus excelsior</i>	Ash	F
<i>Ilex aquifolium</i>	Holly	O
<i>Ligustrum ovalifolium</i>	Privet	F
<i>Lonicera sp.</i>	Honeysuckle	R
<i>Malus sylvestris</i>	Crab apple	R
<i>Prunus spinosa</i>	Blackthorn	A
<i>Rosa canina agg.</i>	Dog Rose	F
<i>Rubus fruticosus agg.</i>	Bramble	F
<i>Salix sp.</i>	Willow sp.	R
<i>Sambucus nigra</i>	Elder	F
<i>Sorbus aria</i>	Whitebeam	R
<i>Ulmus procera</i>	English Elm	R

Arable Margins		
<i>Anthriscus sylvestris</i>	Cow Parsley	F
<i>Arrhenatherum elatius</i>	False Oat-grass	F
<i>Cirsium arvense</i>	Creeping Thistle	R
<i>Conium maculatum</i>	Hemlock	O
<i>Crocsmia sp.</i>	Montbretia	R
<i>Dactylis glomerata</i>	Cock's-foot	A
<i>Galium aparine</i>	Cleavers	F
<i>Hedera helix</i>	Common Ivy	O
<i>Holcus lanatus</i>	Yorkshire-fog	A
<i>Ranunculus repens</i>	Creeping Buttercup	O
<i>Rubus fruticosus agg.</i>	Bramble	A
<i>Rumex obtusifolius</i>	Broad-leaved Dock	R
<i>Senecio vulgaris</i>	Groundsel	O
<i>Urtica dioica</i>	Common Nettle	F

Improved Grassland (Field 1)		
<i>Alopecurus pratensis</i>	Meadow foxtail	R
<i>Anthriscus sylvestris</i>	Cow parsley	O
<i>Arrhenatherum elatius</i>	False Oat Grass	F
<i>Cirsium arvense</i>	Creeping Thistle	F
<i>Conium maculatum</i>	Hemlock	O
<i>Dactylis glomerata</i>	Cock's-foot	A
<i>Galium aparine</i>	Cleavers	O
<i>Geranium sp.</i>	Cranesbill	R
<i>Helianthus sp.</i>	Sunflower	R

<i>Holcus lanatus</i>	Yorkshire-fog	A
<i>Jacobaea vulgaris</i>	Ragwort	O
<i>Lamium purpureum</i>	Red dead-nettle	F
<i>Lolium perenne</i>	Perennial Ryegrass	D
<i>Pulicaria dysenterica</i>	Common fleabane	O
<i>Ranunculus repens</i>	Creeping Buttercup	F
<i>Rubus fruticosus agg.</i>	Bramble	O
<i>Rumex obtusifolius</i>	Broad-leaved Dock	F
<i>Stellaria media</i>	Chickweed	O
<i>Urtica dioica</i>	Common Nettle	A

Semi Improved Grassland (Field 2 & 3)		
<i>Carex sp.</i>	Sedge	F
<i>Centaurea nigra</i>	Common knapweed	O
<i>Cirsium arvense</i>	Creeping Thistle	F
<i>Dactylis glomerata</i>	Cock's-foot	A
<i>Galium aparine</i>	Cleavers	F
<i>Holcus lanatus</i>	Yorkshire-fog	A
<i>Lolium perenne</i>	Perennial Ryegrass	D
<i>Plantago major</i>	Great plantain	O
<i>Pulicaria dysenterica</i>	Common fleabane	O
<i>Ranunculus repens</i>	Creeping Buttercup	F
<i>Rumex acetosa</i>	Common sorrel	O
<i>Rumex obtusifolius</i>	Broad-leaved Dock	F
<i>Senecio vulgaris</i>	Groundsel	O
<i>Sonchus oleraceus</i>	Common sow thistle	F
<i>Stellaria media</i>	Chickweed	O
<i>Trifolium repens</i>	White Clover	F
<i>Urtica dioica</i>	Common Nettle	F

Broadleaved Woodland		
<i>Fraxinus excelsior</i>	Ash	F
<i>Ilex aquifolium</i>	Holly	R
<i>Malus domestica</i>	Apple	O
<i>Taxus baccata</i>	Yew	O
<i>Ulmus procera</i>	English Elm	D

Ruderal and marginal vegetation		
<i>Arctium sp.</i>	Burdock	A
<i>Cirsium arvense</i>	Creeping Thistle	F
<i>Galium aparine</i>	Cleavers	D
<i>Jacobaea vulgaris</i>	Ragwort	O
<i>Reseda luteola</i>	Weld	A
<i>Rubus fruticosus agg.</i>	Bramble	F
<i>Urtica dioica</i>	Common Nettle	D