Ecological Impact Assessment

May 2024

Land North-East of Humber Doucy Lane, Ipswich

Prepared by
CSA Environmental

On behalf of
Barratt David Wilson Homes
& Hopkins Homes

Report No: CSA/6675/04

CSA environmental

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This report may contain sensitive ecological information. It is the responsibility of the Local Authority to determine if this should be made publicly available.

Report Reference	Revision	Date	Prepared by	Approved by	Comments
CSA/6675/04	-	29/02/2024	CH	JW	
	A	01/03/2024	CH	JW	Small amendments to reflect updated BNG metric/proposed site layout changes
	B	05/03/2024	CH	JW	As above
	C	31/05/2024	CH/JW	JW	Update surveys

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EXECUTIVE SUMMARY

Residential development is proposed at Land North-East of Humber Doucy Lane, Ipswich for which outline planning permission is sought.

CSA Environmental was instructed by Barratt David Wilson Homes and Hopkins Homes to undertake an Ecological Impact Assessment (EcIA) of the proposed development. To inform this assessment, a desktop study followed by a suite of targeted species and habitat surveys were undertaken.

The Site is dominated by arable land and modified grassland of limited ecological interest, with narrow field margins. Greater interest is associated with field hedgerows and small areas of woodland and scrub habitat. Subject to the retention of these higher interest habitats, and the suitable provision of open space, there is potential to deliver net gains for biodiversity within the Site.

No nature conservation designations are present on site or adjacent to it. Further consideration should be given to European sites on the Suffolk Coast and their potential to be indirectly affected by the proposed development via recreational pathways.

[redacted]

Confirmatory survey work for bats, dormouse, birds and great crested newt is underway at the time of writing. In respect of foraging and commuting bats confirmed to be using the Site, the implementation of a sensitive external lighting scheme is proposed, along with the provision of new roosting features.

Based on the information currently available, and successful implementation of the proposed mitigation, compensation and enhancement measures (which can be secured through appropriate planning conditions and licencing), and subject to the findings of ongoing surveys, the development is not anticipated to result in any residual significant negative effects on important ecological features. The scheme is considered to accord with all relevant nature conservation legislation.

1.0 INTRODUCTION

1.1 This report has been prepared by CSA Environmental on behalf of Barratt David Wilson Homes and Hopkins Homes. It sets out the findings of an Ecological Impact Assessment (EcIA) of proposed development at Land North-East of Humber Doucy Lane, Ipswich (hereafter 'the Site'). Residential development is proposed at the Site, for which outline planning permission is sought.

1.2 The scope of this assessment has been determined with consideration of best-practice guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) and the Biodiversity: Code of practice for planning and development published by the British Standards Institute (BS 42020:2013).

1.3 The Site occupies an area of c. 31.52ha and consists of four land parcels - The northern and central land parcel are comprised of arable fields with narrow field margins. Small areas of broadleaved woodland are present along the western boundary of the central land parcel, and two areas of neutral grassland are also present to the east and west of the northern parcel. The western-most land parcel is comprised entirely by dense mixed scrub. The southern-most land parcel is split in two, with modified grassland to the west and arable land to the west (see Habitats Plan in Appendix A).

1.4 The Site is located around central grid reference TM 1869 4672, to the north-east of Ipswich, Suffolk, the northern outskirts of which lies adjacent to the southern Site boundary. Arable fields with a network of narrow field margins and hedgerows surround the site to the north, east and west within the wider landscape.

1.5 An initial desk study and field survey, including a UK Habitat Classification survey were undertaken for the Site in August 2023 as part of a Preliminary Ecological Appraisal, the findings of which are presented herein. In addition, the following further survey work was undertaken between August 2023 and May 2024:

- Detailed botanical surveys (September 2023)
- Hedgerow condition assessments (September 2023)
- Bat - Remote activity survey (September 2023 & May 2024, ongoing)
- Bat - Preliminary roosts assessment of trees (January 2024)
- Badger (October 2023 and January 2024)
- Dormouse (September 2023 to May 2024, ongoing)
- Wintering birds (November – December 2023)
- Breeding birds (March 2024, ongoing)
- Reptiles (September – October 2023)
- Great crested newt (September 2023 and spring 2024, ongoing)

Further survey work in respect of bats, dormouse, breeding birds and great crested newt are ongoing, due to be completed by July 2024.

This EcIA aims to:

- Establish baseline ecological conditions at the Site.

1.6
- Determine the importance of ecological features which could be affected by the proposed scheme.

1.7
- Identify any likely significant impacts or effects of the proposed development on important ecological features, in the absence of mitigation, including cumulative impacts.
- Set out any measures necessary to effectively avoid or mitigate likely significant effects, and identify residual impacts.
- Identify any compensation measures required to offset residual impacts.
- Set out potential ecological enhancement measures that may be secured by the proposed scheme, and quantify the overall net change in biodiversity using the Statutory Biodiversity Metric.
- Confirm how proposed mitigation, compensation and enhancement measures could be secured.
- Provide sufficient information to determine whether the project accords with relevant nature conservation policies and legislation, and where appropriate, to allow conditions or obligations to be imposed by the relevant authority.

1.8 An EcIA can be used for the appraisal of projects of any scale. This is a best practice evaluation process, recommended by CIEEM (2018). It is intended that the evaluation of findings presented here-in will aid the Ipswich Borough Council and East Suffolk Council in their review of the planning application.

2.0 LEGISLATION, PLANNING POLICY, STANDING ADVICE & CONSULTATION

Legislation

Legislation relating to wildlife and biodiversity of particular relevance to this EcIA includes:

2.1

- The Conservation of Habitats and Species Regulations 2017 (as amended)
- The Wildlife and Countryside Act 1981 (as amended)
- The Natural Environment and Rural Communities (NERC) Act 2006
- The Protection of Badgers Act 1992
- The Environment Act 2021

This legislation has been addressed, as appropriate, in the production of this report with further information provided in Appendix B.

2.2

National Planning Policy

2.3 The National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing & Communities, 2023) sets out the government planning policies for England and how they should be applied. Chapter 15: Conserving and Enhancing the Natural Environment, is of particular relevance to this report as it relates to ecology and biodiversity. Further details are provided in Appendix B.

2.4

Accompanying the NPPF, central government guidance on the implementation of planning policies is set out within online Planning Policy Guidance (PPG). The Natural Environment PPG addresses biodiversity conservation, from individual site and species protection through to the supporting of ecosystem services. Further guidance in respect of statutory obligations for biodiversity conservation within the planning system is provided by Government Circular 06/2005.

2.5

Local Planning Policy

2.6 A number of local planning policies relate to ecology, biodiversity and/or nature conservation. These are summarised in Appendix B.

Standing Advice

Natural England Standing Advice regarding protected species aims to support local authorities and forms a material consideration in determining applications in the same way as any individual response received from Natural England following consultation. Standing advice has therefore been given due consideration, alongside other detailed guidance documents, in the scoping of ecological surveys and production of this report.

Consultee Responses

The following consultation responses were received to planning applications submitted for the proposed scheme from relevant ecological stakeholders:

- Suffolk Wildlife Trust, 17 April 2024
- Natural England, 26 April 2024
- Place Services, 01 May 2024
- East Suffolk Council Ecology Team, 03 May 2024

2.7

Each of the key matters raised in the above consultations have been addressed as appropriate below.

2.8 Further Survey Work & Extent

It is acknowledged that further survey work for certain protected and notable species / groups was ongoing at the time of previous reporting (March 2024). Further survey information collected to date has been set out herein, with remaining work to be completed by July 2024. Accordingly, a precautionary approach to assessment has been adopted.

2.9

2.10 It should be clarified that survey work encompassed a small area of land included in the application to the west of the main site (triangular parcel of land) for relevant survey work including habitats and badger.

2.11 Nature Conservation Designations

Additional commentary on how County Wildlife Sites (CWSs) may be indirectly affected as a result of any promoted circular walks off-site has been provided herein.

2.12 Habitat Regulations Assessment

Natural England, as the principal statutory consultee in relation to HRA raises no objection to the proposed subject to the appropriate mitigation being secured. Accordingly, other comments raised in the context of HRA can be set discounted.

2.13

Bats

2.14 Scope of bat survey work underway at the Site was determined with due consideration for guidelines available at the time. It was not therefore possible to have designed a survey in line with unpublished survey guidance (e.g. 4th Edition of Bat Survey Guidelines, September 2023) once surveys had commenced.

The majority of hedgerows at the Site are proposed for retention and their value as flightlines for bats, including barbastelle has been considered in respect of a sensitive lighting design proposed herein. Following consultation responses, and adopting a precautionary

approach to assessment, the importance of the Site for bats has been increased to 'County' level, specifically in relation to barbastelle activity.

Birds

Preliminary findings of breeding bird surveys are set out herein. These surveys provide further supporting information to that gathered as part of exploratory wintering bird surveys.

2.15 Wintering bird surveys completed demonstrate the site supports a poor assemblage of species and owing to its distance from important wintering sites along the Suffolk coast cannot feasibly provide functionally-linked-land to these sites, which is defined by Natural England land that is *"…critical to, or necessary for, the ecological or behavioural functions in a relevant season of a qualifying feature for which a Special Areas of Conservation (SAC), Special Protection Area (SPA) or Ramsar site has been designated"*. Natural England do not raise this matter in their consultation response.

2.16

Biodiversity Net Gain

2.17 Commentary around net gain for biodiversity, which is strictly delivered through habitat provision, appears to be conflated in policy terms with provision of bird and bat boxes. A significant number of both have been proposed 165 bird and 165 bat boxes) and, in the absence of policy requirements determining a higher provision, such quantities are suggested to be proportionate to the development quantum. It should also be noted that the bird box proposed herein, swift bricks, are specifically designed to provide opportunities for a range of bird species in addition to swifts, and have the added benefit of being able to be installed in any orientation (i.e. they cannot be installed 'upside down' as many others can).

2.18

Comments provided suggests that vegetated gardens count towards more than 10% of post-development units in respect of Biodiversity Net Gain (BNG) and that vegetated gardens should not be considered in the delivery of BNG. Both comments mischaracterise how BNG is implemented in law and policy guidance. Firstly, vegetated gardens, with contribute to 13% of the units delivered in this instance, could in-line with prevailing guidance, contribute up to 90% of biodiversity units delivered as long as the remaining 10% delivers a meaningful gain and all trading rules are satisfied. Furthermore, it has been an established principle, confirmed through several iterations of BNG guidance and statutory consultations that vegetated gardens clearly are considered in calculations.

2.19

It is acknowledged that the creation of priority ponds, as proposed in the Biodiversity Metric Calculation, require specific condition or the presence of species in order to qualify as 'priority habitat'. However, the presence of certain species, such as common toad, a number of

invertebrates or other priority species, would qualify these ponds as 'priority habitat'. Accordingly, it is asserted that priority ponds, subject to good design and creation, could be reasonably delivered.

Suggestion is made that a Habitat Management and Monitoring Plan (HMMP) in respect of on-site BNG should be secured through a s106 agreement rather than condition. It is clearly stated that significant on-site BNG can be secured via planning condition

2.20

3.0 METHODS

Desk Study

An ecological desk study was undertaken in August 2023 comprising a review of online resources and biological records centre data as detailed below.

3.1 The Multi-Agency Geographic Information for the Countryside (MAGIC) online database was reviewed to identify the following ecological features (based on the Site's likely 'zone of influence' in respect of such features):

3.2

- Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites within 10km of the Site (including possible/proposed sites)
- Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR) within 3km of the Site
- Other relevant data e.g. Ancient Woodland Inventory within 1km of the Site

3.3 A review was undertaken of the location of any such designations, their distance from and connectivity with the Site, and the reasons for their designation. This information was used to determine whether they may be within the proposed development's Zone of Influence (ZoI).

3.4 Suffolk Biodiversity Information Service (SBIS) was contacted for details of any non-statutory nature conservation designations and records of protected/notable habitats and species. This information was requested for an area encompassing the Site and adjacent land within c. 2km of its central grid reference. This search area was selected to include the likely zone of influence of effects upon non-statutory designations and

3.5 protected or notable habitats and species.

Further online resources were reviewed for information which may aid the identification of important ecological features. The Woodland Trust's online Ancient Tree Inventory was reviewed for known ancient or

3.6 veteran trees within the Site and adjacent land. Interactive online mapping provided by the charity 'Buglife' was used to determine whether the Site falls within an Important Invertebrate Area.

3.7 In accordance with Natural England's Great Crested Newt Mitigation Guidelines (2001), a desktop search was undertaken to identify ponds within 500m of the Site which may have potential to support breeding great crested newts *Triturus cristatus*, using Ordnance Survey (OS) mapping, the MAGIC database and aerial photography.

Where possible under the terms of the data provider, relevant desk study data are presented in Appendix C.

Field Surveys

A UK Habitat Classification ('UKHab') survey was carried out in fine and dry weather conditions on 16 August 2023 by Carly Howes ACIEEM, encompassing the Site and immediately adjacent habitats that could be viewed.

3.8 UKHab is a unified and comprehensive system for mapping and classifying habitats, designed to provide a simple and robust approach to surveying and monitoring, and replaces Phase 1 Habitat survey methods. The method allows for identification of important habitat

3.9 types, including habitats of Principal Importance under Section 41 (S41) of the NERC Act (2006) and Habitats Directive Annex I habitats. This method also allows for direct translation of habitats into the Statutory Biodiversity Metric.

The following parameters were adopted for the UKHab survey undertaken for this PEA:

3.10

- UKHab Professional edition (Butcher *et al.*, 2020, commercial End User Licence Agreement (EULA))
- Minimum Mappable Unit (MMU):
    - 10m^2/0.001ha (polygons)
    - 5m (linear)
- Primary Habitats recorded to a minimum of Level 2 (see below) with UKHab codes provided
- Mandatory secondary codes used
- Base-mapping comprising a combination of aerial imagery and topographic information

3.11

Primary Habitats are recorded to a minimum of Level 2. Where the survey is conducted at an appropriate time of year (e.g. May to July for grassland) habitats may be recorded to Level 3, 4 or 5, only if conditions

3.12 and the experience of the surveyor allow.

To assist with classification of grassland habitats quadrat samples were taken during UKHab survey/dedicated botanical survey on 15 and 28 September 2023 by Carly Howes and Mathew Dale ACIEEM, FISC Level 3. Representative sample locations were identified within each grassland parcel, spread evenly to avoid habitat transitions or ecotones,

3.13 following a 'W' shape through the parcel and a covering a minimum of five sampling locations. Both average (mean) species count per m^2 and peak species counts are reported for comparison.

Identification of habitat stands were made arbitrarily by the surveyor based upon obvious habitat structure, composition or other delineating feature (e.g. field or enclosure). Locations of sampling locations of samples are provided in Appendix G.

Quadrats of 1m x 1m were used, repeated four times in each sample location (i.e. 2m x 2m or 4m^2). This technique assists, for example, with distinguishing between modified (g4) and other neutral (g3c) grasslands (using the threshold of nine species per m^2, reporting an average of the four samples) and of lowland meadows (g3a) (using the threshold of 35 species per 2m x 2m samples).

3.14

Alongside the UKHab survey, additional field survey information was collected, comprising:

3.15

- Detailed floral species lists recorded for each identified habitat/parcel
- Further habitat condition information based upon current Statutory Biodiversity Metric condition assessment guidance
- Evidence of, or potential for, European Protected Species (EPS) (including bats, great crested newt, dormouse and otter)
- Evidence of, or potential for, other protected species (including birds, reptiles, water vole, [redacted] and certain invertebrates)
- Evidence of, or potential for, other notable species (including S41 Species of Principal Importance as well as notable, rare, protected or controlled plants and invertebrates)
- Any other survey information relevant to ecological matters

3.16 Results of the UKHab survey are presented on the Habitats Plan in Appendix A. Appendix D provides photographs of the habitats at the Site and Appendix E provides a list of floral species recorded in each habitat parcel. Nomenclature for higher plants within this report is consistent with the fourth edition of The New Flora of the British Isles (Stace, 2019).

3.17 <u>Further Survey Work</u>

The following detailed field survey work was carried out between September 2023 and January 2024, with full methods and results provided in the relevant Appendices:

- Habitat Condition Assessments (Appendix G)
- Hedgerow Surveys (Appendix H)
- Bat Remote Activity Survey (Appendix I)
- Bat Preliminary Roost Assessment of Trees (Appendix I)
- Badger Surveys (Appendix J)
- Dormouse Surveys (Appendix K)
- Wintering & Breeding Birds Surveys (Appendix L)
- Reptile Survey (Appendix M)
- Great Crest Newt Habitat Suitability Index (Appendix N)
- Great Crest Newt Environmental DNA (eDNA) (Appendix N)

Limitations

There were no specific limitations to the desk study or field survey, which was conducted at an optimum time of year and in good conditions. Limitations to further survey work are addressed in the relevant appendix.

Evaluation and Assessment

3.18 Ecological features are identified, evaluated and assessed in accordance with the CIEEM Guidelines for Ecological Impact Assessment (2018), with detailed methods provided in Appendix F.

3.19 It is an established principle (CIEEM, 2018) that EcIA is an iterative process. Specialist advice on the avoidance and mitigation of the potential negative effects of the proposed development has been input

3.20 from an early design stage.

4.0 BASELINE ECOLOGICAL CONDITIONS

Nature Conservation Designations

Statutory

There are no statutory designations covering any part of the Site.

A total of four international statutory designations were identified within 10km of the Site. These were the Deben Estuary RAMSAR, the Deben Estuary SPA, the Stour and Orwell Estuaries RAMSAR and the Stour and Orwell SPA.

4.1

4.2

Sandlings SPA lies over 10km from the Site (c. 11.0km east). The Site lies within the Zone of Influence of this designation and therefore the SPA has been included within Table 1 and the discussion below on this basis.

4.3

A single national statutory designation, Sinks Valley SSSI, was identified within 3km of the Site.

4.4

A total of three local statutory designations were identified within 3km of the Site. These were the Sandlings LNR, Mill stream LNR and The Dales Open Space LNR.

4.5

4.6 The above statutory designations are described in Table 1 below.

Non-Statutory

4.7 A total of five non-statutory designations were identified within 2km of the Site. These were the Pumping Station Meadow County Wildlife Site (CWS), Rushmere Heath CWS, Playford Alder Carr CWS, Welhams Meadow and Copse CWS, and Christchurch Park CWS. These non-statutory designations are described in Table 1 below.

4.8

As CWS's are designated according to criteria applied in a county context, these sites are considered to be ecologically important at the County level.

Table 1. Statutory and non-statutory designations within search

Site Name & Designation	Distance & Direction from Survey Area	Special Interests or Qualifying Features
International Designations within 10km		
Deben Estuary RAMSAR	c. 4.8km south	A sheltered estuary with areas of saltmarsh and intertidal mudflats. The site supports internationally and nationally important flora and fauna such as dark-bellied Brent goose *Branta bernicla* which winter at the site.
Deben Estuary SPA	c. 4.8km south	Saltmarshes and intertidal mudflats occupy most of the site but there are also areas of reed swamp, unimproved neutral grassland and scrub. The site is

		designated for supporting nationally important numbers of avocet *Recurvirostra avosetta*, an Annex 1 species. Further Annex 1 species wintering on the site include golden plover *Pluvialis apricaria*, hen harrier *Circus cyaneus* and short-eared owl *Asio flammeus*. The site also qualifies for regularly supporting internationally important numbers of dark-bellied geese, *Branta bernicula*. The estuary is more important for many species of waterfowl in years when severe weather reduces food resources available on the continent.
Stour and Orwell Estuaries RAMSAR	c. 6.7km east	An estuary with extensive mudlfats, low cliffs, saltmarshes and areas of vegetated shingle. The site supports internationally and nationally important numbers of numerous species of wintering wildfowl and waders. Several nationally scarce plants and invertebrates occur.
Stour and Orwell Estuaries SPA	c. 6.7km east	The estuaries include extensive mud-flats, low cliffs, saltmarsh and small areas of vegetated shingle. The mudflats hold *Enteromorpha*, *Zostera* and *Salicornia* spp. In summer, the site supports important numbers of breeding avocet *Recurvirostra avosetta*, while in winter it holds major concentrations of waterbirds, especially geese, ducks and waders. The site is designated as it is used regularly by 1% or more of the Great Britain populations of the following species listed in Annex I in any season, and as it is used regularly by over 20,000 waterbirds (as defined by the Ramsar Convention) in any season.
Sandlings SPA	c. 11.0km east	The heaths support both acid grassland and heather-dominated plant communities, with dependant invertebrate and bird communities of conservation value. *Woodlark Lullula arborea* and Nightjar *Caprimulgus europaeus* breed in the large conifer forest blocks onsite, which is the qualifying feature of this designation.
National Designations within 3km		
Sinks Valley SSSI	c. 2.9km east	This site is one of the few remaining valleys within the Suffolk Coast and Heaths Natural Area that are almost entirely occupied with semi-natural vegetation. It contains several habitats including open water, fringing swamps, spring-fed fen, wet grassland, wet alder woodland, dry acidic grassland,

		heathland and oak woodland. It is the diversity of habitats that makes the valley special. The nationally scarce plant, mossy stonecrop *Crassula tillaea* can be found along pathways.
Local Designations within 3km		
Sandlings LNR	c. 2.1km south-east	The site is a mosaic of woodland, scrub, heathland, grassland and mature hedgerows. The dense scrub provides habitat for birds such as nightingale *Luscinia megarhynchos*. The site is particularly important for butterflies, with 27 species recorded on the reserve.
Mill Stream LNR	c. 2.3km south-east	There is fen, scrub, annually-cut willow and pond habitats on site which support a variety of flora species such as southern marsh-orchid *Dactylorhiza praetermissa*, and fauna such as amphibians, reptiles and dragonflies.
The Dale Open Space LNR	c. 2.6km west	The site is a former brick works and now comprises woodland, meadows and ponds.
Non-statutory Designations within 2km		
Pumping Station Meadow CWS	c. 0.5km north-east	The site is a mosaic of scrub and fen meadow, fed by springs. It supports a diverse assemblage of flora including a large population of southern marsh orchid *Dactylorhiza praetermissa*. The grassland on the higher ground shifts into scrb on the drier ground which provides opportunities for invertebrates and nesting birds. Priority species recorded here include barn owl *tyto alba*, nightingale *Luscinia megarhynchos* and grass snake *Natrix natrix*.
Rushmere Heath CWS	c. 1.2km south-east	Rushmere Heath is a registered common that contains an extensive golf course and network of public footpaths. The common comprises of heather *Calluna vulgaris*, acid grassland and areas of scrub. Bluebells *Hyacinthoides non-scripta* are present onsite along with grass snake *Natrix natrix*, slow-worm *Anguis fragilis* and lizard *Zootoca vivipara*.
Playford Alder Carr CWS	c. 1.6km east	An ancient deciduous wet woodland which lies in the Fynn Valley. Areas of standing water are fed by springs forming a pond. The flora includes bluebells *Hyacinthoides non-scripta* on the slope rising to the railway line and other plants indicative of ancient woodland. There is a well-used public footpath running through the wood.
Welhams Meadow and Copse CWS	c. 1.7km north	This unimproved meadow is situated on a gentle valley with wet flushes and associated springs. The meadow also

		supports a population of the scarce heath spotted orchid *Dactylorhiza maculata*. Ancient hedgerows border the meadow providing habitat for invertebrates and birds. Some of the hazels *Corylus* sp. are ancient and form a small copse to the north of the meadow.
Christchurch Park CWS	c. 2km south-west	The site is predominantly formal amenity parkland which contains mature woodland, scrub, two ponds, an orchard and restored meadow. The park contains several veteran oaks and sweet chestnut. A wide range of birds is also supported by the site.

Ancient Woodland

There is no ancient woodland, as shown on the ancient woodland inventory, covering any part of the Site or immediately adjacent land.

4.9 No trees on or adjacent to Site are listed on the Ancient Tree Inventory. However, there is a single pedunculate oak *Quercus robur* tree labelled "notable" in close proximity to the two land parcels at the north-west of the Site, adjacent to the intersection of Humber Doucy Lane and Tuddenham Road.

4.10

Habitats and Flora

4.11 Habitats recorded on-site are illustrated in Appendix A and D with detailed species lists provided in Appendix E. Relevant UKHab codes are provided within parentheses for each habitat type recorded e.g. Other Neutral Grassland (g3c).

4.12 The biodiversity value of baseline habitat units has been determined through assessment using the Statutory Biodiversity Metric (Appendix G).

4.13

Notable Flora Records

4.14 SBIS provided 35 records of 27 notable plant species from within the search area. Those of potential relevance to the Site include common cudweed *Filago vulgaris*, field scabious *Knautia arvensis* and shepherd's-needle *Scandix pecten-veneris*.

Three recorded species are listed within the Wildlife and Countryside Act's Schedule 9 list of invasive non-native species including variegated yellow archangel *Lamiastrum galeobdolon* subsp. *argentatum*, Himalayan balsam *Impatiens glandulifera* and wall cotoneaster *Cotoneaster horizontalis*. A single record of Himalayan balsam recorded c. 0.3km east of the Site is the closest of these records. However, this record is only accurate down to 1km and its likely this record is associated with a watercourse or waterbody within 1km of the point. No

invasive non-native plant species were identified during the extended Phase 1 Habitat survey or subsequent visits to the Site.

Arable Field and Field Margins (c1c)

The Site is dominated by arable fields, which are separated into three distinct fields within separate land parcels. Field F1 is at the north of the Site, adjacent to the railway line and Tuddenham Road. Field F2 dominates the largest, central land parcel, and Field F4 is located to the south-east of the Site, adjacent to Seven Cottages Lane.

4.15 At the time of the initial Site survey, F1 and F4 were sown with broad bean crop, and F2 was sown with a wheat crop. Historical imagery shows that these fields have been in arable cultivation for at least the last 23 years.

4.16 The arable field margins are generally narrow – up to c. 2m wide, c. 1.25m in height, and are dominated by common and widespread grass species including false oat-grass *Arrhenatherum elatius*, soft-brome *Bromus hordeaceus,* cock's-foot *Dactylis glomerata*, perennial rye-grass *Lolium perenne* and barren brome *Anisantha sterilis*. Ground flora present includes fat-hen *Chenopodium album*, scarlet pimpernel *Anagallis arvensis*, cow parsley *Anthriscus sylvestris*, creeping thistle *Cirsium arvense*, dove's-foot crane's-bill *Geranium molle,* bristly oxtongue *Helminthotheca echioides* and red dead-nettle *Lamium purpureum*.

4.17 Although adopted as a Habitat of Principal Importance in England under the NERC Act 2006, arable field margins on-site are narrow and dominated by common species, and therefore do not qualify under these criteria. The field margins also do not meet the Suffolk BAP criteria for this habitat type. As such, this habitat is not considered to be ecologically important at the Local level and is not considered further within this report.

4.18

Modified Grassland (g4)

Field F3 is comprised of modified grassland which is used for recreation and by the Ipswich Rugby Club adjacent to the north. The grassland continues off-site to the west. The grassland is mown short (up to c. 10cm), with the field margins to the north and south up to c. 1.5m in places.

4.19

F3 is dominated by perennial rye-grass, with false oat-grass, common couch *Elytrigia repens*, wall barley *Hordeum murinum*, soft brome *Bromus hordeaceus* and Timothy *Phleum pratense* also present. Herb species here include white clover *Trifolium repens*, ribwort plantain *Plantago lanceolata*, dandelion *Taraxacum officinale* agg., and scentless mayweed *Tripleurospermum inodorum*.

4.20

Ecological features within this habitat fall short of any wildlife site selection criteria or NERC Section 41 priority habitats. Species

composition is dominated by common and widespread grasses with limited diversity or structure. As such this habitat falls below the threshold of determining ecological importance.

Mixed Scrub (h3h)

A triangular land parcel comprising mature mixed scrub is present at the north-west of the Site, located at the intersection between Humber Ducy Lane and Tuddenham Road.

4.21 The dense scrub is well established (c. 5m in height) and comprises blackthorn *Prunus spinosa*, elder *Sambucus nigra*, hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, bramble *Rubus fruticosus* agg., and

4.22 butterfly-bush *Buddleja davidii*. An area of cherry plum *Prunus cerasifera* is also present at the northern corner. The ground flora is dominated by common nettle *Urtica dioica*, with frequent creeping thistle, garlic mustard *Alliaria petiolata*, burdock *Arctium* sp., red dead-nettle, green alkanet *Pentaglottis sempervirens*, hedge mustard *Sisymbrium officinale*, and lords-and-ladies *Arum maculatum* also present. Much of this land parcel is impenetrable due to the density of the scrub vegetation.

4.23 Around the perimeter of the scrub, there are a number of mature and semi-mature trees (see below for details).

4.24 A Habitat Condition Assessment of the scrub concluded that it is in poor condition. Overall, this habitat type comprises a moderate species diversity, however, there is a lack of variability in age range and structure. Without management, it is anticipated that the scrub will decline in condition but would eventually succeed into woodland. In addition, this habitat at the Site is unlikely to meet local wildlife site selection criteria for Ipswich Borough Council and as such, this habitat is concluded to be of ecological importance at less than the Local level and is therefore scoped out of further assessment.

4.25

Other Woodland – Broadleaved (w1g)

4.26 Two areas of broadleaved woodland (W1 and W2) are present adjacent to the north-eastern Site boundary and F2.

The largest of these woodlands is W1, a woodland block c. 0.3ha in area. This woodland s c. 7-20m in height, with a patchy understorey throughout the majority of the woodland. Woody species present include pedunculate oak, hornbeam *Carpinus betulus*, small-leaved lime *Tilia cordata*, ash *Fraxinus excelsior*, blackthorn, hawthorn, cherry plum, bramble and dog rose *Rosa canina*. Some small areas of deadwood, scrub and tall ruderal are located and the eastern and western ends of the woodland. Where present, the ground flora is dominated by wood false-brome *Brachypodium sylvaticum*, with ground ivy *Glechoma hederacea*, cow parsley, broad-leaved dock *Rumex obtusifolius*, cleavers *Galium aparine*, self-heal *Prunella vulgaris*,

wood avens *Geum urbanum*, field forget-me-not *Myosotis arvensis* and willowherb *Epilobium hirsutum* also present.

The woodland does not appear to be subject to any regular management regime, other than periodic flailing from the southern boundary, adjacent to the arable field F2. Ariel imagery from the year 2000 shows the woodland as newly planted, with lines of young trees visible. Before this time, the woodland appears to have been part of F2 and subject to the same arable crop cultivation.

4.27

Woodland W2 is a linear wooded belt of young and semi-mature trees, which lies adjacent to the residential garden of 'Allen's House', the quiet lane and northern corner of F2. As with W1, historical aerial imagery indicates that this woodland was planted in the early 2000's, and before this time was a wider field margin of the arable field F2. Some of the small trees within the woodland still have plastic protective collars around the trunks.

4.28

W2 is c. 0.07ha in total area, approximately 100m in length and c. 14m at its widest point. At its southern end, the woodland merges with trees encroaching out from the adjacent residential garden. The trees within W2 are up to c. 8m in height, with evidence of previous management noted.

4.29

Woody species present within W2 includes elm *Ulmus* sp., horse chestnut *Aesculus hippocastanum*, ash, hornbeam, pedunculate oak, field maple *Acer campestre*, small-leaved lime, field rose *Rosa arvensis* and bramble. At the time of the survey, very little ground flora was present, with the woodland floor heavy shaded from the canopies above. Ground flora which is present is dominated by wood false-brome, dock *Rumex* sp. and ivy *Hedera helix*. Other species noted include wood avens, barren brome, lords-and-ladies, garlic mustard and cleavers. The majority of these ground flora species were recorded close to the woodland edges.

4.30

4.31

Both on-site woodlands qualify as NERC Section 41 Priority Habitat and are listed as Suffolk BAP priority habitat. These woodland habitats are therefore of significant ecological importance at the Local level.

4.32

4.33 <u>Other Neutral Grassland (g3c)</u>

Two areas of other neutral grassland are present within the northern-most land parcel, adjacent to F1.

The grassland in the south-western corner (Area A) is c. 0.04ha and has tussocks up to c.1.5m tall. Herb species present include cow parsley, creeping thistle, burdock, cleavers, dove's-foot crane's-bill, bristly oxtongue, white dead-nettle *Lamium album*, nipplewort *Lapsana communis*, creeping buttercup *Ranunculus repens*, and green alkanet. Of the grass species false oat-grass was the most abundant, with

common couch, perennial rye-grass, soft brome, Yorkshire fog *Holcus lanatus,* and cock's-foot also present.

The grassland in the north-eastern corner (Area B) is up to c. 30cm in height and covers an area of approximately 0.1ha. This area of grassland is more floristically diverse, with additional ground flora species including garlic mustard, mouse-ear chickweed *Cerastium fontanum*, spotted medick *Medicago arabica*, field forget-me-not, meadow

4.34 buttercup *Ranunculus acris* and germander speedwell *Veronica chamaedrys*. Additional grasses recorded here include fescue sp. *Festuca* sp., wall barley and wood false-brome, with the most abundant grasses being cock's-foot and false oat-grass.

Area A has been assessed to be in 'poor condition', with Area B in 'moderate condition'. Ecological features within this habitat fall short of

4.35 any wildlife site selection criteria or NERC Section 41 priority habitats. Species composition is dominated by common grasses with limited diversity or structure. As such this habitat falls below the threshold of determining ecological importance.

Hedgerows – Priority Habitat (h2a)

Hedgerows

4.36 Hedgerows H1 – H8 are all boundary hedgerows of the arable field F2.

4.37 Hedgerow H1 runs for c. 0.36km and forms the southern-eastern boundary of F2. Woody species within this hedgerow include blackthorn, field maple, hawthorn, dogwood *Cornus sanguinea*, elder, ash, spindle *Euonymus europaeus*, apple *Malus* sp., horse chestnut, elm, hazel, snowberry *Symphoricarpos albus*, and dog rose. Six semi-mature field maple trees up to c. 9m in height are also present within H1. On average, this hedge is c. 5m tall and c. 2-5m wide, becoming wider at the north where snowberry, blackthorn, elder and apple sp. shrubs are encroaching from hedge into the field margin. A shallow dry ditch runs under the hedge on the eastern side. At the time of the survey H1 did not appear to have been recently managed, although previous

4.38 management from the on-site arable field was noted. A number of birds nests [redacted] to H1 (see below for more details).

Hedgerow H2 is c. 0.07km long, located to the south of the off-site water tower and residential gardens (west of W1). This hedge is unmanaged and up to c. 10m in height. Woody species within H2 include elm, hornbeam, blackthorn, hawthorn, sycamore *Acer pseudoplatanus*, field rose, bramble, and white bryony *Bryonia dioica*. A group of young sycamore (c. 6m tall), semi-mature poplar *Populus* Spp. trees (c. 8m tall) and an c. 8m tall field maple are located off-site to the north, adjacent to H2.

Hedgerow H3 runs for c. 0.2km around the north east of F2, adjacent to the off-site residential gardens of 'Allen's House' and Lacey's Farm to the north. This hedgerow is up to c. 12m tall and is comprised of semi-mature field maple, ash, hawthorn, sycamore, and elm, with an understorey of hawthorn, blackthorn, elder and hornbeam c. 3m tall. White bryony, field rose, bramble and ivy are also present. This hedge does not appear

4.39 recently managed and is up to c. 5m wise. There is a shallow dry ditch as the base of the hedge.

Hedgerow H4 is c. 0.05km in length and is located to the south of W2, adjacent to the residential garden of 'Allen's House' (off-site). H4 is dominated by hawthorn c. 3m in height, with occasional elder and ivy also present. Three semi-mature cherry plum trees c. 5.5m tall are

4.40 located behind H4 to the north. There is evidence of historical management of this hedge from the arable field side.

Hedgerow H5 is located along the northern boundary of F2, adjacent to the quiet lane. This hedgerow is c. 0.34km long, c. 2.5m tall and c. 1.5m

4.41 wide, becoming wider (up to c. 4m) at the western end. H5 has a drainage ditch at its base and does not appear to have been recently managed, although is likely to be managed regularly from both the arable field and lane sides to prevent encroachment. This hedgerow is comprised of an understorey of blackthorn, hawthorn, elm, field maple, elder, cherry plum, bramble, field rose, black bryony *Dioscorea communis* and traveller's joy *Clematis vitalba*, with semi-mature and mature pedunculate oak, sycamore and field maple trees up to c. 20m in height along its length.

4.42 Hedgerow H6 is at the north-western corner of F2. This hedgerow is c. 3m in height, c. 2m wide and runs for c. 0.1km. H6 is comprised of hornbeam, blackthorn, field maple, elder, dogwood, hawthorn, and wych elm

4.43 *Ulmus glabra*, and does not appear to have been recently managed.

Hedgerow H7 is a short (c. 0.04km long) beech *Fagus sylvatica* dominated hedge which is located at the west of F2, adjacent to off-site residential gardens of 'Westerfield House Cottage' to the north. H7 is c. 1.5m wide, and c. 5m tall. Other species within the hedge include

4.44 bramble, laurel *Prunus* Spp. and dog rose. A group of three Monterey cypress *Cupressus macrocarpa* c. 15m tall are present at the western end of H7, next to Humber Doucy Lane.

Hedgerow H8 runs for c. 0.5km along the south-western boundary of F2, adjacent to Humber Doucy Lane. This hedge is up to c. 3m in height, c. 1.5-3m wide and appears to have been historically from both the arable field and roadsides. H8 is gappy and leggy in places, and there is a dry drainage ditch at its base. This hedgerow is dominated by blackthorn, with dog rose, field maple, hawthorn, elm, sycamore, pedunculate oak, ash, bramble, traveller's joy, ivy and dog rose also present.

Hedgerows H9 – H13 are all boundary hedgerows of southern-most land parcel, bordering F3 (modified grassland) and F4 (arable field):

Hedgerow H9 runs along the northern boundary of F3, continuing off-site to the west. This hedge shows evidence of previous management and is c. 2.5m wide, and c. 3m tall. H9 is dominated by hawthorn, with

4.45 abundant blackthorn and bramble, field rose, dogwood, an oak sapling and ivy. There is a mature pedunculate oak tree (c. 16m tall) to the north

4.46 of H9, off-site.

Hedgerow H10 continues east from H9, running along the northern boundary of F3 and the northern boundary of F4 for c. 0.2km. This hedgerow is up to c. 5m wide in places, with a shrubby understorey

4.47 upwards of 3m in height. The understorey is comprised of hawthorn, blackthorn, field maple, English elm *Ulmus procera*, ash, elder, oak, bramble, walnut *Juglans regia,* ivy, white bryony, and traveller's joy. Mature trees c. 8-21m in height include two field maples and two pedunculate oak trees, one of which has substantial bat roosting potential.

Hedgerow H11 is located at the north-eastern corner of F4, adjacent to

4.48 Seven Cottages Lane. This mature hedge with trees is c. 1.5m wide, c. 10m tall and c. 0.06km long with a shallow dry ditch at its base. Species within H11 include elm, field maple, ash, sycamore, hawthorn bramble, and ivy.

4.49 Hedgerow H12 is c. 0.04km long and forms the southern boundary of F4, also adjacent to Seven Cottages Lane. This hedge is c. 2.5m tall, c. 2m wide and is dominated by English elm, with field maple, sycamore, and

4.50 bramble also present.

Hedgerow H13 runs for c. 0.4km along the southern boundary of F3 and western boundary of F4, continuing off-site to the east. H13 does not appear recently managed, however there is evidence of historical management from both the roadside (Humber Doucy Lane) and from the field sides. This hedgerow is c. 2-4m tall and c. 4m wide. The section of hedge adjacent to F4 is dominated by blackthorn, with the section

4.51 next to F5 dominated by elm. Other woody species and climbers within the hedge include hawthorn, field maple, elder, dogwood, ash, holly

4.52 *Ilex aquifolium*, field rose, bramble, ivy, and black bryony.

Hedgerows H14 and H15 are boundary field hedgerows of the arable field F1, at the north of the Site.

Hedgerow H14 forms the southern boundary of F1 and runs adjacent to the quiet lane (parallel to H5 - see above). This mixed-species hedgerow is c. 0.41km long, c. 2m wide, and is c. 2.5m in height along the majority of its length. H14 is comprised of blackthorn, hawthorn, English elm, field maple, field rose, elder, white bryony, traveller's joy, bramble, ivy, and

black bryony. A group of cherry plum trees c. 6m tall is present at the north-eastern end of the hedgerow, and nine semi-mature and mature ash, pedunculate oak, and field maple trees up to c. 21m in height are spread along the hedge line. These mature trees are particularly valuable ecologically given their age and features, which are suitable for roosting bats, nesting birds and invertebrates. There is a shallow dry ditch at the base of H14, and the hedge shows evidence of historical management.

4.53 Hedgerow H15 forms the north-western boundary of F1, running for c. 0.1km adjacent to Tuddenham Road. This hedgerow is c. 2m wide and does not appear to be recently managed, although is likely subject to management from both the road and field sides to prevent encroachment. H15 is dominated by English elm c. 7m in height, with hawthorn, blackthorn, field maple, bramble, white bryony and ivy also present. A group of six English elm and a single field maple c. 8.5m in height is present at the northern end of H15.

4.54 Hedgerows are included within Suffolk BAP. In addition, all of the on-site hedgerows are likely to qualify as priority habitats under S41 of the NERC Act (2006), given their composition (i.e. 80% or more of at least one native woody species) and may be considered potentially important hedgerows under the Hedgerows Regulations (1997). The Hedgerow Survey Handbook (Defra, 2007) defines a species-rich hedgerow as that which contains at least five native woody specie along selected 30m sections. H1, H2, H3, H5, and H10 are therefore all considered species rich.

4.55 The on-site hedgerows have intrinsic ecological importance, providing functional importance through providing connectivity across the Site, as well as contributing to the wider hedgerow network within the local landscape. The hedgerows also provide opportunities for wildlife and have the potential to support a range of notable and protected fauna. As such, and taken together, the on-site hedgerows are considered to

4.56 be of ecological importance at the Local level.

Trees

4.57 A number of mature and semi-mature trees bound the scrub-dominated land parcel at the north-west of the Site. These trees are located adjacent to Humber Doucy Lane (to the east), Tuddenham Road (to the north) and on top of the steep bank of a drainage ditch (to the south). These trees include oak, sycamore, and ash trees up to c. 17m in height.

Small groups of younger trees and shrubs up to c. 9.5m tall are also present around the boundaries of the land parcel. Species include ash, elder, English elm, cherry plum, sycamore, hawthorn and silver birch *Betula pendula*, as well as a single mature pear *Pyrus* sp. tree c. 15.5m in height located on the southern bank of the drainage ditch.

Of particular note is a mature English oak tree c. 12.5m in height (T56 on the arboriculture tree survey report), which is located along the north-western boundary of the scrub land parcel, adjacent to Tuddenham Road. This possible veteran or ancient tree has numerous features which may be used by roosting bats (as well as birds, invertebrates and other fauna). The tree is covered in dense ivy and therefore not all features could be inspected/identified at the time of the initial survey.

4.58

Mature trees provide potential shelter and foraging resources for a range of species and are therefore of inherent ecological interest. Given their maturity and value to wildlife, trees and tree groups identified above are of ecological importance, significant at the Local level.

4.59

Fauna

Bats

A total of 35 bat records were identified within the search area, dating from 2003 to 2021. These include the following species: These include the following species: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, serotine *Eptesicus serotinus*, noctule *Nyctalus noctule* and brown long-eared bat *Plecotus auritus*. A number of records were also recorded for '*Mytosis* bat species' *Myotis* spp., '*Nyctalus/Eptesicus*' *Nyctalus/Eptesicus* agg. and 'bat' *Chiroptera* spp. which could not be identified to species level.

4.60

The provided records are distributed evenly between the built and rural environments surrounding the Site, with the majority of records being from foraging or commuting bats. The closest record to the Site is of droppings of a large bat, possibly serotine, found in an outbuilding adjacent to the north-west corner of the Site in 2021. The closest record identified to species level is from 2018 and is of a foraging soprano pipistrelle located adjacent to the north-west corner of the Site. The closest record of a roost dates from 2021 and is of brown long-eared bats c. 0.3km north of the Site.

4.61

4.62

The arable habitats which dominate the Site provide some sub-optimal opportunities for foraging bats. However, the hedgerows (in particular those with associated mature trees), provide greater opportunities including navigational features and foraging opportunities for bats. Additionally, the two on-site woodlands (W1 and W2) and scattered mature trees provide potential to support roosting bats with numerous potential roosting features noted.

4.63

Preliminary Roost Assessment – Trees

All trees to be affected by development were assessed for their potential to support roosting bats. No trees with bat roosting potential are scheduled to be removed in line with the current proposals. All tree/sections of hedgerow scheduled to be removed or likely to be

affected by the development are of 'Negligible' potential to support roosting bats.

Foraging / Commuting

Two periods of remote monitoring of bat activity were undertaken at the Site in September 2023 and May 2024. A further monitoring period is scheduled for June 2024, the results of which shall be provided within an updated EcIA report or addendum.

4.64 The results of the first two remote monitoring indicate that at least seven species of bat use the Site. Of this activity the majority (11,189 / 88.7%) is attributable to common pipistrelle. The next most frequently recorded

4.65 bat was noctule, with 4.8% of the total contacts recorded of this species. Noctule are a S41 Priority Species, although they are widespread nationally and throughout Suffolk.

Notably, a total of 197 (1.6%) contacts of barbastelle bat were recorded, with the majority in ML1 (77), ML2 (56) and ML4 (48), with fewer recorded

4.66 at ML3 (16) to the southwest of the Site. Barbastelle is considered a widespread but rare bat in Britain. being a S41 species own action plan aimed at improving its conservation status. Barbastelle is also listed in Annexes II of the EC Habitats & Species Directive and the Bonn and Bern Conventions.

4.67 Other bats recorded at the Sit include soprano pipistrelle (240), undetermined Nyctalus species (229), undetermined Myotis species (69), brown long-eared bat (65),undetermined Pipistrelle species (14). Notably a very small number (8) of contacts were recorded of Nathusius' pipistrelle, a migratory species with a preference for wetland habitats.

4.68

Total activity was evenly spread between locations ML1 (30%), ML3 (28%) and ML4 (36%) with less activity at ML2 (7%).

4.69

Importance

Based upon the data available to date, and taking a precautionary approach to assessment of importance, the Site is assessed to be of County importance, given the presence of notable species (barbastelle), the number of other species recorded and despite the dominance of activity attributable to common pipistrelle and the

4.70 absence of known roosts on site. This assessment is based upon two

[redacted]

[redacted]

4.71 [redacted]

4.72 [redacted]

4.73 [redacted].

4.74 Dormouse

A single record of dormouse *Muscardinus avellanarius* was identified within the search area c. 1.7km north-west of the Site from 2014. No
4.75 further information was provided regarding this record.

In addition, dormouse have been confirmed present at the Henley Gate development site c. 2.3km west from the Site, with a single nest found in a hedgerow in September 2014. This record is spatially linked to the Site
4.76 via a network of hedgerows and the railway line embankment habitats, which provide a dispersal corridor which connects to the northern Site boundary.

4.77 No evidence of dormouse was recorded on-site during the initial survey. However, the two woodland blocks and network of hedgerows across the Site provide a range of foraging/nest building species, and some structure for nest building, refuge/hibernation and dispersal.

Dormouse surveys are ongoing and will be completed in July 2024. Four surveys have been completed in September, October and November 2023, and in April and May 2024 with no dormice/evidence of dormouse

found on-site. The results of the dormouse surveys to date are provided in Appendix K.

Importance

Based on the information available to date, no dormice or evidence of dormice has been found on-site and therefore determination of importance cannot be undertaken. However, for the purposes of this assessment dormice are taken through to assessment as a precaution in respect of their legal protections.

4.78

Riparian Mammals

A total of 13 records of water vole *Arvicola amphibius* were identified within the search area, dating from 2005 to 2019. All records provided are in association with the River Fynn, which lies c. 1.0km north-east of the Site at its closet point.

4.79

Of the ten records provided with an accurate enough grid reference to provide relevant information, the closest record dates from 2015 and is located c. 1.2km north-east from the Site. The most recent record along this stretch of river is from 2019 and is of footprints found along the riverbanks c. 1.9km north from the Site.

4.80

A total of 11 records of otter *Lutra lutra* were identified within the search area, dating from 2003 to 2019. The closest record is c. 0.7km north-east from the Site by Tuddenham bridge in 2003. A cluster of more recent records of footprints and spraints dating from 2018 to 2019 are located c. 1.9km north of the Site associated with the River Fynn.

4.81

The majority of the Site, being dominated by arable habitat is unsuitable for a resident water vole or otter populations and are very unlikely to serve as overland dispersal habitats. A small number of drainage ditches run on/adjacent to the Site. However, at the time of the survey these ditches were dry (although are likely to hold some water in the winter/after long periods of rainfall) and do not provide suitable aquatic/bankside vegetation required for foraging/shelter by water vole. The ditches could theoretically provide potential opportunities for transient water vole and otter populations. However, given the lack of connectivity to any major water courses, it is very unlikely that these ditches would be used by water vole or otter. Furthermore, the two woodland blocks on site are not of a size/structure (which dense scrub and woody understorey) to provide adequate resting/breeding opportunities for otter. Water vole and otter are therefore considered likely absent from the Site and are not considered further within this assessment.

4.82

Other Mammals

Brown Hare

Nine records of brown hare *Lepus europaeus* were identified within the search area, dating from 2003 to 2019. The majority of these records are associated with open arable fields with the closest record being from 2013, located c. 0.7km north-east from the Site.

4.83 No evidence of brown hare was identified during the survey. However, the Site does provide some suitable foraging opportunities, with field margins, grassland, woodland edges, and hedgerows providing possible refuge and lay-up sites. Although on-site habitats are suitable to

4.84 support brown hare, similar habitat and areas of woodland are present throughout the wider landscape surrounding the Site which could also support this species. In addition, the Site is bordered by residential land to the south/south-west, which will deter brown hares and restrict their occupation of the land. As such, the Site is unlikely to support a notable population of brown hare, and no significant impacts on the conservation status of brown hare in the local area are anticipated.

Hedgehog

SBIS provided 604 records of hedgehog *Erinaceus europaeus* within the

4.85 search area, dating from 2003 to 2022. The majority of records are found within the built environment of Ipswich to the south of the Site, with some records associated with open arable fields and woodland. Three records have been recorded on-site from 2013, 2014 and 2015. No further information was provided regarding these records.

4.86

No evidence of hedgehog was identified during the survey. On-site opportunities for hedgehog are provided by hedgerow, woodland and grassland habitats which provide shelter and foraging opportunities. Within the wider landscape, nearby residential gardens situated in Ipswich to the south of the Site provide further opportunities for this species. Residential gardens adjacent to the northern Site boundary

4.87 provide further suitable foraging and hibernation opportunities for hedgehog.

Given the dominance of open habitat, the Site is unlikely to support a particularly notable/large population of hedgehog. As such, if present, they are likely limited to small numbers. Hedgehogs are listed as a species of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006) and ecological enhancement measures have been set out to ensure the ability of hedgehog or other small mammals to make use of garden habitats at the Site following construction. However, hedgehogs are not considered to be an important ecological feature in the context of this assessment.

Harvest Mouse

No records of harvest mouse *Micromys minutus* were identified within the search area.

No evidence of harvest mouse was recorded during the survey. The arable land-use dominating the Site provides theoretical opportunities for this species. However, the fields are in regular crop rotation and the field margins of the Site are narrow and would not provide substantial breeding opportunities for this species. Areas of longer sward grassland are limited, providing minimal opportunities for this species. Therefore, based on current conditions, harvest mouse are considered likely absent from the Site and are not considered further within this report.

4.88

4.89

<u>Birds</u>

A total of 1,713 records of 107 bird species were identified within the search area, dating from 2004 to 2023. Those of potential relevance to the Site include skylark *Alauda arvensis*, barn owl *Tyto alba*, bullfinch *Pyrrhula pyrrhula* and yellowhammer *Emberiza citronella*.

4.90

The Site provides foraging and nesting opportunities for a range of breeding birds associated with agricultural landscapes, with the boundary hedgerows, scrub and the on-site woodland also likely to support a number of common farmland and garden bird species. During the initial site visit collard dove *Streptopelia decaocto* and house sparrow *Passer domesticus* were recorded on-Site.

4.91

Wintering Birds

4.92

Two dedicated wintering bird surveys were undertaken in November and December 2023. A total of 39 species were recorded during these surveys, including 18 priority species. The results of the two surveys undertaken suggest that the Site is relatively poor for any of the specialist groups including non-breeding waders, with a general assemblage of resident species noted. Arable bird assemblages associated with farmland during the non-breeding period include yellowhammer *Emberiza citrinella*, linnet *Linaria cannabina*, meadow pipit *Anthus pratensis* and skylark *Alauda arvensis*, with the occasional chaffinch *Fringilla coelebs* and greenfinch *Chloris chloris*. The full results of the wintering bird surveys are provided in Appendix L.

4.93

Breeding Birds

Breeding bird surveys are underway at the Site, having commenced in March 2024. Preliminary results are provided in Appendix L which show consistency with wintering bir surveys, with a similar composition of birds recorded, comprising 36 species in total, of which 16 were priority species.

Importance

Given the assemblage of bird species recorded during dedicated surveys in winter and breeding seasons, including BoCC red and amber listed species, the Site is assessed to be of Local importance for birds.

4.94 All wild birds are protected under the Wildlife & Countryside Act 1982 (as amended) and are therefore also taken through to assessment on this basis.

4.95 <u>Reptiles</u>

A total of 11 records of three reptile species were identified within the search area including common lizard *Zootoca vivipara*, grass snake *Natrix helvetica* and slow-worm *Anguis fragilis*. The closest record to the

4.96 Site is from 2013 and is of a slow-worm reported by allotment holders c. 0.6km south of the Site.

4.97 No evidence of reptile was recorded during the Site visit (e.g. sloughed skins). The arable field margins, areas of grassland and scrub habitat on-site do provide some opportunities for reptiles to bask, hunt and seek refuge.

4.98 Survey work was undertaken at the Site in September and October 2023 and confirmed the presence of slow worm using the on-site other neutral grassland. A peak count of two adult females were recorded. A single new born was also recorded, indicating the presence of breeding males on/in close proximity to the Site. These results suggest a likely 'small' or 'low' breeding population of slow worm present at the Site. The full results of the reptile surveys are provided in Appendix M.

4.99 *Importance*

Reptiles are protected under the Wildlife and Countryside Act 1981 (as amended), which includes protection from killing and injury. The survey work carried out is primarily intended to establish the presence/absence of reptile species on-site and therefore the small population of slow worm identified may under-represent true population numbers present.

4.100 However, given the size of the slow worm population identified, the Site is concluded to be of Local importance in respect of reptiles.

<u>Amphibians</u>

A total of 82 records of five amphibian species were identified within the search area, including great crested newt (GCN) *Triturus cristatus*, palmate newt *Lissotriton helveticus*, smooth newt *Lissotriton vulgaris*, common toad *Bufo bufo* and common frog *Rana temporaria*. The closest records are associated with a pond c. 0.6km west of the Site (near P12), where GCN eggs were identified in 2011 (indicating a breeding population). Two GCN Class Survey Licence Returns from 2017 are also associated with this area with both confirming the presence of

GCN in September 2017. No evidence of amphibians was recorded during the survey and no ponds are present within the Site.

Great Crested Newt

Despite spending much of their annual lifecycle within the terrestrial environment, great crested newts are dependent upon the presence of suitable aquatic breeding habitat in order for a population to persist. A total of 18 potential breeding ponds were identified within a dispersible range of the Site, based on OS mapping.

4.101 The majority of the Site, being dominated by intensively managed arable habitat provides suboptimal opportunities for amphibians during their terrestrial phase. However, hedgerows, woodland and scrub could provide potential foraging, refugia (including hibernation opportunities) and dispersal routes for GCN which may be present within ponds within a dispersal range of the Site. The railway adjacent to the north of the Site also provides a dispersal corridor and connectivity to ponds within the wider landscape.

4.102

GCN - Habitat Suitability Index (HSI) Assessment

Pond scoping and HSI assessments were conducted in September 2023 of the ten ponds within a dispersible range of the Site/with non-historic records of GCN within 500m. Their suitability to support GCN populations were noted as follows (HSI scores provided):

4.103

- Pond 1: 0.66 - Average
- Pond 2: N/A – Dry
- Pond 3: 0.38 - Poor
- Pond 4: N/A – Dry
- Pond 5: 0.35 - Poor
- Pond 6: N/A – Dry
- Pond 7: N/A – Dry
- Pond 11: 0.66 - Average
- Pond 12: N/A – Dry
- Pond 19: 0.71 - Good

4.104

GCN – Presence/Likely Absence Survey (eDNA)

Environmental DNA (eDNA) sampling was used to determine the presence/ likely absence of great crested newts within P1, P3, P5 and P11 (samples were not taken from P19 as it was dry at the time of survey). Water samples were collected in September 2023, which is outside of the optimal sampling period taken to be 15 April – 30 June.

4.105

The eDNA surveys returned a negative result for GCN within all four ponds. However, likely absence of GCN cannot be determined from these results, given the time of year samples were taken.

Importance

Based on the information available to date, no GCN or evidence of GCN has been found on-site or within ponds within a dispersable distance/with previous records. However, as the eDNA surveys were undertaken outside of the optimal survey period, likely absence of this species cannot be confirmed and therefore a determination of

4.106 importance cannot be undertaken. For the purposes of this assessment GCN are taken through to assessment as a precaution in respect of their legal protections.

Further eDNA sampling of ponds has been undertaken in 2024 with laboratory results pending.

4.107 Invertebrates

A total of 1,061 records of 106 invertebrate species were identified within the search area. Those of potential relevance to the Site include buff

4.108 ermine *Spilosoma lutea*, wall *Lasiommata megera* and stag beetle *Lucanus cervus*. One record for a stag beetle was provided adjacent to the Site, dating from 2021. The Site is not located within an Important Invertebrate Area (IIA).

4.109 It is anticipated that the combination of arable field, hedgerow and woodland habitats will support a range of common and widespread invertebrate species. However, there is no indication that the Site would support a notable or large assemblage, with any arable pesticide use likely to reduce invertebrate interest further. As such, the likely assemblage of invertebrates present at the Site is not likely to be of substantive ecological importance and invertebrates are not considered further within this assessment.

4.110 Biodiversity

The Site has been assessed making use of the Statutory Biodiversity

4.111 Metric to determine baseline of 72.28 habitat units and 43.88 hedgerow units.

The net effect of the proposed scheme on biodiversity is set out within

4.112 the assessment section herein.

Future Baseline

The majority of the Site is presently under active arable management, including the periodic cutting of field margins and hedgerows. Notwithstanding the potential rotation of crop-type, these management interventions maintain the on-site conditions in a relatively stable state. There is no known intention to cease this management, other than to accommodate the proposed development should planning permission be granted. As such, the future baseline status of

important ecological features is not anticipated to vary significantly from that at present.

Summary of Ecological Features

Table 2 below summarises all important ecological features identified within the respective zones of influence, together with the geographic context of their importance:

Table 2. Summary of important ecological features and their geographic context

4.113

Ecological Feature	Geographic Context of Importance and/or Protection Status
Deben Estuary RAMSAR and SPA	International
Stour & Orwell Estuaries RAMSAR and SPA	
Sandlings SPA	
Sinks Valley SSSI	National
LNRs – 3 No.	Local
CWSs – 5 No.	County
Other Woodland – Broadleaved	Local
Hedgerows & Trees	Local
Bats (Subject to further survey)	County (precautionary assessment) Protected (Wildlife and Countryside Act, 1981 [as amended]; The Conservation of Habitats and Species Regulations, 2010 [as amended])
Badger	Protected (Protection of Badgers Act, 1992)
Dormouse (unconfirmed)	Protected (Wildlife and Countryside Act, 1981 [as amended]; The Conservation of Habitats and Species Regulations, 2010 [as amended])
Birds (Subject to further survey)	Local (provisional assessment) Protected (Wildlife and Countryside Act, 1981 [as amended])
Nesting Birds	Protected (Wildlife and Countryside Act, 1981 [as amended])
Reptiles	Local Protected (Wildlife and Countryside Act, 1981 [as amended])
Great Crested Newt	Protected (Wildlife and Countryside Act and Habitats and Species Regulations)

5.0 ASSESSMENT OF EFFECTS

The Proposed Development

Outline planning permission is sought for residential development at the Site. The following impact assessment is based on the Illustrative Landscape Strategy prepared by CSA Environmental (CSA/6675/116) on behalf of Barratt David Wilson Homes and Hopkins Homes.

5.1 The construction phase of the proposed development will comprise the following:

5.2
- Cessation of arable cultivation
- Removal of sections of hedgerow from H1, H5, H8. H12, H13, H14 and H15 for vehicular and pedestrian accesses
- Removal of a small section of woodland W1 for pedestrian access
- Construction of up to 660 residential dwellings
- Construction of associated gardens, parking, access infrastructure, play areas (2 no. LEAP & 1 no. MUGA)
- The establishment of Public Open Space (POS), including other neutral grassland, a community orchard and dog's off-lead area, and wildlife ponds, as well as recreation routes around the periphery of residential areas
- Establishment of Sustainable Urban Drainage Systems (SUDS) including a series of attenuation basins set within POS

5.3 The operational phase of the proposed development will comprise the following:

- Occupation of new residential dwellings
- Increase in human activity, including use of vehicles and presence of domestic pets
- Increased artificial lighting and anthropogenic noise

5.4

Assumptions

5.5 The following assumptions have been made during the assessment of potential effects of the proposed development on important ecological features. Although 'assumed' and therefore taken as part of the pre-mitigation scenario, these measures are referenced in the proceeding sections where integral to the mitigation strategy.

In accordance with BS42020:2013, it is assumed that a Construction Environmental Management Plan (CEMP) will be secured by planning condition and prepared at the detailed design stage. In addition to the construction phase impact avoidance and mitigation measures identified in the following sections, the CEMP will detail standard environmental control measures, including though not limited to the following:

- Implementation of strict protection measures for the root protection areas of retained trees and hedgerows, in accordance with BS5837:2012
- Standard best practice construction phase pollution prevention and control measures
- Sensitive working methods and timing to avoid direct impacts to nesting birds (generally vegetation removal outside nesting season of March through August)

5.6 In accordance with BS42020:2013, it is assumed that a Landscape and Ecology Management Plan (LEMP) will be secured by planning condition and prepared at the detailed design stage. The LEMP will set out measures for the establishment and long-term management of newly created and retained habitats to maximise benefits for biodiversity.

Potential Impacts and Ecological Effects

<u>International Designations – 5 No.</u>

Deben Estuaries RAMSAR & SPA, Stour and Orwell Estuaries RAMSAR & SPA, and Sandlings SPA

5.7 The Deben Estuary RAMSAR and SPA & Stour and Orwell Estuaries RAMSAR and SPA are located c. 4.8km south and c. 6.7km east of the Site, respectively. These sites are designated for supporting internationally and nationally important populations of fauna and flora.

5.8 The Site Improvement Plan for Deben Estuary SPA notes public access/disturbance as a 'pressure/threat' and recommends that recreational use should be investigated, with the aim to minimise the impact of disturbance to the estuary. The Site Improvement Plan for Stour and Orwell Estuaries SPA also notes public access/disturbance as

5.9 a 'pressure/threat' and recommends that a cross-sector disturbance management plan should be co-ordinated.

5.10 The Sandlings SPA is located c. 11.0km east of the Site, with the Site falling within the Zone of Influence of this designation. The Site Improvement Plan for this designation notes public access/disturbance as a pressure upon nightjar and woodlark, and recommends that the impacts of recreational pressure, particularly by dogs off leads, is determined for this designation.

A document should be prepared to assist the competent authorities in their consideration of the Habitats Regulations Assessment and fully assess the impact of the proposed scheme upon these designations.

National Designation

Sinks Valley SSSI

Sinks Valley SSSI is located c. 2.9km east of the Site. It supports a range of aquatic habitats including open water, fringing swamps, spring-fed fen, wet grassland, and wet alder woodland, with the majority of the on-site habitats assessed to be in an unfavourable and declining condition due to lack of appropriate management.

5.11 The southern land parcel of the Site lies within the SSSI impact risk zone, with planning applications of residential developments of 50 dwellings or more identified as having likely impacts on this designation. However, this designation does not appear to be publicly accessible and

5.12 therefore this Site will not be sensitive to possible increases in recreational pressure as a result of the proposed development.

Pumping Station Meadow CWS, Rushmere Heath CWS, Playford Alder Carr CWS, Welhams Meadow and Copse CWS, and Christchurch Park CWS

A total of five Local Wildlife Sites are located within 2km of the Site. The

5.13 closest of these is Pumping Station Meadow CWS, located c. 0.5km north-east. The remaining four designations are all located between c. 1.2-2km from the Site.

5.14 There is no public access within the Pumping Station Meadow CWS and Welhams Meadow and Copse CWS, however, public footpaths do run through Playford Alder Carr CWS, Christchurch Park CWS and Rushmere Heath CWSs and so these designations are likely to already to subject to some level of recreational pressure.

5.15 Given that the designations which are publicly accessible are all 1.2km or more away from the Site and do not support similar habitats to those

5.16 found on-site, no direct or indirect adverse impacts on these designations are anticipated as a result of the proposed development.

As set out above, and following comments provided by Suffolk Wildlife Trust, no public access is available to the main body of the Pumping Station Meadow CWS. Whilst footpaths promoted as part of circular

5.17 walking routes pass along the permitter of the CWS, in the absence of public access to the, no indirect recreational impacts are anticipated.

5.18 Local Nature Reserves

Sandlings LNR, Mill Stream LNR and The Dale Open Space LNR are all located between c. 2.1-2.6km from the Site and are open to the public for recreational use.

Given that these LNRs are likely to be already subject to some level of recreational pressure, in addition to the distance/lack of habitat connectivity between the designations and the Site, and the lack of

similar/supporting habitats found on the Site, no direct or indirect impacts on these designations are predicted.

Other Woodland – Broadleaved

The majority of woodland habitat on-site will be retained, with c. 0.05ha of W1 scheduled for removal to allow for pedestrian access/connections to existing public rights of way. Therefore, in the absence of mitigation, the scheme is anticipated to result in an adverse effect significant at the Local level.

5.19

Both W1 and W2 will be buffered from development along the length of the woodland edges, which will be provided by POS and thicket/tree planting. However, during construction there remains risk of damage or

5.20 deterioration of the retained habitats/trees through inappropriate storage of materials, vehicle movements and other construction effects.

Therefore, strict protection measures for the root protection areas and crowns of retained trees will be required in accordance with

5.21 BS5837:2012. Furthermore, buffering the woodland edges with defensive planting of native thicket and tree species will help ensure public access (except for the single designated path at the east of W1) is discouraged to help protect the woodland from any recreational pressures.

5.22 In addition, opportunities to enhance the woodland habitats on-site through selective removal and ongoing management would contribute to overall biodiversity benefits of the scheme.

5.23 Subject to the full implementation of the above mitigation no significant residual adverse effects are predicted.

5.24 Hedgerows and Trees

Based on the current proposals, removal of small sections of H1, H5, H8. H12, H13, H14 and H15 for vehicular and pedestrian access will be

5.25 required to facilitate the scheme. All other existing hedgerows and mature trees are to be retained alongside the scheme.

Retained hedgerows and trees will be vulnerable to damage during

5.26 construction from passing construction traffic and ground compaction. As such, in the absence of mitigation, an adverse effect significant at the Local level is predicted.

Suitable protective fencing will be erected around all on-site hedgerows

5.27 and trees in accordance with BS 5837:2012. Fencing will be installed for the duration of the construction phase to avoid damage to the root protection area, tree crowns and undue ground compaction. This could be secured by an appropriately worded planning condition.

Existing vegetation will be retained and enhanced where possible, with substantial thicket, shrub and hedgerow planting proposed across the

Site. Areas of POS will buffer the existing and newly created hedgerows and boundary vegetation. This achieves net gains in hedgerow coverage and connectivity across the Site. A community orchard is also proposed at the south-east of the Site.

Additional planting of trees and other habitats of ecological value will also take place within open space across the Site, with appropriate management put in place to ensure establishment and maintenance of habitats with value for biodiversity and wildlife.

5.28 The above could be secured by an appropriately worded planning condition and/or intrinsic design measures.

5.29 With the implementation of the above mitigation measures, no residual negative effects on the local hedgerow and tree resource are anticipated to result from the proposed development.

5.30

Bats

5.31 The full assemblage of bats and their use of the Site is yet to be determined through bat activity surveys. However, for the purposes of provisional assessment it has been determined that local bat populations using the Site are likely to be important at the Local level.

5.32 The woodland, scrub and majority of hedgerows within the Site are to be retained, with the proposed development necessitating the removal of modified grassland and some sections of hedgerow habitats. These habitats represent typical bat foraging and commuting habitat and thus, in the absence of mitigation, will likely result in reduced foraging opportunities and on-site connectivity/quality of commuting habitats.

5.33

5.34 The Site is largely unlit. New artificial lighting of retained habitat during the construction and operational phases may lead to adverse disturbance impacts to bats and other nocturnal wildlife, leading to a reduction of activity and diversity in these areas.

5.35 No roosts have been identified in trees to be removed to accommodate the proposed development, with all semi-mature and mature trees with potential to support roosting bats to be retained. There remains the risk that if subsequent tree removal or surgery works are necessary at the detailed design stage then potential legal infringements could occur.

5.36 Taken together, in the absence of mitigation, the overall effect upon local bat populations is anticipated to be an adverse effect significant at the Local level.

The provision of new and enhanced habitats within the Site, including SuDS basins, wildlife ponds, wildflower grasslands, hedgerow and thicket planting and enhanced woodland and scrub habitats will provide a

range of new foraging opportunities for bat species which currently make use of the Site.

In order to maintain the ecological functionality of new and existing hedgerows/boundary vegetation for bats, a sensitive external lighting scheme will be devised for the Site to maintain dark corridors, and to minimise adverse effects upon foraging and navigating bats (as well as other nocturnal wildlife). The future lighting scheme will be developed in
5.37 consultation with a bat ecologist to avoid/minimise light spill onto retained and created habitat at the detailed design stage.

In accordance with good practice (Collins, 2016) and to avoid the accidental disturbance/destruction of a bat roost, any trees which were not surveyed under the PRA and which are to be removed or undergo
5.38 significant arboricultural works, will undergo a full assessment for roosting bats. The check will be carried out by a suitably qualified ecologist prior to any works to the trees in order to confirm the presence/absence of roosting bats.

The above would be secured by an appropriately worded planning
5.39 condition and/or intrinsic design measures.

5.40 Subject to the findings of outstanding bat activity surveys, and to the inclusion of proposed planting and the implementation of a bat-sensitive lighting scheme, no significant effects are anticipated with [redacted]

5.41 [redacted]

5.42 [redacted]

5.43 [redacted]

Dormouse

5.44 No population of dormouse has been confirmed at the Site. However, full surveys are yet to be completed to robustly conclude the likely absence of this species. Accordingly, it remains possible that the

5.45 scheme, through removal of suitable hedgerow habitats and field margins along the site boundaries and clearance of some bramble/tall grassland habitats could result in significant adverse effects to dormice, and/or legal infringement.

Subject to the findings of further survey work, and in the event dormice

5.46 are found on-site, mitigation would be undertaken under the auspices of a derogation (mitigation) licence obtained from Natural England.

5.47 Any mitigation is anticipated to comprise a two-stage vegetation clearance approach, with above ground vegetation (>300mm) removed during the winter hibernation period, followed by the removal of roots/ground level vegetation in the following active season (May onwards). It may be possible, through discussion with Natural England, to undertake a single summer clearance operation where the extent of habitat removal is limited.

5.48

In addition to the above, the loss of any suitable dormouse habitat would need to be compensated for through the replanting of hedgerows and/or the enhancement of hedgerow/woodland habitats for dormice. These measures are already proposed as part of wider

5.49 ecological mitigation measures regardless of whether dormouse mitigation is necessary.

Subject to the implementation of measures set out above, and in the event that dormice are found at the site during ongoing surveys, no

5.50 significant residual effect or legal infringements are anticipated in respect of this species.

Birds

Wild birds, their active nests, and their eggs are protected under the Wildlife and Countryside Act 1981 (as amended). The majority of boundary vegetation will be retained at the Site, with the exception of small sections of some boundary hedgerows to allow for vehicular and/or pedestrian access to the Site. As such there is risk of killing/injury to nesting birds within this habitat which could result in an offence being

caused; particularly during the nesting bird season (March to August, inclusive).

5.51 The scheme will provide a range of new opportunities for garden bird species. Furthermore, habitat creation and enhancement works are proposed within the Public Open Space, and scrub and woodland parcels within the Site. These works seek to provide a more structurally and floristically diverse habitat mosaic for local wildlife including both generalist and specialist bird species recorded during baseline surveys. In particular, the planting of trees and thicket planting is intended to increase the range of feeding opportunities, as well as creating more opportunities for nesting and winter refuge.

5.52 To avoid committing an offence under the Wildlife and Countryside Act 1981 (as amended), any vegetation clearance will take place outside of the bird nesting period (i.e. outside of March to August inclusive), or failing that following confirmation by a suitably qualified ecologist that nesting birds are absent from the habitats to be cleared. These mitigation measures are a legal requirement, and would therefore be secured as such.

5.53 The provision of the new semi-natural landscaping within the Site, and enhancement of woodland and scrub habitat condition, will provide new nesting and foraging opportunities for a range of bird species.

5.54 As set out below, the development will include the provision of swift Sbricks integrated into new dwellings. This targeted measure will provide opportunities for swift and a range of other common cavity nesting species to breed at the Site.

5.55 <u>Reptiles</u>

5.56 All British reptile species are listed within Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded protection against killing and injury under parts of sub-section 9(1) of the Act. In addition, all British reptile species are S41 priority species in England.

5.57 A small population of slow worm (peak count of two adult females) has been identified in other neutral grassland at the north of the Site, adjacent to the northern Site boundary and off-site railway embankment. Proposals involve the retention and enhancement of this grassland, with additional features such as thicket and wildflower planting and the creation of a wildlife pond. Such enhancements will make the Site more suitable for reptiles. Additionally, the creation of new habitats (including wildflower grassland and thicket planting) will create more suitable reptile habitat across the Site.

The following mitigation strategy is designed to avoid impacts to slow worm:

- Any grassland habitats to be lost or damaged (i.e. through digging of the wildlife pond) will be subject to precautionary clearance works to allow reptiles to disperse safely into adjacent retained habitat, avoiding any direct impact to individual reptiles.
- Vegetation clearance will ideally take place during the period March to September, during warm and dry conditions when reptiles will be active and able to disperse safely, subject to nesting bird constraints.
- Clearance will be completed in a staged manner, comprising gradual vegetation height reduction from 200mm to ground level. All arisings will be removed to prevent use as refugia.
- Prior to the onset of construction vegetation height will be maintained below 150mm to maintain habitat as unsuitable for reptiles and prevent the dispersal of reptiles into phase one of the development during construction.

5.58 These measures would be secured by an appropriately worded planning condition and control of detailed landscape design, with management set out within the LEMP.

5.59 With the implementation of the above mitigation measures, no residual effects are anticipated.

<u>Great Crested Newt</u>

5.60 Great crested newts and their habitats are strictly protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010. In combination this legislation protects great crested newts from deliberate capture, killing and injury, intentional or reckless disturbance, damage or destruction of a resting site or breeding place, and intentional or reckless damage, destruction or obstruction of a breeding site or rest place.

5.61

5.62 Records of great crested newt were provided from a pond within 500m on the Site, dating from 2017. The Site is dominated by intensively managed arable land and therefore provides suboptimal opportunities for this species during their terrestrial phase. Consequently, the risk of killing or injury of individual GCN is minimal and no infringements of the relevant legislation is anticipated based on survey work to date.

5.63 Notwithstanding the above, appropriate safeguards will be applied during development to further minimise the de minimis risk of impacts to GCN. This would include timing of vegetation removal works outside of hibernation periods and supervision of any dense vegetation removal by a suitable qualified person.

The proposed Sustainable Urban Drainage system (SuDS) features and other habitat creation measures, have the potential to provide terrestrial, and potential breeding, opportunities for the local GCN population.

Residual Effects

Table 3 below summarises the assessment of potential impacts on each important ecological feature, proposed mitigation and the assessed residual effects.

Table 3. Summary of effects

5.64

Important Ecological Feature	Potential Impacts and Effects	Avoidance & Mitigation Measures	Mechanism by which Measures are Secured	Residual Effects
International Designations	Increased recreational pressure Adverse effects on air quality	On-site recreational routes, POS and dog off-lead area, off-site walking routes and improved access to existing public rights of way. Air quality mitigation measures.	Legal agreement/ payments & control of landscape designs.	No significant effect
National Designations	No significant adverse effect	-	-	No significant effect
County Designations	No significant adverse effect	-	-	No significant effect
Local Designations	No significant adverse effect	-	-	No significant effect
Woodland - Broadleaved	Removal of part of W1 for pedestrian access.	Selective thinning, new structural planting and appropriate management. Standard tree protection measures.	LEMP and detailed design secured through Planning Condition	No significant effect
Hedgerows and trees	Removal of hedgerow sections for vehicular and pedestrian access	Strengthening of boundary vegetation Management of POS for biodiversity gain	LEMP secured through Planning Condition	No significant effect
Bats	Potential development edge effects from artificial lighting causing	New habitat creation, management of POS for biodiversity gain, sensitive	LEMP and Lighting Strategy secured through	No significant effect

Important Ecological Feature	Potential Impacts and Effects	Avoidance & Mitigation Measures	Mechanism by which Measures are Secured	Residual Effects
	disturbance of foraging bats	lighting strategy	Planning Condition	
Badger	Potential damage or destruction of setts/offences caused	Precautionary badger survey; impact avoidance measures under CEMP	CEMP secured through Planning Condition	No legal infringement
Dormice	Loss of hedgerow habitats; legal infringements	Precautionary working methods for Vegetation clearance; hedgerow habitat creation/ enhancement	Natural England derogation (mitigation) licence	No significant effect
Birds	Potential damage or destruction of nests and eggs Loss of habitat for specialist farmland species	Sensitive timing of works / nest checks by ecologist	CEMP secured through Planning Condition	Loss of habitat for specialist farmland species, significant at Local level
Reptiles	Killing or injury via site clearance; loss of habitat	ECoW and supervised clearance of site; provision of new reptile habitats and features	Reptile Mitigation Strategy Secured via planning condition	No significant effect
Great Crested Newt	To be confirmed	Reasonable Avoidance Measures (RAMs) and Habitat creation (aquatic and terrestrial)	-	No significant effect

5.65

Biodiversity Net Gain

As set out within Appendix G, the net effect of the scheme upon biodiversity has been predicted making use of the Statutory Biodiversity Metric. The calculation present is summarised as follows:

- Baseline habitat units = 72.28
- Post-intervention habitat units= 72.68
- Total net change habitat units= +0.40 or 0.55%
- Trading rules satisfied = Yes

- Baseline hedgerow units = 43.88
- Post-intervention hedgerow units = 51.47
- Total Net hedgerow unit change = +7.59 or 17.29%

5.66 Based on the prepared calculation, the proposed scheme (as shown on the Illustrative Landscape Strategy Plan CSA/6675/1116 Rev A) would result in a small net gain in habitats units (+0.40/0.55%) and a gain of 7.59 hedgerow units/17.29%. Off-site delivery of biodiversity units will be undertaken to address the residual habitat units and to achieve at least 10% net gain.

To ensure such net gains are realised, the calculation would need to be re-run based upon detailed designed prepared at the Reserved Matters stage.

5.67

Enhancement

5.68 The Illustrative Landscape Strategy Plan includes landscape planting enhancements which will make positive contributions to on-site biodiversity.

5.69 New habitat creation will provide opportunities for species confirmed to be present on-site at baseline, such as bat, [redacted] nesting birds and reptiles. In addition to these enhancements which are embedded into development proposals, a range of additional ecological enhancement measures will be delivered as part of the proposed development, as identified below. Further details will be set out in a LEMP at the detailed design stage, however as an indicative guide:

- Provision of new aquatic habitat opportunities: Permanently wet waterbodies designed for wildlife and planted with aquatic and marginal vegetation to encourage biodiversity.
- Inclusion of plant species of known wildlife value within the landscaping scheme, including night-scented varieties to benefit bats.
- Enhancements to onsite woodlands via selective removal and ongoing management
- Provision of new bat roosting opportunities: At least 165 no. bat boxes will be erected on new builds. These will be a purpose-built, durable and long-lasting variety such as available from Schwegler or Habibat. These will be incorporated into the fabric of new builds.
- Provision of new bird nesting opportunities: At least 165 no. bird nesting boxes (Swift S-bricks) will be provided within the external walls of the new builds to benefit generalist bird species.
- Creation of log piles: Timber generated from tree clearance works at the Site will be used to make at least 6 log piles for wildlife benefit. These will be sited within boundary vegetation close to SuDS features where they will be least disturbed. New material can be added as required following any future management works.

- Provision of hedgehog gaps: Hedgehogs have been scoped out of detailed assessment and no specific mitigation is proposed, however it is important that opportunities for hedgehogs to move through the landscape are preserved. Although not strictly an 'enhancement' measure, provision of hedgehog-friendly gravel boards or equivalent, providing a minimum 5 x 5 inch gap, will be used to maintain permeability for hedgehogs across the development and associated gardens. The number and location of hedgehog gaps will be determined at the detailed design stage and set out within the LEMP.

Monitoring

No post-development monitoring of important ecological features is proposed. However, there will be ongoing monitoring of newly established and enhanced habitats as part of POS. This commitment will
5.70 be made, and further detail provided, within the LEMP to be prepared at the detailed design stage.

6.0 CONCLUSIONS

6.1 In the absence of any mitigation measures, the proposed development would have the potential to result in negative effects significant at up to the Local level. However, with the implementation of some straightforward mitigation and precautionary measures as proposed here, the development is not anticipated to result in any significant residual negative effects on important ecological features.

6.2 The Illustrative Landscape Strategy Plan demonstrates the potential to deliver net benefits for wildlife in the form of additional habitats, with the opportunity to provide additional biodiversity enhancement measures alongside the new housing. A Biodiversity Impact Assessment Calculation has determined that the proposed development could secured a net gain of 0.55% in habitats (0.40 Biodiversity Habitat Units) and 17.29% in hedgerows (7.59 Biodiversity Hedgerow Units).

6.3 The measures set out herein can be secured through appropriate conditions attached to any planning consent, and the development may therefore be delivered without harm to nature conservation interests. Specifically, it is anticipated that planning conditions would be used to secure:

- Construction Environmental Management Plan (CEMP): In addition to wider environmental controls and best practice construction management, the CEMP will set out construction-phase impact avoidance measures with respect to nesting birds, badgers and reptiles.
- Landscape and Ecology Management Plan (LEMP): The LEMP will detail the establishment and long term management of retained and newly created habitats to maximise benefits for wildlife. It will include a graphical Ecological Enhancement Plan, setting out the number, type and position of enhancement features.
- Lighting Strategy: A sensitive lighting strategy will accompany the detailed layout, ensuring that dark corridors are maintained, and minimising light spill to retained and newly created habitats.

6.4 Based on the successful implementation of avoidance, mitigation and enhancement measures set out herein, the scheme is considered to accord with all relevant nature conservation legislation, as well as with the provisions of Ipswich and East Suffolk local planning policies.

7.0 REFERENCES

Baker, J., 2016. *Biodiversity Net Gain: Good practice principles for development*. CIEEM, CIRIA & IEMA.

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F., 2014. *Analytical and methodological development for improved surveillance of the Great Crested Newt*. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Oxford: Freshwater Habitats Trust.

Bright *et al*., 2006. *The Dormouse Conservation Handbook.* 2nd ed. Peterborough: English Nature

British Standards Institution, 2013. *BS 42020:2013 Biodiversity – Code of practice for planning and development.* London: BSI.

British Standards Institution, 2012. *BS 5837:2012 Trees in relation to design, demolition and construction: Recommendations*. London: BSI.

Buglife, no date. *Important Invertebrate Areas*. [online] Available at: <https://www.buglife.org.uk/our-work/important-invertebrate-areas/> [Accessed August 2023].

Chartered Institute of Ecology and Environmental Management, 2016. *Guidelines for Assessing and Using Biodiversity Data*. Winchester: CIEEM.

Chartered Institute of Ecology and Environmental Management, 2017. *Guidelines for Ecological Report Writing*. Winchester: CIEEM.

Chartered Institute of Ecology and Environmental Management, 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Version 1.1. Winchester: CIEEM.

Collins, J., ed., 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd ed. London: The Bat Conservation Trust.

Cresswell, P., Harris, S. and Jeffries, D.J., 1990. *The History, Distribution, Status and Habitat Requirements of the Badger in Britain*. Peterborough: Nature Conservancy Council.

Defra, 2007. *Hedgerow Survey Handbook. A standard procedure for local surveys in the UK*. Defra: London.

Defra, 2011. *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*. London: Defra.

Defra, 2019. *Natural Environment Planning Policy Guidance: Biodiversity, geodiversity and ecosystems*. [online, last updated July 2019] Available at: <https://www.gov.uk/guidance/natural-environment#biodiversity-geodiversity-and-ecosystems> [Accessed August 2023].

Department for Levelling Up, Housing & Communities, 2023. *National Planning Policy Framework (NPPF)*. London: Department for Levelling Up, Housing & Communities.

English Nature, 2001. *Great Crested Newt Mitigation Guidelines*. Peterborough: EN.

Froglife, 1999. *Reptile Survey: an introduction to planning and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Halesworth: Froglife.

Harris, S., Creswell. P., and Jefferies, D.J., 1989. *Surveying badgers*. London: Mammal Society.

JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), 2012. *UK Post-2010 Biodiversity Framework.* [pdf] Peterborough: JNCC. Available at: < http://jncc.defra.gov.uk/page-6189> [Accessed August 2023].

Lintott, P. R., Davison, S., van Breda, J., Kubasiewicz, L., Dowse, D., Daisley, J., Haddy, E. and Mathews, F, 2017. *Ecobat: An online resource to facilitate transparent, evidence-based interpretation of bat activity data.* Ecology and evolution, 8(2), pp.935-941.

Multi-Agency Geographic Information for the Countryside (MAGIC), 2013. *Interactive Map*. [online] Available at: <http://www.magic.gov.uk/MagicMap.aspx> [Accessed August 2023].

Natural England, 2011. *Reptile Mitigation Guidelines*. Natural England Technical Information Note TIN102. York: Natural England.

Natural England and Department for Environment, Food & Rural Affairs, 2014. *Protected species and development: advice for local planning authorities*. [online, last updated September 2022] Available at:

<https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals> [Accessed August 2023].

Oldham, R. S., Keeble, J., Swan, M. J. S. & Jeffcote, M., 2000. Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal*, 10(4), pp.143-155.

Rodewald, P. & Shumar, M. 2013. Bird Atlas 2007-11: *The Breeding and Wintering Birds of Britain and Ireland.* The Auk: Ornithological Advances. 131. 252-254. 10.1642/AUK-14-22.1.

Stace, C. A., 2019. *New Flora of the British Isles*. 4th ed. Suffolk: C & M Floristics.

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

Wilson, G., Harris, S. & McLaren, G., 1997. *Changes in the British badger population, 1988 to 1997.* London: People's Trust for Endangered Species.

Wray, S., Wells, D., Long, E. and Mitchell-Jones, T., 2010. *Valuing Bats in Ecological Impact Assessment*. In Practice, 70, pp.23-25.

The Hedgerow Regulations 1997 (SI 1997/1160). Available at: <https://www.legislation.gov.uk/uksi/1997/1160/contents/made> [Accessed September 2023].

The Woodland Trust, no date. *Ancient Tree Inventory.* [online] Available at: <https://ati.woodlandtrust.org.uk/> [Accessed August 2023].

Appendix A

Habitats Plan

N

- Site boundary
- Arable and horticulture (c1)
- Modified grassland (g4)
- Mixed scrub (h3h)
- Other woodland-broadleaved (w1g)
- Other neutral grassland (g3c)
- Hedgerows (Priority Habitat) (h2a)
- Mature Trees
- Fn Field reference

0 100 200 m

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Project	Land East of Humber Doucy Lane, Ipswich	Date	February 2024	Drawing No.	CSA/6675/111
Drawing Title	Habitats Plan	Scale	Refer to scale	Rev	-
Client	Barratt David Wilson & Hopkins Homes	Drawn	LF/MD	Checked	CH

Appendix B

Legislation and Planning Policy

1.1. The Conservation of Habitats and Species Regulations 2017 (as amended) make prescriptions for the designation and protection of Sites of Community Importance ('European sites', i.e. Special Areas of Conservation and Special Protection Areas) and European Protected Species (EPS). The latter include all native bats, great crested newts, dormice, otters and certain reptiles, listed under Annex II of the Regulations. Following the UK's departure from the European Union, the provisions of the Regulations have been retained through enactment of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which came into force on 31 December 2020.

1.2. The Wildlife and Countryside Act 1981 (as amended, principally by the Countryside and Rights of Way Act 2000) forms the basis for protection of statutory designated sites of national importance (e.g. Sites of Special Scientific Interest; SSSIs) and native species that are rare and vulnerable in a national context. Additionally, badgers are protected under the Protection of Badgers Act 1992.

1.3. The Environment Act 2021 received Royal Assent in November 2021. Through an amendment to the Town and Country Planning Act 1990 the Environment Act will introduce a mandatory requirement for all planning permissions to be conditional upon the submission of a Biodiversity Gain Plan for approval by the Local Planning Authority. The Plan will need to demonstrate a net gain of at least 10% in the biodiversity value of the development site. These provisions are not yet in force, pending their enactment through secondary legislation.

1.4. Section 40(1) of the Natural Environment and Rural Communities (NERC) Act 2006 states that each public authority, "must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity." This legislation makes it clear that planning authorities should consider impacts to biodiversity when determining planning applications, with particular regard to the Section 41 (S41) lists of 56 habitats and 943 species of principal importance. The UK Biodiversity Action Plan (BAP) has been superseded by the Biodiversity 2020 Strategy, however Local BAPs continue to influence biodiversity management and conservation effort, including through the spatial planning system, at the local scale.

1.5. The National Planning Policy Framework (2023) (NPPF) sets out the government planning policies for England and how they should be applied. With regards to ecology and biodiversity, Chapter 15: Conserving and Enhancing the Natural Environment, paragraph 174, states that the planning system and planning policies should minimise impacts on and provide net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

1.6. Paragraph 180 sets out the principles that local planning authorities should apply when determining planning applications:

- 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.
- 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.
- 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.
- Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

1.7. Accompanying the NPPF, central government guidance on the implementation of planning policies is set out within online Planning Policy Guidance (PPG). The Natural Environment PPG addresses principles across a broad spectrum of topics targeting biodiversity conservation, from individual site and species protection through to the supporting of ecosystem services, and the use of local ecological networks to support the national Nature Recovery Network. In particular, the PPG promotes the delivery of measurable Biodiversity Net Gain through the creation and enhancement of habitats alongside development.

1.8. The Government Circular 06/2005, which is referred to within the NPPF, defines statutory nature conservation sites and protected species as a material consideration in the planning process.

1.9. Local planning policies of relevance to ecology, biodiversity and/or nature conservation have been set out in Table 1 below.

Table 1. Summary of regional and local planning policy relating to ecology

Policy	Summary
Ipswich Local Plan 2018-2036	
Policy ISPA3: Cross-boundary	"The Council will continue to work with other authorities to address the requirements of the Recreational Disturbance

Policy	Summary
mitigation of effects on Protected Habitats and Species	Avoidance and Mitigation Strategy and implementation of mitigation measures for the benefit of the European protected sites across the Ipswich Strategic Planning Area. The Council will continue to work with other authorities over the plan period to ensure that the strategy and mitigation measures are kept under review in partnership with Natural England and other stakeholders."
Policy ISPA4: Cross Boundary Working to Deliver Sites	"Ipswich Borough Council will work with neighbouring authorities to master plan and deliver appropriate residential development and associated infrastructure on identified sites within the Borough but adjacent to the boundary where cross boundary work is needed to bring forward development in a coordinated and comprehensive manner. 23.28ha of land at the northern end of Humber Doucy Lane, identified on the Policies Map as ISPA4.1, is allocated for 449 dwellings and associated infrastructure to come forward in conjunction with land allocated in Policy SCLP12.24 of the Suffolk Coastal Local Plan in East Suffolk as a cross boundary site. 60% of the site within Ipswich Borough is allocated for housing and 40% is allocated for secondary uses, comprising open space and other green and community infrastructure. Development will be planned and comprehensively delivered through master planning of the site, including the allocation of land in East Suffolk, to be undertaken jointly with East Suffolk Council and the landowner. Development will be expected to comply with the following criteria: a) Delivery of a high-quality design in compliance with Policy DM12, including at least 30% affordable housing (unless viability assessment shows otherwise) in accordance with Policies CS8 and CS12. The mix and tenure types of housing will be determined through the master planning process; b) Development must respect the maintenance of separation between Ipswich and surrounding settlements which is important to the character of the area. This should be achieved by the effective use of green infrastructure to create a transition between the new development/Ipswich urban edge and the more rural landscape character of East Suffolk; c) The settings of the grade II Listed Westerfield House Hotel, Allens House, Laceys Farmhouse, and the Garden Store north of Villa Farmhouse must be preserved or enhanced as part of any future development of the site. Development must also have regard to its impact on the significance of non-designated heritage assets identified in the 44 Heritage Impact Assessment (HIA) (September 2020). An archaeological assessment is also required. Any future planning applications will require an HIA demonstrating how the effects on heritage assets are taken into account and mitigated; d) A site specific Flood Risk Assessment will be required; e) Rows of trees covered by Tree Preservation Orders (TPOs) along the boundary with Westerfield House should be preserved unless there are overriding reasons for their removal;

Policy	Summary
	f) Current infrastructure requirements are as follows (subject to any additional infrastructure that may be identified as part of the planning application process): i. Primary school places and an early years setting to meet the need created by the development; ii. Replacement sports facilities if required to comply with policy DM5, other open space in compliance with the Council's Open Space Standards set out in Appendix 3 of the Core Strategy DPD and links to the Ipswich 'green trail' walking and cycling route around the edge of Ipswich; iii. A project level Habitat Regulations Assessment will be required and Suitable Alternative Natural Greenspace (SANGs); iv. Landscaping and development proposals must take account of the Ipswich Wildlife Audit (2019) recommendations for the site, contribute positively to the enhancement of strategic green infrastructure both on and off the site in its vicinity as appropriate, include a 10% biodiversity net gain, and provide a soft edge to the urban area where it meets the countryside; v. Transport measures including: • highway and junction improvements on Humber Doucy Lane and Tuddenham Road; • walking and cycling infrastructure to link the site to key social and economic destinations including the town centre, and local services and facilities; • public transport enhancements; and • appropriate transport mitigation measures that arise from demand created by the development, in line with the ISPA Transport Mitigation Strategy; vi. Development will need to be phased and delivered in coordination with the delivery of the Ipswich Garden Suburb to ensure sufficient primary school capacity is provided to meet demand generated from the strategic allocation at the northern end of Humber Doucy Lane; vii. The development will be triggered by the ability to provide the necessary primary school capacity on the Red House element of Ipswich Garden Suburb or an agreement between the landowner and Suffolk County Council, as the Education Authority, to provide a primary school on the Humber Doucy Lane development; viii. As part of the master planning work, the opportunity for the provision of convenience retail on site should be assessed in order to reduce travel demand, taking into account any effects on the viability of existing local retail facilities; and ix. A financial contribution to off-site healthcare facilities''
Policy CS4: Protecting our assets	''The Council is committed to conserving and enhancing the Borough's built, heritage, natural and geological assets. The Council will conserve, and promote the enjoyment of, the historic environment. To this end, it will: i. conserve and enhance the character and appearance of conservation areas, by preparing and reviewing where necessary character appraisals and using them to guide decisions about development;

Policy	Summary
	ii. review the extent of conservation areas and designate any new areas or amend boundaries as appropriate; iii. conserve and enhance heritage assets within the Borough through the development management policies in this plan, the use of planning obligations to secure the enhancement and promotion of the significance of any heritage asset, the maintenance of a list of heritage assets of local importance, such as buildings or parks, and taking steps to reduce the number of heritage assets at risk; iv. Promote local distinctiveness and heritage assets through the publication and review of Supplementary Planning Documents (SPDs) including the Ipswich Urban Character SPD and the Development and Archaeology SPD; and v. Recognise the wider role heritage can play in regeneration, as a cultural, educational, economic and social resource. The Council will also seek to protect and enhance local biodiversity, trees and soils in accordance with the National Planning Policy Framework and national legislation by: a) Applying full protection to international, national and local designated sites and protected and priority species; b) Requiring new development to incorporate provision for protecting and enhancing geodiversity interest and provide biodiversity net gain that is proportion to the scale and nature of the proposal. Reference should be made to the information and recommendations of the Wildlife Audit in relation to any proposals on, or that may affect, sites identified within it; c) Avoiding the loss of ancient woodland and ancient or veteran trees in accordance with national policy, and requiring new development to plant the veteran trees of the future using appropriate native species of local provenance; d) Supporting and securely funding the Greenways Project; e) Designating additional Local Nature Reserves where appropriate; f) Preparing and implementing management plans for Council owned wildlife sites; g) Identifying, protecting and enhancing an ecological network across Ipswich linking into adjacent areas, in accordance with Policy DM8, maximising the benefits to the local ecosystem and providing biodiversity net gains beyond the level anticipated through the scale of development proposed; h) Conserving and enhancing the natural beauty and special qualities of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty and requiring development to respond to local landscape sensitivity; i) Preventing the spread of non-native invasive species by ensuring that an appropriate biosecurity proposal is adopted; and j) Protecting and enhancing valued soils. The Council will encourage the use of local reclaimed, renewable, recycled and low environmental impact materials in construction, in order to conserve finite natural resources and minimise environmental impacts. New development will also be

Policy	Summary
	required to minimise the amount of waste generated during construction and through the lifetime of the building.''
Policy CS16: Green infrastructure, sport and recreation	''The Council will safeguard, protect and enhance biodiversity and the environment by working in partnership with others to ensure that our parks and open spaces are well-designed, well managed, safe and freely accessible, encouraging use and benefitting the whole community. The Council will enhance and extend the ecological network and green corridors, blue corridors, open spaces and sport and recreation facilities for the benefit of biodiversity, people and the management of local flood risk. It will do this by: a) requiring all developments to contribute to the provision of open space necessary for that development in accordance with Policy DM6; b) requiring major new developments to include usable on-site public open spaces and wildlife habitat. On-site provision must create a network or corridor with existing green infrastructure where such an ecological network or green corridor exists beyond the site boundaries; c) supporting proposals or activities that protect, enhance or extend open spaces and sport and recreation facilities, including water and river-based activities; d) working with partners to prepare, implement and monitor the Recreational Disturbance Avoidance and Mitigation Strategy and other strategies and management plans for green spaces, including an Orwell Country Park management plan, that will result in a reduced impact upon birds in the Orwell Estuary; e) supporting the Greenways Project in working with communities and volunteers to manage green corridors in Ipswich; f) support the enhancement of canopy cover and ecological networks; g) working with partners to improve green infrastructure provision and link radial ecological networks and green corridors with a publicly accessible green trail around Ipswich; h) working with strategic partners and developers to ensure the provision of a new country park and visitor centre within the Ipswich Garden Suburb, and an extension to Orwell Country Park; i) promoting improved access to existing facilities where appropriate; j) reviewing the Town's estate of sports facilities to consider how they can best meet the needs of a growing population; and k) working with local police and community partners to ensure that appropriate opportunities to design out crime have been taken prior to the commencement of any project and as part of the on-going management of any open spaces, sport or recreational facilities. Policies in this plan and the Site Allocations and Policies (incorporating IP-One Area Action Plan) Development Plan Document Review identify existing, new and proposed open spaces, sport and recreation facilities, green corridors and networks and allocate sites for new open spaces and facilities.''

Policy	Summary
POLICY DM8: The Natural Environment	"All development must incorporate measures to provide net gains for biodiversity. Proposals which would result in significant harm or net loss to biodiversity, having appropriate regard to the 'mitigation hierarchy', will not normally be permitted. Sites of International and National Importance Proposals which would have an adverse impact on European protected sites will not be permitted, either alone or in combination with other proposals, unless imperative reasons of overriding public interest exist in accordance with the provisions of the European Habitats Directive. Sites of Special Scientific Interest (SSSI) will be protected from development, which directly or indirectly would have an adverse effect on their natural value. An exception will only be made where a proposed development: a) could not be located on an alternative site that would cause less harm; b) would deliver benefits that clearly outweigh the impacts on the site's special interest and on the national network of such sites; and c) would compensate for the loss of natural capital. Any development with the potential to impact on a Special Protection Area, or Special Area for Conservation or Ramsar site within the Borough will need to be supported by information to inform a Habitats Regulations Assessment, in accordance with the Conservation of Habitats and Species Regulations 2017, as amended (or subsequent revisions). Financial contributions will be secured in relation to the avoidance and mitigation of impacts of increased recreation, to contribute towards the provision of strategic mitigation as established through the Recreational Disturbance Avoidance and Mitigation Strategy. Where mitigation is proposed to be provided through alternative mechanisms, applicants will need to provide evidence to demonstrate that all impacts are mitigated, including incombination effects. Depending on the size and location of the development, additional measures such as Suitable Alternative Natural Greenspaces (SANGS) may be required as part of development proposals. Local Nature Reserves and County Wildlife Sites Planning permission will not be granted for development that would result in damage or loss in extent or otherwise have a significant adverse effect on: locally designated County Wildlife Sites and geological sites; Local Nature Reserves; or Local Wildlife Sites, if the harm cannot be avoided, adequately mitigated, or, as a last resort, compensated for. Enhancements for protected sites will be required from new development. Priority Habitats and Species: Development which could harm, directly or indirectly, species, which are legally protected, or species and habitats that have

Policy	Summary
	been identified as Species or Habitats of Principal Importance in England (also known as Section 41 or 'Priority' species and habitats) will not be permitted unless the harm can be avoided or mitigated by appropriate measures. Development must include enhancements for protected and priority species as part of their design and implementation. Enhancing Ecological Networks : The Council will enhance the ecological network across the Borough as identified on Plan 5. The designated sites are ranked 1 and 2 High Conservation Value. Within the remaining core areas of the ecological network and the corridors which link them, development proposals will be required to have regard to existing habitat features and the wildlife corridor function, through their design and layout, and achieve net biodiversity gains commensurate with the scale of the proposal, through measures such as retaining existing habitat features, habitat restoration or re-creation and comprehensive landscaping, which is appropriate to local wildlife. Development which that would fragment the corridor function will not be permitted unless there is adequate mitigation. Within the buffer zones around core areas and corridors, development will be required to enhance the ecological network, through measures such as wildlife beneficial landscaping."
POLICY DM9: Protection of Trees and Hedgerows	"The Council will protect existing trees and seek to secure additional trees that increase canopy cover in the interests of amenity and biodiversity by: a) making Tree Preservation Orders; b) only granting consent for felling, topping, lopping or uprooting if a sound arboricultural reason is provided to accompany applications; c) adhering to the principles of BS3998 'Tree work – Recommendations' 2010 for established tree management options (including soil care and tree felling); d) refusing planning permission for development resulting in the loss or deterioration of trees or vegetation of amenity, historic, cultural or ecological value unless the need for, and benefits of, the development in that location clearly outweigh the loss; and e) encouraging tree planting to achieve a target of 22% canopy cover or better by 2050. Planning permission for development resulting in the loss or deterioration of ancient woodland and ancient or veteran trees (irreplaceable habitats) will be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists. Applications for development should retain existing trees and hedgerows of amenity or biodiversity value where possible. Where development affecting trees or hedgerows is proposed, the application must be accompanied by:

Policy	Summary
	f) an accurate survey and assessment of all existing trees and hedgerows on site in accordance with BS5837 'Trees in relation to design, demolition and construction – Recommendations)' 2014 by a competent arboriculturist; g) details of protective measures to be put in place during the development process to ensure the health and safety of each specimen and hedgerow to be retained; and h) where removal of a mature or semi-mature tree or hedgerow is proposed, a plan for replacement planting on a two for one basis or better and using semi-mature specimens, unless otherwise agreed by the Council. Design in new development should have proper regard to the setting of protected trees. Landscaping and tree planting should be integrated into new development, including carparking areas. Where appropriate, new tree planting will be encouraged within landscaping schemes to increase the Borough's tree canopy cover. Soft landscaping shall include plants which encourage biodiversity, such as nectar rich plants.''
Suffolk Coastal Local Plan (adopted 2020)	
Policy SCLP10.1: Biodiversity and Geodiversity	Development will be supported where it can be demonstrated that it maintains, restores or enhances the existing green infrastructure network and positively contributes towards biodiversity and/or geodiversity through the creation of new habitats and green infrastructure and improvement to linkages between habitats, such as wildlife corridors and habitat 'stepping stones'. All development should follow a hierarchy of seeking firstly to avoid impacts, mitigate for impacts so as to make them insignificant for biodiversity, or as a last resort compensate for losses that cannot be avoided or mitigated for. Adherence to the hierarchy should be demonstrated. Proposals that will have a direct or indirect adverse impact (alone or in-combination with other plans or projects) on locally designated sites of biodiversity or geodiversity importance, including County Wildlife Sites, priority habitats and species, will not be supported unless it can be demonstrated with comprehensive evidence that the benefits of the proposal, in its particular location, outweighs the biodiversity loss. New development should provide environmental net gains in terms of both green infrastructure and biodiversity. Proposals should demonstrate how the development would contribute towards new green infrastructure opportunities or enhance the existing green infrastructure network as part of the development. New development must also secure ecological enhancements as part of its design and implementation, and should provide a biodiversity net gain that is proportionate to the scale and nature of the proposal. Where compensatory habitat is created, it should be of equal or greater size and ecological value than the area lost as a result of the development, be well located to positively contribute towards the green infrastructure network, and

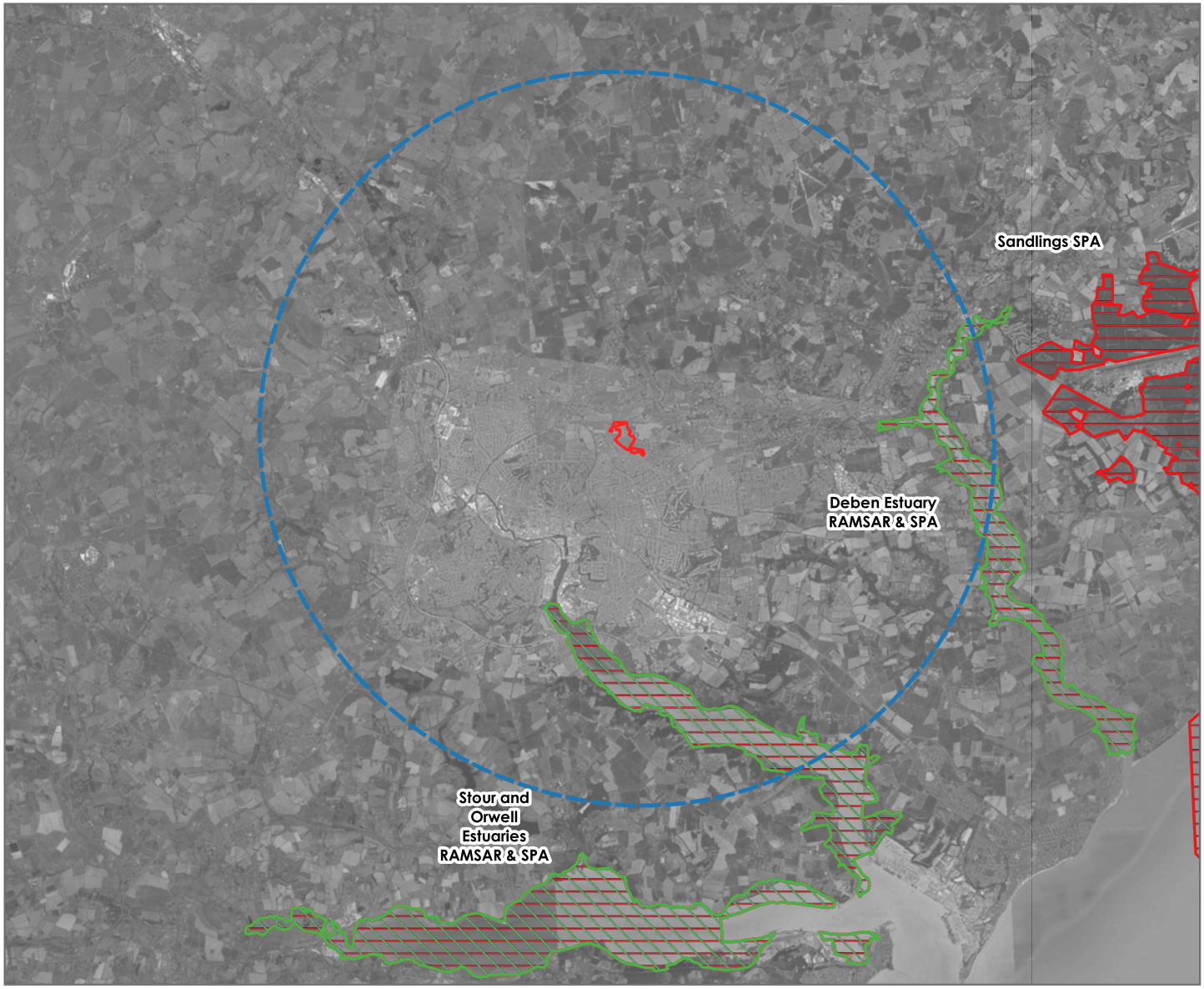
Policy	Summary
	biodiversity and/or geodiversity and be supported with a management plan. Where there is reason to suspect the presence of protected UK or Suffolk Priority species or habitat, applications should be supported by an ecological survey and assessment of appropriate scope undertaken by a suitably qualified person. If present, the proposal must follow the mitigation hierarchy in order to be considered favourably. Any proposal that adversely affects a European site, or causes significant harm to a Site of Special Scientific Interest, will not normally be granted permission. Any development with the potential to impact on a Special Protection Area, Special Area for Conservation or Ramsar site within or outside of the plan area will need to be supported by information to inform a Habitat Regulations Assessment, in accordance with the Conservation of Habitats and Species Regulations 2017, as amended (or subsequent revisions). The Recreational disturbance Avoidance and Mitigation Strategy has been prepared to provide a mechanism through which impacts from increased recreation can be avoided and mitigated via financial contributions towards the provision of strategic mitigation. Where mitigation is proposed to be provided through alternative mechanisms, applicants will need to provide evidence to demonstrate that all impacts are mitigated for, including in-combination effects. Depending on the size and location of the development, additional measures such as Suitable Alternative Natural Green Spaces (SANGS) may be required as part of development proposals. A Supplementary Planning Document will be prepared to assist with the implementation of the Recreational disturbance Avoidance and Mitigation Strategy. The Council will work with neighbouring authorities and Natural England to implement this strategy.
Policy SCLP10.2: Visitor Management of European Sites	The Council has a duty to ensure that development proposals will not result in an increase in activity likely to have a significant effect upon sites designated as being of international importance for their nature conservation interest. Applications for new car parking provision (public or privately owned which are available for wider public use) located within 1km boundary of a designated site or new access points direct into the estuary such as slipways or jetties will need to demonstrate that they will not result in an increase in activity likely to have a significant effect upon a European site whether on their own, or in combination with other uses. Such proposals need to be subject to a project level Habitats Regulation Assessment.
Policy SCLP10.3: Environmental Quality	Development proposals will be expected to protect the quality of the environment and to minimise and, where possible, reduce all forms of pollution and contamination. Development proposals will be considered in relation to impacts on;

Policy	Summary
	a) Air quality, and the impact on receptors in Air Quality Management Areas; b) Soils and the loss of agricultural land; c) Land contamination and its effects on sensitive land uses; d) Water quality and the achievement of Water Framework Directive objectives; e) Light pollution; and f) Noise pollution. Proposals should seek to secure improvements in relation to the above where possible. The cumulative effect of development, in this regard, will be considered.
Policy SCLP10.4: Landscape Character	Proposals for development should be informed by, and sympathetic to, the special qualities and features as described in the Suffolk Coastal Landscape Character Assessment (2018), the Settlement Sensitivity Assessment (2018), or successor and updated landscape evidence. Development proposals will be expected to demonstrate their location, scale, form, design and materials will protect and enhance: a) The special qualities and features of the area; b) The visual relationship and environment around settlements and their landscape settings; c) Distinctive landscape elements including but not limited to watercourses, commons, woodland trees, hedgerows and field boundaries, and their function as ecological corridors; d) Visually sensitive skylines, seascapes, river valleys and significant views towards key landscapes and cultural features; and e) The growing network of green infrastructure supporting health, wellbeing and social interaction. Development will not be permitted where it will have a significant adverse impact on rural river valleys, historic park and gardens, coastal, estuary, heathland and other very sensitive landscapes. Proposals for development will be required to secure the preservation and appropriate restoration or enhancement of natural, historic or man-made features across the plan area as identified in the Landscape Character Assessment, Settlement Sensitivity Assessment and successor landscape evidence. Development will not be permitted where it would have a significant adverse impact on the natural beauty and special qualities of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty, that cannot be adequately mitigated. Development within the Area of Outstanding Natural Beauty, or within its setting, will be informed by landscape and visual impact assessment to assess and identify potential impacts and to identify suitable measures to avoid or mitigate these impacts. Planning permission for major development in the Area of Outstanding Natural Beauty will be refused other than in exceptional circumstances, and where it can be

Policy	Summary
	demonstrated that the development is in the public interest, subject to the considerations set out in the National Planning Policy Framework. Proposals should include measures that enable a scheme to be well integrated into the landscape and enhance connectivity to the surrounding green infrastructure and Public Rights of Way network. Development proposals which have the potential to impact upon the Area of Outstanding Natural Beauty or other sensitive landscapes should be informed by landscape appraisal, landscape and visual impact assessment and landscape mitigation. Proposals for development should protect and enhance the tranquillity and dark skies across the plan area. Exterior lighting in development should be appropriate and sensitive to protecting the intrinsic darkness of rural and tranquil estuary, heathland and river valley landscape character. Neighbourhood Plans may include local policies related to protecting and enhancing landscape character and protecting and enhancing tranquillity and dark skies.

Appendix C

Desk Study Information



N

Site boundary

10km buffer

RAMSAR

Special Protection Areas (SPA)

0 5 10 km

CSA environmental

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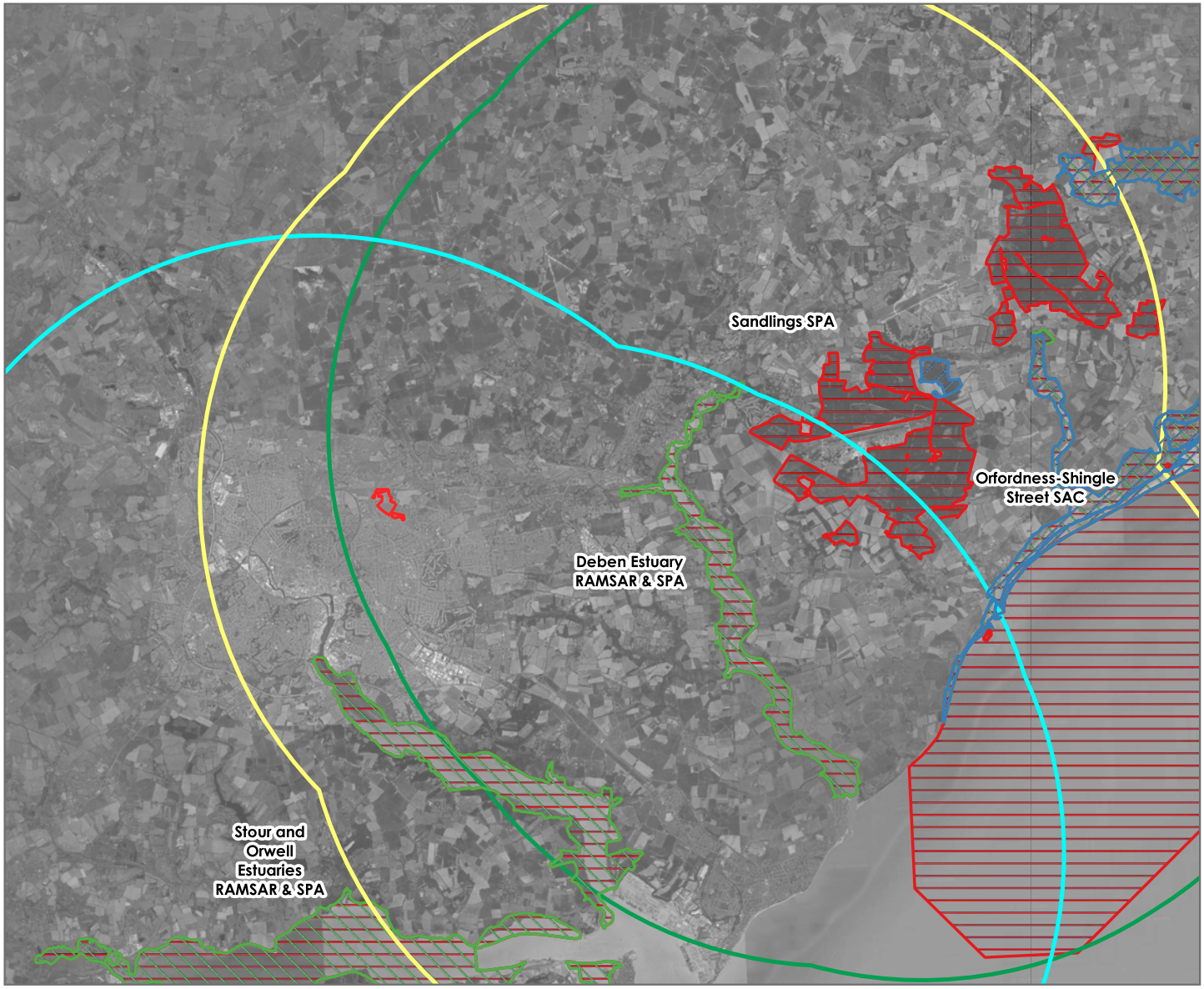
Project	Land East of Humber Doucy Lane, Ipswich	Date	February 2024	Drawing No.	CSA/6675/100
Drawing Title	Statutory International Designations	Scale	Refer to scale	Rev	-
Client	Barratt David Wilson & Hopkins Homes	Drawn	LF	Checked	CH



N

- Site boundary
- Special Areas of Conservation (SAC)
- RAMSAR
- Special Protection Areas (SPA)
- Deben Estuary Zone of Influence
- Stour and Orwell Estuaries Zone of Influence
- Sandlings SPA Zone of Influence

0 5 10 km

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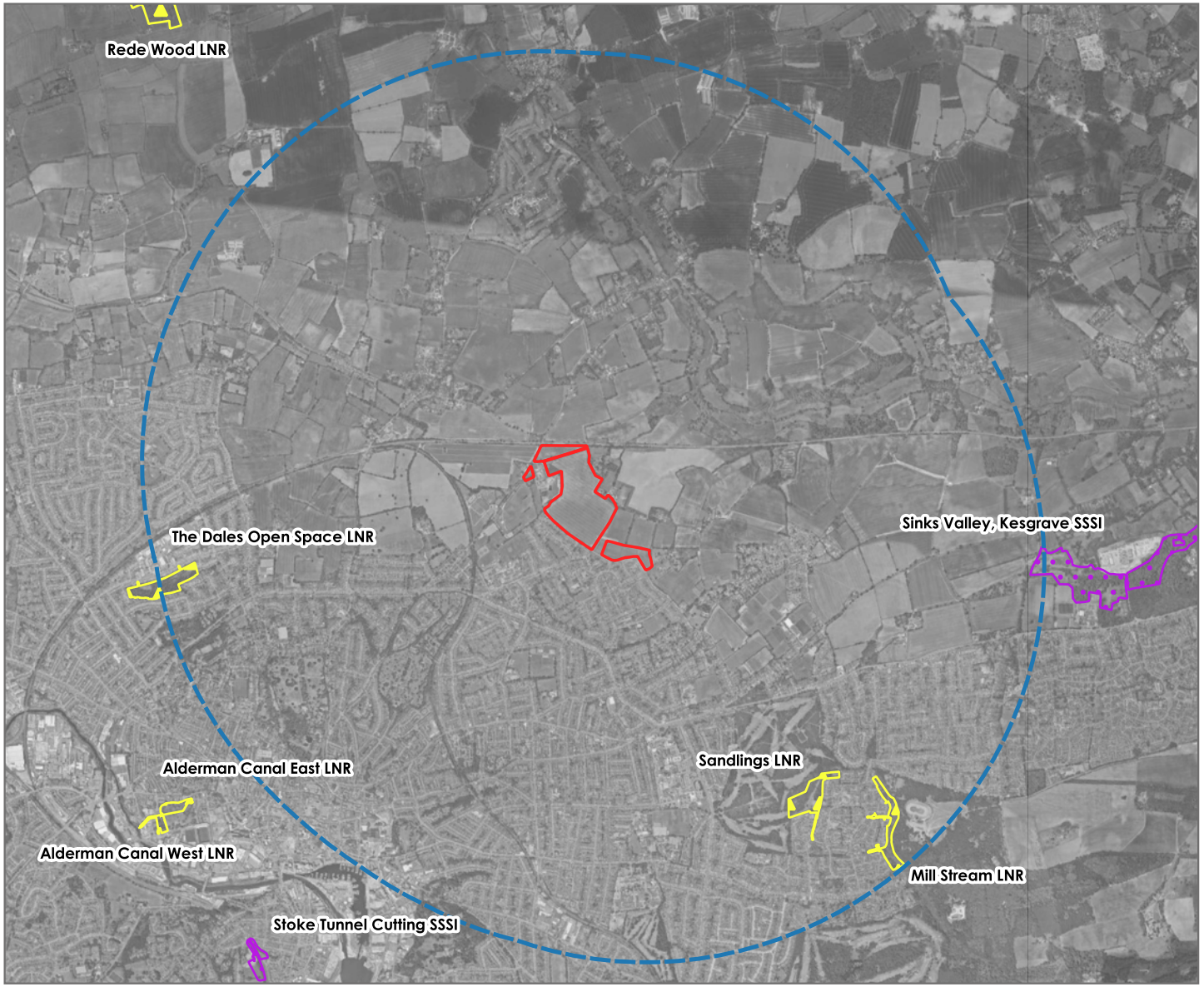
Project	Land East of Humber Doucy Lane, Ipswich	Date February 2024	Drawing No. CSA/6675/103
Drawing Title	Essex Coast Sites: Zones of Influence	Scale Refer to scale	Rev -
Client	Barratt David Wilson & Hopkins Homes	Drawn LF	Checked CH



N

Site boundary

3km buffer

Local Nature Reserves (LNR)

Sites of Special Scientific Interest (SSSI)

0 1.5 3 km

CSA environmental
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Ashwell, Hertfordshire SG7 5NT
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Project	Land East of Humber Doucy Lane, Ipswich	Date	February 2024	Drawing No.	CSA/6675/101
Drawing Title	National/Local Statutory Designations	Scale	Refer to scale	Rev	-
Client	Barratt David Wilson & Hopkins Homes	Drawn	LF	Checked	CH

N

Site boundary

2km buffer

Local wildlife sites (LWS)

*Contains information from Suffolk Biodiversity Information Service. Exact boundaries of designations may differ.
For reference purpose only. No further copies may be made.

0 1 2 km

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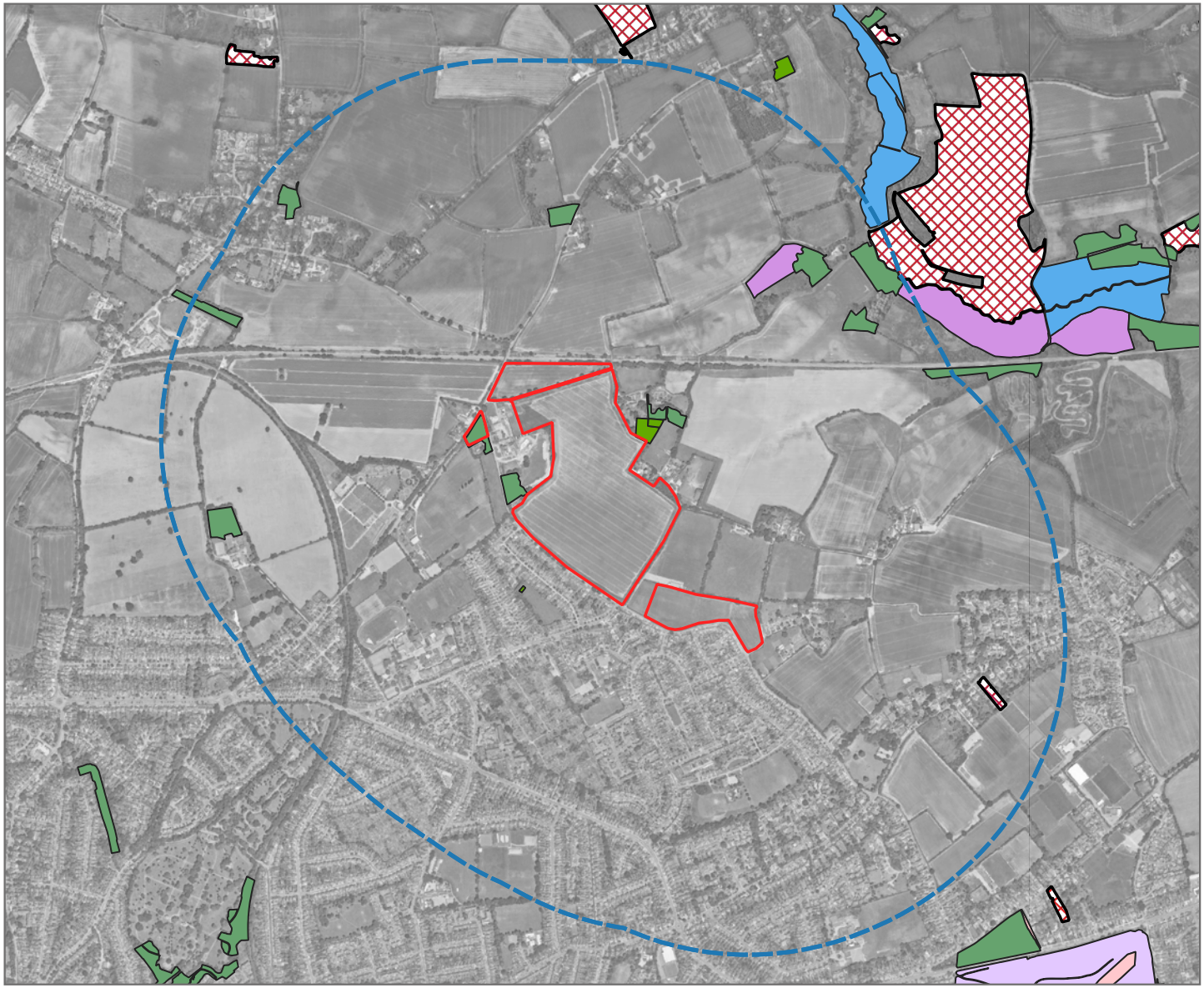
Project	Land East of Humber Doucy Lane, Ipswich	Date	February 2024	Drawing No.	CSA/6675/104
Drawing Title	Non-statutory Designations	Scale	Refer to scale	Rev	-
Client	Barratt David Wilson & Hopkins Homes	Drawn	LF	Checked	CH



Site boundary

1km buffer

Priority Habitats

- Coastal and floodplain grazing marsh
- Deciduous woodland
- Good quality semi improved grassland
- Lowland dry acid grassland
- Lowland fens
- Lowland heathland
- No main habitat but additional habitats present
- Traditional orchard

0 0.5 1 km

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Project	Land East of Humber Doucy Lane, Ipswich	Date	February 2024	Drawing No.	CSA/6675/105
Drawing Title	Priority Habitats	Scale	Refer to scale	Rev	-
Client	Barratt David Wilson & Hopkins Homes	Drawn	LF	Checked	CH

Appendix D

Photographs

Photograph 1. Land parcel at the north-west of the Site (between Tuddenham Road and Humber Doucy Lane, dominated by scrub.

Photograph 2. Area of neutral grassland to the east of F1 (arable field).

Photograph 3. Looking north along H15. The narrow field margin and crop within F1 can be seen.

Photograph 4. Small area of neutral grassland to the south-west of F1. H14 can be seen in the background.

Photograph 5. Looking north across the arable crop within F2.

Photograph 6. Looking south-east along the southern boundary of W1, and the narrow field margin of F2.

Photograph 7. Area of very little ground flora within woodland W1.

Photograph 8. Looking north along the western edge of W2, and the field margin of the arable field F2.

Photograph 9. Area of wider field margin at the west of F2, adjacent to the ground of Westerfield House (off-site to the west).

Photograph 10. Looking north-east along the quiet land between H14 and H5, at the north of the Site.

Photograph 11. Looking west along H9 and the modified grassland field F3.

Photograph 12. Looking north-west along H10, and the arable crop and narrow field margin within F4. This field margin is used regularly by locals, as it connects two public footpaths.

Appendix E

Habitats and Flora Species List

Table 1. Habitat Polygons

Site Name	6675 Land east of Humber Doucy Lane, Ipswich				
Survey Date and Surveyor(s)	16/08/2023 and 21/09/2023 Carly Howes ACIEEM				
Scientific Name	**Common Name**	Arable Field and Field Margins (c1c); F1, F2, F4	Mixed scrub (h3h)	Other woodland; broadleaved (w1g); W1	Other woodland; broadleaved (w1g); W2
Herb Species					
Chenopodium album	Fat-hen	X			
Achillea millefolium	Yarrow	X			
Aethusa cynapium	Fool's parsley	X			
Althaea officinalis	Marsh-mallow	X			
Alliaria petiolata	Garlic mustard	X	X		X
Anagallis arvensis	Scarlet pimpernel	X			
Anchusa arvensis	Annual bugloss	X			
Anthriscus sylvestris	Cow parsley	X	X	X	
Arctium minus	Lesser burdock	X	X		
Arum maculatum	Lords-and-ladies	X	X		X
Ballota nigra	Black horehound	X			
Calystegia arvensis	Field bindweed	X			
Calystegia sepium	Hedge bindweed		X		
Centaurea nigra	Common knapweed	X			
Cirsium arvense	Creeping thistle	X	X		
Cirsium vulgare	Spear thistle	X			
Clematis sp.	Clematis	X	X		
Conyza canadensis	Canadian fleabane	X			
Dipsacus fullonum	Wild Teasel	X			
Epilobium sp.	Willowherb	X		X	
Fallopia convolvulus	Black-bindweed	X			
Galium aparine	Cleavers	X	X	X	X
Geranium molle	Dove's-foot crane's-bill	X			
Geum urbanum	Wood avens	X		X	X
Glechoma hederacea	Ground-ivy	X		X	
Gnaphalium sp.	Cudweed	X			
Helminthotheca echioides	Bristly oxtongue	X			
Heracleum sphondylium	Hogweed	X	X		
Lactuca serriola	Prickly lettuce	X			
Lactuca virosa	Great lettuce	X			
Lamium album	White dead-nettle	X	X		
Lamium purpureum	Red dead-nettle	X	X		
Lapsana sp.	Nipplewort	X			
Malva sylvestris	Common mallow	X			
Mercurialis perennis	Dog's mercury	X			
Myosotis arvensis	Field forget-me-not	X		X	
Papaver sp.	Poppy	X			
Pentaglottis sempervirens	Green alkanet	X	X		
Plantago lanceolata	Ribwort plantain	X			
Plantago major	Greater plantain	X			
Prunella vulgaris	Selfheal			X	
Ranunculus repens	Creeping buttercup	X			
Raphanus raphanistrum ssp. raphanistrum	Wild radish	X			
Rumex obtusifolius	Broad-leaved dock	X		X	
Rumex sp.	Dock				X
Senecio jacobaea	Common ragwort	X			
Senecio vulgaris	Groundsel	X			
Sherardia arvensis	Field madder	X			
Silene latifolia	White campion	X			
Sisymbrium officinale	Hedge mustard	X	X		
Smyrnium olusatrum	Alexanders	X			
Solanum dulcamara	Bittersweet	X			
Solanum nigrum	Black nightshade	X			
Sonchus arvensis	Perennial sowthistle	X			
Sonchus asper	Prickly sowthistle	X			
Sonchus oleraceus	Smooth sowthistle	X	X		
Stellaria media	Common chickweed			X	
Taraxacum officinale agg.	Dandelion	X			
Torilis sp.	Hedge parsely	X			
Tripleurospermum inodorum	Scentless mayweed	X			
Urtica dioica	Common nettle	X	X		

Scientific Name	Common Name	Arable Field and Field Margins (c1c); F1, F2, F4	Mixed scrub (h3h)	Other woodland; broadleaved (w1g); W1	Other woodland; broadleaved (w1g); W2
Veronica persica	Common field-speedwell	X			
Viola arvensis	Field pansy	X			
Viola odorata	Sweet violet	X			
Grasses					
Agrostis stolonifera	Creeping bent	X			
Anisantha sterilis	Barren brome	X			X
Arrhenatherum elatius	False oat-grass	X			
Brachypodium sylvaticum	False brome	X		X	X
Bromus hordeaceus	Soft-brome	X			
Dactylis glomerata	Cock's-foot	X			
Elytrigia repens	Common couch	X			
Festuca rubra	Red fescue	X			
Hordeum murinum	Wall barley	X			
Lolium perenne	Perennial rye-grass	X			
Melica uniflora	Wood melick	X			
Phleum pratense	Timothy	X			
Crops					
Triticum aestivum	Bread wheat	X			
Vicia faba	Broad bean	X			
Woody Species					
Broadleaved					
Acer campestre	Field maple				X
Acer pseudoplatanus	Sycamore		X		
Aesculus hippocastanum	Horse-chestnut				X
Buddleja davidii	Butterfly-bush		X		
Carpinus betulus	Hornbeam			X	X
Corylus avellana	Hazel		X		
Crataegus monogyna	Hawthorn		X	X	
Fagus sylvatica	Beech			X	
Fraxinus excelsior	Ash			X	X
Hedera helix	Ivy	X	X		X
Prunus cerasifera	Cherry plum		X	X	
Prunus domestica	Plum		X		
Prunus spinosa	Blackthorn		X	X	
Quercus robur	Pedunculate oak			X	
Quercus sp.	Oak		X	X	X
Rosa arvensis	Field-rose				X
Rosa canina sp.	Dog-rose			X	
Rubus fruticosus agg.	Bramble	X	X	X	X
Sambucus nigra	Elder		X		
Tilia cordata	Small-leaved lime			X	X
Tilia x europaea	Common lime			X	
Ulmus sp.	Elm		X		X

Table 2. Linear Habitats

Site Name	6675 Land east of Humber Doucy Lane, Ipswich														
Survey Date and Surveyor(s)	16/08/2023 Carly Howes, 15/09/2023 Matthew Dale and Carly Howes; 27/10/2023 Matthew Dale and Laura Farrar														
Scientific Name	**Common Name**	**Habitat Parcel Number/Habitat Type**													
		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15
Herb Species																
Alliaria petiolata	Garlic mustard			X		X				X	X			X	X	
Anthriscus sylvestris	Cow parsley	X	X			X	X			X	X	X				
Arctium sp.	Burdock	X		X	X		X								X	X
Arum maculatum	Lords-and-ladies	X													X	
Ballota nigra	Black horehound		X			X				X	X					X
Bryonia dioica	White bryony	X	X	X						X	X				X	X
Calystegia sepium	Hedge bindweed									X						
Calystegia sp.	Bindweed													X		
Cirsium arvense	Creeping thistle	X								X				X		
Cirsium vulgare	Spear thistle									X						X
Clematis vitalba	Traveller's-joy	X				X			X		X				X	X
Dipsacus fullonum	Wild Teasel					X										
Epilobium sp.	Willowherb									X						
Epilobium tetragonum	Square-stalked willowherb				X							X				
Galium aparine	Cleavers			X		X			X	X					X	X
Helminthotheca echioides	Bristly oxtongue		X							X						
Heracleum sphondylium	Hogweed															X
Hypericum sp.	St John's-wort															X
Lamium purpureum	Red dead-nettle									X						
Lapsana sp.	Nipplewort										X					
Malva sp.	Mallow					X				X	X					
Pentaglottis sempervirens	Green alkanet									X						
Plantago lanceolata	Ribwort plantain									X						
Pulicaria dysenterica	Common fleabane					X				X						
Rumex obtusifolius	Broad-leaved dock	X		X	X											
Rumex sp.	Dock							X								
Senecio vulgaris	Groundsel									X						
Silene dioica	Red campion														X	
Silene latifolia	White campion														X	
Sisymbrium officinale	Hedge mustard										X					
Solanum dulcamara	Bittersweet	X														
Sonchus asper	Prickly sowthistle		X							X						
Stellaria media	Common chickweed									X						
Smyrnium olusatrum	Alexanders	X				X					X			X		
Tamus communis	Black bryony					X								X	X	
Urtica dioica	Common nettle		X	X	X	X	X	X						X	X	X
Grasses																
Anisantha sterilis	Barren brome										X	X				X
Arrhenatherum elatius	False oat-grass	X	X	X	X			x		X	X	X		X		X
Brachypodium sylvaticum	False brome	X	X	X	X	X	X	X	X			X				
Dactylis glomerata	Cock's-foot	X	X		X			X	X	X		X		X		X
Elytrigia repens	Common couch	X				X			X			X				
Holcus lanatus	Yorkshire-fog						X									
Hordeum murinum	Wall barley										X					
Lolium perenne	Perennial rye-grass										X				X	
Woody Species																

Scientific Name	Common Name	Habitat Parcel Number/Habitat Type														
		H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15
Coniferous																
Cupressus macrocarpa	Monterey cypress							X								
Broadleaved																
Acer campestre	Field maple	X	X	X		X	X	X	X		X	X	X	X	X	X
Acer pseudoplatanus	Sycamore		X	X	X	X			X		X	X	X			
Aesculus hippocastanum	Horse-chestnut	X														
Carpinus betulus	Hornbeam		X	X			X	X								
Cornus sp.	Dogwood	X				X	X			X				X		
Corylus avellana	Hazel	X												X		
Crataegus monogyna	Hawthorn	X	X	X	X	X	X		X	X	X	X		X	X	X
Euonymus europaeus	Spindle	X														X
Fraxinus excelsior	Ash	X		X		X			X		X	X		X	X	
Hedera helix	Ivy	X		X	X	X			X	X	X	X		X	X	X
Ilex aquifolium	Holly													X		
Juglans regia	Walnut			X							X					
Malus sp.	Apple	X														
Malus sylvestris	Crab Apple	X														
Populus sp.	Poplar		X													
Prunus avium	Cherry				X											
Prunus cerasifera	Cherry plum				X	X										
Prunus domestica	Plum	X		X		X			X							
Prunus domestica ssp. insititia	Damson	X		X												
Prunus Spp.	Laurel							X			X					
Prunus spinosa	Blackthorn	X	X	X		X	X	X	X	X	X		X	X	X	X
Quercus robur	Pedunculate oak								X	X						
Quercus sp.	Oak	X				X			X	X	X			X	X	
Rosa arvensis	Field-rose		X	X		X				X				X	X	
Rosa canina sp.	Dog-rose	X						X	X	X	X				X	
Rosa sp.	Rose	X		X		X			X					X		
Rubus fruticosus agg.	Bramble	X	X	X		X		X	X	X	X	X	X	X	X	X
Salix sp.	Willow						X									
Sambucus nigra	Elder	X		X	X	X	X			X	X	X		X	X	
Symphoricarpos albus	Snowberry	X														
Ulmus glabra	Wych elm						X									
Ulmus procera	English elm										X		X		X	X
Ulmus sp.	Elm	X	X	X	X	X			X	X		X		X		

Appendix F

Evaluation & Assessment Methods

1.1. Ecological features are evaluated and assessed in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) 2018 Guidelines for Ecological Impact Assessment (EcIA). For clarity, the evaluation and assessment process adopted within this EcIA is set out below.

Establishing Potentially Important Ecological Features

1.2. Ecological features are assessed where they are considered to be important, and where they may be impacted by a proposed development. A feature may be considered important for a variety of reasons, such as quality, extent, rarity and/or statutory protection. Table 1 below sets out a non-exhaustive list of ecological features that are typically considered, along with key examples:

Table 1. Potentially important ecological features (adapted from CIEEM 2018)

Potentially Important Ecological Features	Typical examples
Statutory designated sites under international conventions or European Legislation	Wetlands of International Importance (Ramsar sites), Special Areas of Conservation (SAC), Special Protection Areas (SPA)
Statutory designated sites under national legislation	Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR, Local Nature Reserves (LNR)
Non-statutory, locally designated wildlife sites	Local Wildlife Sites (CWS), County Wildlife Sites (CWSs), Sites of Importance for Nature Conservation (SINCs)
National biodiversity lists	Habitats or Species of Principal Importance for the Conservation of Biodiversity (Section 41, NERC Act 2006), Ancient Woodland Inventory
Local biodiversity lists	Local Biodiversity Action Plan (BAP) priority species or habitats
Red Listed / Rare Species	Species of conservation concern, Red Data Book (RDB) species, Birds of Conservation Concern, nationally rare and nationally scarce species
Legally Protected Species	E.g. species listed under Sch.5 of the W&C Act 1981, or Sch.2 of the Hag. Regs. 2017
Legally Controlled Species	E.g. species listed under Sch.9 of the W&C Act 1981

1.3. It should also be noted that the social, community, economic or multi-functional importance attributed to ecological features are not assessed as they fall outwith the scope of this assessment.

Establishing Likely Zone of Influence

1.4. The 'zone of influence' for a project is the area over which ecological features may be subject to significant effects as a result of the project and associated activities. The project's zone of influence varies across different ecological features, which have different vulnerabilities and

sensitivities. For the purposes of this assessment, the following zones were considered:

- International statutory nature conservation designations up to 10km from the Site
- National and local statutory nature conservation designations up to 3km from the Site
- Non-statutory locally designated wildlife sites up to 1km from the Site

1.5. These arbitrary distances are considered sufficient for identifying the nature conservation designations which could be subject to significant effects. However, it is acknowledged that in certain circumstances effects beyond these distances are possible and should be considered as far as is reasonably practicable to do so.

1.6. For other ecological features, such as habitats and species, the appropriate zone of influence is described and justified as appropriate within the report, depending on their respective sensitivity to an environmental change.

1.7. The results of professionally accredited or published scientific studies have been used and referenced, where available, to establish the spatial and temporal limits of the biophysical changes likely to be caused by specific activities, and to justify decisions about the zone of influence.

Geographic Context and Significance Criteria

1.8. The importance of ecological features, as well as the significance of any likely impacts and their effects, are considered here within a defined geographic context:

- International
- National
- Regional
- County
- Local

1.9. The size, conservation status and the quality of features are all relevant in determining their importance and assigning this to the geographic scale. Where the importance of a feature is considered to fall below the Local scale, they are scoped out of detailed assessment.

1.10. Impacts and their effects are taken to be significant where they support or undermine biodiversity conservation objectives, with the scale of significance defined according to the above geographic context. Where an impact or effect is unlikely to be perceptible at a Local scale, this is taken to be not significant.

Characterising Ecological Impacts and their Effects

1.11. Where likely significant ecological impacts and effects are identified in connection with the proposed project, these are considered and described with reference to the following characteristics (where this is helpful in accurately portraying the ecological effect and determining the scale of significance):

- Positive or negative (i.e. does the anticipated change accord with nature conservation policies and objectives?)
- Extent (i.e. the spatial area over which the impact or effect may occur)
- Magnitude (i.e. the quantified size, amount, intensity or volume)
- Duration (i.e. the timeframe over which the impact or effect may occur, in both human and ecological terms)
- Frequency and timing (i.e. the number of times an activity occurs, where this is likely to influence the effect)
- Reversibility (i.e. is spontaneous recovery possible or may the effect be counteracted by mitigation?)

Appendix G

Biodiversity Metric

Humber Doucy Lane, Ipswich

Return to results menu

Headline Results

Scroll down for final results ⚠

On-site baseline	*Habitat units*	72.28		
	Hedgerow units	43.88		
	Watercourse units	0.00		
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	72.68		
	Hedgerow units	51.47		
	Watercourse units	0.00		
On-site net change (units & percentage)	*Habitat units*	0.40	0.55%	On-site net gain is less than target set ⚠
	Hedgerow units	7.59	17.29%	
	Watercourse units	0.00	0.00%	
Off-site baseline	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Off-site net change (units & percentage)	*Habitat units*	0.00	0.00%	
	Hedgerow units	0.00	0.00%	
	Watercourse units	0.00	0.00%	
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.40		
	Hedgerow units	7.59		
	Watercourse units	0.00		
Spatial risk multiplier (SRM) deductions	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		

FINAL RESULTS

Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.40	
	Hedgerow units	7.59	
	Watercourse units	0.00	
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	0.55%	Total net gain achieved is less than target set ▲
	Hedgerow units	17.29%	
	Watercourse units	0.00%	
Trading rules satisfied?	Yes ✓		

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	72.28	79.51	6.83	
Hedgerow units	10.00%	43.88	48.27	0.00	No additional hedgerow units required to meet target ✓
Watercourse units	10.00%	0.00	0.00	0.00	No additional watercourse units required to meet target ✓

Input errors/rule breaks present in metric ▲

Site boundary

Other neutral grassland (g3c)

Modified grassland (g4)

Quadrat Locations (with number)

0 25 50 m

[redacted]

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Project	Land East of Humber Doucy Lane, Ipswich	Date	Feb 2024	Drawing No.	CSA/6675/121
Drawing Title	Quadrat Locations	Scale	Refer to scale	Rev	-
Client	Barratt David Wilson & Hopkins Homes	Drawn	MD	Checked	CH

Table 2. Grassland quadrat species lists

Site Name	6675 Land east of Humber Doucy Lane, Ipswich																			
Survey Date and Surveyor(s)	15/09/2023 Carly Howes ACIEEM and Matthew Dale ACIEEM; 27/10/2023 Matthew Dale																			
Scientifc name	Common name *Species to be excluded in the Statutory Condition Assessment	Other neutral grassland (g3c); Field 1 (A)	Q1	Q2	Q3	Q4	Q5		Other neutral grassland (g3c); Field 1 (B)	Q1	Q2	Q3	Q4	Q5	Modified grassland (G4); Field F3	Q1	Q2	Q3	Q4	Q5
Herb Species																				
Achillea millefolium	Yarrow														X					
Agrimony eupatoria	Common agrimony														X					
Alliaria petiolata	Garlic mustard								X											
Anthriscus sylvestris	Cow parsley*	X		O	O		O		X						X					
Arctium sp.	Burdock	X							X											
Bryonia dioica	White bryony	X				O														
Cerastium sp.	Common mouse-ear								X											
Cirsium arvense	Creeping thistle*	X	O			O			X						X					
Cirsium vulgare	Spear thistle*														X					
Galium aparine	Cleavers	X																		
Geranium dissectum	Cut-leaved crane's-bill	X							X					R	X					R
Geranium molle	Dove's-foot crane's-bill	X													X			R		
Glechoma hederacea	Ground-ivy		O																	
Helminthotheca echioides	Bristly oxtongue	X							X		O									
Heracleum sphondylium	Hogweed	X		O																
Hypericum perforatum	Perforate St John's-wort	X																		
Hypericum sp.	St John's-wort								X											
Lamium album	White dead-nettle	X																		
Lamium purpureum	Red dead-nettle														X					
Lapsana sp.	Nipplewort	X																		
Leontodon sp.	Hawkbit														X	F	O			
Lotus corniculatus	Common bird's-foot-trefoil														X					
Malva sylvestris	Common mallow														X					
Medicago arabica	Spotted medick								X					R						
Myosotis arvensis	Field forget-me-not								X											
Pentaglottis sempervirens	Green alkanet	X													X					
Plantago lanceolata	Ribwort plantain	X							X		O		O	R	X	F				
Plantago major	Greater plantain*														X		O		R	
Ranunculus repens	Creeping buttercup*	X					O		X					O	X					O
Raphanus raphanistrum ssp. raphanistrum	Wild radish														X					
Ranunculs acris	Meadow buttercup								X					O						
Rumex obtusifolius	Broad-leaved dock*	X			O				X											
Rumex sp.	Dock	X							X			O								
Senecio jacobaea	Common ragwort	X							X											
Senecio sp.	Ragwort sp.								X		O									
Taraxacum agg.	Dandelion	X													X	O	O	O	O	O
Trifolium pratense	Red clover																	O		
Trifolium repens	White clover*	X							X	F				F	X	O	O	F	F	O
Tripleurospermum inodorum	Scentless mayweed	X													X					
Urtica dioica	Common nettle*	X		O	F				X	O		O			X					
Veronica chamaedrys	Germander speedwell								X	R				F						
Vicia sp.	Vetch	X					O		X			O		R						
Grasses																				
Arrhenatherum elatius	False oat-grass	X	F	A	A	D	A		X	O	F	A		O	X					
Brachypodium sylvaticum	False brome								X											
Bromus hordeaceus	Soft-brome	X													X					

Dactylis glomerata	Cock's-foot	X				O			X	A	D	O	F		X					
Elytrigia repens	Common couch	X	A												X					
Festuca sp.	Fescue								X		O		A	F						
Holcus lanatus	Yorkshire-fog	X					F		X	O				F						
Hordeum murinum	Wall barley								X						X					
Lolium perenne	Perennial rye-grass	X							X						X	F	F	A	O	F
Phleum pratense	Timothy														X					
Poa pratensis	Smooth meadow-grass																	R		
Poa sp.	Meadow-grass														X	A				
Woody Species																				
Broadleaved																				
Crataegus monogyna	Hawthorn	X																		
Prunus spinosa	Blackthorn								X				R							
Rosa arvensis	Field-rose	X																		
Rosa sp>	Rose								X				R	R						
Rubus fruticosus agg.	Bramble	X							X											
AVERAGE (Number of Species (1x1m quadrat)			**4.2**							**6.80**						**5.20**				
TOTAL Number of species (1x1m quadrat)			4	4	4	4	5			6	6	5	5	12		6	5	6	4	5
AVERAGE Number of species (1x1 quadrat) - removing undesirable species			**2.6**							**5.80**						**3.40**				
Total Number of spcies (1x1 quadrat) - removing undesirable species			3	2	1	3	4			4	6	4	5	10		5	3	4	2	3

The DAFOR scale was used in the 2023 surveys and was updated in the total species column. D=Dominant, A=Abundant, F=Frequent, O=Occasional, F=Frequent. X=DAFOR was NOT collected.

Condition Sheet: GRASSLAND Habitat Type (medium, high and very high distinctiveness)

UK Habitat Classification (UKHab) Habitat Types

Grassland - Lowland calcareous grassland
Grassland - Lowland dry acid grassland
Grassland - Lowland meadows
Grassland - Other lowland acid grassland
Grassland - Other neutral grassland
Grassland - Tall herb communities (H6430) [Not to be confused with the Tall forbs secondary code – see UKHab guidance for details.]
Grassland - Upland acid grassland
Grassland - Upland calcareous grassland
Grassland - Upland hay meadows
Sparsely vegetated land - Calaminarian grassland

Habitat Description

ukhab – UK Habitat Classifica

On-site or off-site, site name and location	On-site - Land East of Humber Doucy Lane, Ipswich	**Survey date and Surveyor name**	28/09/2023 Carly Howes and Matthew Dale
		Survey reference (if relating to a wider survey)	
Limitations (if applicable)		**Habitat parcel reference**	
		Area A	Area B
		Grid reference	

	Condition Assessment Criteria	**Criterion passed (Yes or No)**		**Notes (such as justification)**
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description).[1] **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	No	Yes	Area A only meets two of the essential criteria (3 and 4).
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	No	Yes	
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens[2].	Yes	Yes	
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	Yes	Yes	
E	Combined cover of species indicative of suboptimal condition[3] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) are present, this criterion is automatically failed.	No	No	
	Additional Criterion - must be assessed for all non-acid grassland types			
F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	No	No	
	Essential criterion for Good condition achieved (for non-acid	No	No	
	Number of criteria passed	3	4	

Condition Assessment Resi	**Condition Assessment Score**	**Score Achieved ×/✓**	
Non-acid grassland types (Result out of 6 criteria)			
Passes 5 or 6 criteria, including essential criterion A and additional criterion F.	Good (3)		
Passes 3 - 5 criteria, including essential criterion A.	Moderate (2)		✓
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)	✓	

Suggested enhancement interventions to improve condition score

Notes

Footnote 1 - Professional judgement should be used alongside the UKHab description.

Footnote 2 – For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover.

Footnote 3 - Species indicative of suboptimal condition for this habitat type include: creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris*. There may be additional relevant species local to the region and or site.

Footnote 4 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.

Footnote 5 – Wildlife and Countryside Act 1981 (as amended).

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)

UK Habitat Classification (UKHab) Habitat Type

Grassland - Modified grassland

On-site or off-site, site name and location	On-site - Land East of Humber Doucy Lane, Ipswich	**Survey date and Surveyor name**	28/09/2023 Carly Howes and Matthew Dale
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference	TM 18935 46454	**Habitat parcel reference**	

Habitat Description

ukhab – UK Habitat Classificatic

	Condition Assessment Criteria	Criterion passed (Yes or No)	Notes (such as justification)
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2 (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	No	
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	No	
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Yes	
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Yes	
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	Yes	
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Yes	
G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	Yes	
	Essential criterion achieved (Yes or No)		No
	Number of criteria passed		5

Condition Assessment	Condition Assessment Score	Score Achieved ×/✓
Passes 6 or 7 criteria including passing essential criterion A	Good (3)	
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)	✓
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)	

Suggested enhancement interventions to improve condition score

Footnotes

Footnote 1 – Creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , creeping buttercup *Ranunculus repens* , greater plantain *Plantago major* , white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris* .

Footnote 2 – For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover.

Footnote 3 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.

Footnote 4 – Wildlife and Countryside Act 1981 (as amended).

Condition Sheet: SCRUB Habitat Type

Habitat Types

Heathland and shrub - Blackthorn scrub
Heathland and shrub - Gorse scrub
Heathland and shrub - Hawthorn scrub
Heathland and shrub - Hazel scrub
Heathland and shrub - Mixed scrub
Heathland and shrub - Dunes with sea buckthorn (H2160)
Heathland and shrub - Willow scrub

Habitat Description

For Dunes with sea buckthorn	Dunes with sea-buckthorn (Dunes with Hippophae rhamnoides) - Special Areas of Conservation (jncc.gov.uk)
For other scrub types see:	ukhab – UK Habitat Classification

On-site or off-site, site name and location	On-site - Land East of Humber Doucy Lane, Ipswich	**Survey date and Surveyor name**	21/09/2023 Carly Howes
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference	TM 18234 47043	**Habitat parcel reference**	

	Condition Assessment Criteria	Criterion passed (Yes or No)	Notes (such as justification)
A	The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range).[1] - At least 80% of scrub is native, - There are at least three native woody species[2], - No single species comprises more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* or box *Buxus sempervirens*, which can be up to 100% cover).	Yes	
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran[3]) shrubs are all present.	No	
C	There is an absence of invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) and species indicative of suboptimal condition[6] make up less than 5% of ground cover.	No	Frequent butterfly-bush
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	No	
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	Yes	
		Number of criteria passed	

Condition Assessment Result (out of 5 criteria)	Condition Assessment Score	Score Achieved ×/✓
Passes 5 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	
Passes 2 or fewer criteria	Poor (1)	✓

Suggested enhancement interventions to improve condition score

Footnotes

Footnote 1 – Professional judgement should be used alongside the UKHab description.

Footnote 2 – Native woody species as defined and listed in the Hedgerow Survey Handbook: DEFRA (2007) *Hedgerow Survey Handbook: A standard procedure for local surveys in the UK.* 2nd ed. [online]. Defra, London. PB1195. Available from: Hedgerow Survey Handbook (publishing.service.gov.uk).

Footnote 3 – See gov.uk standing advice on ancient and veteran species. Available from:

Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk) and

Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk)

Footnote 4 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.

Footnote 5 – Wildlife and Countryside Act 1981 (as amended).

Footnote 6 – Species indicative of suboptimal condition for this habitat type may include: non-native conifers, tree-of-heaven *Alianthus altissima*, holm oak *Quercus ilex*, European turkey oak *Quercus cerris*, cherry laurel *Prunus laurocerasus*, snowberry *Symphoricarpos* spp., shallon *Gaultheria shallon*, American skunk cabbage *Lysichiton americanus*, buddleia *Buddleja* spp., cotoneaster *Cotoneaster* spp., Spanish bluebell *Hyacinthoides hispanica* and hybrid bluebells *Hyacinthoides x massartiana*. There may be additional relevant species local to the region and or site.

Condition Sheet: WOODLAND Habitat Type

UK Habitat Classification (UKHab) Habitat Type(s)

Woodland and forest - Lowland beech and yew woodland
Woodland and forest - Lowland mixed deciduous woodland
Woodland and forest - Native pine woodlands
Woodland and forest - Other coniferous woodland
Woodland and forest - Other Scot's pine woodland
Woodland and forest - Other woodland; broadleaved
Woodland and forest - Other woodland; mixed
Woodland and forest - Upland birchwoods
Woodland and forest - Upland mixed ashwoods
Woodland and forest - Upland oakwood
Woodland and forest - Wet woodland

ukhab – UK Habitat Classification

This condition sheet is based on the England Woodland Biodiversity Group (EWBG) Woodland Condition Survey Method, available here:

Woodland Wildlife Toolkit (sylva.org.uk)

IMPORTANT: This biodiversity metric woodland condition assessment must be used to assess woodland being input into the biodiversity metric. The outputs of this condition assessment are not equivalent to, nor are they comparable with the scores from the EWBG condition assessment, because the EWBG assessment has been adapted for the biodiversity metric, including the removal of EWBG Indicator 7 (Proportion of favourable land cover around woodland) and Indicator 14 (Size of woodland), and minor changes to other indicators.

Site name and location	Land East of Humber Doucy Lane, Ipswich	**On-site or off-site**	On-site	**Habitat parcel reference**		
				W1	W2	
Limitations (if applicable)	-	**Survey reference (if relating to a wider survey)**	-	**Grid reference**		
				TM 18849 46856	TM 18689 47180	

Condition Assessment Criteria

Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator		Notes (such as justification)
A	**Age distribution of trees**	Three age-classes[1] present.	Two age-classes[1] present.	One age-class[1] present.	2	2	
B	**Wild, domestic and feral herbivore damage**	No significant browsing damage evident in woodland[2].	Evidence of significant browsing pressure is present in 40% or less of whole woodland[2].	Evidence of significant browsing pressure is present in 40% or more of whole woodland[2].	3	3	
C	**Invasive plant species**	No invasive species[3] present in woodland.	Rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* not present, other invasive species[3] <10% cover.	Rhododendron or cherry laurel present, or other invasive species[3] >10% cover.	3	3	
D	**Number of native tree species**	Five or more native tree or shrub species[4] found across woodland parcel.	Three to four native tree or shrub species[4] found across woodland parcel.	Two or less native tree or shrub species[4] across woodland parcel.	3	3	
E	**Cover of native tree and shrub species**	>80% of canopy trees and >80% of understory shrubs are native[5].	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native[5].	<50% of canopy trees and <50% of understory shrubs are native[5].	3	3	

F	**Open space within woodland**	10 - 20% of woodland has areas of temporary open space[6]. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted[7].	21 - 40% of woodland has areas of temporary open space[6].	<10% or >40% of woodland has areas of temporary open space[6]. But if woodland <10ha has <10% temporary open space, please see Good category[7].	3	3	
G	**Woodland regeneration**	All three classes present in woodland[8]; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland[8].	No classes or coppice regrowth present in woodland[8].	2	2	
H	**Tree health**	Tree mortality less than 10%, no pests or diseases and no crown dieback[9].	11% to 25% tree mortality and or crown dieback or low-risk pest or disease present[9].	Greater than 25% tree mortality and or any high-risk pest or disease present[9].	3	3	
I	**Vegetation and ground flora**	Recognisable NVC plant community[10] at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community[10] at ground layer present.	No recognisable woodland NVC plant community[10] at ground layer present.	2	2	
J	**Woodland vertical structure**	Three or more storeys across all survey plots, or a complex woodland[11].	Two storeys across all survey plots[11].	One or less storey across all survey plots[11].	1	2	
K	**Veteran trees**	Two or more veteran trees[12] per hectare.	One veteran tree[12] per hectare.	No veteran trees[12] present in woodland.	1	1	
L	**Amount of deadwood**	50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities[13].	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	1	1	

M	**Woodland disturbance**	No nutrient enrichment or damaged ground evident[14].	Less than 1 hectare in total of nutrient enrichment across woodland area and or less than 20% of woodland area has damaged ground[14].	More than 1 hectare of nutrient enrichment and or more than 20% of woodland area has damaged ground[14].	2	2	
				Total Score (out of a possible 39)	29	30	

Condition Assessment Result	**Condition Assessment Score**		**Result Achieved**	
Total score >32 (33 to 39)	Good (3)			
Total score 26 to 32	Moderate (2)	✓	✓	
Total score <26 (13 to 25)	Poor (1)			

Suggested enhancement interventions to improve condition score

Footnotes

Footnotes below refer to the EWBG woodland condition assessment methodology: EWBG (No date). *Assessing your Woodland's Condition* [online]. Available from: Woodland Wildlife Toolkit (sylva.org.uk)

When applying this condition sheet, good practice would be to use the methodology associated with the EWBG toolkit.

Footnote 1 - See EWBG method INDICATOR 1 for more information. If tree species is not a birch *Betula* sp., cherry *Prunus* sp. or *Sorbus* sp.: 0 - 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). For birch, cherry or *Sorbus* species; 0 - 20 years = Young; 21 - 60 years =Intermediate; >60 years = Old. A recognisable age-class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age-class' of young trees.

Footnote 2 - See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed.

Footnote 3 - See EWBG method INDICATOR 3 for more information. Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly.

Check for the presence of all plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), particularly the following invasive non-native species: American skunk cabbage *Lysichiton americanus*; Himalayan balsam *Impatiens glandulifera*; Japanese knotweed *Reynoutria japonica*; cherry laurel *Prunus laurocerasus*; shallon *Gaultheria shallon*; snowberry *Symphoricarpos albus*; variegated yellow archangel *Lamiastrum galeobdolon subsp. argentatum*; rhododendron *Rhododendron ponticum*; and tree-of-heaven *Alianthus altissima*.

Footnote 4 - See EWBG method INDICATOR 4 and Table 2 for more information. The number of different native tree or shrub species including young trees and shrubs. A list of commonly found native tree and shrub species is provided in Table 2. Not all species listed are native to all parts of the UK. Note a list of commonly found non-native tree species are also included and should be recorded if present.

Footnote 5 - See EWBG method INDICATOR 5 and for more information. The abundance of native tree species in upper (>5 m) and understorey (up to 5 m) layers including young trees and shrubs.

Footnote 6 - See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (for example, glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (for example, tarmac, buildings, rivers). Area is at least 10 m wide with less than 20% covered by shrubs or trees.

Footnote 7 – Given the increased ratio of edge habitat to woodland where the woodland is <10ha.

Footnote 8 - See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, but the regeneration indicator gathers additional information by considering regeneration potential - if seedlings, saplings and young trees are all present that means natural regeneration processes are happening.

Footnote 9 - See EWBG method INDICATOR 9 for more information and Table 3 for a list of diseases and pests and their risk level.

Footnote 10 - See EWBG method INDICATOR 10 directing to NVC key for more information. The 'UKHab to NVC translation table' in the UK Habitat Classification resources may also be useful to assess this.

Footnote 11 – This criterion looks at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer. There might be no storeys where the woodland has been felled. See EWBG INDICATOR 11 for more information.

Footnote 12 - See EWBG method INDICATOR 12 for more information. See gov.uk standing advice on ancient and veteran trees. Available from:

Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk)

and:

Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk)

Footnote 13 – See EWBG method INDICATOR 13 for more information. This includes logs, large dead branches on the forest floor and stumps (<1 m tall) >20 cm diameter at narrowest point and >50 cm long. Also includes standing dead trees (>1 m tall) and also deadwood on standing live trees. Diameter is measured at the narrowest point on the stem. Minimum diameter of 20 cm.

Footnote 14 - See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery, animal poaching or litter.

Appendix H

Hedgerows

Condition sheet: HEDGEROW Habitat Types

Habitat Type

Native hedgerow
Native hedgerow - associated with bank or ditch
Native hedgerow with trees
Native hedgerow with trees - associated with bank or ditch
Species-rich native hedgerow
Species-rich native hedgerow - associated with bank or ditch
Species-rich native hedgerow with trees
Species-rich native hedgerow with trees - associated with bank or ditch

Habitat Description

See the Statutory Biodiversity Metric Technical Annex 2 and UK Habitat Classification: ukhab – UK Habitat Classification

On-site or off-site, site name and location	On-site - Haresfoot Farm, Berkhamsted	**Survey date and Surveyor name**	09/08/2023 Carly Howes and Matthew Dale
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	

Condition Assessment Details

A series of ten attributes, representing key physical characteristics are used for this assessment. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.

This assessment is based on the Hedgerow Survey Handbook[1] and Favourable Conservation Status document[2]. For further clarification please refer to the Hedgerow Survey Handbook.

Best practice would be to record the species, age, spacing and other key information about all trees present along a hedgerow within the 'Habitat Description' box, as well as other key features of the hedgerow.

Hedgerow favourable condition attributes

Attributes and functional groupings (A, B, C, D and E)		**Criteria - the minimum requirements for 'favourable condition'**	**Criteria description**	**Habitat parcel reference**															
				H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15	
				Grid reference															
Core groups - applicable to all hedgerow types				**Criterion passed (Yes or No)**															**Notes (such as justification)**
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn *Prunus spinosa* suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	

B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small)	Pass	Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Fail	
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	Pass	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Fail	Fail	Fail	Fail	Fail	Fail	Fail	
C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles *Urtica* spp., cleavers *Galium aparine* and docks *Rumex* spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA[3]) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website[4], as well as the BSBI website[5] where the 'Online Atlas of the British and Irish	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
Additional group - applicable to hedgerows with trees only																				
E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient[6]), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.	Pass	Fail	Pass	-	Pass	-	-	-	-	Pass	Pass	-	-	Pass	-	
E2.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	Pass	Pass	Pass	-	Pass	-	-	-	-	Pass	Pass	-	-	Pass	-	

The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the Statutory Biodiversity Metric. The scores for each are set out in the tables below.

Condition categories for hedgerows without trees

Category	Category Requirements	Metric Score
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 4 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and C2 = Moderate condition).	2
Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1

Score achieved:				Good		Good	Good	Good	Good			Good	Good		Good

Condition categories for hedgerows with trees

Category	Category Requirements	Metric score
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 5 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1, C2 and E1 = Moderate condition).	2
Poor	Fails a total of more than 5 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1

Score achieved:	Good	Good	Good		Good					Good	Good			Good	

Suggested enhancement interventions to improve condition score

Footnotes

Footnote 1 – DEFRA (2007) *Hedgerow Survey Handbook. A standard procedure for local surveys in the UK.* [online] Available on:
layout (hedgelink.org.uk)

Footnote 2 – STALEY, J.T. ET AL. (2020) *Definition of Favourable Conservation Status for Hedgerows.* [online] Available on:
Definition of Favourable Conservation Status for Hedgerows - RP2943 (naturalengland.org.uk)

Footnote 3 – Wildlife and Countryside Act 1981 (as amended).

Footnote 4 – CHEFFINGS, C. M. et al. (2005) *The Vascular Plant Red Data List for Great Britain.* Species Status 7: 1-116. [online] Available on:
The Vascular Plant Red Data List for Great Britain (Species Status No. 7) | JNCC Resource Hub

Footnote 5 – BOTANICAL SOCIETY OF BRITAIN AND IRELAND (BSBI). *Definitions: wild, native or alien?* [online] Available on:
Definitions: wild, native or alien? – Botanical Society of Britain & Ireland (bsbi.org)

Footnote 6 – BSBI and Biological Records Centre (BRC) (2022) *Online Atlas of the British and Irish Flora.* [online] Available on:
Acknowledgements | Online Atlas of the British and Irish Flora (brc.ac.uk)

Footnote 7 – GB NON-NATIVE SPECIES SECRETARIAT (GBNNSS) (2022) Available on:
Home » NNSS (nonnativespecies.org)

Footnote 8 – See gov.uk standing advice on ancient and veteran trees. Available from:
Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk)
and
Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk)

1.0 Legislation

1.1 All hedgerows consisting predominantly (i.e. 80% or more cover) of at least one woody UK native species are categorised as habitats of Principal Importance under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act (2006). Hedgerows are also assessed under the Hedgerows Regulations 1997.

1.2 The term 'hedgerow' is not defined in the Hedgerows Regulations, but is defined in the Hedgerow Survey Handbook (Defra, 2007) as:

"…any boundary line of trees or shrubs over 20m long and less than 5m wide at the base, provided that at one time the trees or shrubs were more or less continuous. It includes an earth bank or wall only where such a feature occurs in association with a line of trees or shrubs. This includes 'classic' shrubby hedgerows, lines of trees, shrubby hedgerows with trees and very gappy hedgerows (where each shrubby section may be less than 20m long, but the gaps are less than 20m)."

1.3 The Hedgerows Regulations are aimed primarily at countryside hedgerows and apply to:

"…any hedgerow growing in, or adjacent to, any common land, protected land, or land used for agriculture, forestry or the breeding or keeping of horses, ponies or donkeys, if:

- *it has a continuous length of, or exceeding, 20m; or*
- *it has a continuous length of less than 20m AND, at each end, meets (whether by intersection or junction) another hedgerow."*

1.4 In terms of length of hedgerows and their measurement:

- Each hedgerow is to be regarded as starting and/or ending at the point where it forms a junction or intersection with another hedgerow.
- Gaps are also treated as part of a hedgerow if there are 20m or less or have been made in contravention of the Regulations. A gap is defined as an opening, whether or not it is filled (i.e. by a gate).

1.5 The Hedgerows Regulations do not apply to garden hedges i.e. those which lie within the curtilage of, or mark the boundary of the curtilage of, a dwelling house.

2.0 Methods

2.1 The hedgerow assessment survey was undertaken on 15 September 2023 and 27 October 2023 by Carly Howes ACIEEM, Laura Farrar ACIEEM and Matthew Dale ACIEEM, encompassing all hedgerows within and bounding the Site.

2.2 The information collected via desktop and during the site survey, and the methods of assessment are based on the Criteria for Determining

'Important' Hedgerows as outlined within the Hedgerows Regulations. Species-richness is determined using criteria from the Hedgerow Survey Handbook. In addition to this a Condition Assessment of each hedgerow was undertaken in-line with the Statutory Biodiversity Metric (Natural England, 2024).

2.3 Each hedgerow was assigned a reference number H1 to H15, and the location of each hedgerow is shown on the Habitats Plan (CSA/6675/111).

Criteria for Determining 'Important' Hedgerows

Archaeological and Historical

- Marks a pre-1850 parish or township boundary
- Incorporates an archaeological feature
- Is part of, or associated with an archaeological site
- Mark the boundary of, or is associated with, a pre-1600 estate or manor
- Forms an integral part of a pre-Parliamentary enclosure field system

Wildlife and Landscape

- Includes certain categories of species of birds, animals or plants listed in the Wildlife and Countryside Act of Joint Nature Conservation Committee (JNCC) publications.
- Includes at least seven woody species, on average, in a 30m length, OR
- Includes at least six woody species, on average, in a 30m length and is associated with at least three of the Associated Features listed below.
- Includes at least six woody species including one of the following:
    - Native black-poplar *Populus nigra* ssp *betulifolia*
    - Large-leaved lime *Tilia platyphyllos*
    - Small-leaved lime *Tilia cordata*
    - Wild service-tree *Sorbus torminalis*
- Includes at least five woody species, on average, in a 30m length and be associated with at least four of the Associated Features listed below.

* List includes species native in part or all of the UK and those considered archaeophytes as per the Hedgerow Regulations and Hedgerow Survey Handbook

2.4 The number of woody species is reduced by one in northern counties. The list of 56 woody species comprises mainly of shrubs and trees. It generally excludes climbers and bramble, but includes wild roses.

2.5 Hedgerows that are located adjacent to a footpath, bridleway, or Road Used as a Public Path (RUPP), or byway open to all traffic AND include at least four specified woody species, on average, in a 30m length AND has at least two of the Associated Features listed below.

Associated Features

- A bank or wall that supports the hedgerow along at least one half of its length
- Gaps which in aggregate do not exceed 10% of the length of the hedgerow
- On average, at least one tree per 50m
- At least three woodland species (as listed on Schedule 2 of the Regulations) within 1m, in any direction, of the outermost edges of the hedgerow
- A ditch along at least one half of the length of the hedgerow
- Connections scoring four points or more. A connection with another hedgerow score one point; a connection with a pond or a woodland scores two points
- A parallel hedgerow within 15m of the hedgerow

Criteria for Determining 'Species-rich' Hedgerows

2.6 To determine species-richness, a 30m section of hedgerow is selected. Where the structural species making up the 30m section of hedgerow include at least five (or at least four in northern and eastern England, upland Wales and Scotland) woody species that are either native somewhere in the UK, or which are archaeophytes, the hedgerow is defined as species-rich. Climbers and bramble do not count towards the total except for roses *Rosa* sp.

Statutory Metric Condition Assessment

2.7 The Biodiversity Metric condition assessment criteria for hedgerows uses a series of ten attributes, representing key physical characteristics to determine whether a hedgerow is in favourable condition.

2.8 Each attribute is assigned to one of five functional groups (A-E), as indicated below, and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.

2.9 The hedgerow condition assessment generates a weighting (score) ranging from 1-3 which is used in the Biodiversity Metric 3.1. The scores places each hedgerow in a category of 'Good', 'Moderate' or 'Poor' condition.

Attributes

- A1. Height
- A2. Width
- B1. Gap – hedge base
- B2. Gap – hedge canopy continuity
- C1. Undisturbed ground and perennial vegetation
- C2. Undesirable perennial vegetation
- D1. Invasive and neophyte species

- D2. Current damage
- *E1. Tree age
- *E2. Tree health

* Additional group, applicable to hedgerows with trees only

Limitations

2.10 No limitations were identified during the surveys. The hedgerow surveys were conducted within the field survey period and during suitable weather conditions.

3.0 Results

3.1 H1, H2, H3, H5 and H10 all meet the criteria for 'Species-rich' hedgerow under the hedgerow regulations. H1, H5 and H14 all meet the criteria for 'Important' hedgerow. All hedgerows on-site are in 'Good' condition (as defined by the Statutory Biodiversity Metric Condition Assessment).

3.2 Full survey results are shown in Tables 2 and 3 below.

Table 1. Hedgerow Survey Results Overview

Number	Important Hedgerow? *(As defined by 'Hedgerow Regs')*	Species Rich? *(5 or more woody species along selected 30m section?)*	Condition: 'Good', 'Moderate' or 'Poor'? *(As defined by the Statutory Biodiversity Metric Condition Assessment)*
H1	✓	✓	Good
H2	x	✓	Good
H3	x	✓	Good
H4	x	x	Good
H5	✓	✓	Good
H6	x	x	Good
H7	x	x	Good
H8	x	x	Good
H9	x	x	Good
H10	x	✓	Good
H11	x	x	Good
H12	x	x	Good
H13	x	x	Good
H14	✓	x	Good
H15	x	x	Good

Table 2. Hedgerow Survey Results (H1 - H15)

Date of Survey	15/09/2023 & 27/10/2023
Surveyor(s)	Matthew Dale Fisc 3, Carly Howes and Laura Farrar

General Hedgerow Information	**H1**	**H2**	**H3**	**H4**	**H5**	**H6**	**H7**	**H8**	**H9**	**H10**
Hedgerow length (m)	360	65	192	52	340	115	40	490	130	200
Average height along length of hedgerow (m)	8	7	7	3	1.5	2	4	3	2.5	5
Average width at widest point of hedgerow (m)	2.5	2	4	3	3	2	1.5	2	2.5	3
Is woody component of hedgerow <5m at base?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Number of 30m sections for specified sampling technique	3	1	2	1	3	2	1	3	2	2
Average number of native woody species (following specified sampling technique)	6	5	6.5	3	5	4.5	2	4.6	3.5	5
Number of native woody species (along total length)	9	5	4	4	9	6	4	8	7	7
Species-rich hedgerow? (5 or more native woody species in 30m section)	Yes	Yes	Yes	No	Yes	No	No	No	No	Yes

Table 3. Assessment of Important Hedgerows (H1 - H15)

Application of Regulations	**H1**	**H2**	**H3**	**H4**	**H5**	**H6**	**H7**	**H8**	**H9**	**H10**
Does the hedgerow lie within, or mark the boundary to, a private garden?	No	Yes	Yes	Yes	No	No	Yes	No	No	No
Regulation 4: Criteria for determining "Important Hedgerows"										
Has the hedgerow existed for 30 years or more? (Consider age of trees/coppice and review aerial photography or historic mapping.)	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes
If so, does it meet one or more of the criteria listed in Part II of Schedule 1, listed below?	Yes	No	No	No	Yes	No	No	No	No	No
As such, is it an **Important Hedgerow**?	**Yes**	No	No	No	**Yes**	No	No	No	No	No
Schedule 1: Additional Criteria for Determining "Important Hedgerows"- Part II, Criteria										
Archaeology and history										
Has a desk-based assessment of historic/archaeological significance been undertaken?	No	No	No	No	No	No	No	No	No	No
If so, has the hedgerow been considered '**Important**' under these criteria?	-	-	-	-	-	-	-	-	-	-
Wildlife and Landscape										
Does the hedgerow 'contain' any of the following species, or are there records of these species (within the last five or ten years for animals or plants, respectively) with no subsequent *negative* records?:	No	No	No	No	No	No	No	No	No	No
Those listed in Part 1 of Schedule 1 (birds protected by special penalties e.g. barn owl), Schedule 5 (animals which are protected e.g. hazel dormouse) and schedule 8 (plants which are protected e.g. bluebell) of the Wildlife and Countryside Act 1981.	No	No	No	No	No	No	No	No	No	No
Those included on the Birds of Conservation Concern 'Red' or 'Amber' list. *(Primary legislation refers to the outdated 'Red Data Birds in Britain', 1990)*	No	No	No	No	No	No	No	No	No	No
Those categorised as 'endangered', 'extinct', 'rare' or 'vulnerable' in Red data books for Vascular Plants, Insect, Invertebrates other than insects (see primarily legislation for more details)	No	No	No	No	No	No	No	No	No	No
Does the hedgerow include at least 7 woody species? (Subject to specified sampling technique)	No	No	No	No	No	No	No	No	No	No
Does the hedgerow include 6 woody species and support at least 3 additional features, or 5 woody species and at least 4 of the following additional features, as set out below?:	No	No	No	No	Yes	No	No	No	No	No
Bank or wall which supports the hedge along half its length?	No	No	No	No	No	No	No	No	No	No
Gaps <10% aggregate length of hedgerows?	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
One standard tree per 50m?	Yes	Yes	Yes	No	Yes	No	Yes	No	No	Yes
At least three woodland (ground flora) species within 3m of the hedgerow?	No	No	No	No	No	No	No	No	No	No
Ditch along at least half hedgerow length?	No	No	No	No	Yes	No	No	Yes	No	No
At least 4 points based on the following: 1 point for 'connection' with another hedgerow and 2 points for connection with a pond or broadleaved woodland? (N.B. A hedgerow is considered connected when it meets or ends within 10m of another feature, where it would meet it if continued.)	No	No	No	No	No	No	No	No	No	No
Parallel hedgerow within 15m?	No	No	No	No	Yes	No	No	No	No	No
Does the hedgerow include at least 6 woody species including one of the following; black-poplar tree, large-leaved lime, small-leaved lime or wild service-tree?	No	No	No	No	No	No	No	No	No	No
Is the hedgerow adjacent to a bridleway or footpath?	Yes	No	No	No	Yes	No	No	No	No	No
Is the hedgerow adjacent to a bridleway or footpath and include at least four woody species and two additional features?	Yes	No	No	No	Yes	No	No	No	No	No
Schedule 2: Woodland Species (ground flora)	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**1**	**0**	**0**
Wood false-brome *Brachypodium sylvaticum*	✓	✓	✓	✓	✓	✓		✓		
Schedule 3: Woody Species (including species native in the UK and archaeophytes)^ **Species only found in Hedgerow Regulations* ***Species only found in Hedgerow Survey Handbook*	**9**	**5**	**4**	**4**	**9**	**6**	**4**	**8**	**7**	**7**
Ash *Fraxinus excelsior*	✓				✓			✓		✓
Beech *Fagus sylvatica*							✓			
Blackthorn *Prunus spinosa*	✓	✓	✓		✓	✓	✓	✓	✓	✓
Dog-rose *Rosa canina* sp.									✓	
Dogwood *Cornus sanguinea*	✓								✓	
Elder *Sambucus nigra*	✓		✓	✓	✓	✓			✓	✓
Elm *Ulmus species*	✓	✓	✓	✓	✓			✓	✓	✓
Hawthorn *Crataegus monogyna*	✓	✓		✓	✓	✓	✓		✓	✓
Hazel *Corylus avellana*										
Hornbeam *Carpinus betulus*		✓				✓				
Maple, field *Acer campestre*	✓	✓	✓		✓	✓	✓	✓		✓
Oak, pedunculate *Quercus robur*					✓			✓	✓	✓
Plum *Prunus domestica* ^**	✓							✓		
Rose *Rosa species*	✓				✓			✓		
Spindle *Euonymus europaeus*										
Sycamore *Acer pseudoplatanus* **				✓	✓			✓		
Willow *Salix sp.*						✓				

Table 3. Biodiversity Metric (Statutory) Condition Assessment of Hedgerows (H1 - H15)

Hedgerow Condition Assessment	**H1**	**H2**	**H3**	**H4**	**H5**	**H6**	**H7**	**H8**	**H9**	**H10**

Hedgerow Type	Native species rich hedgerow with trees	Native species rich hedgerow with trees	Native species rich hedgerow with trees	Native hedgerow	Native species rich hedgerow with trees - with bank or ditch	Native hedgerow	Native hedgerow	Native hedgerow - with bank or ditch	Native hedgerow	Native species rich hedgerow with trees
A1. Height >1.5m average along length	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
A2. Width >1.5m average along length	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
B1. Gap - hedge base, Gap between ground and base of canopy <0.5 m for >90% of length [unless 'line of trees']	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
B2. Gap - hedge canopy continuity. Canopy gaps <5m and <10% of total length [excluding access points and gates]	Pass	Fail	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
C1. Undisturbed ground and perennial vegetation. >1m width of undisturbed ground with perennial herbaceous vegetation for >90% of length [measured from outer edge of hedgerow], on at least 1 side of hedgerow	Pass	Pass	Fail	Fail	Pass	Pass	Pass	Pass	Fail	Fail
C2. Undesirable perennial vegetation. <20% of undesirable ground vegetation = nettle, cleavers & docks	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
D1. Invasive neophyte species. >90% of hedgerow and undisturbed ground vegetation is free of invasive non-native or neophyte [i.e. <10% invasives]	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
D2. >90% of hedgerow and undisturbed ground vegetation free of damage caused by human activities [i.e. pollution, manure, rubble, poor management]	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Hedgerows with Trees Only										
E1. Tree age. At least 1 mature tree per 30m stretch of hedgerow [i.e. at least 2/3 of expected fully mature height]	Pass	Fail	Pass	-	Pass	-	-	-	-	Pass
E2. Tree health. At least 95% of hedgerow trees are in a healthy condition [excluding veteran features valuable for wildlife]	Pass	Pass	Pass	-	Pass	-	-	-	-	Pass
Condition										
Poor, Moderate or Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

Appendix I

Bats

1.0 Legislation

1.1 All British bat species are legally protected under Regulation 43 of the Conservation of Habitats and Species Regulations 2017 (as amended). These Regulations make it an offence to:

- Deliberately capture, injure, or kill a bat
- Deliberately disturb bats, impairing their ability to survive, breed, reproduce or rear/nurture their young, or which significantly affects the local distribution or abundance of the species
- Damage or destroy a breeding site or resting place used by bats

1.2 All bats and their roosts in the UK were previously fully protected under the Wildlife & Countryside Act 1981 (as amended). Amendments to the Act have removed most provisions as they relate to bats, however it remains an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection

1.3 It is important to note that bat roosts are protected throughout the year, regardless of whether or not bats are present at the time. Under the Regulations, the offence of damaging or destroying a breeding site or resting place is subject to 'strict liability', i.e. an offence is commented irrespective of whether the causal act was deliberate or otherwise.

1.4 Where development is proposed that would result in an offence under the Regulations, a European Protected Species (EPS) statutory derogation licence (often termed 'EPS Mitigation Licence') will need to be secured from Natural England to permit an act that would otherwise be unlawful. Such a licence can only be granted following receipt of planning permission with all relevant conditions discharged, and where it has been demonstrated that specific statutory derogation tests have been met.

2.0 Methods

2.1 The following survey methods, design, data analysis and interpretation have been undertaken with due consideration of the Bat Conservation Trust (BCT) guidelines 3rd edition (Collins, 2016).

Preliminary Roost Assessment (PRA)

Trees

2.2 All trees to be affected by development were inspected from ground level, using binoculars, high-powered torches and ladder as appropriate. Particular attention was given to woodpecker holes, limb splits, lifting bark and mature ivy stems. The survey was completed on

Carly Howes ACIEEM (Bat Class Survey Licence WML-CL17, Registration Number 2021-55125-CLS-CLS) and David Willis on 17 January 2024.

2.3 A description of each tree was made, including the species, height, diameter at breast height and condition.

2.4 The aim of this inspection was to record direct (i.e. actual roosting bats) or indirect evidence of roosting bats (e.g. droppings), as well as the nature and number of features with 'potential' to support roosting bats. This includes consideration of trees to support bats whilst in hibernation.

Assessing 'Potential' of Trees to Support Roosting Bats

2.5 All trees were assigned to one of four categories in respect of their 'potential' to support roosting bats, or the confirmation of any bat roosts identified. 'Potential' in this context is taken to be the broad suitability of features to support roosting bats, based upon the nature, condition or structure of such features, in the absence of confirmed evidence of roosting.

2.6 Assigning the following categories is intended to determine the effort of any further targeted survey or inspections which are necessary to prove presence or likely absence of roosting bats, rather than to assign importance to such features.

2.7 The following categories are assigned to structures and/or trees herein, Either:

- *Confirmed Roost* – where one or more bat roosts are identified during PRA inspections, either through direct sightings of bats, and/or indirect evidence such as bat droppings. Or;
- *High* – A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
- *Moderate* – A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, assessments at this stage are made irrespective of species conservation status).
- *Low* – A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
- *Negligible* – Negligible habitat features on site likely to be used by roosting bats.

2.8 The potential of a tree or structure to support roosting bats is often influenced by its age and construction, thermal stability, lighting and levels of human activity. Furthermore, the proximity to foraging habitat - particularly woodland, parkland and wetland- as well as the presence of navigational routes (e.g. hedgerows, treelines and watercourses) influence both the potential for bats to roost, as well as the species which may roost. Professional judgement is therefore applied, based upon known factors which effect the potential of features to support roosting bats, insofar as determining the need or scope of further surveys or inspections.

Limitations

3.0 There were no specific limitations to the surveys, which were conducted at an optimum time of year and in good conditions.

Activity Surveys

Remote Monitoring

3.1 Four Wildlife Acoustics Songmeter (SM4) detector were deployed during September 2023 and May 2024 to provide a two data-sets. An additional monitoring period is scheduled in June 2024. The location of these Monitoring Locations (ML) is shown on Figure 1 below.

Figure 1. The locations of each Monitoring Location (ML) surveyed during remote monitoring surveys in September.

3.2 The detectors were setup to automatically record ultrasonic signals for the period from half an hour before sunset to half an hour after sunrise each night, with each monitoring period spanning at least five consecutive nights.

3.3 Weather conditions were obtained for each night surveyed using historic weather data from the World Weather Online website, with weather observations taken from the nearest weather station in Wattisham. The five nights showing the most optimal weather conditions (in terms of temperature, precipitation and wind speed, see Table 1) were taken forward for analysis.

3.4 Recordings are triggered when a bat echolocation call is detected and will contain a variable number of call 'pulses'. Each file containing call pulses by a bat/s is designated as a 'bat contact' for each species present. The maximum recording duration is 15 seconds after which time a new recording file, and thus a new bat contact, is generated if echolocation calls are still being detected. This means that periods of prolonged bat activity near a detector is represented as multiple bat contacts, rather than a single one.

3.5 Recorded bat calls were analysed using the specialist software AnalookW to identify the species present. Quantitative analysis of bat activity was then undertaken by calculating the average bat contacts per hour on each night monitored, for each species.

3.6 Bat activity can show considerable inter-night variability and is dependent on a number of variables, including temperature, wind, and seasonality, amongst others. To account for this variability the median values for the average hourly bat contacts per night are reported, rather than a mean value which would misrepresent the average activity.

Limitations

3.7 It should be noted that the findings described herein for remote monitoring surveys are based on the bat activity recorded at the location immediate to each detector, and therefore only describe localised activity at the Site.

3.8 In addition, comparisons drawn on the number of detector activations by different species/genera can only give an indication of relative species abundance at the Site, as detectability varies between species.

3.9 It is acknowledged that the quantum of bat contacts recorded during a survey may not give a true reflection of the abundance of bats using the Site. For example, a single bat foraging close to a detector may trigger several hundred activations in the course of one night. However, this activity level does provide a proxy for the level of use by bats, and therefore its relative importance.

3.10 The following report presents data from two time periods. A further monitoring period is due to occur in June 2024. This will be grouped with the data from September 2023 and May 2024 to form a complete dataset.

4.0 Results

Preliminary Roost Assessment (PRA)

Trees

4.1 No trees with bat roosting potential are scheduled to be removed according to the current proposals. All sections of hedgerow scheduled to be removed are of 'Negligible' potential to support roosting bats.

Activity Surveys

Remote Monitoring

4.2 The weather conditions experienced during the ten nights where data was analysed are provided in Table 1 below.

Table 1. Overnight weather conditions during remote monitoring

Survey Month	Dates Sampled (2023)	Temp. (°C)		Cloud Cover		Wind (km/h)		Precipitation
		Min	Max	Min	Max	Min	Max	
Sept	*15/09*	16.0	17.0	0	22	3.0	12.0	None
Sept	16/09	3.0	17.0	13	79	13.0	18.0	Moderate rain at 06:00
Sept	17/09	17.0	18.0	38	86	10.0	23.0	Very light rain at 21:00, light rain at 06:00 and moderate rain at 24:00.
Sept	18/09	13.0	15.0	6	82	22.0	27.0	None
Sept	19/09	17.0	17.0	100	100	32.0	36.0	None
May		10.0	11.0	99	100	3.0	12.0	Very light rain at 03:00 and light rain at 06:00
May		10.0	10.0	37	100	5.0	10.0	Very light rain at 00:00.
May		7.0	9.0	20	100	9.0	12.0	None
May		9.0	11.0	8	67	7.0	10.0	None
May		11.0	13.0	9	49	3.0	6.0	None

4.3 The total number of bat contacts recorded across all monitoring locations and monitoring periods for each bat species/genera are provided in Figure 2 below.

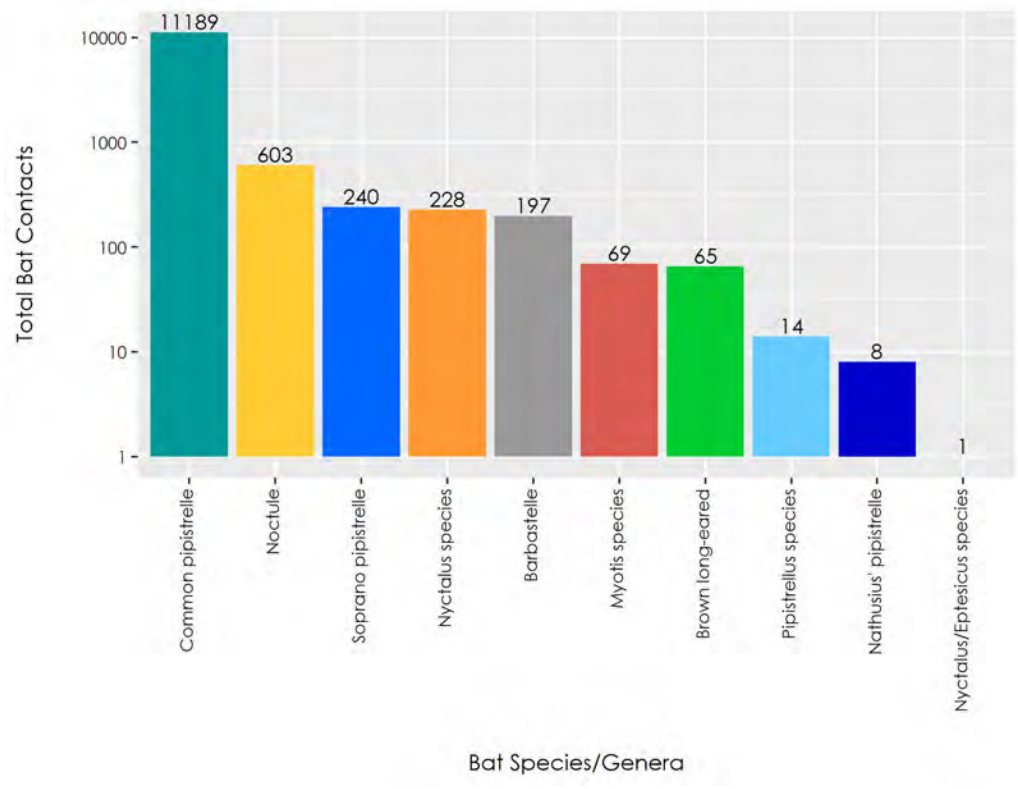


Figure 2. Total bat contacts by species/genera recorded across all remote monitoring periods and monitoring locations. Note log scale of X axis.

Table 2. Summary of bat contacts during the September 2023 and May 2024 monitoring period and monitoring locations.

Month	Barbastelle	Brown long-eared	Common pipistrelle	Myotis species	**Nathusius'** pipistrelle	Noctule	Nyctalus species	Nyctalus/Eptesicus species	Pipistrellus species	Soprano pipistrelle
September	98	13	3050	47	4	560	213	1	11	160
May	99	52	8139	22	4	43	15	0	3	80
Total	197	65	11189	69	8	603	228	1	14	240
Percentage of Total (%)	1.6	0.5	88.7	0.5	0.1	4.8	1.8	0.0	0.1	1.9

4.4 At least, six species of bat were identified during the two monitoring periods. In addition to this a number of contacts were recorded for bats which fall within the genera of *Pipistrellus*, *Myotis* and *Nyctalus* but were unidentifiable to species level. A single contact was also identified as 'big bat' which could not be identified to species level and is attributable to either of the *Nyctalus* species bats or serotine.

4.5 The vast majority of contacts are attributable to common pipistrelle *Pipistrellus pipistrellus* accounting for 88.7% of total contacts. The next

highest proportion of contacts were attributable to noctule *Nyctalus noctula* at 4.8% and soprano pipistrelle *P. pygmaeus* at 1.9%.

4.6 Lower levels of *Myotis* sp., and brown long-eared bat *Plecotus auritus* were also recorded. In addition, there were 197 contacts of barbastelle bat *Barbastella barbastellus* and eight contacts of Nathusius' pipistrelle *P. nathusii.*

4.7 Figure 3 below shows the variance in nightly activity levels for common. Figure 4 shows this data for each of the remaining bat species recorded on-site. More detailed data describing Figures 3 and 4 are provided in Table 3. The activity data is presented as boxplots for each bat species, which show the inter-night variability in bat activity across the 5 nights monitored. The median value (middle line of the boxplot) is taken as the typical level of activity for that species on-site at the point monitored. The length of each coloured boxplot is the interquartile range which shows the variance in nightly activity around the median value. The ends of each whisker line define the minimum and maximum nightly activity values recorded at the monitoring location. Outlying values are nightly activity levels that are greatly different when compared to the distribution of the remaining nightly activity levels. Outliers are illustrated as black points away from the boxplot. While important to note, these outliers do not represent the bat activity more commonly found at the Site for the species in question.

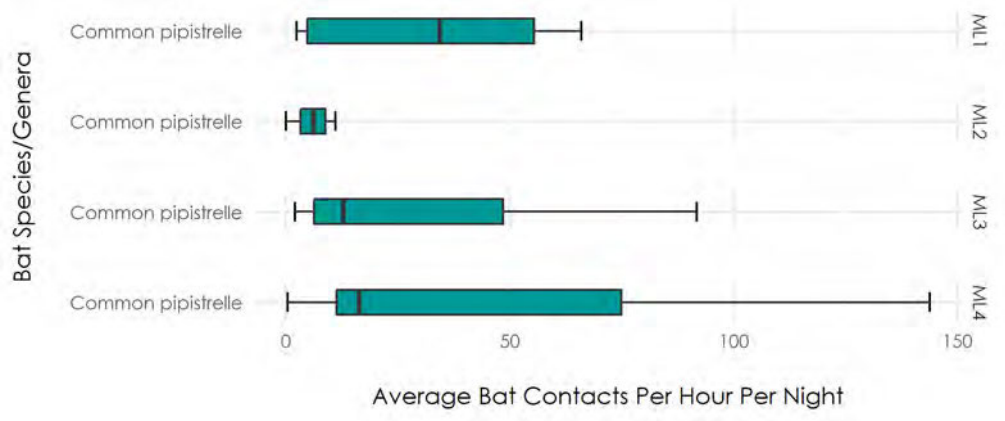


Figure 3. Average bat contacts per hour per night for each bat species/genera recorded across all remote monitoring

4.8 The number of contacts of common pipistrelle was highest at ML4, with a total of 4346 over the 10 monitoring days. ML4 has a median value of 16.252 average contacts per hour per night, with a maximum of 143.802 contacts per hour. Both ML1 and ML3 showed similar level of common pipistrelle contacts, with a total of 3154 and 3093 respectively. ML2 was found to have the lowest levels of common pipistrelle activity, both in terms of number of contacts (596), but also showing the lowest maximum average number of contacts per hour (11.054).

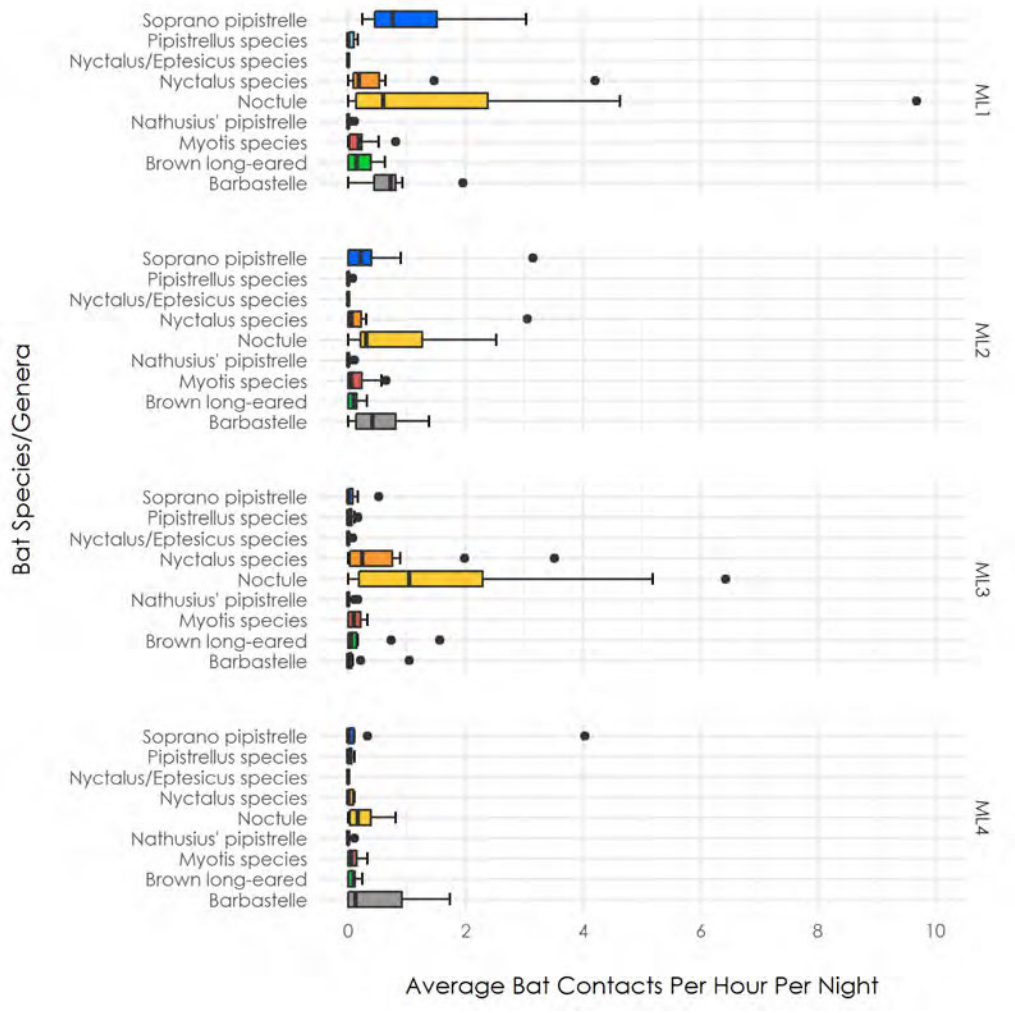


Figure 4. Average bat contacts per hour per night for each bat species/genera recorded across all remote monitoring

4.9 For majority remaining species and monitoring locations, the frequency of bat contacts at both monitoring locations suggests relatively low levels of bat activity, with a median of less than 1 contact per hour. Noctule at ML3 was the exception with all of these monitoring locations having a median of more than one contact per hour per night (1.035).

4.10 Barbastelle bat was detected at all monitoring locations with the highest number of contacts at ML1 (total of 77; medium of 0.723). Nathusius' pipistrelle was detected at lower levels with two contacts at ML1 and ML2, three contacts at ML3 and one contact at ML4 over the 10 survey nights.

Table 3. Average bat contacts per hour per night recorded during remote monitoring surveys

ML	Species	Average bat contacts per hour per night				Total bat contacts	Number of nights monitored
		Minimum	Maximum	Median	IQ range		
ML1	Barbastelle	0.000	1.948	0.723	0.365	77	10
ML1	Brown long-eared	0.000	0.620	0.145	0.384	20	10
ML1	Common pipistrelle	2.381	65.982	34.286	50.731	3154	10
ML1	Myotis species	0.000	0.812	0.183	0.212	25	10
ML1	Nathusius' pipistrelle	0.000	0.103	0.000	0.000	2	10
ML1	Noctule	0.000	9.683	0.598	2.248	255	10
ML1	Nyctalus species	0.000	4.206	0.183	0.444	87	10
ML1	Nyctalus/Eptesicus species	0.000	0.000	0.000	0.000	0	10
ML1	Pipistrellus species	0.000	0.160	0.000	0.097	6	10
ML1	Soprano pipistrelle	0.238	3.030	0.759	1.058	114	10
ML2	Barbastelle	0.000	1.380	0.410	0.676	56	10
ML2	Brown long-eared	0.000	0.313	0.091	0.148	11	10
ML2	Common pipistrelle	0.000	11.054	6.146	5.568	596	10
ML2	Myotis species	0.000	0.642	0.051	0.233	21	10
ML2	Nathusius' pipistrelle	0.000	0.104	0.000	0.000	2	10
ML2	Noctule	0.000	2.516	0.312	1.056	92	10
ML2	Nyctalus species	0.000	3.047	0.052	0.222	47	10
ML2	Nyctalus/Eptesicus species	0.000	0.000	0.000	0.000	0	10
ML2	Pipistrellus species	0.000	0.081	0.000	0.000	1	10
ML2	Soprano pipistrelle	0.000	3.145	0.206	0.394	62	10
ML3	Barbastelle	0.000	1.038	0.000	0.060	16	10
ML3	Brown long-eared	0.000	1.558	0.051	0.147	26	10
ML3	Common pipistrelle	2.016	91.745	12.803	42.208	3093	10
ML3	Myotis species	0.000	0.325	0.092	0.208	13	10
ML3	Nathusius' pipistrelle	0.000	0.162	0.000	0.000	3	10
ML3	Noctule	0.000	6.429	1.035	2.105	228	10
ML3	Nyctalus species	0.000	3.512	0.237	0.719	90	10
ML3	Nyctalus/Eptesicus species	0.000	0.080	0.000	0.000	1	10
ML3	Pipistrellus species	0.000	0.160	0.000	0.060	4	10
ML3	Soprano pipistrelle	0.000	0.522	0.000	0.078	8	10

ML4	Barbastelle	0.000	1.735	0.121	0.911	48	10
ML4	Brown long-eared	0.000	0.242	0.092	0.104	8	10
ML4	Common pipistrelle	0.397	143.802	16.252	63.626	4346	10
ML4	Myotis species	0.000	0.323	0.051	0.146	10	10
ML4	Nathusius' pipistrelle	0.000	0.103	0.000	0.000	1	10
ML4	Noctule	0.000	0.806	0.161	0.363	28	10
ML4	Nyctalus species	0.000	0.104	0.000	0.081	4	10
ML4	Nyctalus/Eptesicus species	0.000	0.000	0.000	0.000	0	10
ML4	Pipistrellus species	0.000	0.102	0.000	0.060	3	10
ML4	Soprano pipistrelle	0.000	4.032	0.000	0.098	56	10

1.0 Legislation

1.1 Badgers and their setts are protected under the Protection of Badgers Act 1992 which, in part, makes it an offence to:

- Kill, injure or take a badger
- Destroy or damage a badger sett or any part of it
- Obstruct access to, or any entrance of, a badger sett
- Disturb a badger whilst it is occupying a sett

1.2 Impacts to badgers and their setts should be avoided in the first instance by retaining setts and implementing an appropriate buffer distance to limit disturbance. Where this is not possible, a Natural England licensing system exists to permit certain works that would otherwise be illegal. This can include direct or direct impacts which may result in any of the above offences. Where a licence has been granted, permitted impacts to a badger sett can only be carried out between the months of July and November (inclusive) and following an agreed method statement.

2.0 Methods

2.1 A dedicated badger surveys were conducted on 27 October 2023 by Laura Farrar ACIEEM and Matthew Dale ACIEEM and on 17 January 2024 by Carly Howes ACIEEM and David Willis. An update badger survey was conducted by Laura Farrar ACIEEM on 08 March 2024. The badger surveys were conducted using standard survey methods, searching the Site and immediately adjacent areas for field signs of badger and mapping any present such as:

- Feeding signs such as snuffle entrances made during foraging
- Hairs caught on vegetation or fences
- Latrines, usually positioned on territorial boundaries
- Foraging tracks through vegetation or under fences
- Badger setts

2.2 [redacted]

[redacted]

3.0 [redacted]

[redacted]

Appendix J

Badger

1.0 Legislation

1.1 The dormouse is legally protected through inclusion under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded further protection as a European Protected Species (EPS) under Regulation 43 of the Conservation of Habitats and species Regulations 2017 (as amended).

1.2 Collectively and in summary, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture dormice
- Intentionally, deliberately or recklessly disturb dormice in such a way as to be likely to significantly affect the ability of any significant group of dormice to survive, breed, or rear or nurture their young or the local distribution of or abundance of the species
- Intentionally or recklessly damage, destroy or obstruct access to places used by dormice for shelter or protection (whether occupied or not) or intentionally or recklessly disturb a dormouse whilst it is occupying such a place
- Damage or destroy a breeding site or resting place of a dormouse.

1.3 Where development is proposed that would result in an offence under the Regulations, an EPS statutory derogation licence (often termed 'EPS Mitigation Licence') will need to be secured from Natural England to permit an act that would otherwise be unlawful. Such a licence can only be granted following receipt of planning permission with all relevant conditions discharged, and where it has been demonstrated that specific statutory derogation tests have been met.

2.0 Methods

2.1 Dormouse nest tubes were installed at the site on 31 August 2023 by Matthew Dale ACIEEM and Owen de Graaf. The intention of these surveys is to determine the presence or likely absence of dormice within suitable habitat across all areas of the Site that will be impacted by the proposals. A total of 50 dormouse nest tubes were distributed across the Site, along boundary vegetation, including hedgerows. The location of these nest tubes is shown on the Dormouse Survey Plan (CSA/6675/112).

2.2 Nest tubes are made from stiff, double-walled black plastic sheets or similar material, 25cm long with a 5cm x 5cm cross-section. A thin plywood tray is inserted into the tube with a short projection at one end and an end block at the other which seals the tube. The tubes are then tied in a suitable location along a horizontal branch in vegetation. Dormice are known to readily use these tubes to build their nests (Bright *et al.*, 2006).

2.3 Three (monthly) checks were carried out between September and November 2023, followed by two in April and May 2024, with to further surveys to be conducted ine June and July 2024. All surveys were

conducted accordance with the Dormouse Conservation Handbook 2nd ed. (Bright *et al.*, 2006) and intended to demonstrate a minimum combined 'search effort' score of 20, as based upon the indices of probability within Table 1 below upon completion of all visits. A search effort score of 20 is taken to be the minimum to adequately determine presence or likely absence of dormice within a survey area.

Table 1. Index of probability of finding dormice present in nest tubes in any one month

Month	Index of probability	Cumulative search effort score
April	1	1
May	4	5
June	2	7
July	2	9
August	5	14
September	7	21
October	2	23
November	2	25

2.4 Checks were undertaken by Carly Howes ACIEEM (Natural England Class Licence WML-CL10a – Registration Number 2017-28220-CLS-CLS), Laura Farrar ACIEEM and Matthew Dale ACIEEM. Bird droppings and other material such as wood mouse nests were cleaned out if found, to maintain the potential of each tube to be used by dormice.

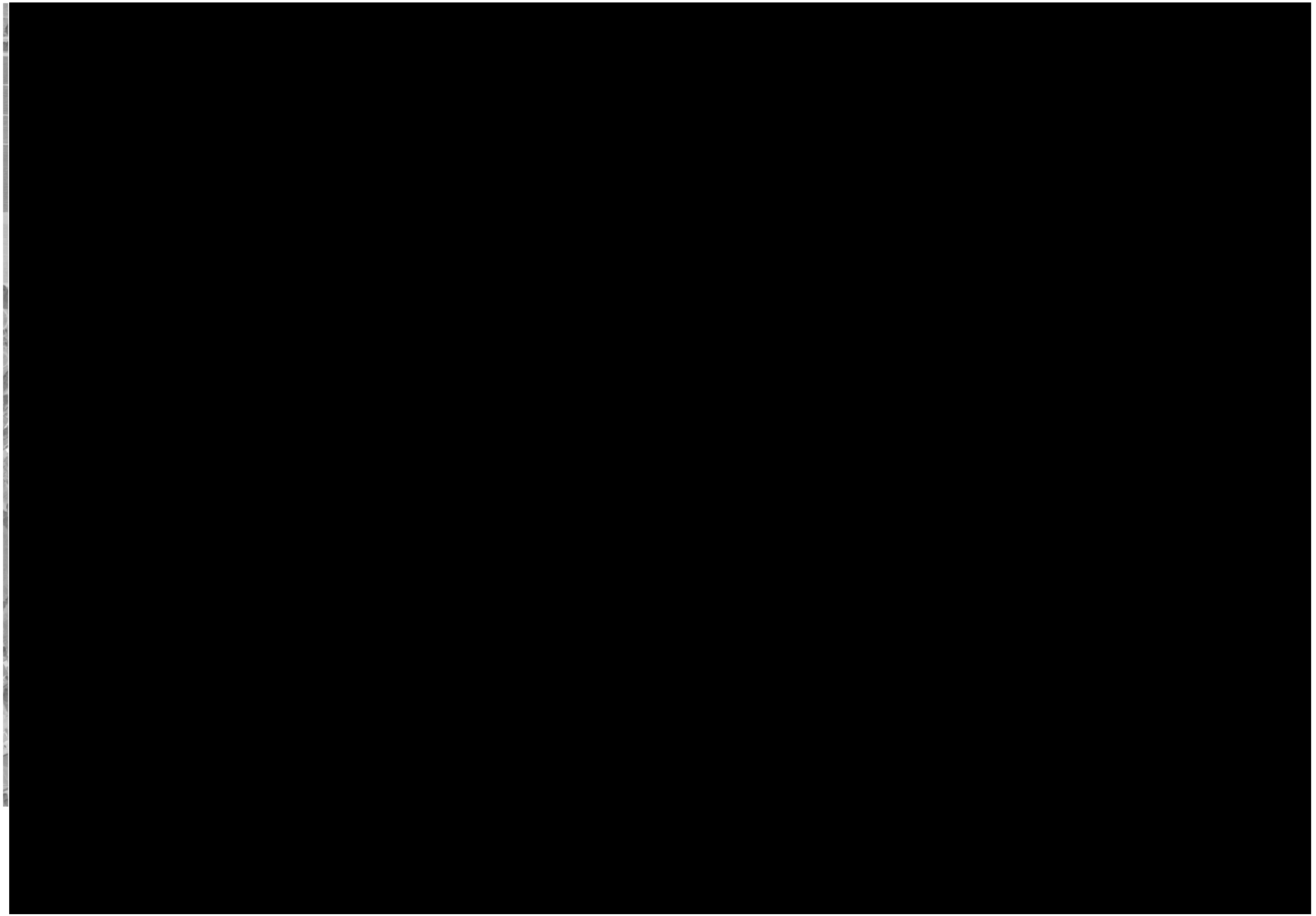
Limitations

3.0 There were no specific limitations to the dormouse surveys, which were conducted at an optimum time of year and in good conditions.

4.0 Results

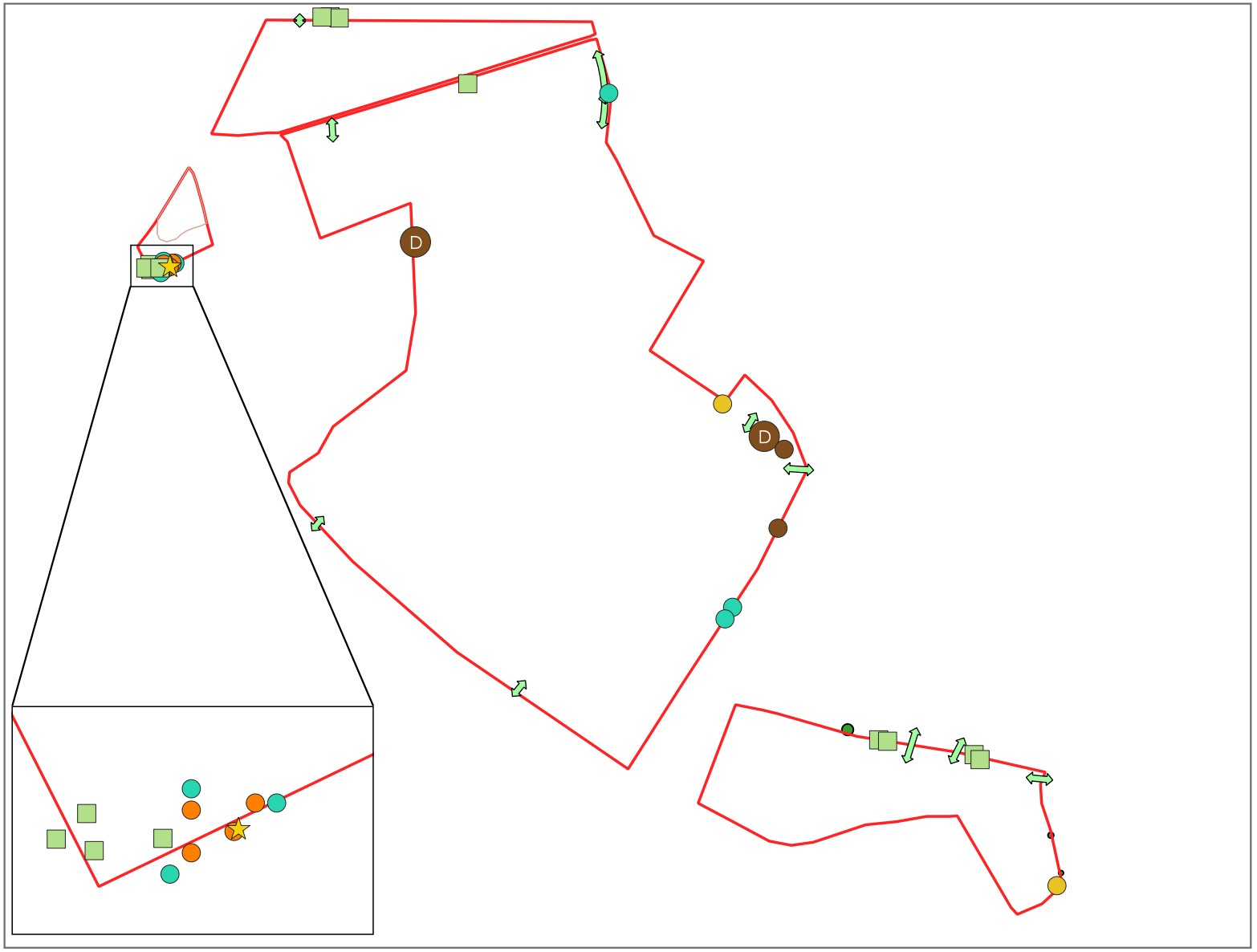
4.1 During the September to November 2023, as well as in April and May 2024 surveys no evidence to suggest hazel dormouse has been identified using the Site for foraging, breeding or nesting. Two further surveys are due to be conducted in June and July 2024 to reach a cumulative search effort score of 20. After this time, confirmed presence or likely absence of dormouse at the Site can be determined.

4.2 Numerous wood mouse *Apodemus sylvaticus* nests and caches were recorded within the dormouse boxes and were appropriately removed.



Appendix K

Dormouse



Site boundary

Badger evidence:

- Sett entrance
- Dung pit
- Badger hair

Other mammal evidence:

- Mammal hole
- Rabbit activity
- Evidence of fox
- Loose mammal dropping
- Mammal paths
- Inaccessible Areas

0 125 250 m

[redacted]

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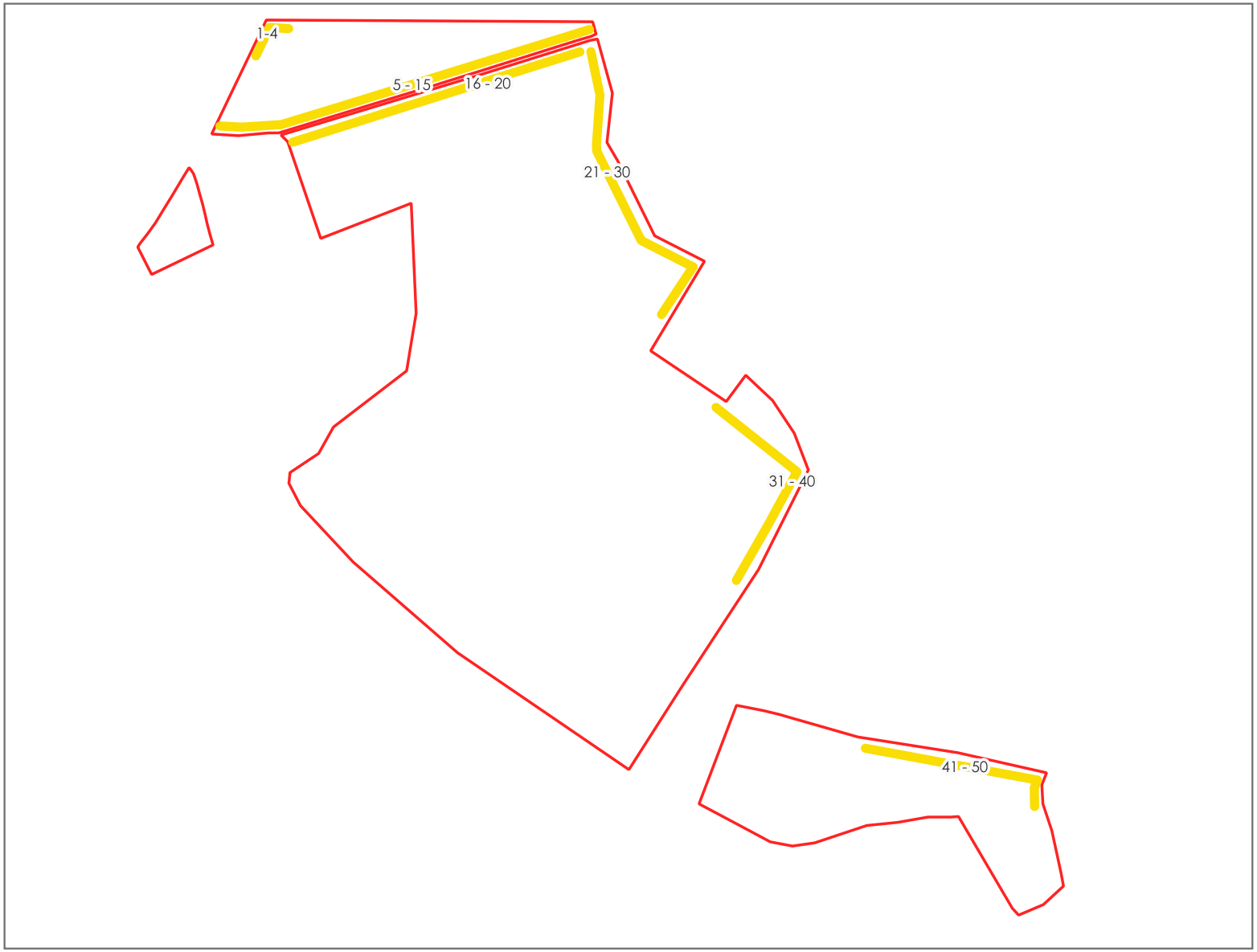
Project	Land East of Humber Doucy Lane, Ipswich	Date May 2024	Drawing No. CSA/6675/114
Drawing Title	Badger Survey Plan	Scale Refer to scale	Rev A
Client	Barratt David Wilson & Hopkins Homes	Drawn LF	Checked CH



Site boundary

Dormouse tube location, with number of refugia (total 50)

0 125 250 m

[redacted]

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Project	Land East of Humber Doucy Lane, Ipswich	Date	January 2024	Drawing No.	CSA/6675/112
Drawing Title	Dormouse Survey Plan	Scale	Refer to scale	Rev	-
Client	Barratt David Wilson & Hopkins Homes	Drawn	LF	Checked	CH

Appendix L

Wintering Birds

1.0 Legislation

All wild birds, their nests and eggs are protected under subsection 1(1) of the Wildlife and Countryside Act 1981 (as amended). It is an offence to kill or injure any wild bird, to take or destroy their eggs, or to take, damage or destroy their nests while in use or being built.

1.1 In addition, certain species of wild bird, listed within Schedule 1 of the Wildlife and Countryside Act, receive additional protection under subsection 1(5) of the Act. This makes it an offence to disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a
1.2 nest containing eggs or young. It is also an offence to disturb the dependent young of such a bird.

1.3 Consideration is also taken of Birds of Conservation Concern ('BoCC 5') (Stanbury *et al.*, 2021) which assigns bird species to a Red, Amber or Green list depending on factors such as their rarity, importance in an international context and severity of declines in population or range. Species on the Red list are of greatest conservation concern whilst those on the Green list do not fulfil any of the BoCC assessment criteria and are not currently of conservation interest. Full details can be found in Stanbury *et al.* (2021).

2.0 Methods

Breeding Birds

2.1 Breeding bird surveys commenced in March 2024 and due to be completed in June/July 2024, with initial findings presented herein only. Full reporting and assessment will be provided upon completion of this
2.2 work.

Breeding bird surveys were carried out by Skopeo Limited to gain an understanding of the breeding bird assemblage at the site. Surveys were conducted with the following aims:

- To determine the potential for breeding species of birds across the survey area;
- To review the rarity and conservation status of each species found;
- To review the likely breeding potential within the habitats present;
- To assess the impacts of the proposed developments with regards to the species/ likely species determined; and
- To recommend appropriate mitigation and protection measures where necessary.

2.3

The survey area included all accessible areas of the Site and immediately adjacent land visible from the Site. On each survey the surveyor walked a slow route across the whole site which ensured that both species of open and boundary habitats would be detected. Alternative versions of the route were taken on each visit so that different

parts of the site would be surveyed at different parts of the morning, thus avoiding temporal bias associated with bird activity. Each survey commenced shortly after dawn, when birds are most active, and continued for approximately two hours during suitable weather conditions. Birds were detected by sound or sight, using appropriately powered binoculars.

The survey methodology used considers the recommended mapping conventions given within the Bird Survey Guidelines published by the Bird Steering and Assessment Group (2022). All birds detected at the site were recorded using standardised codes to map their distribution and
2.4 behaviour, and to differentiate between individuals for the purposes of territory mapping (adapted from the standard Common Birds Census method). A full map of all species is created for each survey visit, with a consolidated map of priority species created for all survey visits combined.

Priority species are classified using the following hierarchy:

2.5
1) Species listed under Schedule 1 of the Wildlife and Countryside Act 1981(as amended);
2) Species listed under Section 41 of the Natural Environment and Rural Communities Act 2006;
3) Red & Amber listed by the 5th Birds of Conservation Concern Review (Stanbury *et al*, 2021).
4) Localised or highly specialised species regardless of inclusion above (e.g. crossbill in coniferous woodland);
5) Nationally- or locally-declining species regardless of inclusion above
6) Colonial nests or roost sites containing more than one individual of any species; or,

2.6
7) Exceptional counts or aggregations of any species.

On each survey visit the following objectives were met:

- Identification of potential breeding species within the habitats present;

2.7
- Identification of all birds seen and heard;
- Breeding status of each bird seen and heard;
- Total numbers of birds, including juveniles recorded.

The criteria used during the 'Bird Atlas' surveys of 2007-2011 were used to ascertain the breeding status of birds at the Site (as given in table below).

Categories of Breeding Bird Evidence

Breeding Status Categories	Evidence Criteria

Confirmed breeding:	• Distraction display or injury feigning • Used nests or eggshells found (occupied or laid within the survey period) • Recently fledged young or downy young • Adults entering or leaving a nest site in circumstances indicating occupied • Nest or an adult sitting on nest • Adults carrying food for young or faecal sacs • Nest containing eggs • Nest with young seen or heard
Probable breeding:	• Pairs observed in suitable nesting habitat in breeding season • Permanent territory presumed through registration or territorial behaviour (song etc.) on at least two different days, a week apart, at the same place • Display and courtship • Visiting probable nest site • Agitated behaviour or anxiety calls from adults • Building nest or excavating nest hole
Possible breeding:	• Species observed in breeding season in possible nesting habitat • Singing male(s) present or breeding calls heard in breeding season

Limitations

2.8 Only a proportion of individuals of each species will be detected on each visit, and some particularly secretive or low-density species, can be elusive and require several visits to detect. Furthermore, the importance of a site for birds can change depending on factors such as food availability, presence of roosting/nesting features and weather conditions.

2.9 *Evaluation*

The importance of the breeding bird assemblage at the Site was assessed using the criteria suggested by Fuller (1980) (see table below).

Assessment criteria for breeding bird assemblage at a Site

Importance	Number of Breeding Species
Local	25-49
County	50-69
Regional	70-84
National	85+

2.10

Wintering Birds

Two wintering bird survey visits were carried out at the Site on 11th November and 13th December 2023 to provide an assessment of the Site's importance for birds during the winter. During this time there is reduced territoriality and the formation of wide-ranging, mixed-species flocks that can cause significant variation in species diversity and bird numbers on a daily basis. In addition, weather factors such as snow cover can also result in the movement of birds to or from an area.

2.11 The surveys were completed by experienced surveyors from Skopeo Ltd and the conduct of the fieldwork was commensurate with good ornithological practice. The survey area comprised the Site (as shown by the red line boundary on The Wintering Bird Survey Plan (CSA/6675/115)), plus adjacent areas of land which could be surveyed from the Site boundaries. The purpose of the survey was to assess the composition of the wintering bird community, and the distribution and abundance of its constituent bird species within the survey area.

2.12 Survey work also focused on determining the presence/likely absence of any protected or notable species of National, Regional or Local conservation importance, and to determine whether any populations of such species are significant at a local or wider level. Data provided on the distribution of species within the survey area indicates the importance of parts of the site to each bird species and to birds in general.

- The survey methodology was based upon the approach for non-breeding walkover surveys set out in the Bird Survey Guidelines (Bird Survey & Assessment Steering Group. (2023)), and comprised an adapted version of the standard Common Birds Census method to: Identification of all birds seen and heard within the survey area, with their locations mapped on a large-scale plan; and
- Record the total numbers of birds encountered.

2.13 On each survey the surveyor walked a slow route across the whole Site which ensured that both species of open and boundary habitats would be detected. Alternative versions of the route were taken on each visit so that different parts of the Site would be surveyed at different times of the morning, to minimise the likelihood of temporal bias associated with bird activity or other factors such as increasing traffic noise. Surveys commenced in the early morning and continued for approximately two hours. Birds were detected by sound or sight, using a pair of 10 x 42 binoculars.

2.14 All birds seen or heard within the survey area were recorded using the British Trust for Ornithology's (BTO) standardised codes to map species distribution, abundance, to denote activity and to differentiate between individuals (where possible). Birds flying over the Site were recorded; however, any flight recordings that were not considered to be directly associated with the survey area were not taken into consideration when assessing the nature conservation importance of the Site for wintering birds (e.g. high-flying gulls commuting overhead).

2.15 Particular consideration was given to 'priority species', which were classified using the following hierarchy:

1) The Qualifying Species for the following statutory designated sites: the Deben Estuary Site of Special Scientific Interest (SSSI), Special

Protection Area (SPA) & Ramsar site; and the Stour and Orwell SSSI, SPA & Ramsar site.

2) Species listed under Schedule 1 of the Wildlife and Countryside Act 1981(as amended);
3) Species listed under Section 41 of the Natural Environment and Rural Communities Act 2006;
4) Red & Amber listed by the 5th Birds of Conservation Concern Review (Stanbury *et al*, 2021).
5) Priority bird species in Suffolk, as defined by the Suffolk Biodiversity Information Service (SBIS) (suffolkbis.org.uk);
6) Localised or highly specialised species regardless of inclusion above (e.g. birds found only in farmland habitats);
7) Nationally- or locally-declining species regardless of inclusion above
8) Colonial nests or roost sites containing more than one individual of any species; or,
9) Exceptional counts or aggregations of any species.

Limitations

2.16 Only a proportion of individuals of each species will be detected on each visit, and some particularly secretive or low-density species, can be elusive and require several visits to detect. Furthermore, the importance of a site for birds can change depending on factors such as food availability, presence of roosting/nesting features and weather conditions.

Evaluation

2.17 The importance of the wintering bird species and assemblage on the Site was assessed using the criteria suggested by Fuller (1980) (see Table 1 below).

Table 1. Assessment criteria for the wintering bird assemblage at the site

Importance	Number of Wintering Bird Species
Local	25-54
County	55-84
Regional	85-114
National	115+

3.1

3.0 Results

Breeding birds

As set out above, preliminary findings only are provided below given the surveys commenced in March 2024 are yet to be completed. Table 2 below provides a list of recorded 'priority' species alongside secondary species.

Table 2. Initial Breeding Bird Species List recorded

Common name
Priority Species
Starling
Woodpigeon
Wren
Yellowhammer
Dunnock
Stock Dove
Skylark
Lesser black-backed gull
Greenfinch
Song Thrush
Mallard
Herring Gull
House Sparrow
Whitethroat
Linnet
Swift
SUB-TOTAL= 16 priority species
Secondary Species
Buzzard
Robin
Carrion Crow
Pheasant
Red-legged Partridge
Blackbird
Chaffinch
Blue Tit
Great Tit
Jay
Jackdaw
Magpie
Feral Pigeon
Collared dove
Pied Wagtail
Chiffchaff
Lesser Whitethroat
Goldfinch
Blackcap
Green Woodpecker
Swallow
Buzzard
SUB-TOTAL= 21 secondary species
GRAND TOTAL= 37

3.2

Wintering Birds

The results of the winter bird surveys are described in the following paragraphs, with a summary of survey conditions presented in Table 3, below. The Wintering Bird Survey Plan (CSA/6675/115) shows the locations of priority species recorded during the surveys.

Table 3. Weather conditions for wintering bird surveys

Date	Start time	End time	Temp (°C)		Cloud (Oktas)	Rain (mm)	Wind (Beaufort scale)	Visibility
			Start	End				
11/11/23	07:00	09:00	3	5	6/6	None	3/3	Good
13/12/23	07:38	09:20	7	7	8/8	Light drizzle	3/4	Good

Overview

3.3 A total of 39 bird species were recorded on or adjacent to the Site during the surveys, of which 18 were classified as 'priority species'. These are listed in Table 4 (below), comprised a range of waterfowl and passerines. Twenty-one secondary species were recorded (as listed in Table 5).

Table 4. Priority bird species recorded at the Site during the wintering bird surveys

Species	BoCC Red List	BoCC Amber List	Section 41	Sch 1	Suffolk Priority Species
Black-headed gull		●			
Common gull		●			
Dunnock		●	●		●
Fieldfare	●			●*	
Greenfinch	●				
Greylag goose		●			
House sparrow	●		●		●
Lesser Redpoll	●				●
Linnet	●		●		●
Meadow pipit		●			
Mistle thrush	●				
Skylark	●		●		●
Song thrush		●	●		●
Starling	●		●		●
Woodcock	●				
Woodpigeon		●			
Wren		●			
Yellowhammer	●		●		●

Abbreviations: BOCC Red List: Red List of Birds of Conservation Concern 5
Section 41: Listed as a priority species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006
Sch1: Schedule 1 (Part 1) of the Wildlife and Countryside Act 1981
Suffolk Priority Species: as defined by the Suffolk Biodiversity Information Service (SBIS) (suffolkbis.org.uk)

Notes:* although fieldfare is afforded full legal protection during the breeding season due to its inclusion on Schedule 1 (Part 1) of the Wildlife and Countryside Act 1981, its typical breeding range does not encompass Suffolk.

Table 5. Secondary species identified on or adjacent to the Site (2023)

Species
Blackbird
Blue tit
Buzzard
Canada goose
Carrion crow
Chaffinch
Collared dove
Feral pigeon
Goldcrest
Goldfinch
Great spotted woodpecker
Great tit
Green woodpecker
Jackdaw
Jay
Long-tailed tit
Magpie
Pheasant
Pied wagtail
Robin
Siskin

Waterfowl

The winter bird surveys recorded a limited number of priority waterfowl species. A single woodcock was 'flushed' from a field margin in the north of the Site. Eight individual greylag goose *Anser anser*; two black-headed gull *Chroicocephalus ridibundus*; and a single common gull *Larus canus*, were all recorded as flyovers seen on one occasion each between the two surveys.

3.4

None of the Qualifying Species for the Deben Estuary SSSI, SPA & Ramsar site, or the Stour and Orwell Estuaries SSSI, SPA & Ramsar site were recorded during the winter bird surveys.

3.5

Passerines

The Site and its surroundings were found to support a range wintering passerines that was considered to be typical of farmland and urban fringe habitats. This included the following priority species: Dunnock *Prunella modularis*; fieldfare *Turdus pilaris*; greenfinch *Chloris chloris*; house sparrow *Passer domesticus*; lesser Redpoll *Acanthis cabaret*; linnet *Linaria cannabina*; meadow pipit *Anthus pratensis*; mistle thrush *Turdis viscivorus*; skylark *Alauda arvensis*; song thrush *Turdus philomelos*; starling *Sturnus vulgaris*; woodpigeon *Columba palumbus*; Wren *Troglodytes troglodytes*; and yellowhammer *Emberiza citronella*.

3.6

3.7

In all cases, the priority species of passerine were found to be present at relatively low densities. Total counts of just single birds were recorded for linnet, skylark and yellowhammer (all of which tend to show strong habitat preferences for arable farmland during the winter months). Whilst slightly higher counts were recorded for the remaining passerine species, they were considered to be present at densities that were typical for a site such as this.

4.1

4.0 Summary

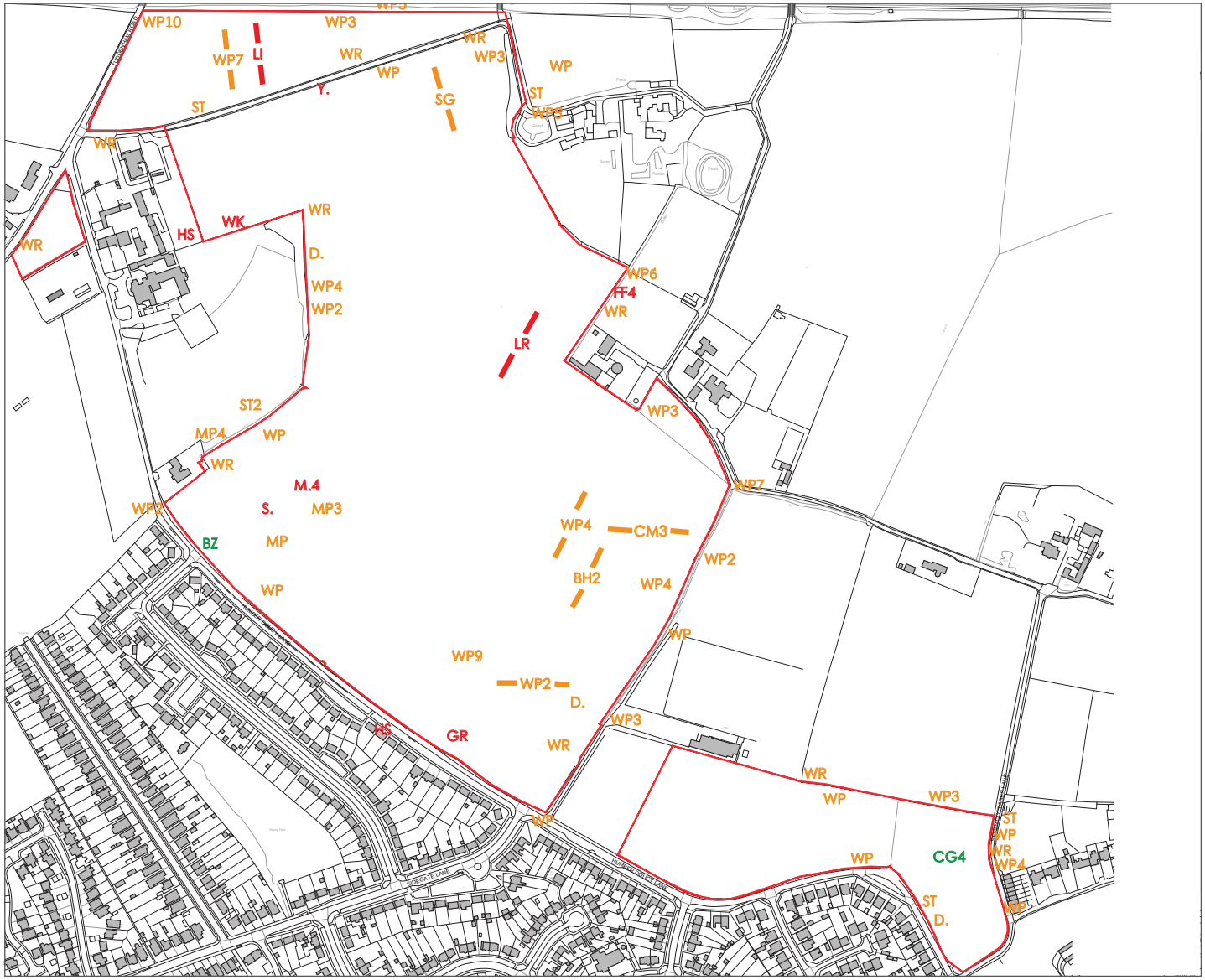
A total of 39 bird species were recorded within the Site during winter, and 36 during breeding season, of which 18 were classified as 'priority species' in winter and 16 in breeding. Species recorded showed similarities between these seasons and included black-headed gull; common gull; dunnock; fieldfare; greenfinch; greylag goose; house sparrow; lesser redpoll; linnet; meadow pipit; mistle thrush; skylark; song thrush; starling; woodcock; woodpigeon; wren; and yellowhammer. Based upon the range of species recorded, the Site is considered to be of 'Local' ecological importance for wintering and breeding birds. Further breeding bird surveys are due to be completed at the Site by July 2024

5.0 References

Bird Survey & Assessment Steering Group. (2023). Bird Survey Guidelines for assessing ecological impacts, v.1.1.1. https://birdsurveyguidelines.org [*accessed February 2024*].

Fuller, R.J. 1980. *A method for assessing the ornithological interest of sites for conservation.* Biological Conservation. 17. 229-239. 10.1016/0006-3207(80)90058-0.

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



Redline boundary

X Singing

X Observation

X Calling

X— Flight path/observed in flight

Xn Number of individuals

N

Primary Species List

Red List
FF - Fieldfare*
GR - Greenfinch
HS - House sparrow
LI - Linnet
M. - Mistle thrush
LR - Redpoll
S. - Skylark
SG - Starling
WK - Woodcock
Y.- Yellowhammer

Amber List
BG - Black-headed gull
CM - Common gull
D. - Dunnock
GJ - Greylag goose*
MP - Meadow pipit
ST - Song thrush
WP - Wood pigeon
WR - Wren

Green List
BZ- Common buzzard
CG - Canada goose

Secondary Species List
Blackbird
Blue tit
Buzzard
Canada goose**
Carrion crow
Chaffinch
Collared dove
Feral pigeon
Goldcrest
Goldfinch
Great spotted woodpecker
Great tit
Green woodpecker
Jackdaw
Jay
Long-tailed tit
Magpie
Pheasant
Pied wagtail
Robin
Siskin

* Schedule 1
** fly-over only

0 250metres

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Project	Land East of Humber Doucy Lane, Ipswich	Date	January 2024	Drawing No.	CSA/6675/115
Drawing Title	Wintering Bird Survey Plan	Scale	Refer to scale	Rev	-
Client	Taylor Wimpey	Drawn	LF	Checked	CH

Appendix M

Reptiles

1.0 Legislation

1.1 All native British reptile species are listed within Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded protection against killing and injury under parts of sub-section 9(1) of the Act. In addition, all native British reptile species are adopted as Species of Principal Importance for the Conservation of Biodiversity in England in respect of Section 41 of the Natural Environment and Rural Communities Act 2006.

2.0 Methods

2.1 A total of 60 reptile refugia, comprising rectangles of roofing felt measuring 1.0 x 0.5m, were installed in areas of suitable habitat (field margins and grassland) present at the Site on 31 August 2023 by Matthew Dale ACIEEM and Owen de Graaf. The location of these refugia is shown on the Reptile Survey Plan (CSA/6675/113).

2.2 Following an initial 2-week 'bedding-in' period for refugia, surveys were carried out on seven occasions during favourable weather conditions (e.g. intermittent or hazy sunshine, not too windy, sunny spells following wet or cloudy weather) between September and October 2022. The surveys were led by Carly Howes ACIEEM, Laura Farrar ACIEEM and Matthew Dale ACIEEM. Each survey visit comprised a slow walk of the Site to visually and physically check refugia for the presence of reptiles. On each occasion a visual search was also carried out within areas of suitable habitat whilst walking between refugia locations.

2.3 The primary aim of the reptile survey was to establish the presence or likely absence of widespread reptile species within the survey area, rather than to estimate abundance or population size. To this end, seven survey checks, an effort generally considered 'reasonable effort' in establishing the presence or likely absence of reptiles at a Site, were carried out.

Limitations

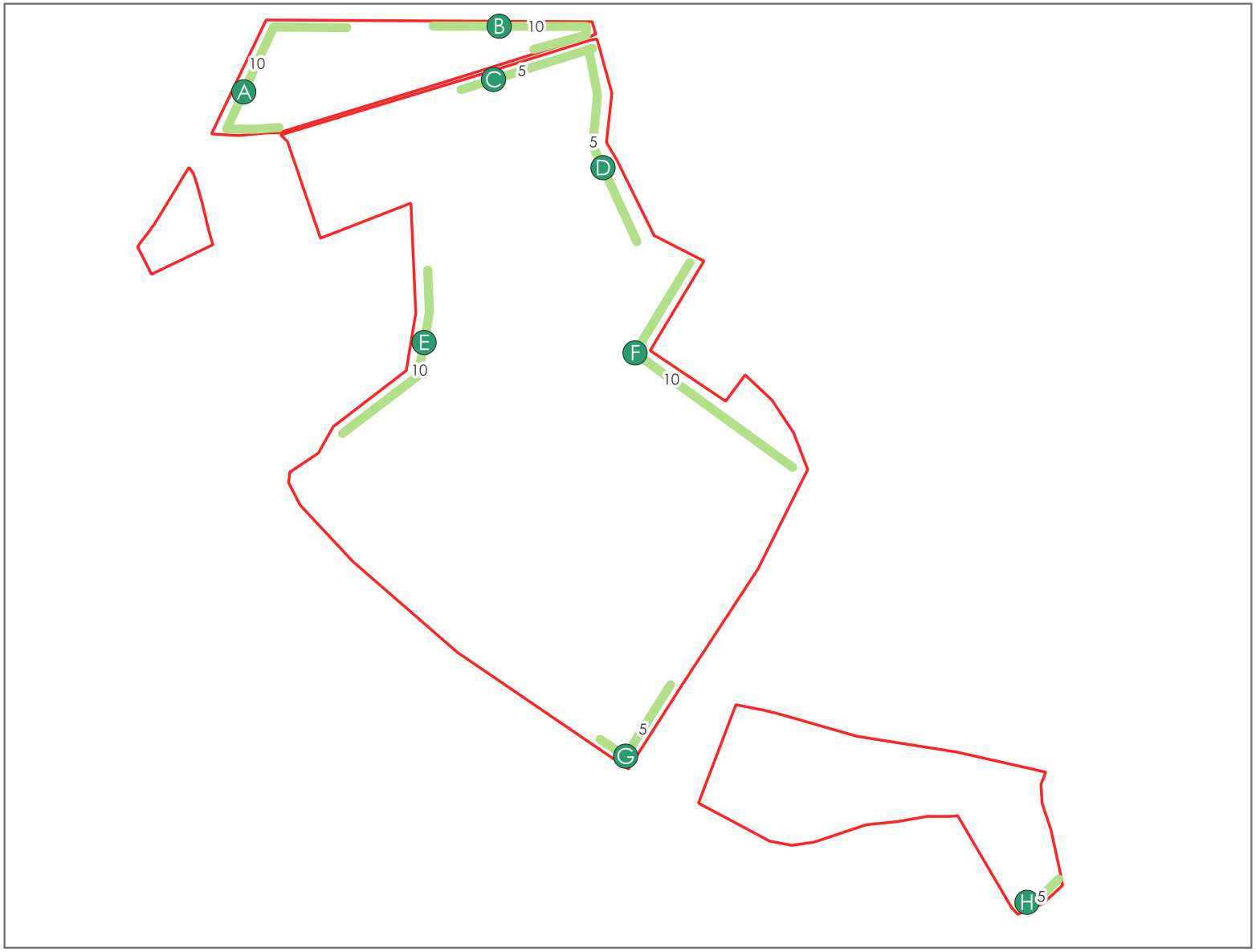
2.4 Four of the surveys were undertaken in October and are outside of the recommended survey period. This is not expected to have a significant impact on the findings of the surveys, given that the particularly mild October meant that conditions were still suitable for surveying reptiles. Reptiles were still found on two out of the four surveys in October.

3.0 Results

3.1 During the suite of surveys slow worm were found to be present on Site. No other reptiles of any other species were found.

3.2 Slow worm were found on five out of the seven surveys, with a peak count of two adult females on 21/09/2023 and a single new born on

23/10/2023, indicating likely breeding of adult males and females on the Site. All reptiles were found underneath refugia along the northern boundary of F1, within area B - see Reptile Survey Plan (CSA/6675/113). The mats were adjacent to the railway embankment which contains a mosaic of scrub of grassland, offering opportunities for foraging, basking and hibernation, as well as a suitable dispersal corridor. It is likely that individuals on-site are part of a population using the railway embankment.



Site boundary

Reptile refugia location, with number of refugia (total 60)

Reptile Areas (A - H)

Peak count of two adult female slow worm Anguis fragilis and a single newborn from area B.

No reptiles were found in any of the other areas.

0 125 250 m

[redacted]

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Drawing Title	Reptile Survey Plan	Scale	Refer to scale	Rev	-
Client	Barratt David Wilson & Hopkins Homes	Drawn	LF	Checked	CH

Job Name & No.	6675 Land East of Humber Doucy Lane, Ipswich						**Beaufort Scale:** 0. Calm. Vertical smoke. 1. Light air. Smoke drifts. 2. Light breeze. Leaves rustle. 3. Gentle breeze. Small twigs constantly move. 4. Moderate breeze. Small branches begin to move. 5. Fresh breeze. Small trees in leaf begin to sway.																	
Set-up Surveyor/ Project Manager	**Set up: Matthew Dale and Owen de Graaf PM: Carly Howes**																							
Set-Up Date	**31/08/2023**		**Total Number of Refugia**			**60**	**Precipitation:** [Type] No Rain / Light / Moderate / Heavy [Duration] Intermittent / Continuous																	
			Weather					**Slow worm *Anguis fragilis***					**Common lizard *Zootoca vivipara***					**Grass snake *Natrix helvetica***					
Date	**Start/End Times**	**Surveyor**	Temp (°C)	Cloud Cover (Oktas; n/8)	Wind (Beaufort Scale)	Rain (Type & Duration)	Area	Adult Male (>230mm)	Adult Female (>230mm)	Unidentified Adult	Sub-adult	Newborn	Male	Female	Unidentified Adult	Sub-adult	Newborn	Male	Female	Unidentified Adult	Sub-adult	Newborn	**Other Notes**
Survey 1																							
15/09/2023	09:30	CH	18	5	1	No rain	B		1														///pack.danger.quiz
Survey 2																							
21/09/2023	10:45 - 11:45	CH	18	5	1	No rain	B		2														Under two separate maps
Survey 3																							
28/09/2023	12:30	CH+MD	18	8	2	No rain	B		1														
Survey 4																							
06/10/2023	09:15 - 10:30	LF	16 - 18	3 - 3	2 - 1	None	B		1														///like.crate.goats
Survey 5																							
17/10/2023	15:50	LF	12	6	0	Very light rain within last 5																	**No reptiles. Area B: Large mature toad - TM 18669 47238, Area C: Immature toad - TM 18278 47155**
Survey 6																							
23/10/2023	13:00	LF	14	5	0	None	B					1											///grants.cases.happen
Survey 7																							
27/10/2023	09:00	LF + MD	10	4	1	None																	**No reptiles**

Total Adult	**Total Juvenile**	**Total Adult**	**Total Juvenile**	**Total Adult**	**Total Juvenile**
5	1	0	0	0	0

Appendix N

Great Crested Newt

1.0 Legislation

1.1 Great crested newts *Triturus cristatus* are legally protected as European Protected Species (EPS) under Regulation 43 of the Conservation of Habitats and Species Regulations 2017. These Regulations make it an offence to:

- Deliberately capture, injure, kill or capture a great crested newt
- Deliberately disturb great crested newts, impairing their ability to survive, breed, reproduce or rear/nurture their young
- Damage or destroy a breeding site or resting place used by a great crested newt

1.2 Great crested newts are also fully protected under the Wildlife & Countryside Act 1981 (as amended), making it an offence to:

- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place of shelter or protection
- Intentionally or recklessly obstruct access to any structure or place of shelter or protection

1.3 Disturbance of great crested newts is covered by both the 2017 Regulations and the 1981 Act. Disturbance that impairs survival or successful reproduction would be covered by the Regulations, while less significant acts of disturbance may only be covered by the Act.

1.4 It is important to note that great crested newts and their habitats (such as breeding ponds) are protected throughout the year, regardless of whether or not newts are present at the time.

1.5 Great crested newts are also listed as a species of principal importance for the conservation of biodiversity in England, under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006. The S41 species list is used to guide decision-makers, including planning authorities, in implementing their duty under Section 40 of the NERC Act to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

<u>Licensing</u>

1.6 Where development is proposed that would result in an offence under the Habitats and Species Regulations, a statutory derogation licence may be granted by Natural England to permit an act that would otherwise be unlawful. To obtain an EPS licence for development, it must be demonstrated that the purpose of the act to be licensed is for:

- "preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic nature and beneficial consequences of primary importance for the environment" (Regulation 55(2)(e))

1.7 In addition, Natural England will not grant an EPS licence unless they are satisfied that:

- "There is no satisfactory alternative" (Regulation 55(9)(a))
- "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" (Regulation 55(9)(b))

2.0 Methods

Desk Study

2.1 In accordance with Natural England's Great Crested Newt Mitigation Guidelines (2001), a desktop search was undertaken in August 2023 to identify ponds within 500m of the Site which may have potential to support breeding great crested newts, using Ordnance Survey (OS) mapping, the MAGIC database and aerial photography. 500m is the generally accepted typical maximum dispersal range of this species, with great crested newt most likely to use terrestrial habitat within 250m of breeding ponds.

Habitat Suitability Index (HSI) Assessment

2.2 Where ponds were situated within an 250m radius and connected to the Site by traversable terrestrial habitats, access permission was requested to undertake a Habitat Suitability Index (HSI) assessment, using the standard approach set out by Oldham *et al*. (2000).

2.3 The data search found records of great crested newt that were associated within and in close proximity to P19 from 2008 to 2017. Given that these are non-historic records, despite being greater than 250m from the Site boundary, P19 and nearby ponds P11 and P12 were also included within the assessment. These assessments were undertaken on 15 September 2023 by Carly Howes ACIEEM (Class Survey Licence CL08 – Registration number: 2017-32238- CLS-CLS) and Matthew Dale (Natural England Class Licence WML-CL08 – Registration Number 2022-10646_CL08-GCN).

Environmental DNA (eDNA) Sampling

2.4 Environmental DNA (eDNA) sampling was used to determine the presence/ likely absence of great crested newts from ponds P1, P3, P5 and P11. This method has been shown to be a highly effective in detecting the presence of great crested newts (Biggs *et al*., 2014).

2.5 Water samples were collected from ponds P1, P3, P5 and P11 on 28 September 2023 by Carly Howes ACIEEM (Class Survey Licence CL08 – Registration number: 2017-32238- CLS-CLS) and Matthew Dale (Natural England Class Licence WML-CL08 – Registration Number 2022-10646_CL08-GCN) following the recommended procedure. Appropriate biosecurity measures were taken to avoid cross contamination of great

crested newt eDNA. Subsequently the samples were sent to ADAS for DNA analysis.

Limitations

2.6 There were no limitations to the HSI surveys, which were conducted at an optimum time of year and in good conditions.

2.7 The eDNA surveys were undertaken outside of the standard practise eDNA sampling, which is between 15 April and 30 June. A negative eDNA result therefore cannot confirm likely absence at this time (however a positive eDNA result can confirm presence).

3.0 Results

Desk Study

3.1 The desktop search for ponds and subsequent site visits identified 19 water bodies occurring within 500m of the Site. These ponds are identified on the Pond Plan (CSA/6675/102).

Habitat Suitability Index (HSI) Assessment

3.2 A summary of the HSI assessment for surveyed ponds is provided in Table 1 below. P2, P4, P6, P7 and P12 were all found to be dry at the time of survey and are likely dry for the majority of the year, only filling with water during periods of abundant rainfall. Access was requested for P8, P9 and P10, but was denied. P13 - P18 were not surveyed as they are separated from the Site boundary by non-suitable dispersable habitats. P11, P12 and P19 were included, as there are non-historic records of great crested newt from P19, despite exceeding 250m from the Site.

3.3 Full HSI results are included at the end of this report in Table 2 and 3.

Table 1. Habitat suitability index (HSI) results for surveyed ponds (2023)

Pond Reference	Suitability Score	Suitability Rating
1	0.66	Average
3	0.38	Poor
5	0.35	Poor
11	0.66	Average
19	0.71	Good

Environmental DNA (eDNA) Sampling

3.4 Environmental DNA (eDNA) sampling of P1, P3, P5 and P11 was undertaken in September 2023. Samples were not taken from P19 as it was dry at the time of survey.

3.5 All eDNA samples returned a negative result for great crested newts, indicating a likely absence of GCN in the ponds at this time. The full eDNA results are included at the end of this report.

Site boundary

250m Buffer

500m Buffer

Ponds (with number)

N

0 0.5 1 km

[redacted]

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Drawing Title	Waterbodies Plan	Scale	Refer to scale	Rev	-
Client	Barratt David Wilson & Hopkins Homes	Drawn	MD	Checked	CH

Site boundary

250m Buffer

500m Buffer

Ponds (with number)

N

0 0.5 1 km

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Project	Land East of Humber Doucy Lane, Ipswich	Date	February 2024	Drawing No.	CSA/6675/102
Drawing Title	Waterbodies Plan	Scale	Refer to scale	Rev	-
Client	Barratt David Wilson & Hopkins Homes	Drawn	MD	Checked	CH

Table 2. Habitat suitability index (HSI) results for surveyed ponds

Habitat Suitability Factors:		Pond Number and Grid Reference									
		1	2	B (3)	4	C (5)	6	7	8	9	10
			Dry		Dry		Dry	Dry	No access	No access	No access
Map location	Category	Zone A	-	Zone A	-	Zone A	-	-	-	-	-
	SI Value	1	-	1	-	1	-	-	-	-	-
Pond area in m^2	Category	150m2	-	100m2	-	50-100m2	-	-	-	-	-
	SI Value	0.3	-	0.2	-	0.1	-	-	-	-	-
Permanence / Desiccation	Category	Sometimes Dries	-	Never Dries	-	Never Dries	-	-	-	-	-
	SI Value	0.5	-	0.9	-	0.9	-	-	-	-	-
Water quality	Category	Moderate	-	Poor	-	Poor	-	-	-	-	-
	SI Value	0.67	-	0.33	-	0.33	-	-	-	-	-
Percentage perimeter shade to at least 1m from shore	Category	0-60%	-	0-60%	-	0-60%	-	-	-	-	-
	SI Value	1	-	1	-	1	-	-	-	-	-
Waterfowl impact (excluding moorhen)	Category	Minor	-	Major	-	Major	-	-	-	-	-
	SI Value	0.67	-	0.01	-	0.01	-	-	-	-	-
Fish presence	Category	Absent	-	Absent	-	Absent	-	-	-	-	-
	SI Value	1	-	1	-	1	-	-	-	-	-
Number of ponds within 1km not separated by barriers	Category	>12	-	>12	-	>12	-	-	-	-	-
	SI Value	1	-	1	-	1	-	-	-	-	-
Terrestrial habitat	Category	Poor	-	Poor	-	Poor	-	-	-	-	-
	SI Value	0.33	-	0.33	-	0.33	-	-	-	-	-
Percentage of pond surface occupied by aquatic vegetation (March – May)	Category	36-40%	-	<1%	-	<1%	-	-	-	-	-
	SI Value	0.7	-	0.3	-	0.3	-	-	-	-	-
Product		0.015554385	-	0.000058806	-	0.1	-	-	-	-	-
HSI Score		0.659455181	-	0.377521912	-	0.352240399	-	-	-	-	-
HSI Suitability		Average	-	Poor	-	Poor	-	-	-	-	-

Table 3. Habitat suitability index (HSI) results for surveyed ponds

Habitat Suitability Factors:		Pond Number and Grid Reference								
		11	12	13	14	15	16	17	18	19
			Dry	Not viewed	Not viewed	Not viewed	Not viewed	Not viewed	Not viewed	
Map location	Category	Zone A	-	-	-	-	-	-	-	Zone A
	SI Value	1	-	-	-	-	-	-	-	1
Pond area in m^2	Category	50-100m2	-	-	-	-	-	-	-	150m2
	SI Value	0.1	-	-	-	-	-	-	-	0.3
Permanence / Desiccation	Category	Never Dries	-	-	-	-	-	-	-	Sometimes Dries
	SI Value	0.9	-	-	-	-	-	-	-	0.5
Water quality	Category	Moderate	-	-	-	-	-	-	-	Moderate
	SI Value	0.67	-	-	-	-	-	-	-	0.67
Percentage perimeter shade to at least 1m from shore	Category	0-60%	-	-	-	-	-	-	-	71-75%
	SI Value	1	-	-	-	-	-	-	-	0.7
Waterfowl impact (excluding moorhen)	Category	Absent	-	-	-	-	-	-	-	Absent
	SI Value	1	-	-	-	-	-	-	-	1
Fish presence	Category	Absent	-	-	-	-	-	-	-	Absent
	SI Value	1	-	-	-	-	-	-	-	1
Number of ponds within 1km not separated by barriers	Category	8	-	-	-	-	-	-	-	8
	SI Value	0.89	-	-	-	-	-	-	-	0.89
Terrestrial habitat	Category	Poor	-	-	-	-	-	-	-	Moderate
	SI Value	0.33	-	-	-	-	-	-	-	0.67
Percentage of pond surface occupied by aquatic vegetation (March – May)	Category	81-85%	-	-	-	-	-	-	-	96-100%
	SI Value	0.95	-	-	-	-	-	-	-	0.8
Product		0.1	-	-	-	-	-	-	-	0.033559764
HSI Score		0.664652261	-	-	-	-	-	-	-	0.712167072
HSI Suitability		Average	-	-	-	-	-	-	-	Good

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Sample ID: ADAS-954	Condition on Receipt: Medium Sediment	Volume: Passed
Client Identifier: (B) P3	Description: pond water samples in preservative	
Date of Receipt: 03/10/2023	Material Tested: eDNA from pond water samples	

Determinant	**Result**	**Method**	**Date of Analysis**
Inhibition Control[†]	2 of 2	Real Time PCR	06/10/2023
Degradation Control[§]	Within Limits	Real Time PCR	06/10/2023
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	06/10/2023
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10^{-4} ng/µL)[#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:	[redacted]	Signed:	[redacted]
Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	10/10/2023	Date of issue:	10/10/2023

eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#]Additional positive controls (10^{-1}, 10^{-2}, 10^{-3} ng/µL) are also routinely run, results not shown here.

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Sample ID: ADAS-955	Condition on Receipt: Medium Sediment	Volume: Passed
Client Identifier: (C) P5	Description: pond water samples in preservative	
Date of Receipt: 03/10/2023	Material Tested: eDNA from pond water samples	

Determinant	**Result**	**Method**	**Date of Analysis**
Inhibition Control[†]	2 of 2	Real Time PCR	06/10/2023
Degradation Control[§]	Within Limits	Real Time PCR	06/10/2023
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	06/10/2023
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10^{-4} ng/µL)[#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
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Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	10/10/2023	Date of issue:	10/10/2023

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[#]Additional positive controls (10^{-1}, 10^{-2}, 10^{-3} ng/µL) are also routinely run, results not shown here.

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Sample ID: ADAS-2016	Condition on Receipt: Good	Volume: Passed
Client Identifier: P1	Description: pond water samples in preservative	
Date of Receipt: 03/10/2023	Material Tested: eDNA from pond water samples	

Determinant	**Result**	**Method**	**Date of Analysis**
Inhibition Control[†]	2 of 2	Real Time PCR	06/10/2023
Degradation Control[§]	Within Limits	Real Time PCR	06/10/2023
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	06/10/2023
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Positive PCR Control (GCN DNA 10^{-4} ng/µL)[#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:	[redacted]	Signed:	[redacted]
Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	10/10/2023	Date of issue:	10/10/2023

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[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#]Additional positive controls (10^{-1}, 10^{-2}, 10^{-3} ng/µL) are also routinely run, results not shown here.

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Sample ID: ADAS-2686	Condition on Receipt: Good	Volume: Passed
Client Identifier: P11	Description: pond water samples in preservative	
Date of Receipt: 03/10/2023	Material Tested: eDNA from pond water samples	

Determinant	**Result**	**Method**	**Date of Analysis**
Inhibition Control[†]	2 of 2	Real Time PCR	06/10/2023
Degradation Control[§]	Within Limits	Real Time PCR	06/10/2023
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	06/10/2023
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10^{-4} ng/µL)[#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
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Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	10/10/2023	Date of issue:	10/10/2023

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Appendix 1: Interpretation of results

Sample Condition

Upon sample receipt we score your samples according to quality: good, low sediment, medium sediment, high sediment, white precipitate, and presence of algae.

There are three reasons as to why sediment should be avoided:

1. It is possible for DNA to persist within the sediment for longer than it would if it was floating in the water which could lead to a false positive result i.e. in this case GCN not recently present but present a long time ago
2. In some cases sediment can cause inhibition of the PCR analysis used to detect GCN eDNA within samples which could lead to an indeterminate result.
3. In some cases sediment can interfere with the DNA extraction procedure resulting in poor recovery of the eDNA which in turn can lead to an indeterminate result.

Algae can make the DNA extraction more difficult to perform so if it can be avoided then this is helpful.

Sometimes samples contain a white precipitate which we have found makes the recovery of eDNA very difficult. This precipitate can be present in such high amounts that it interferes with the eDNA extraction process meaning that we cannot recover the degradation control (nor most likely the eDNA itself) at sufficient levels for the control to be within the acceptable limits for the assay, therefore we have to classify these type of samples as indeterminate.

What do my results mean?

A positive result means that great crested newts are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days).

A negative result means that DNA from the great crested newt has not been detected in your sample.

On occasion an inconclusive result will be issued. This occurs where the DNA from the great crested newt has not been detected but the controls have indicated that either: the sample has been degraded and/or the eDNA was not fully extracted (poor recovery); or the PCR inhibited in some way. This may be due to the water chemistry or may be due to the presence of high levels of sediment in samples which can interfere with the DNA extraction process. A re-test could be performed but a fresh sample would need to be obtained. We have successfully performed re-tests on samples which have had high sediment content on the first collection and low sediment content (through improved sample collection) on the re-test. If water chemistry was the cause of the indeterminate then a re-test would most likely also return an inconclusive result.

The results will be recorded as indeterminate if the GCN result is negative and the degradation result is recorded as:

1. evidence of decay - meaning that the degradation control was outside of accepted limits
2. evidence of degradation or residual inhibition - meaning that the degradation control was outside of accepted limits but that this could have been due to inhibitors not being removed sufficiently by the dilution of inhibited samples (according to the technical advice note)

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