Preliminary Ecological Appraisal

Land east of East Coast Mainline Railway, Alington Estate, Little Barford – Area 3

On Behalf of:
The Executors of the late Nigel Alington

July 2022

www.ses-eco.co.uk

Ecology, Countryside Management
Professional Service ● Pragmatic Solutions
phone: 01268 711021 email: team@ses-eco.co.uk website: www.ses-eco.co.uk
Address: The Sudbury Stables, Sudbury Road, Downham, Essex, CM11 1LB

SES Quality Management

Project	Land east of East Coast Mainline Railway, Alington Estate, Little Barford – Area 3
Project Number	J001373
Report title	Preliminary Ecological Appraisal
Revision Number	Rev B

Revision	Status	Date	Author(s)	Technical review by	Quality review by
A	Issue	05/07/2022	[redacted]	[redacted]	[redacted]
B	Issue	27/07/2022	[redacted]	[redacted]	[redacted]

Disclaimer

SES has prepared this report for the exclusive use of the client for the intended purpose as stated in the terms and conditions under which the scope of work has been agreed and completed.

The report may not be relied upon by any other party without explicit agreement from the client and SES. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Site assessments / surveys (where required) have been restricted to a level of detail required to achieve the stated objectives of the work.

Due to the temporal nature of ecology, the findings of this report should not be relied upon if a significant amount of time has passed, as defined by the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines

Executive Summary

1. This report presents the findings and recommendations of a Preliminary Ecological Assessment for Land east of East Coast Mainline Railway (Area 3). This report provides the baseline conditions and preliminary assessment of the Site in relation to the Bedford Borough Local Plan 2040.

2. The Site is circa 170ha in extent and mainly comprises arable fields interspersed with hedgerows, areas of woodland and poor semi-improved grassland. Lines of trees and patches of scrub were present along some of the boundaries, with dry ditches present along with seven ponds. The town of St Neots is located to the north and the village of Little Barford is located to the west of the Site, with the remaining surrounding habitats comprising predominantly agricultural land and open countryside. The East Coast Mainline railway forms the western boundary of the Site, with the River Great Ouse located to the west of the railway.

3. The Site is not located within the Zone of Influence of any European designated sites, although local policy indicates that downstream impacts to Special Areas of Conservation arising from increased flooding or pollution events should be fully considered, with likely significant effects required to be formally screened within a Habitats Regulations Assessment.

4. Three Sites of Special Scientific Interest were located within 5km of the Site boundary, in addition to one Local Nature Reserve. The majority of the Site is not located within any Natural England Impact Risk Zone for Sites of Special Scientific Interest; however, the eastern half of the access road only was located within an Impact Risk Zone for residential development whereby an assessment of recreational pressure on relevant Sites of Special Scientific Interest and associated mitigation measures may be required. Six County Wildlife Sites are also located within 2km of the Site, although none are present within the Site boundary.

5. Overall, the Site consists of arable fields with hedgerows, areas of woodland, patches of scrub, lines of trees, poor semi-improved grassland, ditches and scattered ponds. The arable fields are considered to offer limited ecological value, but the woodland, hedgerows, scrub, grassland, seasonally wet ditches and ponds within the site potentially provide a resource for species of conservation concern, as well as offering biodiversity value, with the woodland, hedgerows and ponds being (or potentially being) Habitats of Principal Importance.

6. The Site has the potential to support some protected and/or notable species including roosting, foraging and commuting bats, badgers, breeding and wintering birds, great crested newt, rare and notable invertebrates, common reptiles, European hedgehog and brown hare.

7. Recommended further surveys and assessments, to be undertaken at the appropriate time in the planning process include:

    - Biodiversity Net Gain assessment and report;
    - Habitats Regulations Assessment;
    - Botany survey of CWS and priority habitats including other grasslands and woodlands;
    - Badger scoping survey followed by bait marking survey;
    - Bat activity surveys;
    - Bat ground level roost assessment /climbing survey of trees and inspection surveys of buildings, and where required subsequent emergence surveys;
    - Breeding and wintering bird surveys and barn owl nest surveys;
    - Presence/absence or eDNA surveys for great crested newt within waterbodies and subsequent population size class surveys if present;

- Invertebrate scoping assessment; and
- Presence/absence survey for common reptiles.

8. Proposals should avoid development within the areas of priority habitats and habitats of higher ecological importance (Appendix 6), and within areas with the potential to support protected and/or notable species. There are a range of opportunities for enhancing the priority and other higher value habitats within the Site through appropriate management, which will deliver landscape-scale biodiversity benefits and create valuable multifunctional greenspace. At the same time, significant areas of residential development may be delivered within areas of lower ecological importance, principally within the areas of arable land.

Contents

1.0 Introduction 6
2.0 Methods 7
3.0 Baseline Ecological Conditions 11
4.0 Further Surveys, Likely Impacts, Mitigation and Enhancement Measures 22
5.0 Conclusions 30
6.0 References 32

Appendices

Appendix 1. Site* Location Plan 34
Appendix 2: Site Red Line Boundary – Area Surveyed 35
Appendix 3. A428 Black Cat to Caxton Gibbet Road Improvement Scheme 36
Appendix 4: Legislative and Policy Framework 37
Appendix 5. County Wildlife Sites within 2km of the Site 43
Appendix 6: Priority Woodland and Traditional Orchard Habitats within 2km of the Site (taken from MAGIC.com) 44
Appendix 7. Phase 1 Habitat Survey Plan 45
Appendix 8: Site photographs 49
Appendix 9: Species of Known Benefit to Wildlife (especially Bats and Invertebrates) 52

1.0 Introduction

1.1 Southern Ecological Solutions Ltd (SES) were commissioned by The Executors of the late Nigel Alington to visit Land east of East Coast Mainline Railway (Appendix 1 and Appendix 2) of Alington Estate, Little Barford (the Site) (Ordnance Survey Grid Reference TL 18832 56603), to carry out a Preliminary Ecological Appraisal (PEA).

1.2 Proposals for the Site are currently undetermined but likely to include both residential and commercial development, as part of a wider site area (incorporating Areas 1 and 2 to the west of the East Coast Mainline railway) being promoted through the BBLP-2040.

1.3 To the east and south of the Site lies land associated with the A428 Black Cat to Caxton Gibbet Road Improvement Scheme and the proposed Development Consent Order (DCO). This scheme is currently within the planning approval process, for which a number of supporting ecological surveys and documents have been submitted. Draft proposals indicate up to seven areas within or abutting the Site and Alington Estate demarcated for ecological mitigation purposes (Appendix 3). Furthermore, the wider ownership site has been subject to previous ecological surveys (Areas 1 and 2, SES 2021).

1.4 The Site primarily consists of arable fields interspersed with hedgerows, areas of woodland and poor semi-improved grassland. Lines of trees and patches of scrub were present along some of the boundaries, with dry ditches present along with seven ponds.

1.5 The objective of the report is to set out the ecology baseline for the Site, assess constraints and opportunities for development across the Site and provide options for enhancements of both habitats and species and hence deliver a program of biodiversity net gain.

1.6 The objectives of this PEA were to:

- review and map the habitats and the main ecological features within the Site;
- review the presence or likely absence of species of conservation concern;
- identify any legal and planning policy constraints relevant to nature conservation which may be applicable to future proposals for the Site;
- determine any potential further ecological issues;
- determine the need for further surveys and mitigation; and
- make recommendations for minimising impacts on biodiversity and providing net gains in biodiversity where possible in accordance with Chapter 15: *Conserving and Enhancing the Natural Environment*, of the National Planning Policy Framework (MHCLG, 2021), and relevant nature conservation policies within the Bedford Borough Local Plan 2030.

1.7 Details of relevant wildlife legislation and national and local planning policies related to nature conservation and biodiversity are provided in Appendix 4.

2.0 Methods

2.1 This report has been prepared with reference to BS 42020:2013 'Biodiversity – code of practice for planning and development' and The Chartered Institute of Ecology and Environmental Management's (CIEEM) Technical Guidance Series 'Ecological Report Writing' and Code of Professional Conduct.

Assessment of Nature Conservation Value and Predicted Impacts

2.2 This PEA follows guidance and methods as prescribed by the Chartered Institute for Ecology and Environmental Management (CIEEM) Guidelines for Ecological Appraisal 2nd edition (2017) and the Guidelines for Ecological Impact Assessment (2019). Following these methods, a baseline of rare and/or noted ecological receptors (species and habitats) was established and their importance assessed. Predicted significant impacts upon these receptors have been identified and constraints and opportunities identified. This stepwise assessment process has informed likely mitigation and enhancement measures. The desk study and surveys undertaken fully inform the predicted impacts of the scheme in accordance with the NPPF (MHCLG, 2021), local planning policy and relevant wildlife legislation.

Desk Study

2.3 SES commissioned a data search from the Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BRMC) for records of protected and notable species and for data on non-statutory designated sites. The data search encompassed the study area, and up to 2km from the boundary. Data was received on 28th June 2022. A similar data search was commissioned from Cambridgeshire and Peterborough Environmental Records Centre with data received on 29th June 2022.

2.4 A web-based search for statutory designated sites via the Multi Agency Geographic Information for the Countryside (MAGIC) spatial data resource magic.defra.gov.uk was undertaken on 23rd June 2022 for the following statutory designated sites: sites protected under the Conservation and Habitats Regulations (2019) as amended (up to 13km from the Site boundary) and sites protected under the Wildlife and Countryside Act (1981) as amended (WCA) and Section 21 of the National Parks and Access to the Countryside Act 1949 (5km from the Site boundary).

2.5 An online search was also undertaken on MAGIC on 23rd June 2022 for priority habitats listed under the Natural Environment and Rural Communities (NERC) Act (2006) and ancient woodland listed on the Ancient Woodland Inventory (AWI), waterbodies within 500m and records of Natural England mitigation licenses granted for great crested newt within 5km.

Extended Phase 1 Habitat Survey

2.6 An extended Phase 1 Habitat Survey was carried out on 9th June 2022 by suitably qualified ecologist Josey Travell ACIEEM during appropriate weather conditions.

2.7 This is a standard technique for obtaining baseline ecological information for areas of land, including proposed development sites. Phase 1 Habitat Survey methods are set out in the Handbook for Phase 1 Habitat Survey (JNCC, 2010). Habitat mapping was undertaken using the standard classification to indicate habitat types. Features of ecological interest and value were highlighted using target notes.

2.8 The dominant and readily identifiable higher plant species identified in each of the various habitat parcels were recorded and their abundances assessed on the DAFOR scale:

- D - Dominant
- A - Abundant
- F - Frequent
- O - Occasional
- R – Rare

2.9 These scores represent the abundance within the defined area only and do not reflect national or regional abundances. Plant species nomenclature follows Stace (2010).

Protected and Notable Species

2.10 The Site was assessed during the extended Phase 1 Habitat survey for its suitability for protected and notable species that are likely to occur in the area. Considering the location of, and habitats present within the Site, an assessment was carried out for:

- Flora;
- Badger *Meles meles*;
- Bats (roosting, foraging and commuting);
- Nesting and over-wintering birds;
- Great crested newt (GCN) *Triturus cristatus*;
- Rare or notable invertebrates;
- Reptiles; and
- Other notable mammal species.

Badger

2.11 An initial assessment was made to record badger setts across the Site using standard guidelines for classifying badger setts (Harris et al., 1989) and categorising entrance holes (Natural England, 2009). Together with records of signs including paths, hairs, latrines and setts. This assessment also sought to identify areas with the potential to be utilised by badgers for foraging, commuting and sett creation, such as earth banks, woodland, hedgerows and rough grassland.

Bats

2.12 The Site was assessed for its suitability to support roosting, foraging and commuting bats.

2.13 Buildings and trees were assessed for their potential to support roosting bats using guidelines issued by Collins (2016). Both were assessed externally from ground level.

2.14 Good bat foraging habitat generally includes sheltered areas and habitats with good numbers of insects, such as woodland, scrub, ponds, lakes and species-rich or rough grassland. Good commuting habitat generally comprises linear features such as well-connected hedgerows, woodland edge, watercourses. The Site was assigned a level of suitability according to the classification provided by Collins (2016).

Birds

2.15 The Site was assessed for its potential to support breeding birds and significant wintering and/or migratory bird populations. Suitable habitat generally includes scrub, trees and can also include buildings, open grassland and piles of debris.

Great Crested Newt

2.16 The terrestrial habitat within the Site was assessed for its suitability for great crested newt. Suitable terrestrial habitat generally includes rough grassland and woodland where they can forage and hibernate, with good links to ponds where they breed. All accessible waterbodies within 500m of the Site were assessed for their suitability to support great crested newt, in accordance with best practice guidelines (Oldham *et al*., 2000).

Invertebrates

2.17 The Site was assessed for its potential to support rare or notable invertebrate species. This assessment was made on the basis of the structural complexity and diversity of the habitat mosaic present.

Reptiles

2.18 The Site was assessed for its suitability for the four commoner reptile species; common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, grass snake *Natrix natrix* and adder *Vipera berus*. Specific habitat requirements vary between species. Common lizard and slow worm prefer rough grassland although they can be found in a variety of habitats ranging from woodland glades to walls and pastures. Grass snake has similar habitat requirements but have a greater reliance on ponds and wetlands. Adder is more associated with dry grasslands, heathland and woodland edge habitats.

Notable Mammals

2.19 The Site was assessed for its potential to support NERC Act (2006) mammals of principal importance which are likely to occur in the local area especially European hedgehog *Erinaceus europaeus* and brown hare *Lepus europaeus*.

Assessment of Nature Conservation Value

2.20 CIEEM guidelines for Ecological Assessment in the United Kingdom (2019) have been utilised to assess the impacts upon habitats within the zone of influence of the Site. CIEEM suggests that it is best to use the geographical scale (i.e. international, national, regional etc.) at which a feature (i.e. a habitat, species or other ecological resource) may or may not be important as the appropriate measure of value. As such, data from the data search, the extended Phase 1 Habitat survey and previous ecological survey reports has been reviewed and the likely occurrence of protected and notable species/species groups assessed. This has allowed predictions of impacts to be made along with recommendations for mitigation, compensation and enhancement.

2.21 The following geographical scale categories are considered appropriate:

- International;

- National (*i.e.* England);
- Regional (East Midlands);
- County (Bedfordshire);
- District (St Neots);
- Local (Little Barford); and
- Within the Site or zone of influence only.

Constraints

2.22 Desktop data searches are a valuable tool in evaluating a site's potential to hold rare and protected species, it is not however an absolute in confirming presence or absence of notable species due to the nature of how the records are collected.

2.23 Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by SES for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

3.0 Baseline Ecological Conditions

The Site

3.1 The Site is located immediately east of the East Coast Mainline railway line, to the south of St Neots.

Statutory Designated Sites

3.2 There were no sites under the Conservation and Habitats Regulations (2019) as amended within 13km of the site. There were three Sites of Special Scientific Interest (SSSI) designated under the WCA (1981) as amended and one Local Nature Reserve (LNR) designated under Section 21 of the National Parks and Access to the Countryside Act 1949 within 5km of the site (Table 1).

3.3 The nearest was Weaveley and Sand Woods SSSI 2.5km east/south-east of the Site. The majority of the Site (i.e. the location of any new homes) was not located within an SSSI Impact Risk Zone (IRZ) for residential development, however, the eastern half of the access road only was located within an SSSI IRZ for residential development whereby:

New housing developments will require an assessment of recreational pressure on relevant SSSIs and measures to mitigate adverse impacts e.g. alternative open space provision. For further advice contact Natural England's Discretionary Advice Service.

3.4 Therefore the Site could potentially be subject to the requirements of the IRZ (see Section 4.0).

3.5 Local policy (Bedford Borough Local Plan, 2030) indicates that downstream impacts to Special Areas of Conservation (SAC) arising from increased flooding or pollution events should be fully considered as follows:

Policy 44
v. Ensure that any new development or activities do not lead to adverse impacts on Natura 2000 sites downstream of Bedford i.e., Portholme (SAC) and The Ouse Washes (SAC/SPA/Ramsar) including as a result of increased flooding or because of pollution.

3.6 Hence, whilst standard measures included within any flood risk assessment and foul sewage strategy should lead to ensuring that there are no such effects, this should be formally screened within a Habitats Regulations Assessment report and, if likely significant effects are anticipated, then mitigation proposed within an Appropriate Assessment.

Table 1. Statutory Designated Sites within 5km of the Site.

Site Name	Distance & Direction	Size (ha)	Description & Reason for Designation
Weaveley and Sand Woods SSSI	2.5km east/south -east	47	Site supports nationally rare ancient woodland habitat, with unique geology. Flora is typical of ancient woodland, and notable species present include herb-Paris *Paris quadrifolia*, butterfly orchid *Platanthera chlorantha* and pignut *Conopodium major*.

Site Name	Distance & Direction	Size (ha)	Description & Reason for Designation
St. Neots Common SSSI	3.2km north	33.6	Site supports woodland, grassland, wetland, and pond habitats, which provide an area of diverse wildlife habitat, supporting a variety of species. Notable flora species include common water dropwort *Oenanthe fistulosa*, marsh orchid *Dactylorhiza praetermissa*, marsh arrow grass *Triglochin palustris*, water plantain *Alisma plantagoaquatica* and brookweed *Samolus valerand*. There are also thriving colonies of toads and frogs, the latter being rare in the county.
Gamlingay Wood SSSI	4.3km east/south -east	46	This is a woodland of ancient origin which holds well developed plant and animal communities. It is of the ash-maple woodland type and represents a habitat which has now become relatively scarce throughout its natural range over lowland England. The majority of the wood is mixed coppice of oak *Quercus robur,* ash *Fraxinus excelsior,* hazel *Corylus avellana* and field maple *Acer campestre.* Notable flora include the nationally restricted oxlip *Primula elatior,* dog's mercury *Mercurialis perennis,* bluebell *Hyacinthoides non-scripta,* yellow archangel *Galeobdolon luteum* and wood anemone *Anemone nemorosa.*
Little Paxton Pits LNR	4.5km north	60	Site supports flooded gravel pit habitats, marsh, woodland, grassland, and scrub habitats, and is immediately adjacent to Little Paxton Pits SSSI. The pits are of national importance for wintering waterfowl, and an important stopping point for migrant birds. The site also supports wading birds, invertebrates, and otters. Notable fauna species include gadwall *Anas strepera*, ringed plover *Charadrius hiaticula*, snipe *Gallinago gallinago*, tufted duck *Aythya fuligula*, kingfisher *Alcedo atthis*, and nightingale *Luscinia megarhynchos*.

Non-Statutory Designated Sites

3.7 Six County Wildlife Sites (CWS) were present within 2km of the Site (Appendix 5). The closest CWS to the Site is Sir John's Wood CWS at 240m to the east/south-east of the site (Table 2).

Table 2: Non-statutory Designated Sites within 2km of the Site

Site name	Area (ha)	Distance and direction	Reasons for designation
Begwary Brook Pits CWS	15.8	1.25km west	Mosaic of freshwater and wetland habitats
Latch Pool and Ditch CWS	0.8	1.38km south	Pond and ditch habitats
Little Barford CWS	29.48	470m west	Complex of two semi-improved pastures to the east, an area of swamp vegetation in a poplar plantation to the west, a churchyard and the neighbouring section of the River Great Ouse.
River Great Ouse CWS	213.1	490m west	River and adjacent habitats and features which are considered part of the river system
Sir John's Wood CWS	5.7	240m east/south-east	Ancient semi-natural woodland
Wyboston Pits CWS	104.18	570m west	Series of flooded, disused gravel pits surrounded largely by amenity grassland with scattered trees and shrubs but with smaller areas of

Site name	Area (ha)	Distance and direction	Reasons for designation
			neutral and marshy grasslands and broadleaved plantation.

3.8 All of the internationally designated sites are considered to be of **international** importance, the SSSIs are considered to be of **national** importance and the CWS are considered to be of **county** importance.

Habitats

3.9 The Site primarily consists of arable fields with hedgerows, areas of woodland, patches of scrub, lines of trees, poor semi-improved grassland, ditches and scattered ponds. The arable fields are considered to offer limited ecological value, but the woodland, hedgerows, scrub, grassland, seasonally wet ditches and ponds within the site potentially provide a resource for species of conservation concern, as well as offering biodiversity value.

3.10 The deciduous woodland on site is designated as a Habitat of Principal Importance (HoPI) under Section 41 of the NERC Act 2006 with numerous additional areas of HoPI woodland habitat present within the wider surrounding area (Appendix 6). No ancient woodland was present within the site, the nearest area of woodland listed on the Ancient Woodland Inventory (AWI) was located approximately 0.2km east of the south-easternmost corner of the Site. Two areas of traditional orchard priority habitat were located to the east of the northern part of the Site – approximately 0.4km from the Site boundary, but no areas of traditional orchard priority habitat were present within the Site. The areas of standing water, hedgerows and scattered trees may be considered to be HoPI depending upon condition and subject to further survey and assessment.

3.11 A Phase 1 habitat map of the site is provided within Appendix 7. Site photographs are presented in Appendix 8. Plant species recorded per habitat type are tabled in Appendix 7.

3.12 The Phase 1 Habitat types (JNCC, 2010) recorded within the Site (red-line area) were:

- Mixed semi-natural woodland
- Arable
- Scattered scrub
- Dense scrub
- Species-poor intact hedge
- Species-poor defunct hedge
- Species-poor intact hedge with trees
- Species-poor defunct hedge with trees
- Broad-leaved trees
- Species-poor semi-improved grassland
- Standing water
- Dry ditch
- Bare ground
- Buildings

Mixed Semi-natural Woodland

3.13 Three distinct areas of mixed semi-natural woodland were present within the site boundary, all of which are classified as priority habitat (listed on the Priority Habitat Inventory – Deciduous Woodland).

3.14 To the south-east, a circular mixed semi-natural woodland was present surrounded by arable fields. The woodland was dominated by mature oak *Quercus robur* trees (D) with a bramble *Rubus fruticosus* (F) and bracken *Pteridium aquilinum* (F) understorey. To the centre of the Site, a large mixed woodland was present. This was dominated by mature oak (D) and scots pine *Pinus sylvestris* (O), with cherry *Prunus avium* (F), lime *Tilia x europaea* (O), ash *Fraxinus excelsior* (F), field maple *Acer campestre* (O), sycamore *Acer pseudoplatanus* (O) and horse chestnut *Aesculus hippocastanum* (R) also present. The south-western and eastern parcels of this woodland had been replanted in the last few decades and therefore contained much younger specimens. The understorey of this woodland consisted of false brome *Brachypodium sylvaticum* and occasional bramble. The final pocket of woodland was located to the east of the Site, comprising of mature ash and oak with occasional scots pine. The understorey of this woodland was dominated by bramble, with replanting having occurred again in the last few decades. In the north-west of the woodland, an improved drainage for the adjacent arable fields had recently been constructed.

Arable

3.15 The majority of the site comprised arable fields under active management. Crops grown included rapeseed Brassica napus (D) and wheat *Triticum aestivum* (D).

Scattered Scrub

3.16 Scattered scrub was present along the northern half of the western boundary beside the East Coast Mainline. Species identified bramble, blackthorn *Prunus spinosa* (D), hawthorn *Crataegus monogyna* (A), dog rose *Rosa canina* (O) and buckthorn *Rhamnus cathartica* (O).

Dense Scrub

3.17 Three areas of dense scrub were recorded within the site, both along the western boundary of the Site. The larger of the two areas was located approximately halfway along the western boundary, immediately north of the access track that runs across the Site. This area of scrub contained bracken in places. The second area of dense scrub recorded was slightly north, surrounding a small pond, with the third surrounding a large pond in the east. Species included those previously listed, along with crack willow *Salix × fragilis*.

Hedges

3.18 A variety of hedge types were present within the Site, both around the Site boundaries and also across the Site. Hedges comprised the following types:

- Species-poor intact hedge;
- Species-poor defunct hedge;
- Species-poor intact hedge with trees; and
- Species-poor defunct hedge with trees.

3.19 Hedgerows varied in condition, with those in the east and the central hedgerow following the access track under more regular management. Species identified included hazel *Corylus avellana* (F), hawthorn (F), ash (F), black bryony *Dioscorea communis* (O), bramble (O), dog rose (O), field maple (F), crab apple *Malus* sp. (O), blackthorn (F) and buckthorn (F).

Broad-leaved Trees

3.20 Lines of broad-leaved trees were present within the Site, mainly along parts of the boundaries around the northern section of the Site, but with an additional line of trees running west-east from the eastern edge of Boys Wood to the eastern Site boundary. The majority of these field boundary trees were mature specimens of oak (D).

Species-poor Semi-improved Grassland

3.21 Areas of species-poor semi-improved grassland were present throughout the Site, mostly associated with woodland edges and field boundaries. The grassland to the north of the site consisted of a varied sward height in excess of 200mm and forbes present. An area in the far north-west has a much shorter sward height (<150mm) as a result of damage caused by grazing rabbit. Species identified included cocks-foot *Dactylis glomerata* (A), smooth meadow-grass *Poa pratensis* (F), oxe-eye daisy *Leucanthemum vulgare* (O), timothy *Phleum pratense* (R), soft rush *Juncus effusus* (O), smooth tare *Vicia tetrasperma* (R), meadow barley *Hordeum brachyantherum* (F), crested dogs-tail *Cynosurus cristatus* (R), cut-leaved cranesbill *Geranium dissectum* (R), common groundsel *Senecio vulgaris* (O). A full species list is provided in Appendix 9. Grassland to the south of the site had a more open sward structure, with ruderals also present. Species in these pockets included Yorkshire fog *Holcus lanatus* (F), scarlet pimpernel *Anagallis arvensis* (R), sheeps fescue *Festuca ovina* (F), cocks'-foot (O), dock *Rumex* sp. (F), thistle *Cirsium arvense* (A) and bristly oxtongue *Helminthotheca echioides* (A). Occasional ragwort *Jacobaea vulgaris* was also present.

Standing Water

3.22 Seven ponds were recorded within the Site, with all but two dry at the time of survey (Ponds 5 and 6), located in the centre of the site. Although dry at the time of survey, emergent vegetation (common reed *Phragmites australis* (O) and flag iris *Iris pseudacorus* (O)) were present. All ponds were surrounded by dense scrub.

Dry Ditch

3.23 A network of seasonally wet ditches were present throughout the Site. All were found to be dry at the point of survey.

Bare Ground

3.24 Bare ground was present within the Site along the entirety of the access track and around the farm buildings. The bare ground comprised concrete and bare earth and was restricted to access routes and in the vicinity of farm buildings.

Buildings

3.25 Nine buildings were present within the Site at Top Farm (Appendix 7). Of these, four were of a modern design and used for farm produce and machinery storage (Buildings 2 – 5). Building 1 comprised of a small single security cabin not in current use but was in a maintained state. Buildings 6 and 7 were open sided agricultural barns used for storage. Buildings 8 and 9 were small brick-built buildings and stables used for offices and storage.

Summary

3.26 The arable habitats which make up the majority of the Site area were considered to offer low ecological value, but the woodland, hedgerows, scrub, grassland and aquatic habitats within the Site potentially provide a resource for protected and notable species, in addition to offering intrinsic biodiversity value. The habitats within the Site are considered likely to range from **negligible** to **county** importance as follows:

Table 3: Summary of ecological importance of habitat types within the Site

Habitat Type	Level of Importance*
Mixed semi-natural woodland	County
Arable	Site
Dense and scattered scrub	Site
Hedgerows	Up to County
Broad-leaved trees	Up to Local
Species-poor semi-improved grassland	Site
Standing water	Site
Dry ditch	Site
Bare ground	Negligible
Buildings	Site

*levels of importance may be subject to change following further surveys.

3.27 Confidence in this assessment is moderate, with further surveys required to inform a more detailed evaluation of habitats.

Protected and Notable Species

3.28 Protected species are animals and plants listed within the Conservation of Habitats and Species Regulations 2019, as amended, The WCA 1981, as amended, The Protection of Badgers Act 1992, or listed in Section 40 or 41 of the NERC Act 2006. Protected and notable species with existing records within 2km of the site are detailed below.

Data Search

3.29 In Bedfordshire there was a total of 14211 records of 217 species including 13759 records of 141 bird species (97% of all records) were recorded within 2km of the surveyed area over the last 10 years. In Cambridgeshire, there was a total of 261 records of 59 species including 30 bird species were recorded within 2km of the surveyed area over the last 10 years.

Rare and Notable Flora

3.30 There were no records of Schedule 8-protected plants within 2km of the surveyed area except for records of bluebell *Hyacinthoides non-scripta*. No rare or protected species were recorded within the Site during the Phase 1 Habitat Survey.

3.31 There were records of Nuttall's waterweed *Elodea nutallii* and Indian balsam *Impatiens glandulifera* within 2km from the Site with both species present within the River Great Ouse CWS (0.5km west of the Site) and Indian balsam also present within Begwary Brook Pits CWS (1.27km west of the Site). The data search also included records of montbretia *Crocosmia pottsii x aurea = C. x crocosmiiflora* and wall cotoneaster *Cotoneaster horizontalis* within 2km of the Site, both located within St Neots.

3.32 No invasive species were observed within the surveyed area during the Phase 1 Habitat Survey.

Badger

3.33 There were 14 records of badger returned from the data search within 2km of the Site.

3.34 During the survey five badger setts were identified throughout the Site, comprising one potential main sett and four potential outlier setts (detailed in Table 4 and shown on the Phase 1 Habitat Map in Appendix 7. Furthermore, two potential main badger setts are known to occur within the wider land ownership (Area 1 and Area 2, SES, 2021). Evidence of activity was recorded with badger prints and latrines found throughout the Site. Thus, a full badger scoping survey, bait marking surveys and sett monitoring surveys are recommended to determine sett types and use (see Section 4.0).

3.35 It is considered that the Site is important at the **local** level for badgers. The assessment of the importance of the Site for badgers will be confirmed or amended accordingly following results of further surveys.

Table 4: Badger setts recorded within the Site

Number	Indicative sett type	Description
1	Outlier	Single entrance sett with small, old spoil. Clear entrance. Partially used.
2	Outlier	Single entrance sett with small, old spoil. Clear entrance. Partially used.
3	Main	Five large, D-shaped entrances with fresh spoil and clear entrances. Pathways leading into wider landscape. Well used.
4	Subsidiary	Three D-shaped entrances with debris and cobwebs within and little spoil (old) at entrance. No pathways leading into wider landscape.
5	Outlier	Two D-shaped clear entrances with small amounts of spoil. Limited pathways connecting into the wider landscape. Well-used.

Bats

3.36 A total of 115 records of bats within 2km of the Site were returned in the data search, comprising at least nine species. The records are summarised in Table 5 below.

Table 5. Bats recorded within 2km of the Site.

Species	Records
Brown Long-Eared Bat *Plecotus auritus*	2
Common Pipistrelle *Pipistrellus pipistrellus*	29
Daubenton's Bat *Myotis daubentonii*	14
Nathusius' Pipistrelle *Pipistrellus nathusii*	2
Natterer's Bat *Myotis nattereri*	1
Noctule *Nyctalus noctula*	9
Noctule or Leisler's Bat *Nyctalus* sp.	5
Serotine *Eptesicus serotinus*	2
Soprano Pipistrelle *Pipistrellus pygmaeus*	32
Western barbastelle *Barbastella barbastellus*	1
Unidentified bat *Vespertilionidae*	2
Unidentified Myotis bat *Myotis* sp.	9
Unidentified pipistrelle species *Pipistrellus* sp.	7

3.37 Numerous trees were found to support suitable bat roosting features across the Site. Features which may be of use to roosting bats identified included rot holes, limb collars, woodpecker holes, dense ivy, lifted bark, cracks and crevices, limb tears and cavities. Furthermore, habitats on site (deciduous woodland, semi-improved grassland, hedgerows, scrub) were considered to offer suitable foraging and commuting habitat for bat species.

3.38 In the absence of further and more detailed inspections of trees with the potential to support roosting bats a precautionary assessment is that the site is considered to be of **district** importance for roosting bats, based on the number of trees within the Site that have potential roost features (PRFs).

3.39 The Site is considered to be of high suitability for foraging and commuting bats, with the overall assessment of **district** importance for foraging/commuting bats. The assessment of the importance of the Site for bats will be confirmed or amended accordingly following results of further surveys (see Section 4.0).

Birds

3.40 There were records of a range of terrestrial species associated with farmland and woodland habitats. There were 33 species listed under Schedule 1 of the WCA 1981 (as amended) within 2km including barn owl *Tyto alba* and hobby *Falco Subbuteo,* and various other farmland and raptor species. Records were also obtained for 36 species listed on the red-list of birds of Conservation Concern (BoCC) (Eaton *et al*., 2015), including house sparrow *Passer domesticus*, starling *Sturnus vulgaris,* and song thrush *Turdus philomelos.*

3.41 The Site boundaries, woodland, scrub and grassland provide nesting and foraging opportunities for birds. The arable fields also provide nesting habitat for farmland birds such as skylarks *Alauda arvensis*. Barn owl and hobby nests have been recorded within part of the A428 corridor to the immediate south-east of the Site boundary, with habitats continuous between the two areas. Suitable habitats on Site are present for both species, with no barrier to dispersal between this part of the A428 corridor and the Site. It is therefore likely that barn owl and hobby recorded in this part of the A428 corridor will likely utilise on-site habitats. Furthermore, potential barn owl pellets were found within Building 6, with this

species known to have roosts within the wider landscape. Thus, breeding and wintering bird surveys, and barn owl surveys are recommended (see Section 4.0).

3.42 It is considered that the Site is important at the **site** level for birds. The assessment of the importance of the Site for birds will be confirmed or amended accordingly following results of further surveys.

Great Crested Newt

3.43 Six records of GCN were identified within 2km of the site.

3.44 There were no records within 500m from licensing returns. Furthermore, the Site falls within the Green Risk Zone (moderate habitat suitability) and White Risk Zone (low habitat suitability) for great crested newts (NatureSpace Impact Risk Map), which provides an indication of the possibility that GCN may be present within an area. In this case the Green Zones are areas where '*GCN may be present*' and the White Zones are areas where there is '*a low probability of GCN presence*'.

3.45 There were seven waterbodies within the Site and a further two to within 250m of the Site boundary (shown within Appendix 7), all of which were assessed for their suitability for GCN, using the Habitat Suitability Index (HSI) by Oldham et al (2000). A summary of ponds, their location from site and suitability score is provided in Table 6 below. Five of these waterbodies were dry at the time of the survey and therefore did not provide suitable breeding habitat for GCN during 2022. However, given the presence of a number of waterbodies throughout the Site, connected to areas of suitable terrestrial habitat (mixed woodland, hedgerows and semi-improved grassland), further presence/likely absence surveys are recommended to establish the status of GCN on Site (see Section 4.0).

Table 6: HSI Results

Waterbody reference	HSI result	Suitability	Approx. distance & direction from Site
1	0.525	Below Average	Onsite
2	0.5102	Below Average	Onsite
3	0.5763	Below Average	Onsite
4	0.4457	Poor	Onsite
5	0.7624	Good	Onsite
6	0.7683	Good	Onsite
7	0.4642	Poor	Onsite
6a	0.7547	Good	81m west
7a	0.5136	Below Average	116m west

3.46 Based on the presence of suitable aquatic and terrestrial habitat for GCN, but taking into account the results of the desk study, the Site is initially considered to be of local importance for GCN. The assessment of the importance of the Site for GCN will be confirmed or amended accordingly following results of further surveys.

Invertebrates

3.47 There were 389 records of 51 invertebrate species including a range of butterfly, moth and dragonfly species. Most records were for moth species, predominantly recorded in Tempsford (approximately 1.8km to the south-west of the Site).

3.48 The priority habitats within the Site are considered likely to support notable assemblages of rare or notable invertebrates including stag beetle *Lucanus cervus* and the assemblage value should be confirmed through a scoping survey by specialist invertebrate ecologist and follow-up surveys as required (see Section 4.0). In addition, hedgerows identified within part of the A428 scheme to the immediate south-east of the Site were found to be of Regional and County importance for terrestrial invertebrates. These hedgerows run continuously between the Site and this section of the A428 corridor, it is therefore reasonably likely that any notable invertebrates utilising these hedgerows will also utilise hedgerows within the Site where they are of a similar ecological value.

3.49 The site is considered to be of **county** importance for invertebrates. The assessment of the importance of the Site for invertebrates will be confirmed or amended accordingly following results of further surveys.

Reptiles

3.50 The data search returned one record for reptiles within 2km of the Site for the last 10 years, a juvenile grass snake recorded in St Neots in 2013.

3.51 Suitable reptile habitat was found within areas of semi-improved grassland, predominately located at field margins across the Site. Suitable hibernating reptile habitat was also present in the form of woodland and hedgerows which interlink throughout the Site and into the wider landscape. Given the presence of suitable habitat, it is recommended that reptile presence/likely absence surveys are undertaken within the suitable habitat (see Section 4.0).

3.52 The Site is considered to be important at the **site** level for reptiles. The assessment of the importance of the Site for reptiles will be confirmed or amended accordingly following results of further surveys.

Other Notable Species

3.53 There were seven records of brown hare within 2km of the Site, two records of harvest mouse *Micromys minutus* and seven records of European hedgehog.

3.54 The Site is considered to provide suitable habitats for brown hare, harvest mouse and European hedgehog in addition to being suitable for other BAP/NERC Act species such as common toad *Bufo bufo*. Brown hare were recorded on Site during the survey, with three sightings recorded in the south of the Site, and two sightings along the woodland edges in the north of the Site. As such, presence/likely absence surveys/habitat assessments in relation to these species are recommended to guide any potential mitigation and enhancements and ensure compliance with planning policy (see Section 4.0).

3.55 The Site is considered to be important at the **site** level for brown hare, harvest mouse, European hedgehog and common toad. The assessment of the importance of the Site for other notable species will be confirmed or amended accordingly following results of further surveys.

Summary

3.56 An evaluation of the surveyed area in relation to ecology features is provided in Table *7*.

Table 7: Evaluation of existing ecological receptors

Receptor	Summary Description	Importance	Confidence
Statutory Designated Sites	Eastern part of the Site access road located within SSSI IRZ. The main Site not within any SSSI IRZ. Nearest is Weaveley and Sand Woods SSSI located 2.5km east/south-east of the Site.	National	High
Non-statutory Designated Sites	The closest was Sir John's Wood CWS located 240m east/south-east of the Site.	County	High
Habitats	Woodland, hedgerows and broad-leaved trees considered to be priority habitats in addition to arable, scrub, poor semi-improved grassland, and standing water habitats.	County – Site	Moderate
Badger	One potential main sett and four other setts.	Local	Moderate
Bats	At least eight species recorded within 2km. A number of roosting opportunities primarily within trees and high-suitability foraging and commuting habitats.	District	Moderate
Birds	Likely to support a large breeding assemblage of common and widespread species. Barn owl potentially present in farm buildings.	Site	Moderate
Great Crested Newt	Local records of GCN within 2km of the Site. Nine waterbodies present within the Site, three with 'Good' suitability.	Local	Moderate
Invertebrates	May support a notable assemblage associated with woodland and hedgerows in particular.	County	Moderate
Reptiles	Potential for reptiles within semi-improved grassland, hedgerows and woodland edge habitats.	Site	Moderate
Other Notable Species	Brown hare recorded within the Site. Suitable habitats also for harvest mouse, European hedgehog and common toad.	Site	High

4.0 Further Surveys, Likely Impacts, Mitigation and Enhancement Measures

Development Description

4.1 The proposals have not been finalised but will likely include a number of opportunities for residential and commercial development associated with the allocation of a new settlement. In order to respect some of the ecological features identified in this report, parcels of the surveyed area are proposed to remain free of development.

Statutory Designated Sites

4.2 There were no European sites present within 13km of the Site, and the Site is not located within the zone of influence of any such sites with the exception of the requirements stated in local policy (Bedford Borough Local Plan 2030), regarding Portholme Special Area of Conservation (SAC) and The Great Ouse Washes SAC/Special Protection Area (SPA)/Ramsar Site as follows:

Policy 44
v. Ensure that any new development or activities do not lead to adverse impacts on Natura 2000 sites downstream of Bedford i.e. Portholme (SAC) and The Great Ouse Washes (SAC/SPA/Ramsar) including as a result of increased flooding or because of pollution.

4.3 Therefore, whilst standard measures included within the flood risk assessment and foul sewage strategy should lead to ensuring that there are no such effects, this should be formally screened within a Habitats Regulations Assessment (HRA) report and, if likely significant effects are anticipated, then mitigation proposed within an Appropriate Assessment.

4.4 The nearest SSSI to the site was Weaveley and Sand Woods SSSI, located 2.5km south-east of the Site's easternmost red line boundary, with St. Neots Common SSSI at 3.2km north, and Gamlingay Wood SSSI at 4.3km south-east. Whilst the main Site area does not fall within an SSSI Impact Risk Zone (IRZ) for residential development, the eastern half of the access road only is located within an IRZ for residential development whereby:

New housing developments will require an assessment of recreational pressure on relevant SSSIs and measures to mitigate adverse impacts e.g. alternative open space provision. For further advice contact Natural England's Discretionary Advice Service.

4.5 It could be considered that as the location of the proposed new homes does not sit within the IRZ, then an assessment of recreational pressures on the relevant SSSIs (and any mitigation measures) would not be necessary. It is therefore recommended that consultation with Natural England is undertaken to determine whether the IRZ would apply.

4.6 It is considered that due to the distance of the Little Paxton Pits LNR at 4.5km from the site, adverse impacts on this site are unlikely.

Non-Statutory Designated Sites

4.7 Given the distance of these sites to the Site boundary, direct impacts such as habitat loss are considered unlikely to result from any development proposals for the Site. However, likely indirect impacts from any development upon these features could occur and may include increases in recreational pressure

and potential downstream pollution events. Appropriate mitigation will be required to address any potential impacts on non-statutory designated sites, which will likely be delivered in the form of open space and the production of a pollution strategy.

Habitats

4.8 The Site includes areas of semi-natural mixed woodland priority habitat, listed under the NERC Act (2006).

4.9 It is recommended that all areas of these woodland habitats be retained and protected from disturbance or if habitat loss is unavoidable then losses should be compensated for by replacement habitat creation or planting. The habitats provide opportunities for enhancement through appropriate management and where necessary suitable planting.

4.10 Other habitats present within the Site that are considered to be of more than **site** level importance are:

- Standing water;
- Hedgerows; and
- Scattered trees.

4.11 These habitats have the potential to be classified as HoPI depending on the results of further surveys.

4.12 It is recommended that all these habitats be retained and protected from disturbance or if habitat loss is unavoidable then losses should be compensated for through replacement habitat creation or planting. If retained, the above habitats provide opportunities for enhancement through appropriate management and where necessary suitable planting.

4.13 The quality of the habitats identified above should be assessed by a specialist botany survey in spring/early summer to determine if they reach the criteria for HoPI.

4.14 A Biodiversity Net Gain (BNG) calculation should be carried out using the latest approved Defra Metric using the baseline habitats mapped in the Phase 1 plan in relation to the proposed landscape layout. Given the potential quality of the retained habitats in the surveyed area, a net gain is likely to be achievable and hence an offset is unlikely to be required if valuable habitats are retained and any proposals include a significant provision of green space. Habitat scenarios should be modelled at an early design stage to ensure a minimum 10% net gain may be delivered.

4.15 Landscaping should include trees, shrubs and plants of known benefit to wildlife especially for nectar-feeding species such as bats and invertebrates. A reference list is provided in Appendix 9.

Protected and Notable Species

Flora

4.16 With no protected, rare or notable plant species recorded on Site, and with the botanical assemblage considered to be of **negligible** importance, no significant adverse impacts on protected or notable plant species are anticipated as a result of the proposed development.

Badger

4.17 Badgers are legally protected under the Protection of Badgers Act (1992). Construction works within 30m of an active badger sett have potential to damage/destroy/block a sett, or disturb/injure badgers occupying a sett, both of which are offences under the Protection of Badgers Act 1992.

4.18 The presence of badger setts within the Site and evidence of badger activity throughout the Site, in addition to the known presence of numerous badger setts and activity within the adjacent and wider surrounding area ([redacted] requires that further surveys are carried out to confirm the status of badger setts throughout the Site.

4.19 Further recommended surveys include a full badger scoping survey to identify all setts during winter months when vegetation cover is reduced, sett monitoring surveys to confirm sett status and bait marking surveys to confirm clan territories within surveyed area. Bait marking surveys should be carried out between February and April.

4.20 The results of these surveys will enable the identification of potential impacts and determine any suitable and appropriate mitigation required. Any active badger setts impacted by development works may require full or partial closure to enable work, with works restricted within 30m of any retained, active setts. Closure of active setts will require a licence from Natural England. Badger sett closures can only be undertaken between 1st July - 30th November, with licenses generally granted upon the receipt of full planning permission. If a main sett is found within the surveyed area boundary, and due to be impacted by proposals, a replacement main sett would be required to be provided within the existing clan territory and found to be in use by badger ahead of any closure of main setts. Any required artificial badger setts should be positioned at a minimum 30m from the built realm and protected from human disturbance, such as through abrasive planting.

4.21 In general, the following precautionary construction techniques which are applicable to most construction sites and are sympathetic to badgers are recommended:

- Covering trenches at night or leaving a plank of wood leant against the side to ensure badgers can escape if they were to accidentally fall in;
- Covering open pipework with a diameter of greater than 120mm at the end of the workday to prevent animals from entering and becoming trapped;
- Covering chemicals and storing them appropriately overnight; and
- Regular removal of litter.

4.22 The loss of foraging or sett building habitat is likely to require a level of mitigation in the form of maintaining areas of grassland, woodland and boundary habitats which should be protected from increases in artificial light during the construction and operation stages. Planting using a range of native, fruit-bearing species within the landscape scheme is advised and a list of potential species is provided in Appendix 9. It is considered that mitigation is fully achievable within the Site with regards to badgers. Likely enhancement of the Site pertaining to badger include the provision of species-rich grassland and native, species-rich hedgerow (including fruit-bearing species) planting to provide foraging resource. Maintenance of dark, vegetated wildlife corridors designed to ensure connections are maintained between onsite high value foraging habitat and the wider landscape would serve to avoid potential

fragmentation of habitat. Any corridors should be designed to avoid interfaces with any planned highway designs, with speed restrictions along any highways within development to reduce the risk of road collisions.

Bats

4.23 All bat species are legally protected under the WCA (1981, as amended) and Conservation of Habitats and Species Regulations (2017, as amended). Taken together, it is an offence to destroy, damage or obstruct access to a bat roost, to kill, injure or disturb individual bats, or to deliberately disturb bats in such a way to be likely to significantly affect their ability to survive, breed, rear or nurture their young or their local distribution.

4.24 Further surveys are recommended to establish the presence of any bat roosts on site (survey requirement summarised in Table 8) and the importance of the Site for foraging/commuting purposes for the local bat population (survey requirement as summarised in Table 9). In the first instance, surveys should seek to characterise habitat on Site likely to be impacted from any planned proposals with regards to roosting, commuting and foraging bats. The results of which will then identify the number of specific surveys required as per best practice. Further surveys should follow current best practice (Bat Conservation Trust (BCT), 2016) and be undertaken during suitable weather conditions appropriate for bats.

Table 8: Roost presence/absence survey requirement

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit (dusk emergence or dawn re-entry) (structures). No further surveys required (trees).	Two separate survey visits.* One dusk emergence and a separate dawn re-entry survey.	Three separate survey visits.* At least one dusk emergence and a separate dawn re-entry survey. The third visit can be either a dawn re-entry survey or a dusk emergence survey.
May to August (structures). No further surveys required (trees).	May to September with at least one survey between May to August.	May to September, with at least two surveys between May and August.

*Survey visits require a 2-week interim and are weather dependant.

Table 9: Habitat suitability survey requirement

Low suitability habitat for bats	Moderate suitability habitat for bats	High suitability habitat for bats
One survey visit per season (Spring: April/May, Summer: June/July/August, Autumn: September/October).	One visit per month (April – October). At least one survey visit should comprise a dusk and pre-dawn (or dusk to dawn) survey within one 24 hours period.	Up to two survey visits per month (April – October). At least one survey visit should comprise a dusk and pre-dawn (or dusk to dawn) survey within one 24 hours period.
One location per transect, placed for a minimum of five	Two locations per transect, placed for a minimum of five consecutive	Three locations per transect, placed for a minimum of five consecutive

Low suitability habitat for bats	Moderate suitability habitat for bats	High suitability habitat for bats
consecutive nights during each season.	nights during each month (April - October).	nights during each month (April – October).

4.25 At present, mitigation is likely to include the retention and protection of identified commuting and foraging habitats and corridors on site; provision of a bat box scheme on retained trees/new buildings throughout any planned development schemes. If any bat roosts are confirmed on site, these should be retained and buffered from construction and light pollution during the construction and operational phases where feasible. If it is not possible to retain roosts, then a licence from Natural England would be required prior to removal of roost(s) and after full planning permission is received, with all relevant ecological conditions discharged. Appropriate mitigation is considered to be entirely deliverable, although any strategy would need to be agreed with Natural England.

4.26 Impacts upon bat foraging/commuting activity are likely to be of low significance if optimal foraging habitat (including deciduous woodland, linear vegetated features) are retained. However, there remains a potential impact from potential increases in artificial lighting and severing of commuting routes.

4.27 The effect on bats can be minimised with the inclusion of certain measures. Appropriate recommendations can be determined through further bat activity surveys.

4.28 If any new external lighting is necessary, this should avoid directly lighting retained and newly planted trees. A sensitive lighting strategy should be employed to reduce indirect impacts on local bat populations. The following mitigation strategies have been taken from the Institution of Lighting Professionals and BCT Guidance Note 08/18 Bats and artificial lighting in the UK (2018):

- In general, light sources should not emit ultra-violet light so as to avoid attracting insects and thus potentially reducing numbers in adjacent areas, which bats may use for foraging. Metal halide and fluorescent sources should not be used.
- LED luminaires should be used where possible. A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component. Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Other ways to reduce light spill include the use of directional luminaires, shields, baffles and/or louvres. Flat, cut-off lanterns are best. Additionally, lights should be located away from reflective surfaces where the reflection of light will spill onto potential foraging/commuting corridors. Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill. Where windows and glass facades etc. cannot be avoided, low transmission glazing treatments may be a suitable option in achieving reduced illuminance targets.
- Lighting that is required for security or access should use a lamp of no greater than 2000 lumens and be passive infrared sensor activated on a short timer (1 minute), to ensure that the lights are only on when required and turned off when not in use. A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

4.29 Likely enhancement opportunities for bats include the enhancement of vegetated features, i.e., through gap planting using native, species rich mixes, the provision of species-rich seed mixes in areas of open space, retention and enhancement of open water, the provision of dark, vegetated corridors throughout

the site linking into the wider landscape and the inclusion of a bat box scheme. A list of potential species is provided in Appendix 9.

Birds

4.30 All breeding birds are protected from deliberate destruction under the WCA 1981 (as amended). Under this legislation all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions, to intentionally kill, injure, or take any wild bird or their eggs or nests (exceptions to this are listed in Schedule 2). In addition, a select group of species, including barn owl, are further listed under Schedule 1 of the Act, and these have additional protection that makes it an offence to disturb these birds at the nest, or to disturb their dependent young. In addition to this statutory protection British birds are also classified according to their conservation status, including their position on the Red and Amber lists of Birds of Conservation Concern (BoCC, 2021) and whether they have been identified as Priority Species.

4.31 The habitats present within the Site offer suitability for a range of nesting birds including a number of notable species such as barn owl and hobby, in addition to the potential to offer suitable habitat for notable wintering bird assemblages. Potential impacts on nesting birds include death, damage to and disturbance of nests during vegetation clearance in addition to habitat losses. Breeding and wintering bird surveys are therefore recommended to determine the bird assemblages within the Site and the importance of the Site for wintering and breeding birds.

4.32 Breeding bird surveys should include four visits between April and June and follow a modified version of the standard Common Bird Census (CBC) methods (as devised by the British Trust for Ornithology (BTO) (Marchant, 1983; Bibby et al., 1992). Wintering bird surveys should include four visits between November to February (inclusive) and follow a bespoke version of the standard CBC, as detailed above. A barn owl nest survey should also be undertaken.

4.33 Mitigation will be informed by further surveys and will likely include the retention of optimal nesting habitat and the provision of bird boxes. Any bird nesting habitat to be removed should be removed outside the bird nesting season (March - August inclusive). If this is not possible, in-season habitat removal should be accompanied by nesting bird checks undertaken by an appropriately qualified Ecological Clerk of Works (ECoW) no further than 48hours ahead of planned clearance. Furthermore, if on-site nesting habitat, particularly habitat supporting ground nesting birds which are strongly associate with the arable landscape (notably, skylark, if found to be present) cannot be retained, an offsite solution may be required, i.e., the provision of off-site skylark plots, managed for the receptor species in perpetuity.

4.34 To enhance the Site for birds, species offering a value to wildlife and the provision of species-rich seed mixes in areas of open space, where practicable, should be incorporated within any soft landscape plans. Targeted mitigation and compensation measures for barn owl and hobby should also be incorporated within any proposals for the Site. The exact mitigation requirements would be confirmed through the results of further surveys for these species.

Great Crested Newt

4.35 Given the presence of waterbodies throughout the Site, connected to areas of suitable terrestrial habitat (mixed woodland, hedgerows and semi-improved grassland), further presence/likely absence surveys

are recommended to establish the status of GCN on Site. Standard presence/likely absence surveys can be undertaken between mid-March – mid-June and include four survey visits (of which two must be completed between mid-April – mid-May). If presence is confirmed, a further two survey visits will be required to establish population size (of which one must be completed between mid-April – mid-May in addition to the above). Alternatively, eDNA surveys can be undertaken. These surveys would provide presence/likely absence survey data only and require one visit per waterbody between mid-April – end June, however they may not provide all the information needed to enable an assessment of impacts and any licence application that may be required. All further surveys should follow published best practice (English Nature, 2001 and 2004, Biggs *et al*, 2014).

4.36 If GCN are confirmed within waterbodies on or adjacent to Site, these should be retained and buffered from construction, along with the provision of ecological corridors linking suitable terrestrial habitat. Mitigation will likely require a NE licence to be obtained (once full planning permission is approved, with all relevant ecological conditions discharged and with full population data obtained) in order to undertake trapping and translocation of GCN away from planned works areas to a species-specific receptor area. Any receptor area should be appropriately enhanced and managed long term for GCN. There may also be the requirement for the use of amphibian friendly kerbs and drainage within the vicinity of receptor areas/ponds.

4.37 Alternatively, if GCN are found to be present on Site, the Site could be entered into the Nature Space Partnership-led GCN district licence scheme in Bedfordshire. This is usually a financial contribution based upon the level of impact the proposals will likely have on any GCN populations.

4.38 Appropriate enhancement for this species will likely include the provision of hibernacula, enhancement of retained waterbodies and terrestrial habitat (woodland, hedgerows) and the provision of species-rich grassland managed for wildlife.

Invertebrates

4.39 The invertebrate assemblage should be confirmed by a scoping survey by specialist invertebrate ecologist and follow-up surveys as required. In addition, hedgerows identified within part of the A428 scheme to the immediate south-east of the Site were found to be of regional and county importance for terrestrial invertebrates. These hedgerows run continuously between the Site and this section of the A428 corridor, it is therefore reasonably likely that any notable invertebrates utilising these hedgerows will also utilise hedgerows within the Site where they are of a similar ecological value.

4.40 The inclusion of native, nectar-rich plants in the landscaping, and sensitive lighting strategy, as proposed for bats, would enhance the site post-development for invertebrates.

Reptiles

4.41 The four most common species of UK reptiles, slow-worm, common lizard, grass snake and adder are legally protected from killing and injury in the UK under the WCA 1981 (as amended).

4.42 Given the presence of suitable habitat, it is recommended that a seven-visit reptile presence/likely absence survey is undertaken within the suitable habitat, in line with best practice guidelines (Gent, 2003). Surveys should take place during optimum weather conditions between the reptile active season (March to September inclusive).

4.43 If surveys confirm the presence of reptiles, likely mitigation could include a capture and translocation programme and/or sensitive removal of habitat under the supervision of a suitably qualified ECoW, with any individuals found moved to a nearby receptor site. Any reptile receptor site should be constructed and enhanced prior to translocation taking place.

4.44 Mitigation and enhancement of retained habitats may be enabled through the provision of a mosaic of habitats providing sheltering/foraging and hibernating areas and log piles and hibernacula.

Other Notable Species

4.45 The Site provides suitable habitats for European hedgehog, common toad, brown hare and harvest mouse. As such, presence/likely absence surveys/habitat assessments in relation to these species are recommended to guide any potential mitigation and enhancements and ensure compliance with planning policy. These surveys will be undertaken during other site visits such as the bat surveys and/or reptile surveys.

4.46 It is recommended that suitable sheltering, foraging and commuting habitat utilised by BAP/NERC Act species be retained and buffer strips created. In addition, hedgehog homes could be installed around the Site, with connectivity provided for this species post-development through inclusion of a hedgehog highway. This is usually created from raised fence panels or inclusion of hedgehog holes (c.13cmx13cm) cut into fences. Hibernacula and new habitat provision, such as hedgerow planting and species-rich grassland would also provide foraging and sheltering habitat for UK BAP/NERC Act species.

5.0 Conclusions

5.1 The area surveyed supports a range of habitats, including priority habitats with the presence of, or potential presence of a number of protected and notable species recorded. The areas of most ecological importance include the woodland, hedgerows, grassland, scrub and aquatic habitats. There are also areas of lower value, predominantly arable habitats covering the majority of the Site area. A summary of features, likely impacts and outline mitigation and enhancement measures is provided in Table 10.

5.2 Through incorporation of relevant surveys, mitigation and precautionary methods, it is considered that the Site could deliver a significant biodiversity net gain in terms of measures to support high value habitats and protected species and to carry this out in line with current wildlife legislation, Chapter 15 of the NPPF (MHCLG, 2021); and local planning policies relevant to ecology.

5.3 Any proposed development within the Site therefore provides an important opportunity to deliver landscape scale, biodiversity benefits that enhance habitats and strengthen ecological connectivity for priority habitats and protected and notable species.

Table 10: Summary of likely impacts, mitigation and enhancement measures and residual effects

Ecological Receptor	Likely Impacts	Further Surveys and Consultation	Likely Mitigation and Enhancement Measures
Statutory Designated Sites	Policy requirement to consider downstream impacts to SACs (Portholme SAC and The Ouse Washes SAC/SPA/Ramsar Site).	Habitats Regulations Assessment screening.	
	Potential recreational pressure impacts on SSSIs (subject to confirmation of IRZ).	Consultation with Natural England to determine relevance of IRZ to the Site. Designated Sites assessment as part of an Ecological Impact Assessment (EcIA) may be required.	Alternative open space provision may be required subject to results of consultation with Natural England.
Non-statutory Designated Sites	Indirect effects such as increased recreational pressure and pollution events.	No further surveys required.	• Provision of on-site open space. • Implementation of pollution prevention strategy.
Priority Habitats	Loss of habitats of up to County importance.	Biodiversity Net Gain Assessment (when layouts drafted). Phase 2 vegetation survey of all priority habitats in May – June.	• Layout should avoid higher value habitats where possible. • Biodiversity net gain assessment. • Habitat restoration within retained floodplain habitats. • New native species planting.
Badger	Potential disturbance, damage and destruction of badger setts within surveyed area. Loss of foraging and sett building habitat.	Bait marking survey to determine clan territories.	• If impacts to active setts then licensed closure (part or full) and potential artificial sett creation.

Ecological Receptor	Likely Impacts	Further Surveys and Consultation	Likely Mitigation and Enhancement Measures
Bats – Activity	Disturbance effects due to lighting.	Bat activity surveys for a site of high-moderate value.	• Retention of priority habitats. • Sensitive lighting within the development. • Nectar-rich planting scheme.
Bats – Roosts	Disturbance and potential loss of bat roosts in tree and buildings.	GLTA trees and building inspection surveys. Emergence surveys of buildings and trees with >moderate bat roost potential.	• Retention of mature trees where possible. • Removal of bat roosts under a European Protected Species Mitigation (EPSM) licence. • Provision of bat boxes.
Birds	Destruction/damage of nests.	Breeding and wintering bird surveys (minimum three per season). Barn owl nest survey.	• Retention of priority habitats. • Works undertaken outside of breeding bird season or after nest search and adhering to method statement. • Provision of bird boxes. • Provision of off-site mitigation for ground nesting birds.
Great Crested Newt	Death/injury of adult great crested newt and loss of terrestrial habitats.	eDNA surveys in 2023 to confirm status, or presence/absence and population size class surveys in 2023.	• If present, then district licensing or licensed programme of clearance of animals from construction zones with habitat mitigation where required.
Invertebrates	Potential for a wide range of notable species including stag beetle.	Invertebrate assessment by specialist including all priority habitats.	• Retention of priority habitats. • Wildlife friendly planting scheme.
Reptiles	Death/injury of reptiles.	Sampling to confirm presence/absence survey in suitable habitats.	• Sensitive clearance of habitats adhering to method statement. • Translocation of reptiles to receptor site from donor habitats. • Provision of rough grassland habitats and log piles/ hibernacula.
NERC Priority Species	Death/injury	N/A	• Sensitive clearance of habitats. • Provision of hedgehog homes/hibernacula.

6.0 References

Bedford Borough Local Plan 2030. Online at: https://www.bedford.gov.uk/planning-and-building/planning-policy-its-purpose/local-plan/

Biggs J., Ewald N., Valentini A., Gaboriaud C., Griffiths R.A., 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.* Freshwater Habitats Trust, Oxford.

Bright P.W., Morris P.A. and Mitchell-Jones T. (2006). *Dormouse Conservation Handbook* 2nd Edition. English Nature: Peterborough.

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

CIEEM (2022) *Code of Professional Conduct.* Chartered Institute of Ecology and Environmental Management, Winchester.

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

CIEEM (2019) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine Version 1.1.* Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2017) *Guidelines on Ecological Report Writing* 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

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

Eaton M., Aebischer N., Brown A., Hearn R., Lock L., Musgrave A., Noble D., Stroud D., and Gregory R.D. (2015) *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man*. British Birds 108: 708-746.

English Nature (2004) *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt Triturus cristatus.* English Nature Research Reports No. 576. English Nature, Peterborough.

English Nature (2001) *Great crested newt mitigation guidelines.* English Nature, Peterborough.

Froglife (1999). *Reptile Survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife: Peterborough.

Fure A. (2006). *Bats and Lighting*. The London Naturalist, No. 85.

Gent A.H. & Gibson S.D. (2003) *Herpetofauna worker's manual*. Joint Nature Conservation Committee, Peterborough.

Harris S., Cresswell P. and Jefferies D. (1989) *Surveying Badgers*: Occasional Publication No.9 The Mammal Society.

Institution of Lighting Professionals (2018) *Guidance Note 08/18: Bats and Artificial Lighting in the UK*. Institution of Lighting Professionals, Warwickshire

Joint Nature Conservation Committee (JNCC) (2010) *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit*. JNCC, Peterborough.

Ministry of Housing Communities and Local Government (MHCLG) (2021). *National Planning Policy Framework*. [Online]. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

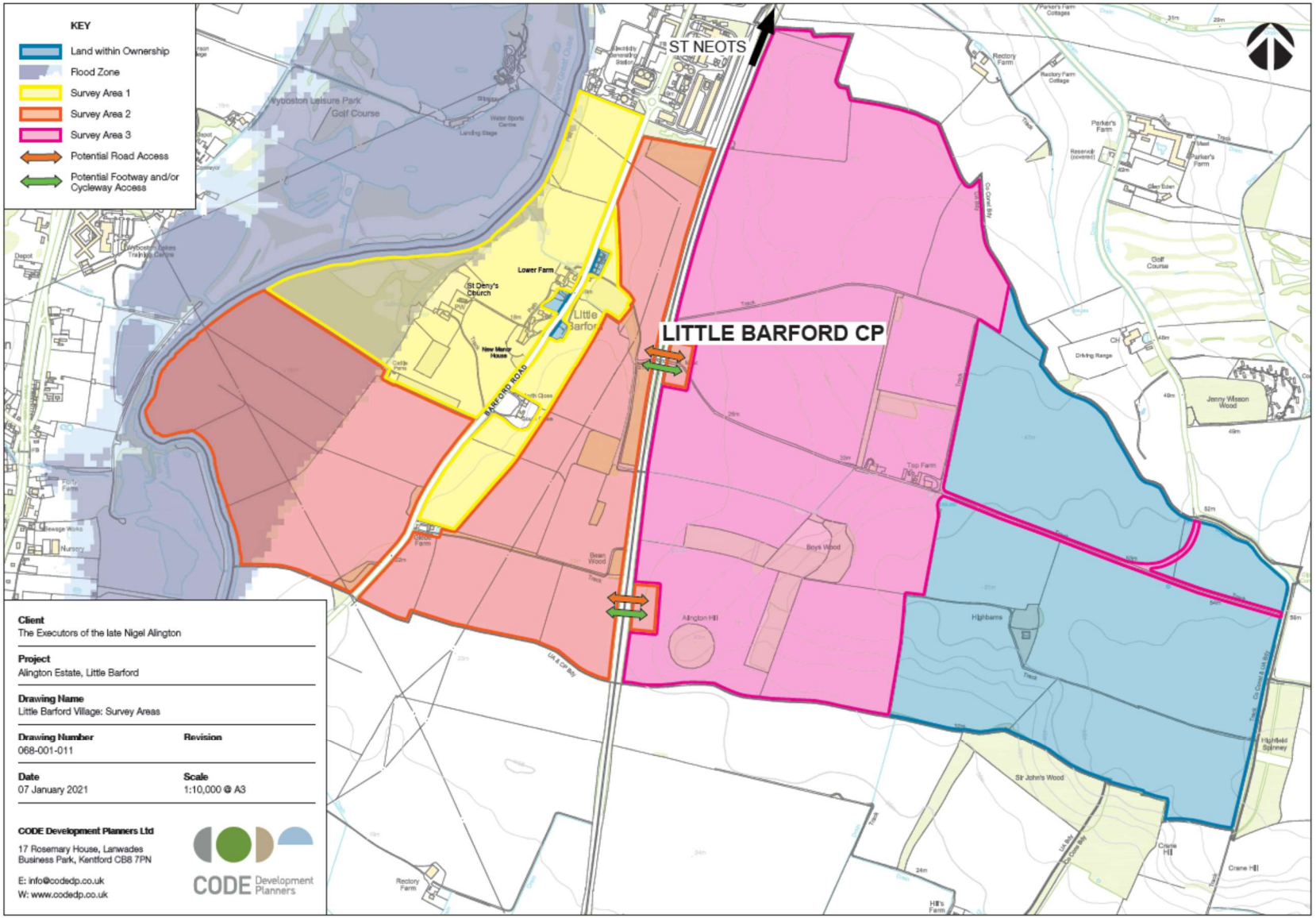
Natural England (2009). *Guidance on 'Current Use' in the Definition of a Badger Sett*. Natural England, Peterborough.

NatureSpace Partnership Impact Risk Map [Online]. Available at: https://naturespaceuk.com/gismaps/impact-risk-map/ (accessed 29.06.2022).

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

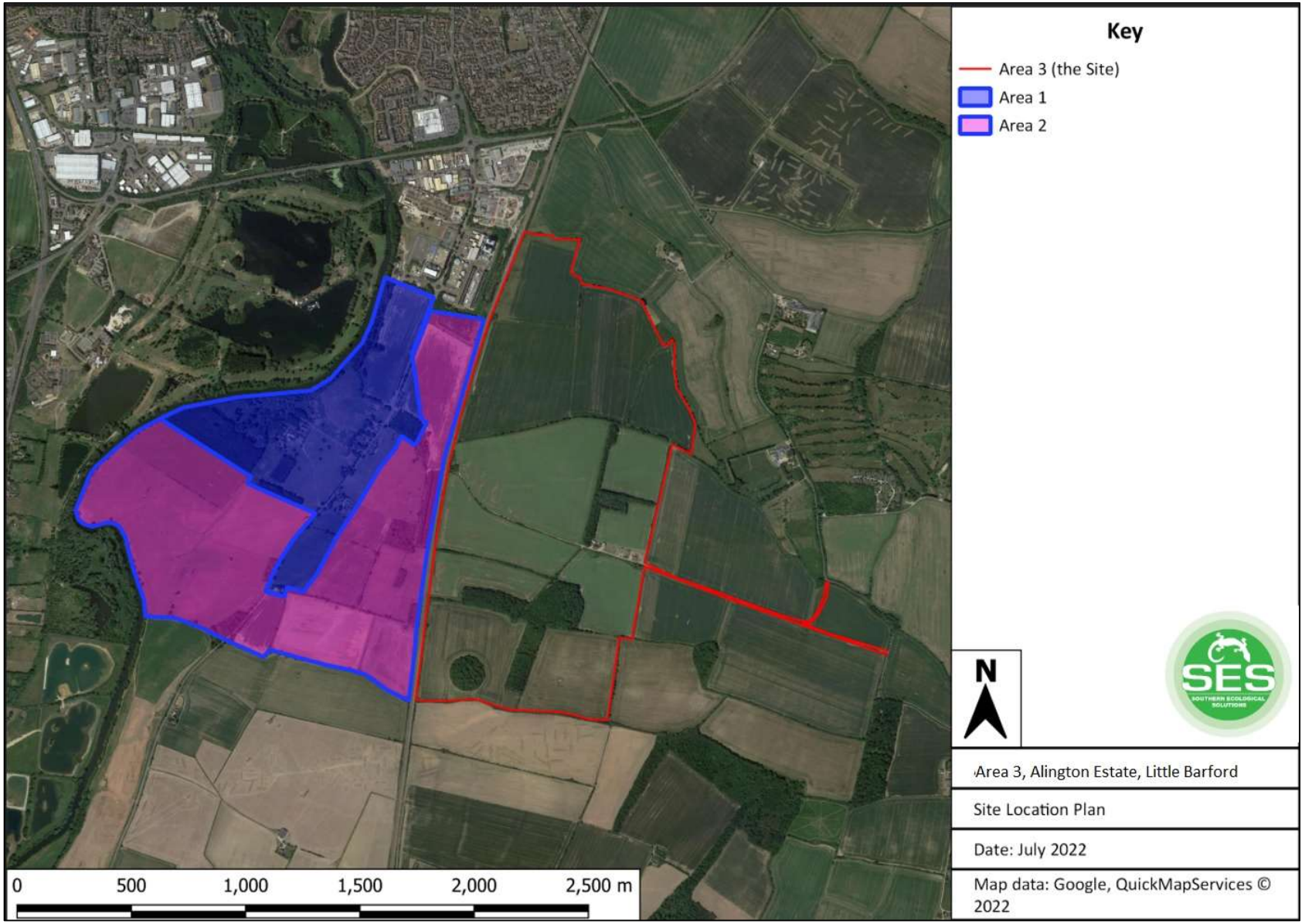
Stace C. A. (2010) *New Flora of the British Isles* 3rd Edition. Cambridge University Press, Cambridge.

Appendix 1. Site* Location Plan

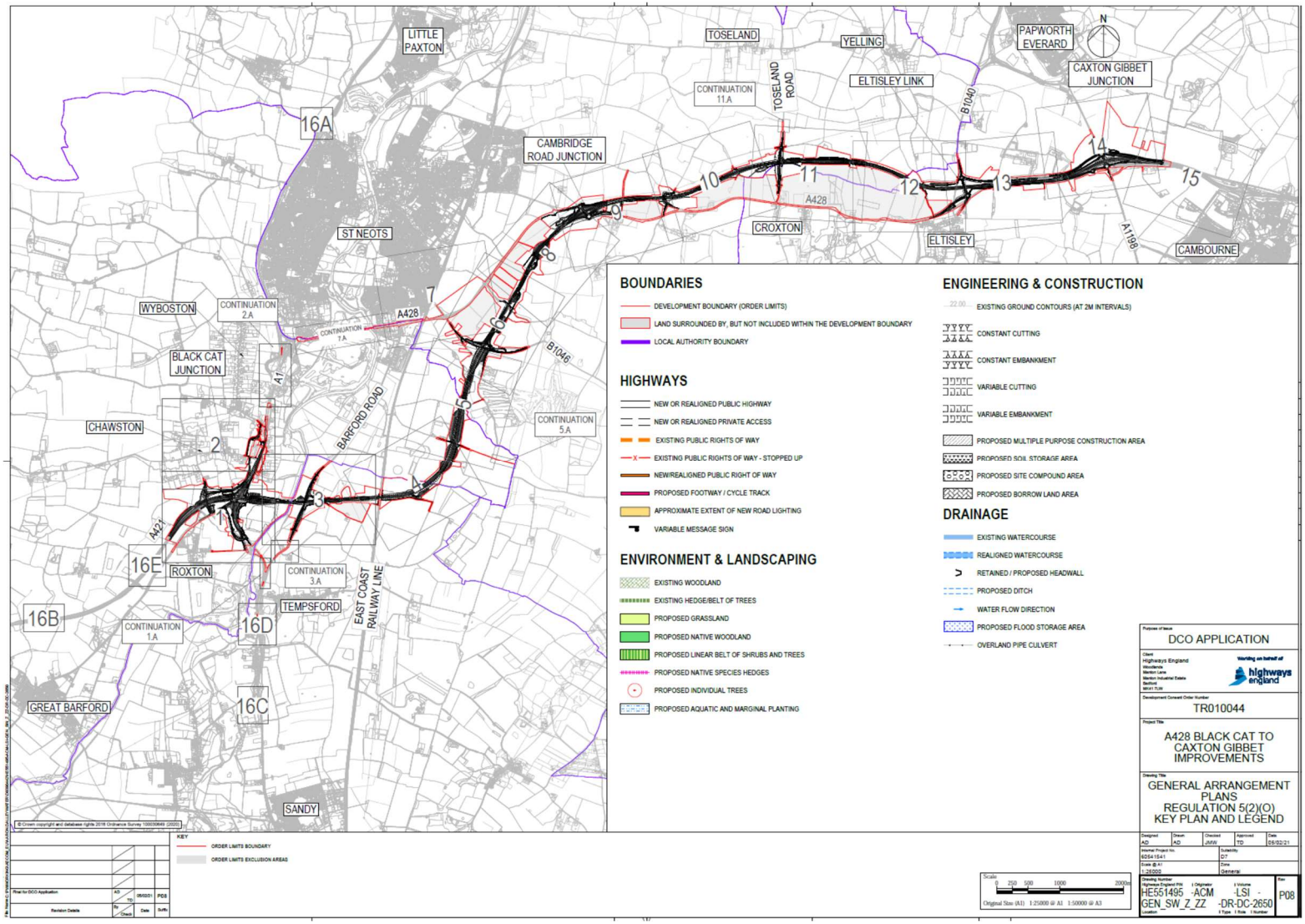


*The site here is Survey Area 3 only.

Appendix 2: Site Red Line Boundary – Area Surveyed



Appendix 3. A428 Black Cat to Caxton Gibbet Road Improvement Scheme



Appendix 4: Legislative and Policy Framework

This document has not been prepared by a legal or planning professional and should be read as an interpretation of relevant statutes and planning policy guidance only. The information presented within this document has been reported in good faith and are the genuine opinion of SES on such matters. SES does not accept any liability resulting from outcomes relating to the use of this information or its interpretation within this document.

National Planning Policy

The NPPF (MHCLG, 2021) outlines what the planning system should do to contribute to and enhance the natural and local environment, the following policy statements are of relevance to this report:

Paragraph 8

Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):

> c) an environmental objective - to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Paragraph 20

Strategic policies should set out an overall strategy for the pattern, scale and quality of development, and make sufficient provision for:

> d) conservation and enhancement of the natural, built and historic environment, including landscapes and green infrastructure, and planning measures to address climate change mitigation and adaptation.

Paragraph 28

Non-strategic policies should be used by local planning authorities and communities to set out more detailed policies for specific areas, neighbourhoods or types of development. This can include allocating sites, the provision of infrastructure and community facilities at a local level, establishing design principles, conserving and enhancing the natural and historic environment and setting out other development management policies.

Paragraph 73:

The supply of large numbers of new homes can often be best achieved through planning for larger scale development, such as new settlements or significant extensions to existing villages and towns, provided they are well located and designed, and supported by the necessary infrastructure and facilities (including a genuine choice of transport modes). Working with the support of their communities, and with other authorities if appropriate, strategic policy-making authorities should identify suitable locations for such development where this can help to meet identified needs in a sustainable way. In doing so, they should:

a) consider the opportunities presented by existing or planned investment in infrastructure, the area's economic potential and the scope for net environmental gains;

Paragraph 102

Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account - including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and

Paragraph 120

Planning policies and decisions should:

a) encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities to achieve net environmental gains - such as developments that would enable new habitat creation or improve public access to the countryside;
b) recognise that some undeveloped land can perform many functions, such as for wildlife, recreation, flood risk mitigation, cooling/shading, carbon storage or food production;

Paragraph 174

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

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services - including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

Paragraph 175

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

Paragraph 179

To protect and enhance biodiversity and geodiversity, plans should:

a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and

b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

Paragraph 180

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

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

Local Planning Policy

Bedford Borough Local Plan 2030

Policies relevant to ecology and biodiversity include:

Policy 39 – Retention of trees

In considering proposals for development all of the following criteria will apply:

I. Applicants shall consider opportunities to retain trees of high amenity and environmental value taking into consideration both their individual merit and their contribution as part of a group or broader landscape feature. Existing trees on and immediately adjacent the development site shall be recorded following guidance in the relevant British Standard.

II. Development applications shall provide details as to how the retained trees, hedges and hedge banks will be protected prior to, during and after construction.

III. No building, hard surfacing drainage or underground works will be permitted that does not accord with the principles of the relevant British Standard unless, exceptionally, the Council is satisfied that such works can be accommodated without harm to the trees concerned or there are overriding reasons for development to proceed.

IV. Planning permission will be refused for development resulting in the loss or deterioration of ancient woodland and the loss of aged or veteran trees found outside ancient woodland (including from indirect impacts such as increased visitor pressure), unless the need for, and benefits of, the development in that location clearly outweigh the loss.

V. The Council will protect existing trees through the making of Tree Preservation Orders where appropriate.

Policy 40 – Hedgerows

Any hedgerows should be retained on development sites, unless there are overriding benefits that justify their removal. Where removal is deemed necessary, details addressing the criteria under the Hedgerow Regulations 1997 (as amended) shall be submitted to demonstrate the validity for removal and details of the replacement hedgerows. Replacement hedgerows shall be of an equal scale, native and species- rich and should be provided where possible, elsewhere on the development site. Where there are gaps in the existing hedgerows on the site, the development should provide for additional hedgerow planting.

Policy 42S – Protecting biodiversity and geodiversity

Planning applications for development are required to assess the impact of the proposal on the biodiversity and geodiversity value of the site and its surroundings. This should be carried out by a suitably qualified professional in accordance with industry standards.

A proposal which is likely to have an adverse effect on a Site of Special Scientific Interest (SSSI) or Natura 2000 site will not be permitted unless there are exceptional reasons that outweigh the harm to the site.

Development should be designed to prevent any adverse impact on locally important sites, species and habitats of principal importance contained within the Natural Environment and Rural Communities (NERC) Act 2006. However, in these circumstances where an adverse impact is unavoidable, the application shall demonstrate how the harm will be reduced through appropriate mitigation.

Where protected species or priority habitats of principal importance are adversely affected, the application will need to demonstrate how the proposed mitigation will reduce the adverse effects. If adequate mitigation is not possible, the application will need to demonstrate that the overriding reasons outweigh the impacts on the biodiversity and geodiversity of the borough otherwise the development will be refused.

Developments with potential to have an adverse impact, either alone or in combination, on the integrity of a European Designated Site will be assessed in accordance with the requirements of the Habitats Regulations.

Policy 43 – Enhancing biodiversity

Development proposals should provide a net increase in biodiversity through the following: i. Enhancement of the existing features on the site; or ii. The creation of additional habitats on the site; or iii. The linking of existing habitats to create links between ecological networks and where possible, with adjoining features.

Policy 44 – River Great Ouse

Development proposals along and adjoining the River Great Ouse will be required to:

I. Improve access to the River Great Ouse including canoe portage areas and related facilities will be supported as outlined in the 2011 Bedford Waterspace Study (or as amended) where it can be demonstrated that there will be no harmful impact on the character or environment, and
II. Deliver improvements as relevant to the site and area of the river which have regard to the 2011 Bedford Waterspace Study, and
III. Ensure that new river moorings have pedestrian access and vehicle access to an adopted road, unless it can be demonstrated that there is an alternative means of access, and
IV. Ensure that new marinas have access to an adopted road and car parking is provided in accordance with the Parking Standards for Sustainable Communities: Design and Good Practice supplementary planning document to accommodate visitors' and residents' vehicles, and
V. Ensure that any new development or activities do not lead to adverse impacts on Natura 2000 sites downstream of Bedford i.e. Portholme (SAC) and The Ouse Washes (SAC/SPA/Ramsar) including as a result of increased flooding or because of pollution.

Wildlife Legislation

The two principal wildlife statutes are the **Conservation of Habitats and Species Regulations (Habitats Regulations) (2019) as amended** and the **Wildlife and Countryside Act (WCA) (1981) as amended** that both deal with nationally important sites and species.

Selected habitat and species features within discrete sites are protected as Sites of Special Scientific Interest (SSSSI) under the WCA 1981.

Selected SSSI are more strictly protected as proposed or designated Special Protection Areas (SPA), Special Areas of Conservation (SAC) under the Conservation of Habitats and Species Regulations (2019). Ramsar sites are no longer part of the UK site network but remain designated under the Ramsar Convention and protected under the Habitat Regulations (2019).

The Habitats Regulations, 2019 protect features and resources listed as being of national importance from both direct and indirect effects arising from a range of likely significant effects including proposed development. Development proposals remain subject to the Habitats Regulations Assessment (HRA) process and especially the sequential Screening and Appropriate Assessment tests.

Local Nature Reserves (LNR) are designated by Local Planning Authorities and protected under the **National Parks and Access to the Countryside Act, (1949) Section 21**.

Certain species listed on Schedule 5 of the WCA 1981, including all bat species, great crested newt *Triturus cristatus,* hazel dormouse *Muscardinus avellanarius* and otter *Lutra lutra* are also protected under Schedule 2 of the Habitats Regulations 2010. Taken together it is illegal to:

- Deliberately kill, injure or capture any wild animal under Schedule 2;
- Deliberately disturb wild animals of any EPS in such a way to be likely to significantly affect:
- The ability of any significant groups of animals of that species to survive, breed, rear or nurture their young; or
- The local distribution of that species.
- Recklessly disturb an Schedule 2 species or obstruct access to their place of rest;
- Damage or destroy breeding sites or resting places of such animals;
- Deliberately take or destroy the eggs of such an animal;
- Possess or transport any part of an Schedule 2 species, unless acquired legally; and/or
- Sell, barter or exchange any part of an Schedule 2 species.

A range of species other than birds, including water vole *Arvicola amphibius*, are protected from disturbance and destruction under the WCA 1981 through inclusion on Schedule 5.

All breeding birds are protected from deliberate destruction under the WCA 1981. Certain species are further protected from disturbance at their nest sites being listed on Schedule 1 of the WCA 1981.

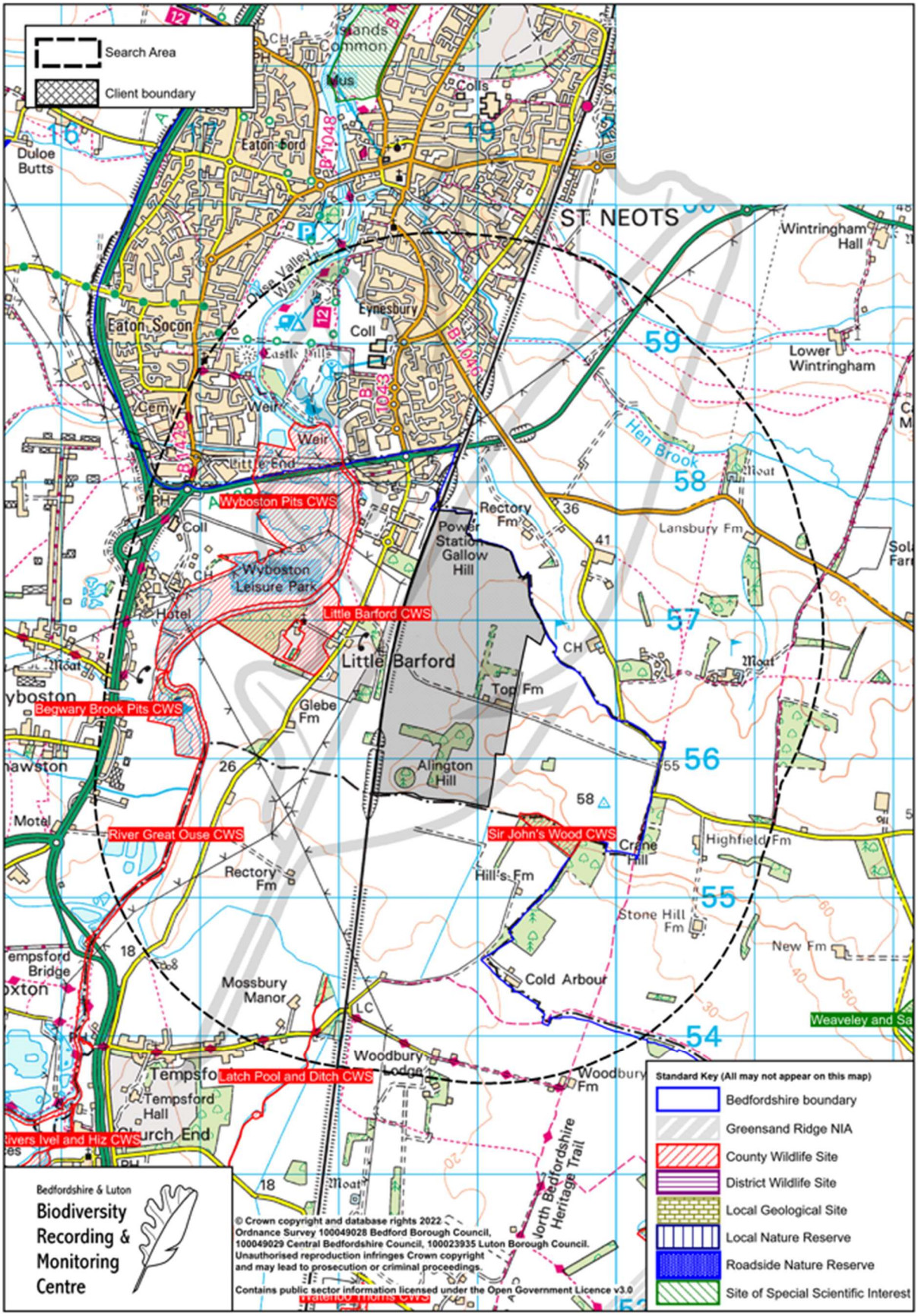
Common reptiles including common lizard *Zootoca vivipara,* slow-worm *Anguis fragilis*, grass snake *Natrix helvetica* and adder *Vipera berus* are protected under the WCA 1981, they are listed as schedule 5 species, therefore part of Section 9(1) and section 9(5) apply; the Countryside and Rights of Way Act 2000 (CRoW) also strengthens their protection.

Badger *Meles meles* is protected from sett disturbance and destruction under the Protection of Badgers Act 1992.

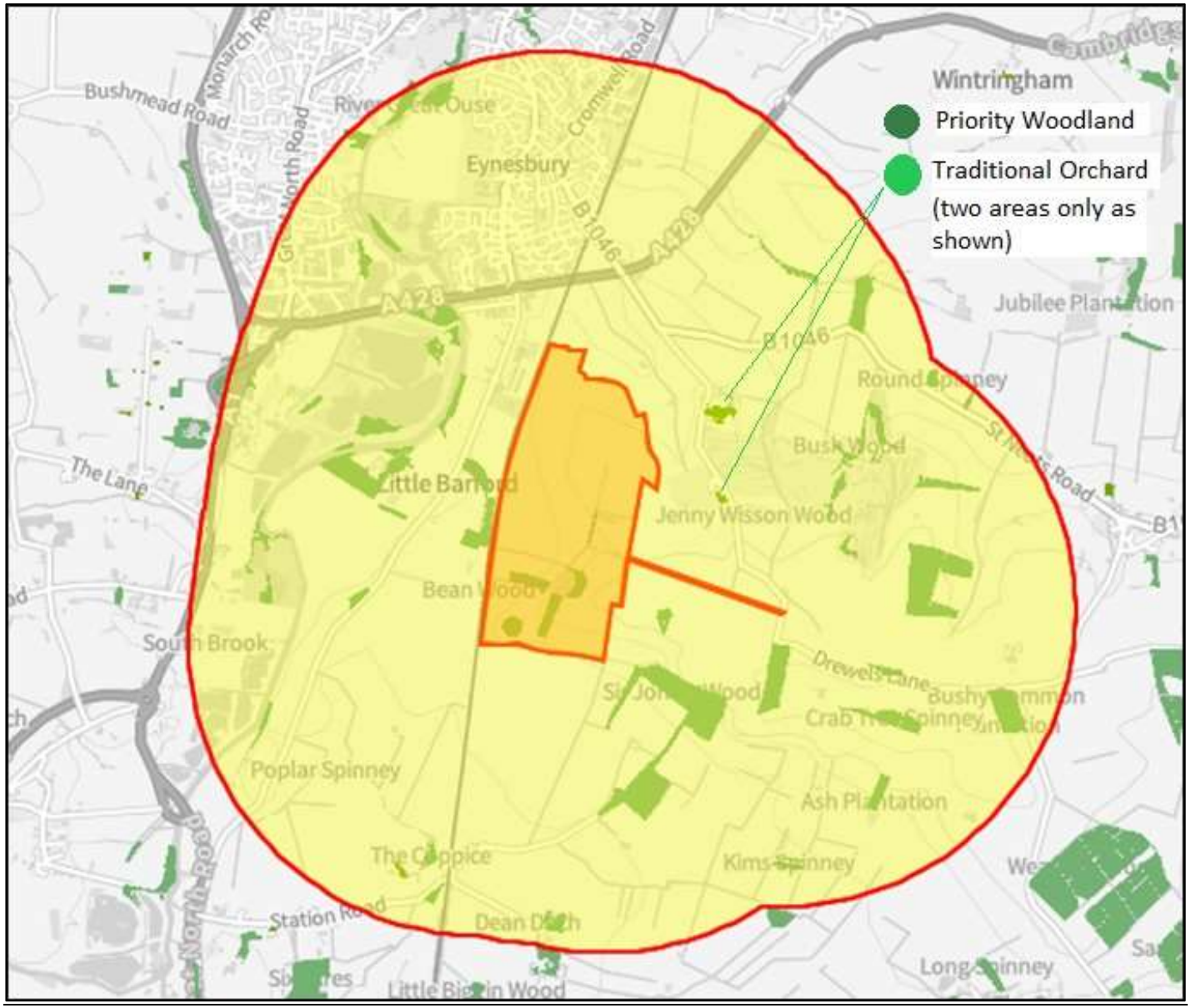
Section 40 of The Natural Environment and Rural Communities Act (NERC) 2006 places a legal duty on local authorities to conserve biodiversity. Section 41 (S41) sets out a list of 943 species and habitats of principal importance. These species are known as England Biodiversity Priority (EBP) species and are those identified as requiring action under the former UK Biodiversity Action Plan (BAP) and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.

Native, species-rich hedgerows that fit certain criteria are protected as being 'important' under the Hedgerow Regulations (1997).

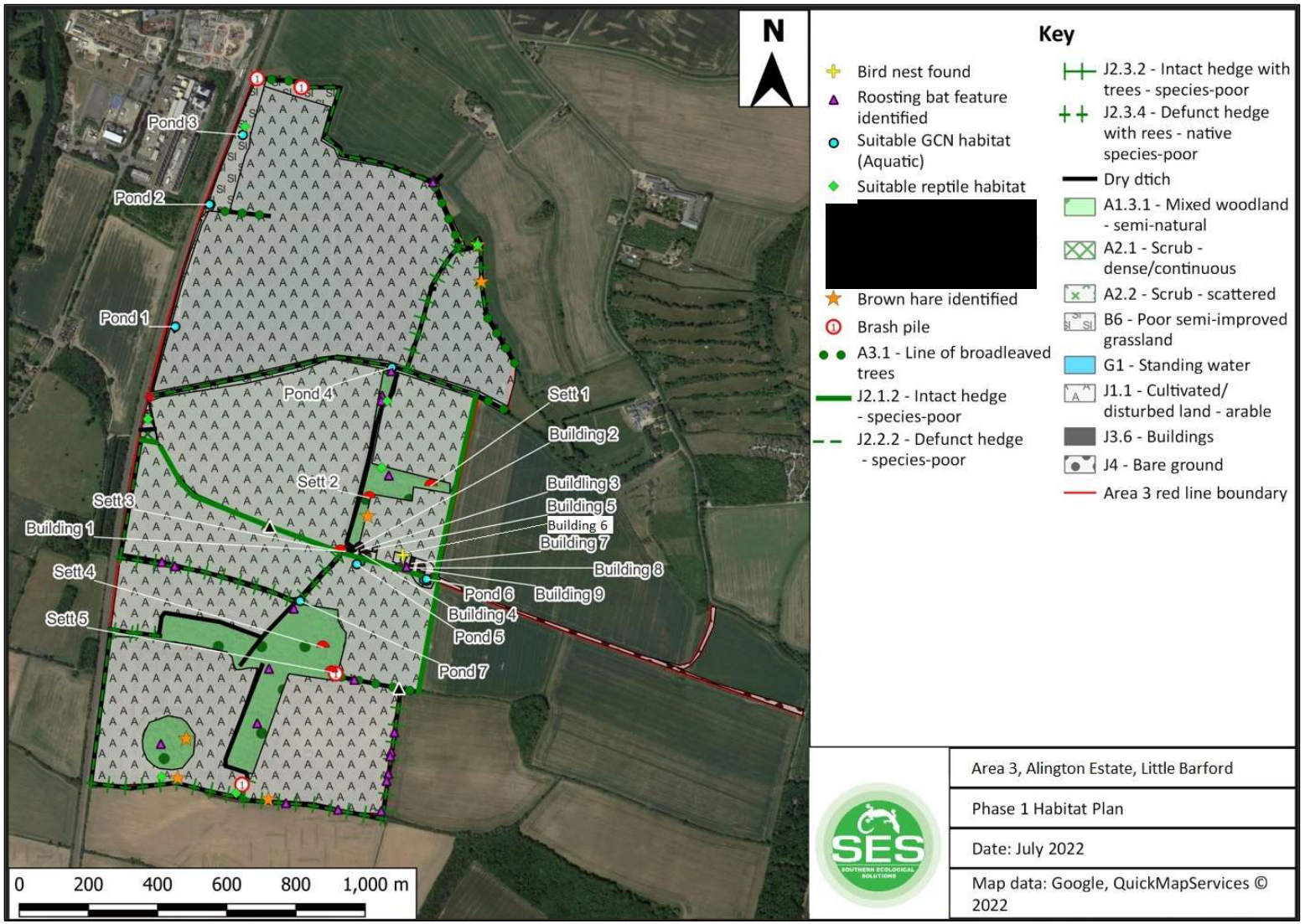
Appendix 5. County Wildlife Sites within 2km of the Site



Appendix 6: Priority Woodland and Traditional Orchard Habitats within 2km of the Site (taken from MAGIC.com)



Appendix 7. Phase 1 Habitat Survey Plan



Plant Species within Principal Phase 1 Habitats

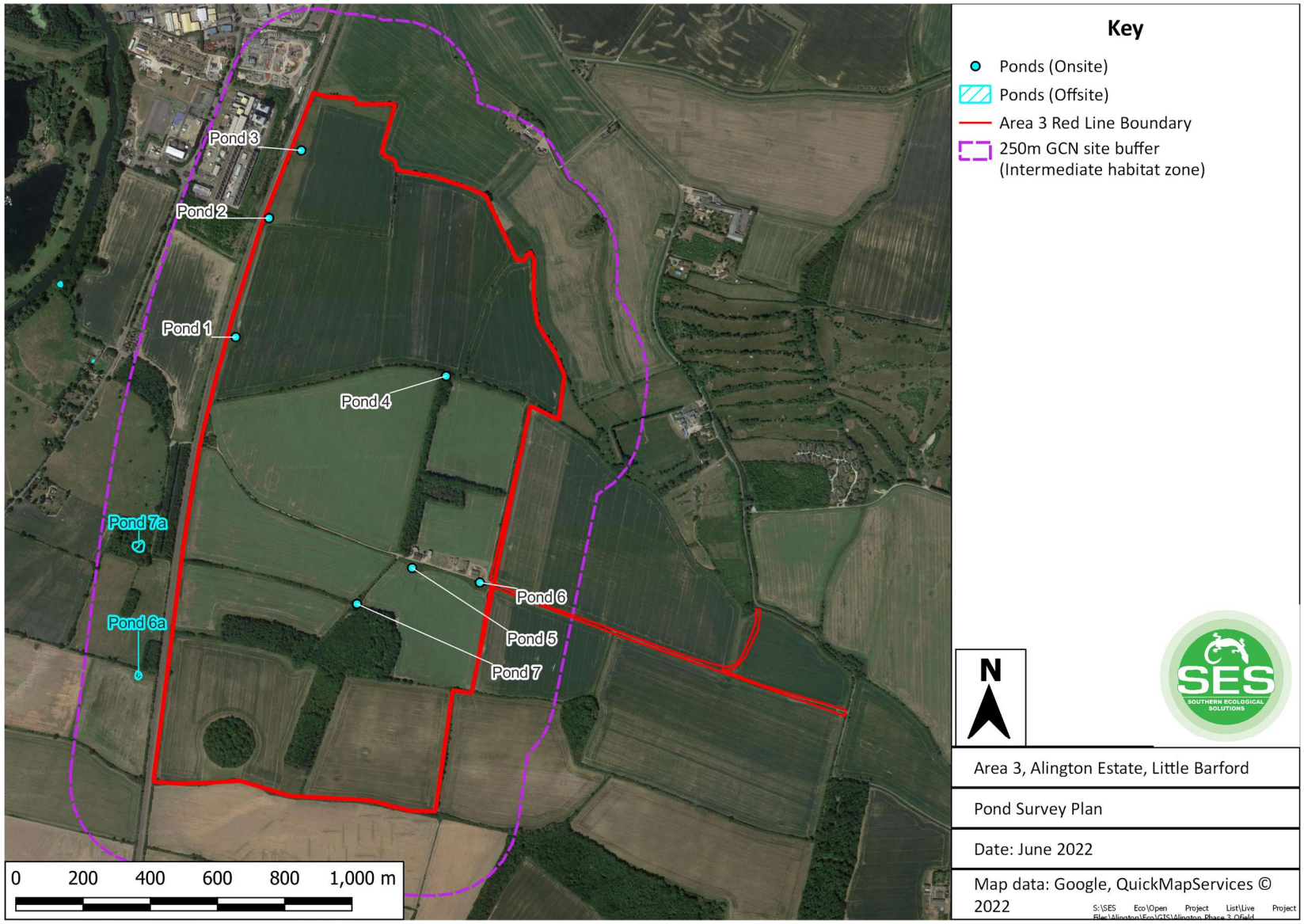
Common name	Latin name	Poor semi-improved Grassland	Dense scrub	Scattered trees	Mixed semi-natural woodland	Intact species poor-hedge with trees	Defunct native species-poor hedge with trees	Defunct species-poor hedge	Intact species-poor hedge	Arable	Pond
Ash	*Fraxinus excelsior*			F							
Annual meadow grass	*Poa annua*	F									
Barren brome	*Bromus sterilis*	R									
Blackthorn	*Prunus spinosa*		D		O	A	A	A	A		
Black bryony	*Tamus communis*					R		R	R		
Bramble	*Rubus fruticosus*		D		F				R		
Broad leaved dock	*Rumex obtusifolius*	O									
Bulbous buttercup	*Ranunculus bulbosus*	F									
Cocksfoot	*Dactylis glomerata*	A									
Common comfrey	*Symphytum officinale*		O								
Common ivy	*Hedera helix*				O						
Common hogweed	*Heracleum sphondylium*	R	R								
Common nettle	*Urtica dioica*	R	F								
Common reed	*Phragmites australis*										F
Cow parsley	*Anthriscus sylvestris*	O									
Creeping bent	*Agrostis stolonifera*	A									
Creeping cinquefoil	*Potentilla reptans*	F									
Crested dogs tail	*Cynosurus cristatus.*	R									
Common groundsel	*Senecio vulgaris*	O									
Common lambs quarters	*Chenopodium album*	R									
Creeping thistle	*Cirsium arvense*	R									
Crab apple	*Malus sylvestris*							O			
Cut-leaved cranesbill	*Geranium dissectum*	R									
Daisy	*Bellis perennis*	O									
Dandelion	*Taraxacum sp.*	O									
Elder	*Sambucus nigra*		O						O		
Elm	*Ulmus minor var. vulgaris*			O			O				
False brome	*Brachypodium sylvaticum*	R			F						
Field maple	*Acer campestre*			R	R	R					
Field bindweed	*Convolvulus arvensis*	O									
Flag iris	*Iris pseudacorus*										R
Hawthorn	*Crataegus monogyna*		F		O	O	O	F	F		
Hedge mustard	*Sisymbrium officinale*	O									
Hemlock	*Tsuga heterophylla*		F								
Hob trefoil	*Trifolium campestre*	O									
Horse chestnut	*Aesculus hippocastanum*			R	R						
Lime	*Tilia sp.*				R		F				
Mallow	*Malva sylvestris*	O									
Meadow fescue	*Schedonorus pratensis.*	A									
Mugwort	*Artemisia vulgaris*	O									

Common name	Latin name	Poor semi-improved Grassland	Dense scrub	Scattered trees	Mixed semi-natural woodland	Intact species poor-hedge with trees	Defunct native species-poor hedge with trees	Defunct species-poor hedge	Intact species-poor hedge	Arable	Pond
Oak	*Quercus sp.*			D		F	O				
Oxeye daisy	*Leucanthemum vulgare*	O									
Plantain	*Plantago sp*	O									
Perennial rye	*Lolium perenne*	A									
Pineapple weed	*Matricaria discoidea*	O									
Rapeseed	*Brassica napus subsp. napus*									D	
Ragwort	*Senecio jacobaea*	O								O	
Rosebay Willowherb	*Chamerion angustifolium*	O	O								O
Rough meadow grass	*Poa trivialis*	A									
Scarlet pimpernell	*Lysimachia arvensis*	O									
Scots pine	*Pinus sylvestris*				O						
Shepherds purse	*Capsella bursa-pastoris*	O									
Spear thistle	*Cirsium vulgare*	O								O	
Smaller cat's-tail	*Phleum bertolonii*	F									
Smooth meadow grass	*Poa pratensis*	F									
Smooth tare	*Vicia hirsuta*	F									
Soft brome	*Bromus hordeaceus*	O									
Soft rush	*Juncus effusus*	O									
Sycamore	*Acer pseudoplatanus*		O	O			O				
Teasel	*Dipsacus fullonum*		O								
Timothy	*Phleum pratense*	R									
Upright brome	*Bromus erectus*	R									
Vernoica speedwell	*Veronica persica*	O									
Wild cherry	*Prunus avium*			O	F						
Wild parsnip	*Pastinaca sativa*									O	
Willow	*Salix sp.*			R							O
White campion	*Silene latifolia*	O									
White clover	*Trifolium repens*	O									
Wheat	*Salix sp*									A	

DAFOR key:

D = Dominant
A = Abundant
F = Frequent
O = Occasional
R = Rare

Pond Map


Pond 3
Pond 2
Pond 1
Pond 4
Pond 7a
Pond 6a
Pond 6
Pond 5
Pond 7
0
200
400
600
800
1,000 m
Key
Ponds (Onsite)
Ponds (Offsite)
Area 3 Red Line Boundary
250m GCN site buffer
(Intermediate habitat zone)
N
SES
SOUTHERN ECOLOGICAL SOLUTIONS
Area 3, Alington Estate, Little Barford
Pond Survey Plan
Date: June 2022
Map data: Google, QuickMapServices © 2022

Appendix 8: Site photographs

Photo 1: Arable field with poor semi-improved field boundary

Photo 2: Arable field with poor semi-improved field boundary and mammal path into woodland

Photo 3: Poor semi-improved field boundary

Photo 4: Pond 5 and scrub

Photo 5: Poor semi-improved grassland into mixed woodland

Photo 6: Replanted woodland

Photo 7: Building 7

Photo 8: Pond 6

Photo 9: Arable field with poor semi-improved field boundary

Photo 10: intact species-poor hedgerow

Photo 11: Poor semi-improved grassland

Photo 12: Poor semi-improved grassland

Photo 13: Scrub and poor semi-improved grassland habitat

Photo 14: Semi-natural woodland and understorey with mammal paths

Photo 15: Poor semi-improved grassland with damage from rabbit evident

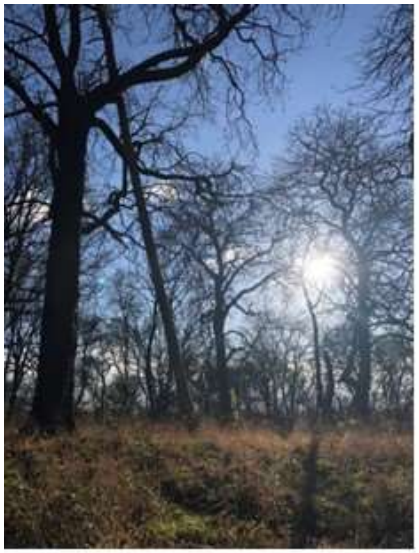


Photo 16: semi-natural woodland with understorey

Photo 17: Building 8

Photo 18: Building 3

Photo 19: Building 9

Photo 20: Owl pellets within Building 6

Photo 21: Building 2 (R) and 3 (L)

Appendix 9: Species of Known Benefit to Wildlife (especially Bats and Invertebrates)

The following table is reproduced from Gunnell, K., Grant, G. and Williams, C. (2012). Landscape and Urban Design for Bats and Biodiversity, Bat Conservation Trust. This table contains a suggested species list of plants that can provide benefit for bats either by providing a food source for insects and/ or roost potential. The plants listed are predominately native to Britain. The small group of non-native plants included for their documented value for wildlife. The list has been checked by the author against Natural England's list of invasive non-native plants.

Plant species	Common name	Native (N)	Type	Benefit	Soil	Light	Extensive green roofs	Living walls	Rain gardens	Hedge/ trees	Beds/ borders
Acer campestre	Field maple	N	T/S	C	Any	Sun/ shade				Y	
Acer platanoides	Norway maple		T	S	Well drained/ alkaline	Sun/ shade				Y	
Acer saooharum	Sugar maple		T	S	Any	Sun/ shade				Y	
Achillea millefolium	Yarrow	N	HP	C,F	Well drained	Sun				Y	
Ajuga reptans	Bugle	N	HP	C,F	Any	Sun/ shade	Y		Y		
Anthyllis vulneraria	Kidney vetch	N	HP	F	Well drained	Sun	Y				
Aubrieta deltoidea	Aubrieta		H	F	Well drained	Sun/shade		Y			
betula pendula	Sliver birch	N	T	C	Sandy/ acid	Sun				Y	
Cardamine pratensis	Cuckoo- flower	N	HP	F	Moist	Sun/ shade			Y		Y
Carpinus betulus	Hornbeam	N	T	C	Clay	Sun				Y	
Centaurea nigra	Common knapweed	N	HP	C,F	Dry, not acid	Sun	Y				Y
Centranthus ruber	Red valerian		HP	F	Well drained	Sun	Y				Y
Clematis vitalba	Old man's Beard	N	C	F	well drained/ alkaline	Sun				Y	
Corylus avellana	Hazel	N	S	C	Any dry	Sun/ shade		Y		Y	
Crataegus monogyna	Hawthorn	N	S	S,C	Any	Sun/shade				Y	
Daucus carota	Wild carrot	N	Bi	S,C,F	Any	Sun	Y				Y
Dianthus spp.	Pinks	N	A-Bi	F	Well drained	Sun	Y	Y			Y
Digitalis purpurea	Foxglove	N	Bi	C	Well drained	Shade/ partial shade				Y	Y
Erica cinera	Bell heather	N	S	F	Sandy	Full sun					Y
Ersimum cherira	Wallflower		Bi-P	F	Well drained	Sun		Y			Y
Eupatorium	Hemp agrimony	N	H	F	Moist	Sun/ shade			Y		Y
Fagus sylvatica	Beech	N	T	C, R	Well drained alkaline	Sun/ shade				Y	
Foeniculum vulgare	Fennel		H	F	Well drained	Sun					Y
Fraxinus excelsior	Common Ash	N	T	C, R	Any	Sun/ shade				Y	
Hebe spp.	Hebe species		S	F	Well drained	Sun /shade				Y	Y
Hedera Helix	Ivy	N	C	F,C	Any	Sun/ shade		Y	Y	Y	Y
Hesperis matrionalis	Sweet Rocket		H	F	Well drained/ dry	Sun/ shade					Y
Hyacinthoides non - scripta	Bluebell	N	B	F	Loam	Shade/ partial shade		Y		Y	Y
Ilex aquailfolium	Holly	N	T	C	Any	Sun/ shade				Y	
Jasmine officinale	Common jasmine		C	F	Well drained	Sun		Y			Y
Lavandula spp.	Lavender species		S	F	Well drained / sandy	Sun		Y			Y
Linaria vulgaris	Toadflax	N	HP	C	Well drained/ alkaline	Sun	Y				Y
Lonicera periclymenum	Honeysuckle	N	C	F	Well drained	Sun		Y		Y	
Lotus corniculatus	Bird's foot trefoil	N	HP	F	Well drained/ dry	Sun	Y				Y
Lunaria annua	Honesty		Bi	F	Any	Sun/ partial shade	Y				Y
Malus spp.	Apple		T	C	Any	Sun				Y	Y
Matthiola longipetala	Night - scented stock		A	F	Well drained/ moist				Y		Y
Myosotis spp.	Forget me not sp.	N	A	F	Any	Sun	Y	Y			Y
Nicotiania alata	Ornamental tobacco		A	F	Well drained moist	Sun / partial shade			Y		Y
Oneothera spp.	Evening primrose		Bi	F	Well drained	Sun	Y				Y
Origanum vulgare	Marjoram	N	HP	F	Well drained / dry	Sun				Y	
Populus alba	White poplar	N	T	C	Clay loam	Sun				Y	
Primula veris	Cowslip	N	HP	F	Well drained/ moist	Sun/ partial shade	Y				Y
Primula vulgaris	Primrose	N	HP	F	Moist	Partial shade	Y	Y		Y	Y
Prunus avium	Wild cherry	N	T	C	Any	Sun				Y	Y

Plant species	Common name	Native (N)	Type	Benefit	Soil	Light	Extensive green roofs	Living walls	Rain gardens	Hedge/ trees	Beds/ borders
Prunus domestica	Plum		T	C	Well drained/ moist	Sun				Y	Y
Prunus spinosa	Blackthorn	N	S	C	Any	Sun/ partial shade				Y	
Querois petraea	Sessile oak	N	T	C,R	Sandy loam	Sun/ shade				Y	
Quercus robur	Common oak	N	T	R	Clay Loam	Sun/ shade				Y	
Rosa canina	Dog rose	N	S	C	Any	Sun			Y	Y	Y
Salix spp.	Willow species	N	S	S,C	Moist	Sun/ shade			Y	Y	
Sambucus nigra	Elder	N	T	C	Clay loam	Sun				Y	
Saponaria officinalis	Soapwort	N	HP	F	Any	Sun					Y
Saxifraga oppositifolia	Saxifrage	N	HP	C	Well drained	Sun	Y	Y			Y
Scabiosa columbaria	small scabious	N	HP	F	Well drained/ alkaline	Sun	Y				Y
Sedum spectabile	Ice plant		HP	F	Well drained/ dry	Sun	Y				Y
Silene dioecia	Red campion	N	HP	F	Any	Shade/ partial shade		Y	Y	Y	Y
Sorbus aucuparia	Rowan	N	T	C	Well drained	Sun				Y	
Stachys lanata	Lamb's ear		HP	F	Well drained/ dry	Sun					Y
Symphotrichum spp.	Michaelmas daisies		HP	F	Any	Sun					Y
Tages patula	French marigold		A	F	Well drained	Sun					Y
Thymus serpyllum	Creeping thyme	N	HP/ S	F	Well drained/ dry	Sun	Y	Y			Y
Tilia x europaea	Common lime		T	C	Any	Sun/ shade				Y	
Trifolium spp.	Clover species	N	H	F	Any	Sun	Y				Y
Valerina spp.	Valerian species	N	HP	F	Moist	Sun/ partial shade			Y		Y
Verbascum spp.	Mulleins	N	Bi, HP	C	Well drained	Sun					Y
Verbena bonariensis	Verbena		HP	F	Well drained/moist	Sun					Y
Viburnum lantana	Wayfaring tree	N	S	C	Any	Sun/ shade				Y	Y
Viburnum opulus	Guelder rose	N	S	C	Moist	Sun/ shade			Y	Y	
Viola tricolor	Pansy	N	A	F	Well drained/ moist	Sun/ partial shade	Y	Y			Y

Legend

Type		Benefit	
HP	Herbaceous perennial	C	Moth caterpillar food plant
Bi	Biennial	S	Sap sucking insects (e.g., whiteflies)
BiP	Biennial perennial	F	Flowers attract adult moths
T	Tree	E	Good roost potential
S	Shrub		
H	Herb		
A	Annual		
B	Bulb		
C	Creeper/ climber		