



# **Tritax Park Cambridge**

## **Ecology and Biodiversity Net Gain Technical Note**

Produced for Tritax Big Box Developments

By Applied Ecology Ltd

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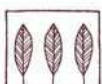
# 1 Introduction

## Background

- 1.1 In April 2024 Applied Ecology Ltd (AEL) was commissioned by Tritax Big Box Developments to carry out ecology baseline surveys of an area of land north of the A14 (junction 25) at Bar Hill, Cambridgeshire ("the Site"). A plan showing the location of the Site is provided in **Figure 1.1**.
- 1.2 The study was required in order to determine the likely ecological constraints associated with a proposal for an employment development ("the Development").
- 1.3 Where possible, the likely impacts of the Development on ecology are discussed. However, the report does not provide, and nor is it intended to provide, a detailed or comprehensive assessment of development impacts in the form of an Ecological Impact Assessment (EclA).

## Scope of Work Completed

- 1.4 The scope of ecology survey work has been determined based on the habitats present, their potential value for protected animal species and likely impacts associated with the Development as currently proposed. The Site comprised two sections of primarily arable farmland – in the east a series of fields around Noon Folly Farm and in the west the land around and to the east of Hill Farm.
- 1.5 A number of surveys were completed first in the eastern half of the Site, before the Site boundary was expanded to include the Hill Farm land in the west. Where possible, surveys were extended to cover the entire Site boundary, but for bat activity and, to a lesser extent, breeding birds survey, the western area was subject to less or no coverage. However, given the similarity of habitats present across the Site, where this disparity exists, it is not thought likely to have negatively impacted the survey conclusions.
- 1.6 The ecology baseline surveys that have been undertaken are listed below, together with survey timings:
  - Review of existing information, including data provided by the Cambridge and Peterborough Environmental Records Centre (CPERC).
  - Phase 1 habitat survey (undertaken 22 April 2024 in the eastern part of the Site and 28 June 2024 in the west).
  - Great crested newt survey (presence/absence eDNA survey of nearby waterbodies, June 2024).
  - Breeding bird survey (four visits to the eastern part of the Site, April–June 2024, with a single visit to the western part of the Site on 28 June 2024).
  - Winter bird survey (three visits, December 2024–February 2025)
  - Badger survey (undertaken as part of Phase 1 habitat surveys on 22 April and 28 June 2024).
  - Water vole survey and otter survey (visits completed on 21 June 2024 (eastern part of Site) and 28 August 2024 (whole Site)).



- Bat activity survey (three visits May–September 2024).

## Legislation and Planning Policy

### Legislation

- 1.7 The Wildlife and Countryside Act 1981 (as amended) provides the main legal framework for nature conservation and species protection in the UK. The Site of Special Scientific Interest (SSSI) is the main statutory nature conservation designation in the UK. Such sites are notable for their plants, or animals, or habitats, their geology or landforms, or a combination of these. Natural England is the key statutory agency in England for advising Government, and for acting as the Government's agent in the delivery of statutory nature conservation designations.
- 1.8 Designation of a SSSI is a legal process, by which sites are notified under the Wildlife and Countryside Act 1981. The 1981 Act makes provision for the protection of sites from the effects of changes in land management, and owners and occupiers receive formal notification specifying why the land is of special scientific interest and listing any operations likely to damage the special interest.
- 1.9 The Countryside and Rights of Way Act 2000, and The Natural Environment and Rural Communities (NERC) Act 2006, provide supplementary protected species legislation. Specific protection for badgers *Meles meles* is provided by the Protection of Badgers Act 1992.

### Habitats and Species of Principal Importance in England

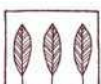
- 1.10 The Natural Environment and Rural Communities (NERC) Act came into force on 1 October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act.
- 1.11 The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

#### *Habitats of Principal Importance*

- 1.12 Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and sub-tidal sands and gravels.

#### *Species of Principal Importance*

- 1.13 There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and



which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. In addition, the hen harrier *Circus cyaneus* has also been included on the list because without continued conservation action it is unlikely that the hen harrier population will increase from its current very low levels in England.

- 1.14 In accordance with Section 41(4) the Secretary of State will, in consultation with Natural England, keep this list under review and will publish a revised list if necessary.

### National Planning Policy Framework

- 1.15 The National Planning Policy Framework (NPPF) was first published in March 2012 (and replaced previous planning policy guidance (PPS 9) on biodiversity). The latest revision was published in December 2024, with paragraphs 193–195 stating the following in relation to habitats and biodiversity:

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

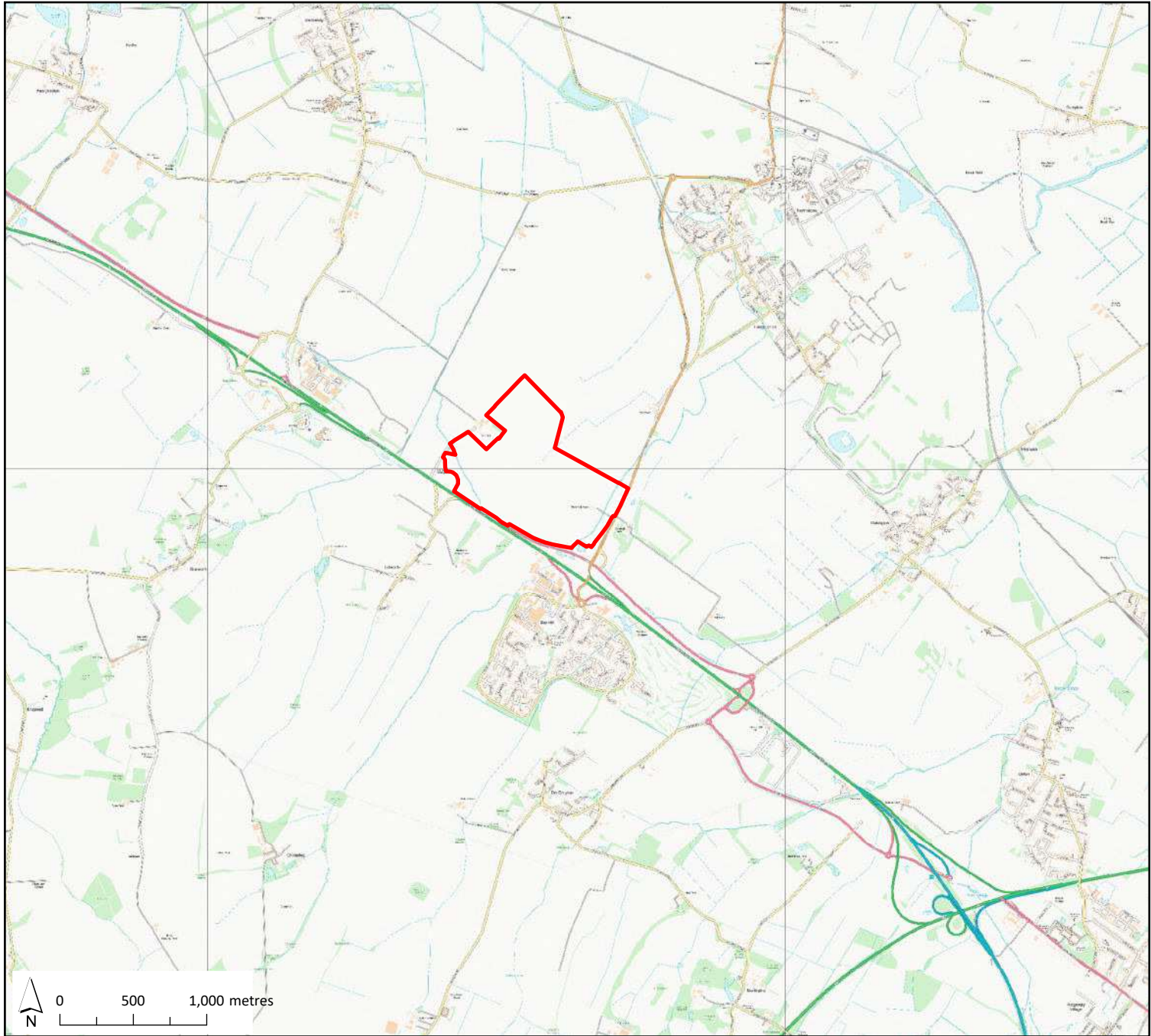
- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside 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 improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.*

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

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

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





# Tritax Park Cambridge

## Site location

 Site boundary

**Figure 1.1**

**Map Scale @ A4: 1:50,000**

|                  |
|------------------|
| Surveyed by: n/a |
| Survey date: n/a |
| Drawn by: RD     |
| Checked by: DP   |
| Status: Final    |



## 2 Existing Information

### Information Sources

- 2.1 The Cambridge and Peterborough Environmental Records Centre (CPERC) was commissioned to complete a search of its database for existing biological records. This included a search for records of statutory and non-statutory wildlife sites, ancient woodland, and protected and notable species both on the Site and within 2 km of the Site's central point.
- 2.2 Additional information of protected wildlife sites, ancient woodland and protected species was obtained from the government's MAGIC<sup>1</sup> online mapping tool.

### Designated Wildlife Sites

- 2.3 The Site is not covered by any statutory wildlife site designation and does not support any ancient woodland.
- 2.4 The closest statutory designated site is **Overhall Grove Site of Special Scientific Interest (SSSI)**, located 3.3 km to the south-west of the Site. This is an ancient secondary woodland now dominated by small-leaved elm *Ulmus minor* and represents a woodland type which is nationally restricted in its distribution.
- 2.5 There are no non-statutory designated sites within 2 km of the Site and the closest area of ancient woodland was known as L Grove, 2 km to the west.
- 2.6 The locations of the designated wildlife sites and ancient woodland in proximity to the Site are shown in **Figure 3.1**.

### Protected and Notable Species

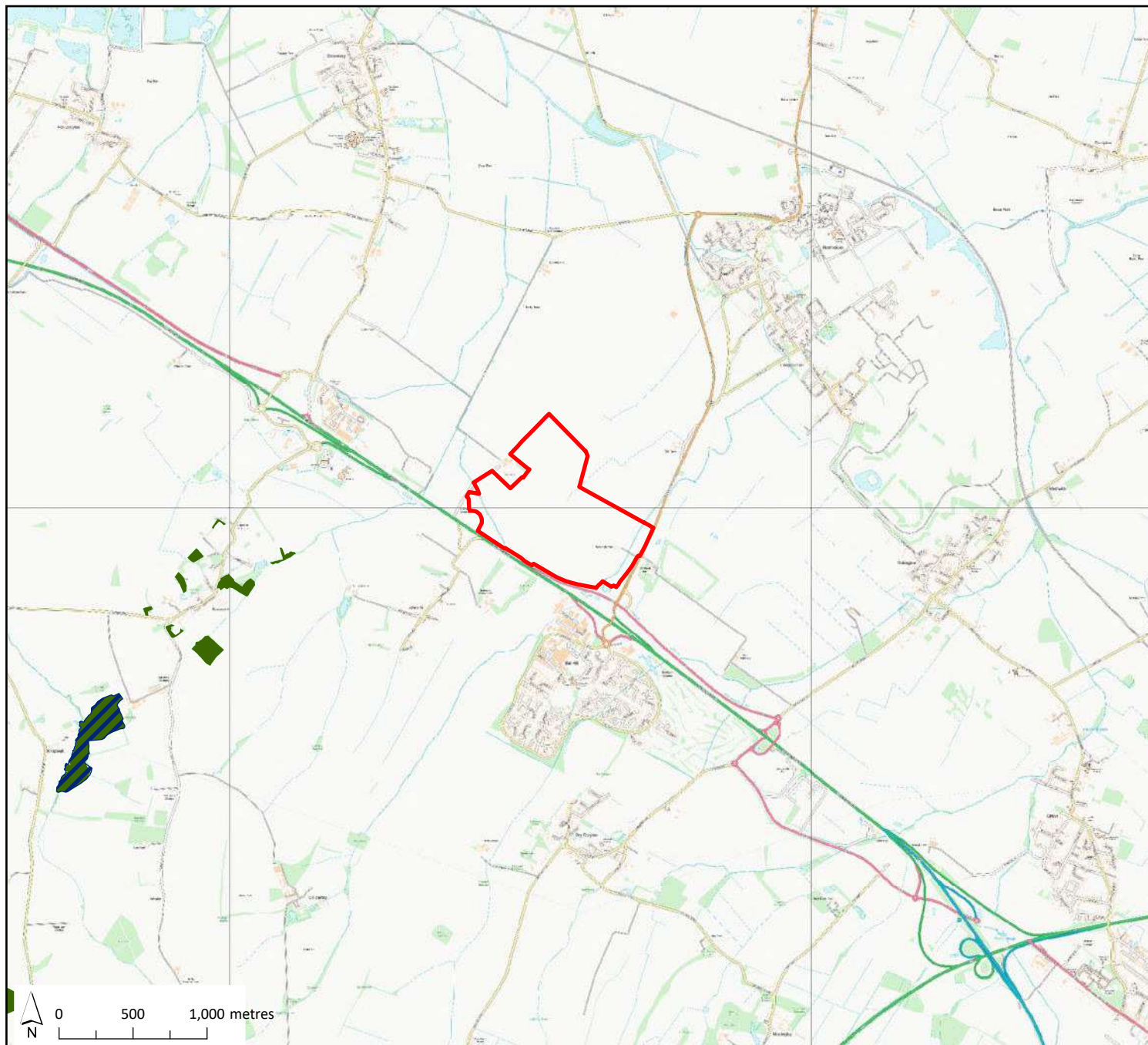
- 2.7 A total of 565 species records was returned by the data search the majority of which related to birds. The records are summarised as follows:
  - Birds – 353 records of 45 species, including various red-listed farmland specialists of elevated conservation concern such as skylark *Alauda arvensis* (25 records), linnet *Linaria cannabina* (18 records), lapwing *Vanellus vanellus* (16 records), yellowhammer *Emberiza citrinella* (14 records) and grey partridge *Perdix perdix* (eight records).
  - Bats – 90 records of at least eight species, many of which are likely to be results from fieldwork associated with the expansion of the A14 (64 bat activity survey records from 2012 and 2013). There were 25 records of common pipistrelle *Pipistrellus pipistrellus*, 15 of soprano pipistrelle *Pipistrellus pygmaeus* and five further unidentified pipistrelle *Pipistrellus* species. Records of rarer bats included four records of the nationally rare barbastelle *Barbastella barbastellus* from 2012–13, one of which was adjacent to the Site's southern boundary.

<sup>1</sup> <http://www.magic.defra.gov.uk/MagicMap.aspx> accessed 04/01/2024.



- Other mammals – 53 records, of which 25 related to water vole *Arvicola amphibius*, 17 were of badger, six were of otter *Lutra lutra*, four were of brown hare *Lepus europaeus* and one was of polecat *Mustela putorius*.
  - Badger – many of the badger records related to road kills, including on the A14 and B1050 adjacent to the Site, but there was also a record of a single-hole sett within the Site boundary from 2005.
  - Otter – five of the records were from Longstanton Brook, a watercourse which runs through the Site. The closest of these was one 270 m to the north from 2003. None of these records was more recent than 2006.
  - Water vole – there were six records from Longstanton Brook from 2001–2011, the closest being from 230 m to the north-east of the Site in 2003.
- Herpetofauna – 19 records, of which nine related to common lizard *Zootoca vivipara*, six were of great crested newt, and there were two each of common frog *Rana temporaria* and common toad *Bufo bufo*.
  - Common lizard – the closest record was one 600 m to the east of the Site from 2013.
  - Great crested newt – four of the records were from the period 1984–88 and, along with a positive eDNA record from Lolworth in 2019, were separated from the Site by major roads; however, there was also a record from Hill Farm, Swavesey from 2014, 530 m to the north-west of the Site.
- Invertebrates – 16 records, of which ten were of moths, four were butterflies (two purple emperor *Apatura it is* and small heath *Coenonympha pamphilus*) and two were of beetles.
- Flowering plants – 34 records, including several species characteristic of calcareous grassland, such as pyramidal orchid *Anacamptis pyramidalis* and hoary plantain *Plantago media*.





## Tritax Park Cambridge

### Statutory designated sites

- Site boundary
- Overhall Grove SSSI
- ancient semi-natural woodland

**Figure 2.1**

**Map Scale @ A4: 1:50,000**

Surveyed by: n/a

Survey date: n/a

Drawn by: RD

Checked by: DP

Status: Final



## 3 Habitats and Plants

### Approach

- 3.1 An extended Phase 1 habitat survey was undertaken of the eastern side of the Site on 22 April 2024, with a follow-up survey of the western side on 28 June 2024. Both surveys were completed by AEL ecologist Richard Dale MCIEEM<sup>2</sup> in dry and bright weather conditions on both survey occasions. The methodology adopted followed the standard JNCC approach to Phase 1 habitat survey (JNCC, 1993<sup>3</sup>) by which all habitats present within the Site were classified and mapped according to standard categories. Target notes were used to describe areas of both typical and unique botanical character. Habitat patches were mapped as polygon features, and if sufficient space on the map linear features (such as walls and fences) as lines where this provided added value. Point features were recorded where there were notable isolated trees or scrub. Plant species abundance was noted using the DAFOR<sup>4</sup> system.
- 3.2 The habitat map was subsequently digitised using a Geographical Information System (ArcGIS).
- 3.3 The survey was completed within the accepted season for completing Phase 1 habitat survey (which runs from late March until mid-October in southern England).

### Results

- 3.4 The Phase 1 habitat map is shown in **Figure 3.1**. A summary of the habitats recorded is provided in **Table 3.1** below, and target notes can be found in **Appendix A**. A selection of habitat survey photographs can be found in **Figure 3.2**.
- 3.5 In summary, the Site comprised an open expanse of mostly arable farmland immediately adjacent to the A14, with two fields of improved grassland in the east, a number of farm buildings, and a shallow watercourse called Longstanton Brook running through the Site.

### Arable

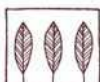
- 3.6 The majority of the Site comprised arable farmland. The eastern half of the Site around Noon Folly Farm was cereal stubble at the time of survey and was subsequently sown with a barley crop. The western area around Hill Farm supported winter-sown wheat and oilseed rape crops.
- 3.7 A small field at the westernmost point of the Site was fallow, and arable weeds present included extensive bristly ox-tongue *Picris echioides*.

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<sup>2</sup> Level 4 Botanical Society of Britain and Ireland (BSBI) Field Identification Skills Certificate.

<sup>3</sup> JNCC (1990) *Handbook for Phase 1 Habitat Survey – A technique for Environmental Audit*. JNCC, Peterborough.

<sup>4</sup> DAFOR: whereby species occurrence may be classified as being **d**ominant, **a**bundant, **f**requent, **o**ccasional or **r**are. Rare in the context of a DAFOR score should not be confused with species rarity in the more widely accepted meaning of general scarcity.



### Improved grassland

- 3.8 Two fields in the eastern part of the Site comprised apparently recently sown improved grassland. To the north of the access track this was dominated by Italian rye-grass *Lolium multiflorum*, with abundant bristly oxtongue *Picris echioides*, and frequent black grass *Alopecurus myosuroides*, meadow foxtail *Alopecurus pratensis* and oat *Avena sativa*. The species diversity per m<sup>2</sup> was low, averaging 5.4 species from five quadrats (range = 4–7 species).
- 3.9 To the south of the access track, the sward was dominated by soft brome *Bromus hordeaceus*, with abundant black grass and bristly oxtongue, and frequent cock's-foot *Dactylis glomerata*, meadow foxtail, red fescue *Festuca rubra* and creeping bent *Agrostis stolonifera*. The species diversity per m<sup>2</sup> was 5.8 species from five quadrats (range = 5–7 species).
- 3.10 A small field of grassland south-east of the Noon Folly Farm buildings supported very few forbs, comprising mostly Italian rye-grass, soft brome, cock's-foot, meadow foxtail and barren brome, with a species diversity of 4.25 species per m<sup>2</sup> (range = 3–5) from four quadrats.
- 3.11 A field in the west of the Site comprised intensively grazed improved grassland (by sheep, though none were present at the time of survey). This was dominated by perennial rye-grass, with Yorkshire-fog *Holcus lanatus* and crested dog's-tail *Cynosurus cristatus*, and very few forbs. The species diversity was very low at 3.7 species from three quadrats (range = 3–4 species).

### Poor semi-improved neutral grassland

- 3.12 Various arable margins, ditch banks and other peripheral areas at the Site supported relatively species-poor semi-improved neutral grassland.
- 3.13 The most diverse example of this habitat was present along a strip either side of the watercourse (Longstanton Brook) that ran through the eastern part of the Site. This grassland supported abundant meadow foxtail *Alopecurus pratensis* and frequent cock's-foot, false oat-grass *Arrhenatherum elatius*, common couch *Elytrigia repens*, smooth meadow-grass *Poa pratensis*, tor-grass *Brachypodium pinnatum*, false brome *Brachypodium sylvaticum*, lesser celandine *Ficaria verna* and meadow vetchling *Lathyrus pratensis*. A wide range of other species were present, including hedge bedstraw *Galium mollugo*, cow parsley *Anthriscus sylvestris* and white dead-nettle *Lamium album*, but overall, the species diversity per m<sup>2</sup> was low, averaging 7.4 species from five quadrats (range = 6–9 species).
- 3.14 Narrow field margins to arable fields in the western part of the Site showed minor variations in structure and species composition, with the tallest sward along the ditch which marked the boundary between the two halves of the Site. Overall, these areas were characterised by abundant cock's-foot and soft brome, with frequent false oat-grass, barren brome *Anisantha sterilis*, common couch, red fescue, smooth meadow-grass and meadow foxtail, with frequent tall ruderal species such as cow parsley, cleavers *Galium aparine*, common nettle *Urtica dioica*, curled dock *Rumex crispus* and clustered dock *Rumex conglomeratus* indicative of nutrient enrichment. Species diversity here averaged 4.75 species per m<sup>2</sup> from four quadrats (range = 4–7).



- 3.15 Sparse, probably recently established, grassland was present in the south of the Site. No species dominated, but soft brome, barren brome, cock's-foot, false oat-grass, bristly oxtongue, thyme-leaved speedwell *Veronica serpyllifolia* and common cat's-ear *Hypochaeris radicata* were frequent. The species diversity was low, an average of 5.25 species per m<sup>2</sup> was recorded from four quadrats (range = 4–7), although where the grassland approached Longstanton Brook diversity increased, with species such as oxeye daisy *Leucanthemum vulgare* and smooth tare *Vicia tetrasperma* more frequent.
- 3.16 A strip of grassland along a roadside ditch formed the Site's eastern boundary to the north of the access track, and contained abundant bramble scrub, as well as blackthorn *Prunus spinosa* and occasional hawthorn *Crataegus monogyna*, and frequent tall ruderal species. Species diversity was 6.5 species per m<sup>2</sup> (range = 5–9) from four quadrats.

### Other neutral grassland

- 3.17 A strip of grassland along the southern boundary of the Site was more diverse than that elsewhere and showed signs of being relatively recently sown in association with the recent A14 improvements – coverage of grasses was relatively sparse, but included meadow foxtail, red fescue *Festuca rubra*, crested dog's-tail and tall fescue *Festuca arundinacea*, but forbs were dominant, including abundant oxeye daisy and slender tare *Vicia parviflora*. Other species included bird's-foot trefoil *Lotus corniculatus* and selfheal *Prunella vulgaris*, while in the east of the Site in proximity to an off-site waterbody there was abundant yellow rattle *Rhinanthus minor* and the presence of tor-grass and yellow oat-grass *Trisetum flavescens* was indicative of somewhat calcareous soil. The species diversity was generally relatively high, at 10.8 species per m<sup>2</sup> from five quadrats (range = 9–12).
- 3.18 Recently planted saplings were present, in tree guards, throughout much of this grassland along the southern boundary, including hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, dogwood *Cornus sanguinea*, blackthorn *Prunus spinosa* and pedunculate oak *Quercus robur*.

### Amenity grassland

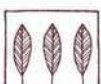
- 3.19 An amenity grassland lawn was present at Noon Folly Farm in the east of the Site, dominated by perennial rye-grass with frequent daisy *Bellis perennis*, with a species diversity of 3.5 species per m<sup>2</sup> from two quadrats (range = 3–4).

### Tall ruderal

- 3.20 Small areas around Noon Folly Farm were heavily dominated by tall ruderal species, particularly common nettle, cow parsley and hogweed.

### Buildings, hard-standing and bare ground

- 3.21 These habitat types were present primarily around the farm itself, as well as a farm track that ran through the Site.



## Broadleaved plantation woodland

- 3.22 A small stand of broadleaved plantation woodland was present on the northern boundary in the western part of the Site. This was almost exclusively a stand of elm *Ulmus* spp., with a dense ground layer of cow parsley and cleavers.

## Trees and scrub

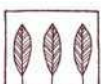
- 3.23 Individual ash *Fraxinus excelsior*, weeping willow *Salix babylonica* and lime *Tilia* sp. trees were present along the watercourse in the eastern part of the Site and three ash trees were present on the northern part of the western boundary. Trees within the curtilage of the garden at Noon Folly Farm were semi-mature Norway spruce *Picea abies* and horse chestnut *Aesculus hippocastanum*, and a small apple *Malus domestica*.
- 3.24 In the west of the Site there was a large pedunculate oak on the western boundary and a handful of other individual trees, including crack willow *Salix fragilis* and horse chestnut.
- 3.25 Scattered scrub, mostly comprising bramble *Rubus fruticosus*, was present in several marginal areas, particularly along the drainage ditches on the northern and eastern boundaries.
- 3.26 A small patch of dense, mostly blackthorn scrub was present along the central drainage ditch.

## Hedgerows

- 3.27 A species-poor hedge with trees was present on the western bank of a section of Longstanton Brook. This was dominated by hawthorn, with abundant bramble and occasional elder *Sambucus nigra*. Several mature willow *Salix* spp. and ash trees were present.
- 3.28 Species-poor intact hedges of hawthorn, elder, dog rose *Rosa canina* and *Prunus* spp. formed the boundaries of the farm garden.
- 3.29 A species-poor hedge with trees was present in the south of the Site, on the western bank of a ditch. This comprised hawthorn with ash, horse chestnut, alder *Alnus glutinosa* and pedunculate oak trees.
- 3.30 A line of ash trees, many of which shows extensive signs of dieback, was present alongside a ditch in the west of the Site.
- 3.31 Various hedgerows in the west of the Site were species-poor and heavily managed, typically dominated by hawthorn.

## Ditches, flowing water and standing water

- 3.32 Longstanton Brook comprised a narrow, shallow flowing watercourse that ran through the eastern part of the Site. It had steep banks and variable marginal and in-channel vegetation including fool's watercress *Apium nodiflorum*, meadowsweet *Filipendula ulmaria*, yellow iris *Iris pseudacorus*, curled pondweed *Potamogeton crispus* and common water-starwort *Callitriche stagnalis*.
- 3.33 A drainage ditch that formed much of the Site's eastern boundary and fed into Longstanton Brook held shallow water for much of its length at the time of the survey, but was dry by



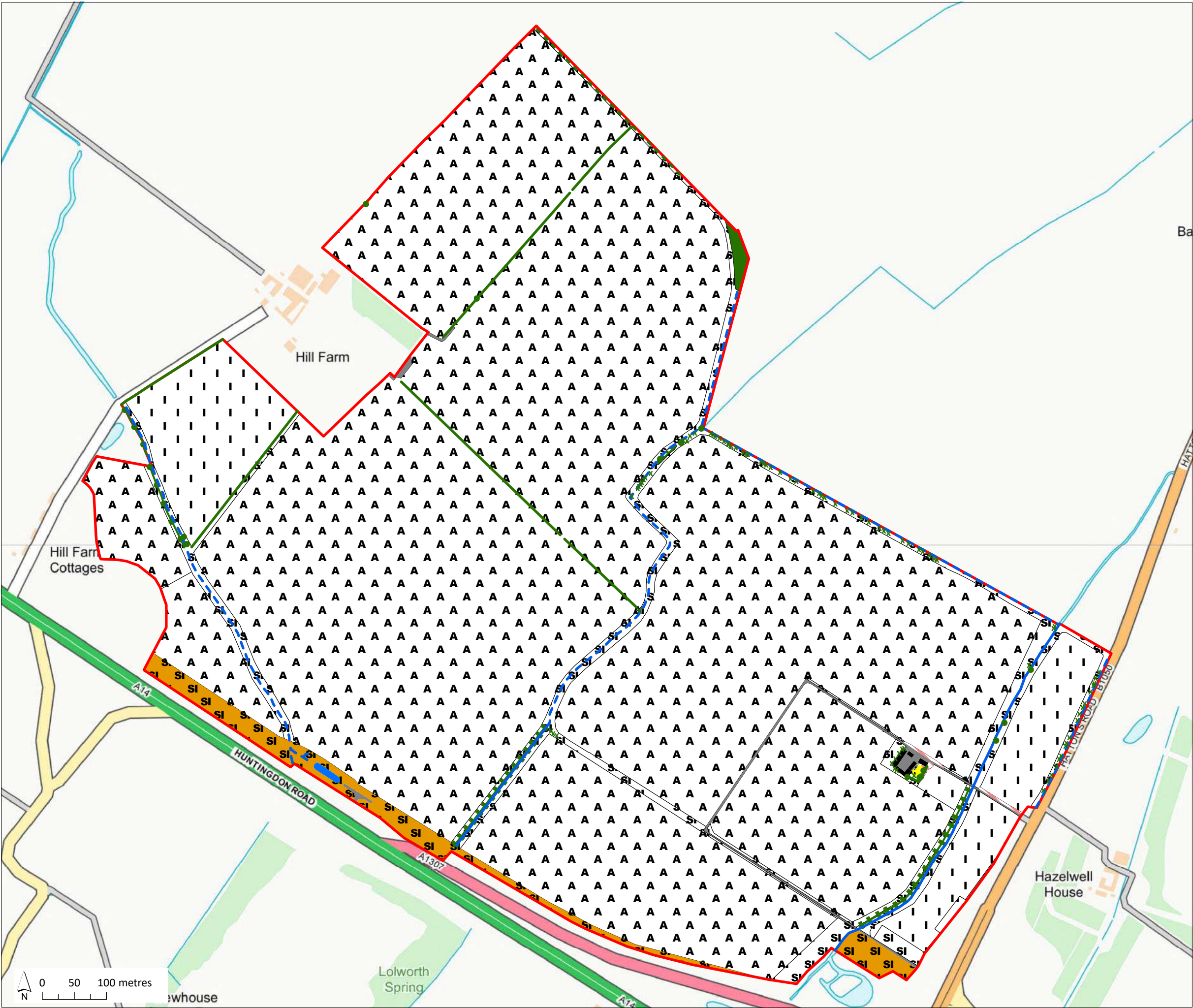
June. The vegetation here was less indicative of permanently wet conditions and it is likely that this ditch is dry for the majority of the year. Species present included great willowherb *Epilobium hirsutum*, meadowsweet and common spike-rush *Eleocharis palustris*.

- 3.34 A ditch which ran along the Site's eastern boundary held some water at the time of survey but is likely to be only ephemerally wet. This was heavily overgrown with vegetation to the north of the access track but much more open to the south and supported species such as hard rush *Juncus inflexus*, great willowherb, bulrush *Typha latifolia* and, to the north, extensive bramble.
- 3.35 A predominantly dry ditch bisected the eastern and western halves of the Site, and supported little in-channel vegetation, but marginal species included occasional water figwort *Scrophularia auriculata*.
- 3.36 A ditch in the southern part of the western area held shallow water at the time of survey, with extensive fool's watercress *Apium nodiflorum* along the western part of its length, and common reed *Phragmites australis* towards the eastern end, where it fed into a balancing pond alongside the A14. This ditch was mostly dry when inspected in late August.
- 3.37 The balancing pond itself held common reed, bulrush *Typha latifolia*, water plantain *Alisma plantago-aquatica*, and jointed rush *Juncus articulatus*, with great willowherb and hard rush on the banks.

**Table 3.1: Summary of habitat types recorded on the Site.**

| Habitat                              | Area (ha) | % of Site |
|--------------------------------------|-----------|-----------|
| Arable                               | 103.049   | 85.0      |
| Improved grassland                   | 8.805     | 7.3       |
| Poor semi-improved neutral grassland | 6.070     | 5.0       |
| Semi-improved neutral grassland      | 2.477     | 2.0       |
| Hard-standing                        | 0.465     | 0.4       |
| Broadleaved plantation woodland      | 0.176     | 0.1       |
| Tall ruderal                         | 0.077     | 0.1       |
| Buildings                            | 0.072     | 0.1       |
| Standing water                       | 0.047     | <0.1      |
| Amenity grassland                    | 0.026     | <0.1      |
| Dense scrub                          | 0.024     | <0.1      |
| Introduced shrubs                    | 0.002     | <0.1      |
| Bare ground                          | 0.001     | <0.1      |





Tritax Park Cambridge

Phase 1 habitat map

- Site boundary
- amenity grassland
- arable
- bare ground
- broadleaved plantation woodland
- buildings
- dense scrub
- hard-standing
- improved grassland
- introduced shrubs
- poor semi-improved neutral grassland
- semi-improved neutral grassland
- standing water
- tall ruderal
- line of trees
- species-poor hedge with trees
- species-poor intact hedge
- species-poor defunct hedge
- ephemerally wet ditch
- flowing water / wet ditch
- scattered scrub
- individual tree (indicative location)

Figure 3.1

Map Scale @ A3: 1:5,800

|                                      |
|--------------------------------------|
| Surveyed by: RD                      |
| Survey date: 22 April & 28 June 2024 |
| Drawn by: RD                         |
| Checked by: DP                       |
| Status: Final                        |



**Figure 3.2: Selection of habitat survey photographs.**



(a) Longstanton Brook and adjacent semi-improved grassland and hedgerow with trees in eastern part of the Site.



(b) Improved grassland field to north of access track in east of the Site.



(c) Arable field with arrow grassland field margins and scattered scrub and trees along ditch on western boundary.



(d) Overgrown ditch along eastern Site boundary.





(e) Species-poor intact hedge, oilseed rape and barley crops, and very narrow field margins in west of Site.



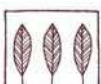
(f) Stand of elm-dominated plantation woodland on northern boundary.



(g) Semi-improved natural grassland along southern boundary.



(h) Balancing pond adjacent to A14 in the south of the Site.



## 4 Fauna

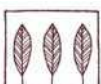
### Great Crested Newt

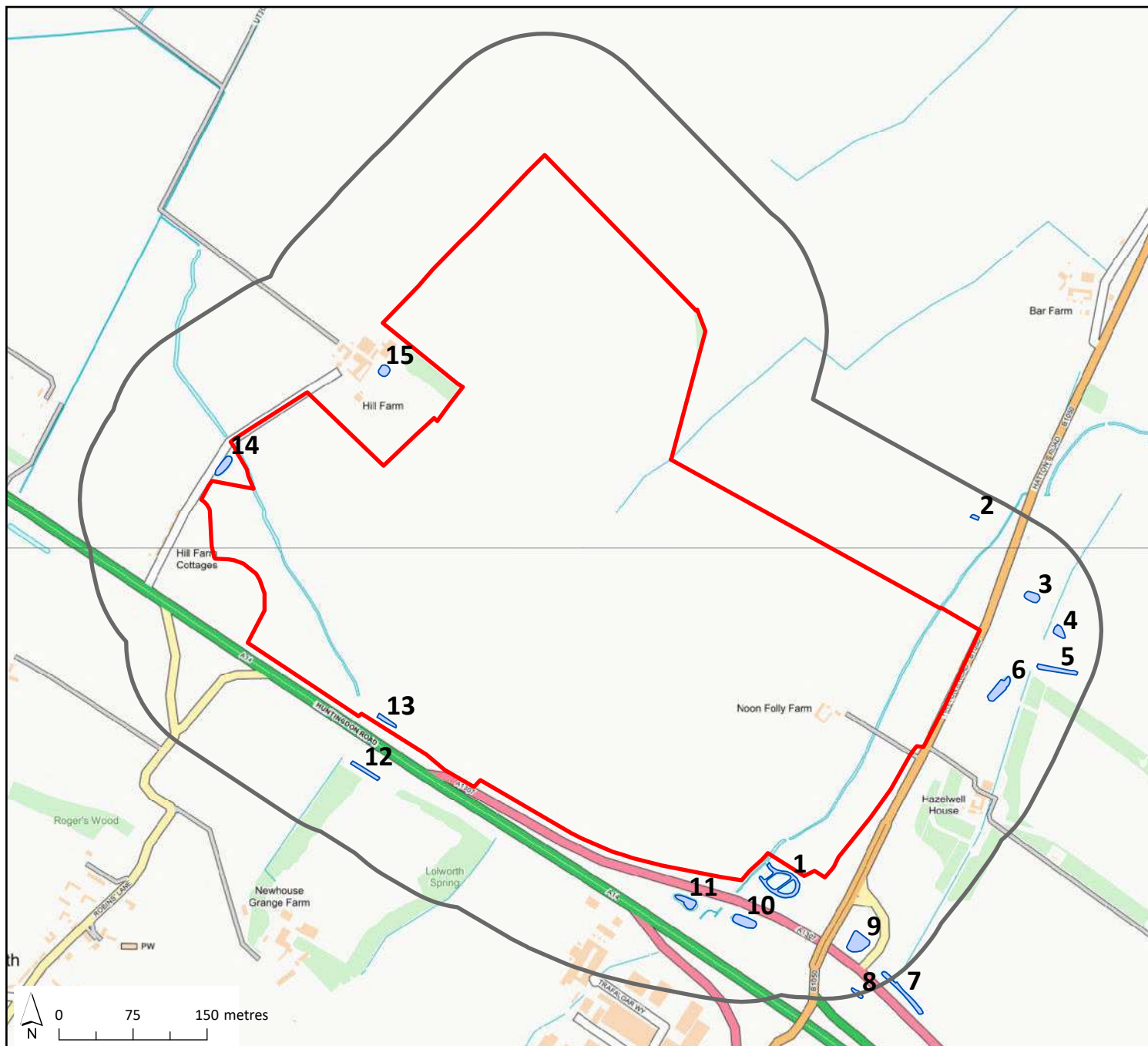
#### Approach

- 4.1 In advance of the survey the 1:25,000 scale Ordnance Survey map was checked and online aerial photos inspected to identify any ponds within 250 m of the Site that could potentially support breeding populations of the legally protected amphibian great crested newt *Triturus cristatus* (GCN).
- 4.2 Ponds within the Site and within 250 m of the Site that were not separated from the Site by significant barriers to GCN dispersal (i.e. major roads), were subject to GCN presence /absence (eDNA) survey using ADAS test kits and survey protocols on 21 June (Ponds 1, 2 and 13) and 24 June 2024 (Ponds 14 and 15) by a licenced GCN surveyor from AEL.

#### Findings

- 4.3 There were 15 waterbodies within 250 m of the Site boundary, including one pond within the Site (Pond 13), as shown by **Figure 4.1**. The majority of these were separated from the Site by major barriers to GCN dispersal in the form of major roads (the A14, A1304 and B1050); however, five were not separated by any major dispersal barrier – Ponds 1, 2, 13, 14 and 15 and were surveyed.
- 4.4 Pond 1 was a series of channels directly connected to the Longstanton Brook, rather than an isolated pond.
- 4.5 Most of these waterbodies (all but Ponds 2 and 15) appeared to have been recently created during the A14 widening over the period 2016–20.
- 4.6 All five ponds subject to eDNA survey were found to be negative for GCN. As such, the species can be safely considered absent from aquatic and terrestrial habitats at the Site.





## Tritax Park Cambridge

### Waterbodies within 250 m

- Site boundary
- 250 m from Site boundary
- waterbodies within 250 m

**Figure 4.1**

**Map Scale @ A4: 1:8,500**

Surveyed by: n/a

Survey date: n/a

Drawn by: RD

Checked by: DP

Status: Final



## Birds

### Breeding Survey Approach

- 4.7 A four visit transect-based territory mapping breeding bird survey was completed over the period April–June 2024 by Richard Dale MCIEEM. The survey combined aspects of the Breeding Birds Survey (BBS) and Common Bird Census (CBC)<sup>5</sup> and was informed by best practice guidance published by the Bird Survey and Assessment Steering Group.<sup>6</sup> In this instance, four visits were completed, rather than six, as the habitats at the Site were largely uniform arable farmland with few hedgerows, and there was limited scope for a particularly diverse breeding bird assemblage to be present. As such, four visits were considered adequate to accurately assess the diversity and distribution present.
- 4.8 The eastern part of the Site, shown as the “Survey Area” in **Figure 4.2**, was subject to all four survey visits. The remaining western part of the Site, however, was only subject to the final visit, on 28 June 2024.
- 4.9 The survey visits took place on 22 April, 14 May, 30 May and 28 June 2024 during generally fine and dry weather conditions. Each transect survey started within an hour of sunrise to coincide with the peak period of bird activity and took up to two hours to complete, with the exception of the 28 June visit, which also encompassed the western part of the Site, and took around four hours to complete.
- 4.10 A transect route was devised to adequately cover all accessible parts of the Survey Area as shown by **Figure 4.2**. This was extended to cover the remainder of the Site for the final visit.
- 4.11 During each survey, the positions, age, sex, and behaviour of individual birds were recorded on large-scale field maps with a new map used on each visit. Depending on the behaviour observed, species were allocated levels of breeding confirmation using slightly adapted BTO guidelines<sup>7</sup> as summarised in **Table 4.1**.
- 4.12 All adult birds detected by sight and/or sound were recorded, although species flying over the Site were omitted unless it was clear the birds were feeding over the Site or were flying to or had originated on or near the Site. Every effort was made to ensure that individual birds were only recorded once, and where possible, repeated records and clusters of registrations were used to map approximate breeding territories and assess species breeding density and abundance.
- 4.13 Notes of any nocturnal species or other notable birds were also made during dusk bat activity surveys of the Site completed on 28 May and 17 and 27 June 2024.

**Table 4.1: Breeding status of bird species and evidence.**

| Breeding status | Breeding evidence                                                                                                                                                                           |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Non-breeder     | <ul style="list-style-type: none"> <li>• Suspected to be on migration.</li> <li>• Summering non-breeder.</li> <li>• Not nesting within Site boundary (but potentially close by).</li> </ul> |

<sup>5</sup> Gilbert, G., Gibbons, D.W. & Evans, J. (1998). *Bird Monitoring Methods: a manual of techniques for key UK species*. RSPB, Sandy.

<sup>6</sup> [www.birdsurveyguidelines.org](http://www.birdsurveyguidelines.org) - accessed 27/02/2022.

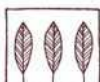
<sup>7</sup> [www.bto.org/volunteer-surveys/birdatlas/methods/breeding-evidence](http://www.bto.org/volunteer-surveys/birdatlas/methods/breeding-evidence)



| Breeding status    | Breeding evidence                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Possible breeding  | <ul style="list-style-type: none"> <li>Species observed in suitable nesting habitat or singing male present.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                 |
| Probable breeding  | <ul style="list-style-type: none"> <li>Pair in suitable breeding habitat.</li> <li>Permanent territory presumed through registration of territorial behaviour (song etc.) on at least two different days a week or more apart at the same place or many individuals on one day.</li> <li>Courtship and display.</li> <li>Visiting probable nest site.</li> <li>Agitated behaviour or anxiety calls from adults, suggesting presence of nest or young nearby.</li> <li>Nest-building or excavating nest-hole.</li> </ul> |
| Confirmed breeding | <ul style="list-style-type: none"> <li>Distraction display of feigning injury.</li> <li>Used nest of eggshells found (occupied or laid during period of survey).</li> <li>Recently fledged young (nidicolous species) or downy young (nidifugous species)</li> <li>Adults entering or leaving nest site in circumstances indicating occupied nest, or adults seen incubating.</li> <li>Adult carrying faecal sac or food for young.</li> <li>Nest containing eggs.</li> <li>Nest with young seen or heard.</li> </ul>   |

### Wintering Bird Survey Approach

- 4.14 A three-visit winter birds survey was completed over the period December 2024–February 2025 by Richard Dale MCIEEM. A transect route was devised and walked around the Site to adequately cover all accessible parts of the Site.
- 4.15 Survey visits took place on 18 December 2024, 23 January 2025 and 21 February 2025 during generally fine and dry weather conditions. Each transect survey started within an hour of sunrise to coincide with the peak period of bird activity and took up to three hours to complete.
- 4.16 During each survey, the positions and, where relevant, age, sex and behaviour of individual birds were recorded on large-scale field maps, using a new map on each visit. Birds detected by sight and sound were recorded, however, species flying over the Site were not transcribed onto the field map unless it was clear the birds were feeding over the Site or were flying to or had originated on or near the Site. Every effort was made, using the surveyor's judgement and the survey recording methodology, to record any individual bird once only.
- 4.17 The survey was not intended to record all birds at the Site, rather the focus was on notable gatherings of key species, particularly those of elevated conservation concern, that might indicate the Site had elevated value for wintering bird species. Such species groups included:
- Waders – arable land can support large roosting or foraging flocks, particularly of golden plover *Pluvialis apricaria* and the red-listed lapwing.
  - Thrushes – large flocks of winter thrushes, principally redwing *Turdus iliacus* and fieldfare *Turdus pilaris*.



- Finches and buntings – large mixed flocks of these species, often including red-listed species such as linnet, yellowhammer *Emberiza citrinella* and corn bunting *Emberiza calandra*, can be attracted to areas of winter stubble or game cover.
- Other red-listed farmland specialists or notable species – species such as grey partridge and skylark, or raptors, owls, wildfowl, etc.

### Breeding Bird Survey Findings

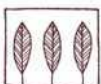
- 4.18 The findings of the bird survey are summarised in **Table 4.2**. This shows the species recorded, the maximum count recorded across the four visits within the eastern Survey Area, the total number recorded across the whole Site on 28 June 2024, and the likely breeding status and estimated number of territories for each species for the whole Site.
- 4.19 A total of 34 species were recorded over the course of the survey, of which 32 were recorded within the Survey Area. Of these, six were red-listed species of elevated conservation concern (greenfinch *Chloris chloris*, grey partridge, linnet, skylark, starling *Sturnus vulgaris*, yellowhammer) and a further nine were amber-listed (kestrel *Falco tinnunculus*, moorhen *Gallinula chloropus*, reed bunting *Emberiza schoeniclus*, rook *Corvus frugilegus*, snipe *Gallinago gallinago*, stock dove *Columba oenas*, whitethroat *Sylvia communis*, woodpigeon *Columba palumbus*, wren *Troglodytes troglodytes*). The remainder were green-listed species that are not currently subject to significant trends of moderate or severe decline (note also that several of the amber-listed species, namely woodpigeon, wren, stock dove and rook, are listed as such because of the large size and importance of their British population in a European context, rather than because of breeding population declines).
- 4.20 Of the 34 species recorded, 11 were confirmed as breeding within the Site, 11 were probable breeders and eight were possible breeders. Three species were recorded that definitely did not breed at the Site. A small number of additional species were observed flying overhead but had no obvious relationship with the Site and have not, therefore, been included in the species count. These were greylag goose *Anser anser*, lesser black-backed gull *Larus fuscus*, black-headed gull *Chroicocephalus ridibundus*, cormorant *Phalacrocorax carbo* and swift *Apus apus*.

**Table 4.2: Birds recorded during breeding birds survey and estimated breeding populations.**

| Species                             | UK BoCC & Schedule 1 status | Max. count (Survey Area) | Count (Site, 28 June only) | Breeding status | Est. no. of territories / pairs | Notes on occurrence of red/amber-listed BoCCs and Schedule 1 species |
|-------------------------------------|-----------------------------|--------------------------|----------------------------|-----------------|---------------------------------|----------------------------------------------------------------------|
| Blackbird <i>Turdus merula</i>      | Green                       | 1                        | 0                          | Probable        | 1–2                             |                                                                      |
| Blackcap <i>Sylvia atricapilla</i>  | Green                       | 1                        | 0                          | Probable        | 1                               |                                                                      |
| Blue tit <i>Cyanistes caeruleus</i> | Green                       | 3                        | 3                          | Probable        | 1–2                             |                                                                      |
| Buzzard <i>Buteo buteo</i>          | Green                       | 2                        | 2                          | Probable        | 1                               |                                                                      |
| Carrion crow <i>Corvus corone</i>   | Green                       | 3                        | 1                          | Confirmed       | 1–2                             |                                                                      |
| Dunnock <i>Prunella modularis</i>   | Green                       | 1                        | 0                          | Probable        | 1                               |                                                                      |



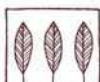
| Species                                    | UK BoCC & Schedule 1 status | Max. count (Survey Area) | Count (Site, 28 June only) | Breeding status | Est. no. of territories / pairs | Notes on occurrence of red/amber-listed BoCCs and Schedule 1 species                                                                                 |
|--------------------------------------------|-----------------------------|--------------------------|----------------------------|-----------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Feral pigeon <i>Columba livia</i>          | Green                       | 2                        | 2                          | Probable        | 1                               |                                                                                                                                                      |
| Goldfinch <i>Carduelis carduelis</i>       | Green                       | 0                        | 1                          | Possible        | 0–1                             |                                                                                                                                                      |
| Great tit <i>Parus major</i>               | Green                       | 2                        | 4                          | Probable        | 1–2                             |                                                                                                                                                      |
| Green woodpecker <i>Picus viridis</i>      | Green                       | 1                        | 0                          | Possible        | 0–1                             |                                                                                                                                                      |
| Greenfinch <i>Chloris chloris</i>          | Red                         | 4                        | 4                          | Possible        | 0–2                             | A small group was present on 28 June, but not thought likely to have bred at the Site.                                                               |
| Grey partridge <i>Perdix perdix</i>        | Red                         | 4                        | 0                          | Probable        | 1–2                             | Two pairs were present on 28 April and may have bred.                                                                                                |
| Jackdaw <i>Corvus monedula</i>             | Green                       | 2                        | 0                          | Possible        | 0–1                             |                                                                                                                                                      |
| Kestrel <i>Falco tinnunculus</i>           | Amber                       | 1                        | 0                          | Possible        | 0–1                             | A single bird on 30 May.                                                                                                                             |
| Lesser whitethroat <i>Sylvia curruca</i>   | Green                       | 1                        | 0                          | Possible        | 0–1                             |                                                                                                                                                      |
| Linnet <i>Linaria cannabina</i>            | Red                         | 4                        | 0                          | Probable        | 0–3                             | Small numbers present on several visits, but breeding not confirmed. A highly mobile, colonial nesting species.                                      |
| Magpie <i>Pica pica</i>                    | Green                       | 3                        | 3                          | Confirmed       | 1–2                             |                                                                                                                                                      |
| Marsh harrier <i>Circus aeruginosus</i>    | Green & Schedule 1          | 1                        | 0                          | Non-breeder     | 0                               | A single hunting bird on 14 May.                                                                                                                     |
| Moorhen <i>Gallinula chloropus</i>         | Amber                       | 0                        | 1                          | Possible        | 0–1                             | A single bird on the balancing pond in the western part of the Site.                                                                                 |
| Pheasant <i>Phasianus colchicus</i>        | Green                       | 1                        | 2                          | Possible        | 0–2                             |                                                                                                                                                      |
| Pied wagtail <i>Motacilla alba</i>         | Green                       | 2                        | 3                          | Confirmed       | 1–2                             |                                                                                                                                                      |
| Red-legged partridge <i>Alectoris rufa</i> | Green                       | 2                        | 0                          | Probable        | 0–1                             |                                                                                                                                                      |
| Reed bunting <i>Emberiza schoeniclus</i>   | Amber                       | 2                        | 2                          | Confirmed       | 1–2                             | Two pairs present in vegetation along wetter ditches, including a confirmed breeding attempt just outside the Site boundary along Longstanton Brook. |
| Robin <i>Erithacus rubecula</i>            | Green                       | 1                        | 1                          | Probable        | 1                               |                                                                                                                                                      |
| Rook <i>Corvus frugilegus</i>              | Amber                       | 9                        | 0                          | Non-breeder     | 0                               | Common species, but no rookery present at the Site.                                                                                                  |



| Species                                 | UK BoCC & Schedule 1 status | Max. count (Survey Area) | Count (Site, 28 June only) | Breeding status | Est. no. of territories / pairs | Notes on occurrence of red/amber-listed BoCCs and Schedule 1 species                               |
|-----------------------------------------|-----------------------------|--------------------------|----------------------------|-----------------|---------------------------------|----------------------------------------------------------------------------------------------------|
| Skylark <i>Alauda arvensis</i>          | Red                         | 17                       | 21                         | Confirmed       | 13–15                           | Common breeder, with territories at a much higher density in the east part of the Site             |
| Snipe <i>Gallinago gallinago</i>        | Amber                       | 1                        | 0                          | Non-breeder     | 0                               | A single bird flushed – a passage migrant that did not breed at the Site.                          |
| Starling <i>Sturnus vulgaris</i>        | Red                         | 1                        | 0                          | Confirmed       | 1–2                             | A pair was feeding young at a nest in a tree hole in the east of the Site.                         |
| Stock dove <i>Columba oenas</i>         | Amber                       | 2                        | 1                          | Confirmed       | 1                               | A pair was nesting in a barn owl nest box at Noon Folly Farm.                                      |
| Swallow <i>Hirundo rustica</i>          | Green                       | 1                        | 7                          | Confirmed       | 1                               |                                                                                                    |
| Whitethroat <i>Sylvia communis</i>      | Amber                       | 4                        | 4                          | Confirmed       | 4–5                             | At least four pairs present in east of the Site, associated with tall ruderal and scattered scrub. |
| Woodpigeon <i>Columba palumbus</i>      | Amber                       | 9                        | 10                         | Confirmed       | 2–4                             | Common species, nesting in larger hedgerows.                                                       |
| Wren <i>Troglodytes troglodytes</i>     | Amber                       | 4                        | 5                          | Confirmed       | 5–8                             | Common species, present wherever sufficient vegetation occurs – mostly denser hedgerows.           |
| Yellowhammer <i>Emberiza citrinella</i> | Red                         | 3                        | 5                          | Probable        | 2–4                             | Present at low density, breeding in hedgerows.                                                     |

### **Species assemblage**

- 4.21 The species recorded from the Site represent a relatively typical and expected bird assemblage for an arable dominated site of this size in lowland England. Four specialist farmland species were recorded, namely grey partridge, skylark, linnet and yellowhammer, of which skylark was by far the most numerous species present. This was expected, as the Site was open, with large field sizes and few hedgerows – ample opportunity for ground-nesting species, but more limited opportunities for species reliant on hedgerows. The absence of corn bunting was perhaps surprising, as this is a species of open farmland and not dependent on hedgerows for nesting. Although subject to significant recent declines, it remains relatively locally common in parts of Cambridgeshire.
- 4.22 No nocturnal species were recorded during any of the bat surveys at the Site, and there was no evidence of barn owl *Tyto alba* using the nest box within one of the barns at Noon Folly Farm (this was, however, used by nesting stock doves).



### Bird density and distribution

- 4.23 The relative density of all birds recorded within the Site during the six visits is shown in **Figure 4.3**. The highest density of birds was associated with the farm buildings and garden at Noon Folly Farm and the established hedgerows along Longstanton Brook and the ditch in the west of the Survey Area.
- 4.24 There was a marked contrast between the eastern and western parts of the Site in terms of skylark numbers – nine of the 13 confirmed territories were in the eastern area, at a much higher density than recorded in the west, see **Figure 4.4**. This was due to the crops present – the east was under a spring sown barley crop that has been sown directly into the winter stubble and was, judging by the sparse coverage of the crop and frequent arable weeds, not subject to particularly intensive agricultural management. This presented a highly favourable habitat for skylark, and the species' high breeding density reflected this. By contrast, the western area supported winter-sown cereals and a field of winter-sown oilseed rape. The former was used by skylarks at low density, while the rape field did not support any, most likely due to the height and density of the crop through the peak breeding season.
- 4.25 The number of skylark territories (and those of other farmland specialist species) at the Site is likely to fluctuate according to the type of crops sown and intensity of management in a given year.

### Wintering Bird Survey Findings

- 4.26 The survey recorded a total of 26 bird species using the Site. These are summarised in **Table 4.3**.

**Table 4.3: Birds recorded during breeding birds survey and estimated breeding populations.**

| Species                              | UK BoCC & Schedule 1 status | Count  |        |        | Maximum count | Notes of key species                                                          |
|--------------------------------------|-----------------------------|--------|--------|--------|---------------|-------------------------------------------------------------------------------|
|                                      |                             | 23 Dec | 18 Jan | 20 Feb |               |                                                                               |
| Blackbird <i>Turdus merula</i>       | Green                       | x      | x      | x      | x             |                                                                               |
| Blue tit <i>Cyanistes caeruleus</i>  | Green                       | x      | x      | x      | x             |                                                                               |
| Buzzard <i>Buteo buteo</i>           | Green                       | 1      | –      | 1      | 1             |                                                                               |
| Carrion crow <i>Corvus corone</i>    | Green                       | x      | x      | x      | x             |                                                                               |
| Dunnock <i>Prunella modularis</i>    | Amber                       | x      | x      | x      | x             | Common resident.                                                              |
| Feral pigeon <i>Columba livia</i>    | Green                       | x      | x      | x      | x             |                                                                               |
| Fieldfare <i>Turdus pilaris</i>      | Red*                        | –      | 6      | –      | 6             | Small flock in arable stubble in west of Site.                                |
| Goldfinch <i>Carduelis carduelis</i> | Green                       | 2      | –      | 4      | 4             |                                                                               |
| Great tit <i>Parus major</i>         | Green                       | x      | x      | x      | x             |                                                                               |
| Jackdaw <i>Corvus monedula</i>       | Green                       | x      | x      | x      | x             |                                                                               |
| Kestrel <i>Falco tinnunculus</i>     | Amber                       | –      | 1      | 1      | 1             | In January and February seen hunting grassland areas in the east of the Site. |



| Species                                    | UK BoCC & Schedule 1 status | Count  |        |        | Maximum count | Notes of key species                                                                                                                                                   |
|--------------------------------------------|-----------------------------|--------|--------|--------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                            |                             | 23 Dec | 18 Jan | 20 Feb |               |                                                                                                                                                                        |
| Lapwing <i>Vanellus vanellus</i>           | Red                         | –      | –      | 420    | 420           | Large flock roosting in recently ploughed fields in east of Site.                                                                                                      |
| Magpie <i>Pica pica</i>                    | Green                       | x      | x      | x      | x             |                                                                                                                                                                        |
| Marsh harrier <i>Circus aeruginosus</i>    | Green (Schedule 1)          | 1      | –      | –      | 1             |                                                                                                                                                                        |
| Meadow pipit <i>Anthus pratensis</i>       | Amber                       | 1      | 1      | 6      | 6             | An increase in numbers evident in February, likely indications of return passage.                                                                                      |
| Red kite <i>Milvus milvus</i>              | Green (Schedule 1)          | –      | 1      | –      | 1             |                                                                                                                                                                        |
| Red-legged partridge <i>Alectoris rufa</i> | Green                       | x      | x      | x      | x             |                                                                                                                                                                        |
| Reed bunting <i>Emberiza schoeniclus</i>   | Amber                       | 1      | –      | 2      | 2             | Individual birds in hedgerows.                                                                                                                                         |
| Robin <i>Erithacus rubecula</i>            | Green                       | x      | x      | x      | x             |                                                                                                                                                                        |
| Rook <i>Corvus frugilegus</i>              | Amber‡                      | 18     | 51     | 16     | 51            | Feeding flocks present on each survey. Very common locally.                                                                                                            |
| Skylark <i>Alauda arvensis</i>             | Red                         | 6      | 16     | 33     | 33            | Small wintering population, particularly in winter stubble. Numbers increased in February with birds returning to breeding sites or on passage (much song and display) |
| Starling <i>Sturnus vulgaris</i>           | Red                         | 5      | –      | 8      | 8             | Small foraging flocks in grassland fields in west of the Site.                                                                                                         |
| Stock dove <i>Columba oenas</i>            | Amber†                      | 2      | 4      | 1      | 4             | Small numbers in fields and at nest site (in barn owl box at Noon Folly Farm)                                                                                          |
| Woodpigeon <i>Columba palumbus</i>         | Amber†                      | 48     | 102    | 56     | 102           | Abundant resident, feeding flocks in winter stubble.                                                                                                                   |
| Wren <i>Troglodytes troglodytes</i>        | Amber†                      | x      | x      | x      | x             | Common resident.                                                                                                                                                       |
| Yellowhammer <i>Emberiza citrinella</i>    | Red                         | 18     | 10     | 17     | 18            | Individual birds or small flocks (up to 12 individuals)                                                                                                                |

x = abundant or Green-listed resident species present but not counted.

\* Red-listed due to scarcity of breeding population only – common winter visitor.

† Amber-listed due to large size and European importance of large British breeding population.

‡ Amber-listed due to European Red-list status, but a common species in Britain.

#### 4.27 The wintering assemblage was unexceptional, with a small range of species of elevated conservation concern in generally small numbers. No large flocks of winter thrushes,



finches or buntings were present, in part likely due to the lack of mature hedgerows, set aside or game cover strips.

- 4.28 The presence of a large roosting flock of lapwings on the February visit was notable; however, this visit coincided with the recent ploughing of the fields in the east of the Site, and it is considered highly likely that this flock had been feeding in the recently ploughed fields – Gillings (1999)<sup>8</sup> states: *“Lapwings quickly exploited freshly ploughed fields in autumn but these fields retained their attractiveness to the birds for just a few days following the ploughing”*.
- 4.29 In general, lapwings show a strong preference for grassland for foraging, though arable fields are a regularly used secondary habitat, and are also used for roosting.

## Evaluation

- 4.30 Standard procedures for assessing the value of bird communities have been established by Fuller (1980)<sup>9</sup>. Recording the number of species on a site can provide a simple measure of species diversity from which to confer a level of conservation importance. For breeding birds, the standard qualifying levels provided by Fuller (1980) are as follows:
- National Importance, 85+ species;
  - Regional Importance, 70–84 species;
  - County Importance, 50–69 species;
  - Local Importance, 25–49 species.
- 4.31 A total of 34 species were recorded using the Site during the 2024 breeding bird survey; although, some of these were passage migrants or birds not thought likely to have bred on the Site. The overall breeding assemblage of the Site (i.e., species nesting within the Site or immediately adjacent to it and using habitats within the Site as their primary foraging habitat) is considered to be in the range of 28–31 species. This means the Site is likely to be of no more than **Local importance** with respect to the diversity of its breeding bird assemblage.
- 4.32 Fuller’s standard qualifying criteria for the species diversity of wintering birds are as follows:
- National Importance, 115+ species;
  - Regional Importance, 85–114 species;
  - County Importance, 55–84 species;
  - Local Importance, 25–49 species.
- 4.33 Even allowing for the high mobility of birds and the likelihood of species additional to those recorded by the survey using the Site, the Site is unlikely to support a wintering population of any more than Local importance with respect to the diversity of its wintering bird assemblage.

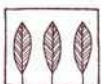
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<sup>8</sup> Gillings, S. and Fuller, R.J. (1999) *Winter Ecology of Golden Plovers and Lapwings: A Review and Consideration of Extensive Survey Methods*. BTO Research Report No. 224, July 1999.

<sup>9</sup> Fuller, R.J. (1980). *A Method for Assessing the Ornithological Interest of Sites for Conservation*. Biological Conservation, 17: 229–239.



- 4.34 The Site does not possess any value in terms of its breeding or wintering bird population size or species rarity according to the criteria set out by Fuller (1980).





# Tritax Park Cambridge

## Bird surveys transect route

- Site boundary
- BBS Survey Area
- Transect routes

Figure 4.2

Map Scale @ A3: 1:6,098

|                  |
|------------------|
| Surveyed by: n/a |
| Survey date: n/a |
| Drawn by: RD     |
| Checked by: DP   |
| Status: Final    |





# Tritax Park Cambridge

## Breeding birds survey results Relative density

- Site boundary
- BBS Survey Area

Relative density of all birds recorded in eastern  
Survey Area (n=236)

- Low density
- High density

Figure 4.3

Map Scale @ A3: 1:3,500

|                              |
|------------------------------|
| Surveyed by: RD              |
| Survey date: April–June 2024 |
| Drawn by: RD                 |
| Checked by: DP               |
| Status: Final                |





## Land North of Bar Hill

### Breeding birds survey results Skylark territories

-  Site boundary
-  BBS Survey Area
-  approximate skylark territories

**Figure 4.4**

Map Scale @ A3: 1:6,098

Surveyed by: RD

Survey date: April–June 2024

Drawn by: RD

Checked by: DP

Status: Final



## Badger

### Approach

- 4.35 A search for evidence of badgers was completed during the PEA surveys on 22 April and 28 June 2024. Any badger setts found during the surveys were categorised as either main (i.e. breeding), annex, subsidiary or outlier setts<sup>10</sup>.

### Findings

- 4.36 A total of eight low-status, outlier badger setts were present within the Site boundary. In addition, a likely main sett and nearby annexe sett were present just outside the northern Site boundary, dug into the banks of Longstanton Brook. The locations of these setts are shown by (confidential) **Figure 4.5** and are detailed in **Table 4.4** below.

**Table 4.4: Badger setts within and in proximity to the Site.**

| Number | Status  | Details                                                                                                             |
|--------|---------|---------------------------------------------------------------------------------------------------------------------|
| 1      | Outlier | Two partially-used entrance holes under hedgerow on top of watercourse bank.                                        |
| 2      | Outlier | One well-used entrance hole in watercourse bank.                                                                    |
| 3      | Outlier | One well-used entrance hole in watercourse bank.                                                                    |
| 4      | Outlier | One well-used entrance hole in watercourse bank.                                                                    |
| 5      | Outlier | One well-used entrance hole in watercourse bank.                                                                    |
| 6      | Outlier | One well-used entrance hole in watercourse bank.                                                                    |
| 7      | Outlier | One well-used entrance hole in ditch bank.                                                                          |
| 8      | Outlier | One partially-used entrance hole in ditch bank.                                                                     |
| 9      | Annexe  | Three well-used and one partially used entrance hole in banks and bank top of watercourse. 30 m from Site boundary. |
| 10     | Main    | Four well-used entrance holes with associated paths and spoil heaps in watercourse bank. 85 m from Site boundary.   |

<sup>10</sup> Natural England (2011). *Badgers and Development: A Guide to Best Practice and Licensing (Version 12/11)*.





## Tritax Park Cambridge

### Badger sett locations

- Site boundary
- main sett
- annexe sett
- outlier sett

**CONFIDENTIAL: to be removed if  
circulated to third parties**

**Figure 4.5**

**Map Scale @ A4: 1:5,500**

|                                      |
|--------------------------------------|
| Surveyed by: RD                      |
| Survey date: 22 April & 28 June 2024 |
| Drawn by: RD                         |
| Checked by: DP                       |
| Status: Final                        |



## Water Vole and Otter

### Approach

- 4.37 Water vole surveys were undertaken in watercourses and ditches at the Site on 21 June (eastern area only) and 27 August 2024 (whole site).
- 4.38 The survey approach followed best practice set out in Dean *et al* (2016)<sup>11</sup>. The marginal vegetation and banks of the ditches were carefully examined from within the channel for signs of water vole presence, including droppings, latrines, feeding stations, burrows, footprints and runs or pathways, as described in Strachan *et al* (2011)<sup>12</sup>. The survey included inspection of a strip of land up to 5 m back from the waterline, or to the edge of bank top vegetation if this was closer. All evidence of water vole presence was recorded and mapped.
- 4.39 In addition, any field evidence of otter was also recorded during the survey. Such signs include otter spraints, footprints, resting sites and other field signs.

### Findings

- 4.40 The majority of ditches at the Site were largely dry by the time of the surveys and were devoid of any evidence of water vole or otter. Longstanton Brook, however, retained water throughout and supported extensive evidence of water vole. On 21 June, numerous latrines and burrows were present, particularly in the western part of the brook (in proximity to an off-site wetland area directly connected to the brook itself that represents favourable water vole habitat), though none were present in a shaded section bounded by a mature hedgerow, where in channel vegetation was less extensive. On 27 August, water vole latrines were present along the entire length of Longstanton Brook, at high density, indicating a healthy population of the species.
- 4.41 No evidence of otter was observed on either survey visit.
- 4.42 The sections of watercourse subject to survey and the survey findings are shown in **Figure 4.6**.

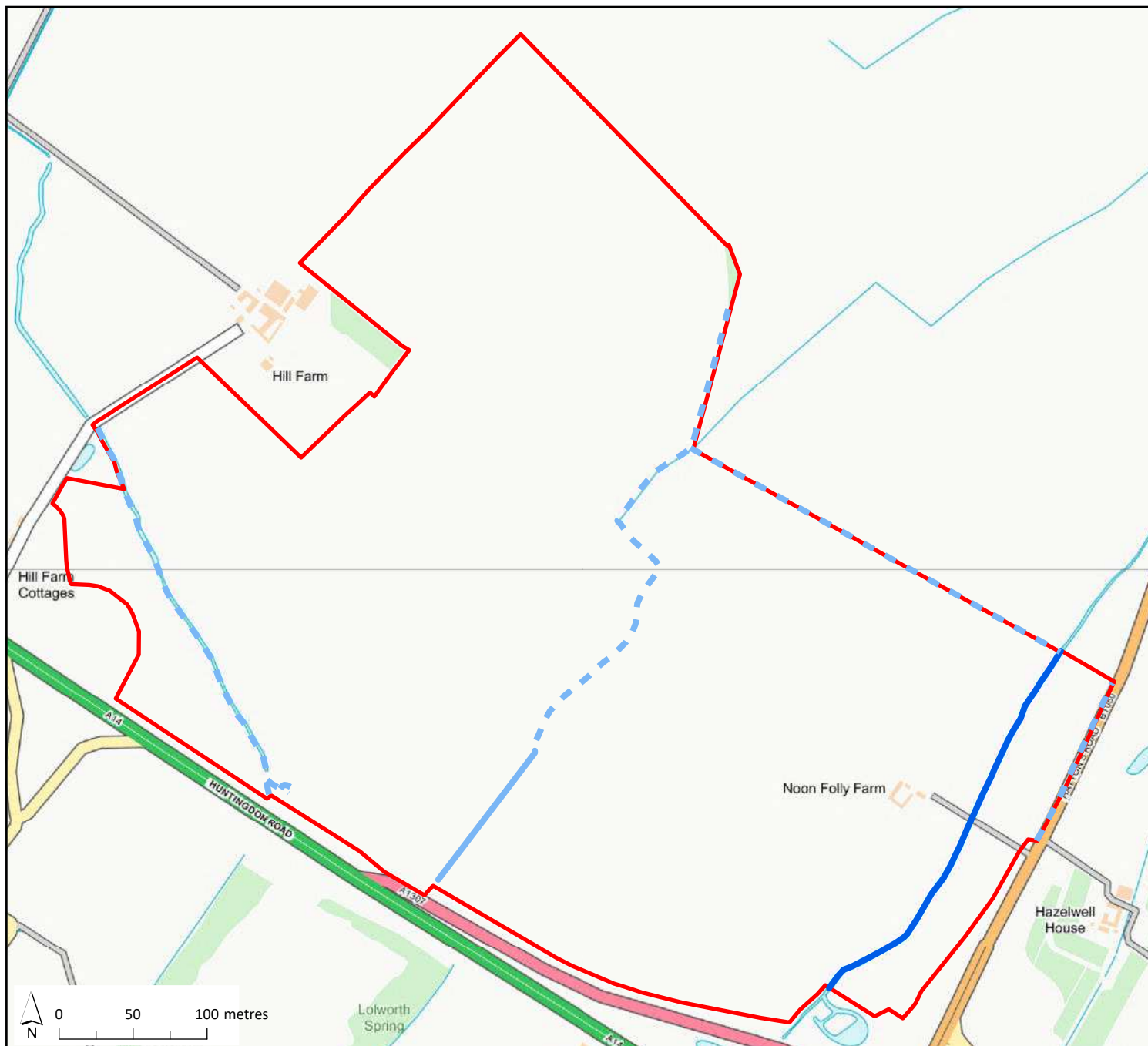
### Evaluation

- 4.43 An apparently healthy population of water vole was present along Longstanton Brook. The species was absent from the various ditches at the Site – the majority of which are unlikely to hold water for enough of the year to represent suitable habitat.
- 4.44 Otter may be considered likely absent from the Site.

<sup>11</sup> Dean, M.; Strachan, R.; Gow, D. and Andrews, R. (2016) *The Water Voles Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.

<sup>12</sup> Strachan, R., Moorhouse, T. and Gelling, M. (2011) *Water Vole Conservation Handbook*. Third Edition. Wildlife Conservation Research Unit, Oxford.





## Tritax Park Cambridge

### Water vole survey results

- Site boundary
- wet ditch, extensive evidence of water vole
- wet ditch, no evidence of water vole
- ephemeral wet/dry ditch, no evidence of water vole

**Figure 4.6**

**Map Scale @ A4: 1:5,500**

|                            |
|----------------------------|
| Surveyed by: RD            |
| Survey date: 22 April 2024 |
| Drawn by: RD               |
| Checked by: DP             |
| Status: Final              |



## Bats

### Approach

#### *Bat Roosts*

##### *Preliminary Bat Roost Assessment*

- 4.45 A preliminary bat roost assessment of the existing on-Site built structures and trees was conducted by Richard Dale MCIEEM on 22 April and 28 June 2024 as part of the PEA surveys in order to assess their potential value for roosting bats.
- 4.46 The inspection of structures and trees to assess their roosting use/suitability for bats can be conducted at any time of year, according to the best practice survey guidance (Collins, 2023<sup>13</sup>). However, finding evidence of bats (e.g., their droppings) on external surfaces that are unprotected from rainfall may be restricted if undertaken outside the main bat active season (May to September) and/or after periods of wet weather and bat droppings inside buildings may also quickly disintegrate in damp conditions – no such restrictions applied to this survey.
- 4.47 The on-Site structures and trees were surveyed externally and, where possible, internally in line with Collins (2023) using binoculars and torches, as necessary, to search for evidence of bats.
- 4.48 Evidence of bats was searched for and included live and dead bats (e.g., roosting in cracks and crevices in brickwork and structural timbers), bat droppings on walls and other exposed surfaces and staining (caused by bat fur oils and/or urine spots).
- 4.49 The suitability for roosting bats of the structures and trees surveyed were classified according to the categories and descriptions defined by Collins (2023) for roosting habitats, as summarised in **Tables 4.5** and **4.6**, respectively. An accurate classification of the type of Potential Roost Features (PRFs) in trees can generally only be completed during an aerial PRF inspection survey (i.e., by climbing the tree or otherwise visually inspecting the features). However, taking into account the type of feature, the size of the tree and the location of the tree relative to other habitats, an experienced surveyor can make an estimate of the PRF type present from ground level, to be confirmed by subsequent PRF inspection survey, if necessary.

**Table 4.5: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the present of habitat features within the landscape, to be applied using professional judgement – for bats roosting in structures (after Collins, 2023).**

| Suitability | Description of roosting habitat                                                                                                                                                                |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| None        | No habitat features on site likely to be used any roosting bats at any time of the year (i.e., a complete absence of crevices/suitable shelter at all ground/underground levels).              |
| Negligible  | No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.  |
| Low         | A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough |

<sup>13</sup> Collins, J. (ed.) (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4<sup>th</sup> edn)*. The Bat Conservation Trust, London.



| Suitability | Description of roosting habitat                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger number of bats (i.e., unlikely to be suitable for maternity and not a classic cool/stable hibernation site but could be used by individual hibernating bats).                                                                                                                                               |
| Moderate    | A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed). |
| High        | A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g., maternity or classic cool/stable hibernation site.                                      |

**Table 4.6: Guidelines for assessing the potential suitability of trees for roosting bats, and for categorising the potential suitability of PRFs for bats (after Collins, 2023).**

| Suitability     | Description of roosting habitat                                                                                                     |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>None</b>     | Either no Potential Roost Features (PRFs) in the tree or highly unlikely to be any.                                                 |
| <b>FAR</b>      | Further assessment required to establish if PRFs are present in the tree (e.g., tree climbing, MEWP inspection).                    |
| <b>PRF</b>      | A tree with at least one PRF present.                                                                                               |
| <b>PRF type</b> |                                                                                                                                     |
| <b>PRF-I</b>    | PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats. |
| <b>PRF-M</b>    | PRF is suitable for multiple bats and may therefore be used by a maternity colony.                                                  |

#### *Bat roost emergence survey*

- 4.50 In line with Collin 2023 good practice bat survey guidelines for buildings with low bat roost suitability, a single bat roost emergence survey was completed of the farmhouse and associated agricultural buildings at Noon Folly Farm on the evening of 17 June 2024.
- 4.51 The survey was planned and set-up by Dr Duncan Painter using the following survey equipment:
- Hand-held Pettersson D230 electronic bat detectors with ear-phones set in frequency division mode (x5);
  - Time synchronised tripod mounted Anabat Express electronic bat detectors (x15); and
  - Tripod mounted FLIR thermal video camera (x7)
- 4.52 The survey set-up was as shown in **Appendix B**.
- 4.53 The tripod-mounted Anabat Express electronic bat detectors were set-up around the periphery of each building record bat calls from the start to the end of each survey.
- 4.54 The manned thermal cameras were set to record radiometric video data at 30 frames per second and were used by the surveyors to provide a live view of the building throughout each survey via connected lap-top computer screen. The cameras were set up to record from 15 minutes before sunset to the end for the survey at 90 minutes after sunset.
- 4.55 The unmanned thermal cameras were set up to record MPEG video between 30 and 20 minutes before sunset. Video footage was checked the following day by DP against bat



sightings and bat call recordings using FLIR Tools+ software. The cameras allowed accurate bat roost locations to be identified as 100% visual acuity was possible throughout each survey.

#### *Survey limitations*

- 4.56 The survey was completed during the main 2024 bat activity period at a time when bats were active and not in torpor and weather conditions were suitable for bats to be active throughout each survey<sup>14</sup>.

#### **Bat Activity**

- 4.57 The Site was dominated by large open arable fields unconnected to any particularly large or significant areas of high value bat forage habitat. The Longstanton Brook flows through the Site and was of theoretical value to bats, but its value was considered to be reduced because of its location within an arable dominated landscape.
- 4.58 The objectives of the bat activity survey were to assess the range of bat species that use the Site across the three bat activity seasons of spring, summer and autumn, and complete an assessment of the value of two linear habitat features within the Site for commuting bats (Longstanton Brook and a tree lined drainage ditch).

#### *Vantage Point Survey*

- 4.59 Two vantage point (VP) recording locations covering the Longstanton Brook (VP1) and a tree lined drainage ditch (VP2) were surveyed over the course of the three bat activity seasons: spring (28 May 2024); summer (27 June) and autumn (17 September).
- 4.60 The location of each VP is shown by **Figure 4.2**, the three VP surveys were in weather conditions that were considered optimal for bats to be active, i.e., in air temperatures in excess of 10 °C, with no rainfall or strong winds.
- 4.61 During each survey a surveyor was stationed at each VP on a camping chair to record bat activity. Each surveyor was equipped with a hand-held full spectrum electronic bat detector (Elekon Batlogger M) and a tripod mounted FLIR T540 thermal camera set up to record MPEG video with the screen at the back of the camera providing the surveyor with a live view of bat activity throughout the survey.
- 4.62 Each survey commenced at 15 minutes before sunset and continued for 90 minutes after sunset. All bats seen and heard, direction of flight and bat activity type were recorded. The thermal video recordings and bat calls recorded by the Elekon bat detector were checked the following day using a PC to verify sightings and bat species identification.
- 4.63 Vantage point location thermal camera fields of view are shown in **Appendix B**.

#### **Automated Survey**

- 4.64 An automated bat detector survey of the Site was completed using Song Meter SM4Bat full spectrum electronic bat detectors set-up to record bat activity in two locations considered to have relatively high, and low suitability for bats – Hedgerow alongside Longstanton

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<sup>14</sup> 17 June 2024: average air temperature 17.00°C (start) 13.00°C (end), still, no rain, 3% cloud cover (start).



Brook (high value); and the middle of arable field next to a concrete access track (low value).

- 4.65 The three locations were subject to three multiple night surveys in the spring, summer and autumn seasons:
- Spring – six nights (both locations) – 27 May – 1 June 2024;
  - Summer – five nights (Longstanton Brook) – 16–20 August 2024; three nights arable – (16–18 August 2024<sup>15</sup>)
  - Autumn – seven nights (arable) – 1–7 September 2024; five nights (Longstanton Brook) – 17–21 September 2024.
- 4.66 The locations of long-term bat detectors and survey vantage points are shown in **Figure 4.7**.

### Bat Call Analysis

- 4.67 All bat calls recorded by the electronic bat detectors employed during the surveys were analysed to the highest practicable taxonomic level using proprietary bat call analysis software<sup>16</sup> using a PC in accordance with Russ 2017<sup>17</sup>. Bat calls were analysed by experienced staff who have been trained in bat call analysis.

## Findings

### *Preliminary Bat Roost Assessment*

- 4.68 The survey identified four trees with PRFs potentially suitable for roosting bats, as detailed in **Table 4.7** below and shown in **Figure 4.8**.

**Table 4.7: Trees with PRFs.**

| Number | Description                                                                         |
|--------|-------------------------------------------------------------------------------------|
| 1      | Large willow with severely split and rotten trunk – possible PRF-M.                 |
| 2      | Ash with large rot hole in trunk – possible PRF-M (also with kestrel/owl nest box). |
| 3      | Large willow with two major dead / rotten limbs, loose bark – likely PRF-I.         |
| 4      | Ash with single limb scar / rot hole and woodpecker hole – possible PRF-M.          |
| 5      | Ash with rot hole in trunk – possible PRF-M.                                        |
| 6      | Ash with two woodpecker holes – possible PRF-M.                                     |

- 4.69 The buildings present were all at the farm in the centre of the Site, comprising a residential farmhouse and a range of farm outbuildings and barns. These are shown in **Figure 3.8** and described in detail below.

### *Building 1*

- 4.70 Residential dwelling of brick construction with a slate-tiled gable roof. No evidence of roosting bats was found; however, no internal inspection as possible and gaps of various

<sup>15</sup> Detector failed after night three.

<sup>16</sup> BatExplorer V2.2.4.0; and Analook

<sup>17</sup> Russ, J (2017) *British Bat Calls – A Guide to Species Identification*. Pelagic Publishing



sizes were present beneath lifted roof slates, with at least one gap beneath a ridge tile on the south face of the roof.

- 4.71 The building had the potential to support individual roosting bats and was assessed as a building of **low bat roost suitability**.



### *Building 2*

Timber framed cart lodge, with unlined pitched corrugated metal roof covering. No evidence of bats was present, but there was some potential for individual roosting bats to be present in gaps between apex roof beams and roof panelling, or behind damaged wood panelling on timber internal partitions.

- 4.72 The building had the potential to support individual roosting bats and was assessed as a building of **low bat roost suitability**.



### *Building 3*

- 4.73 A single-storey brick-built storage outbuilding with windows and an unlined, timber-framed roof of corrugated fibre cement sheeting. Although the interior of the building was well-lit and no evidence of roosting bats was present either externally or internally, there were gaps between damaged brickwork and beneath ridge panelling.
- 4.74 The building had the potential to support individual roosting bats and was assessed as a building of **low bat roost suitability**.





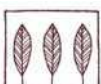
#### *Building 4*

- 4.75 A single-storey brick-built office-type outbuilding with windows and a gable roof of interlocking concrete tiles. No internal inspection was possible, and no evidence of bats was present on the exterior of the building. The roof was in good condition, with tight-fitting concrete pantiles throughout and a heavy covering of moss. Small soffit boxes were present on the longer sides of the roof, and these were in good condition and tight fitting. The south-west side of the building, including the lower edge of the roof, was heavily obscured by adjacent garden vegetation.
- 4.76 The building was assessed as a building of **low bat roost suitability**.



#### *Building 5 & 6*

- 4.77 Two adjacent open-fronted hay barns with metal frames, clad and roofed in corrugated metal sheeting. Neither barn had any evidence of roosting bat presence or any features of value to roosting bats.
- 4.78 The barns were assessed as buildings of **negligible bat roost suitability**.





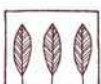
### *Building 7*

- 4.79 A single storey outbuilding of brick and timber construction with a sloping, timber-framed roof of corrugated metal sheeting. A few small potential bat roost features, such as gaps in brickwork or between brickwork and doorframes or roof panels, were present internally, but given its small size it was possible to directly inspect all features present and no evidence of roosting bats was found.
- 4.80 The building was assessed as a building of **low bat roost suitability**.



### *Building 8*

- 4.81 A small wooden garden shed with no evidence of roosting bats and no features of obvious value to bats.
- 4.82 The shed was assessed as a building of **negligible bat roost suitability**.



### ***Bat roost emergence survey***

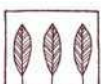
- 4.83 No bats were seen or filmed emerging from roost locations in buildings at Noon Folly Farm during the bat roost emergence survey.
- 4.84 The first bat recorded was a single common pipistrelle that flew onto Site from the east alongside the concrete access track at 21:47 (23 minutes after sunset). Regular foraging activity by a single common pipistrelle within the farm building complex was recorded thereafter until the end of the survey.
- 4.85 No more than one bat was seen at any one time, and no other species of bat was recorded by the surveyors or the 15 static detectors positioned around the farm.

### ***Vantage point survey***

- 4.86 No bat commuting activity was recorded at either vantage point location during any of the three surveys.
- 4.87 Individual foraging common pipistrelle bats were recorded towards the end of the survey in summer and autumn at vantage point 1 (Longstanton Brook); and a single foraging common pipistrelle was recorded at vantage point 2 during the autumn survey.

### ***Automated Survey***

- 4.88 Relatively low levels of bat activity were recorded across the Site by the automated survey, with the high value recording location (Longstanton Brook / hedge) recording a mean of 165 bat call files a night over the three seasons (16 recording nights – range 13–767 call files per night), compared to a mean of 15 bat call files over the same survey period (16 recording nights - range 0–46 call files per night) at the low bat forage value arable recording location.
- 4.89 A total of seven bat species were recorded by the survey over the three seasons, with more species recorded alongside the Longstanton Brook compared to the arable site. The majority of all recorded calls over the three seasons were made up of the calls of three species: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, noctule *Nyctalus noctula*.
- 4.90 Barbastelle *Barbastelle barbastellus* a nationally rare and light-averse species was conspicuous by its absence from the Site in spring and summer but was recorded on one occasion next to Longstanton Brook in the autumn. The bat was recorded late into the night at 01:49 with no early or late calls to indicate a nearby roost.
- 4.91 Another less common bat recorded during the survey was serotine *Eptesicus serotinus* recorded on one occasion in the summer next to Longstanton Brook at 23:47 indicating that it had not been roosting particularly close to the Site.



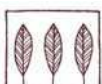
**Table 4.7: Total number & percentage of recorded bat species call files by survey season and location**

| Species & rarity category <sup>18</sup>    | Spring                   |               | Summer                   |               | Autumn                   |               |
|--------------------------------------------|--------------------------|---------------|--------------------------|---------------|--------------------------|---------------|
|                                            | <i>Longstanton Brook</i> | <i>Arable</i> | <i>Longstanton Brook</i> | <i>Arable</i> | <i>Longstanton Brook</i> | <i>Arable</i> |
| Common pipistrelle (widespread)            | 1,118 (98.8%)            | 2 (8.3%)      | 387 (74.6%)              | 32 (53.3%)    | 185 (18.7%)              | 69 (43.4%)    |
| Soprano pipistrelle (widespread)           | 6 (0.5%)                 | –             | 99 (19.1%)               | 19 (31.7%)    | 751 (75.8%)              | 51 (32.1%)    |
| Noctule (widespread but less abundant)     | 7 (0.6%)                 | 22 (91.7%)    | 27 (5.2%)                | 4 (6.7%)      | 51 (5.1%)                | 34 (21.4%)    |
| Daubenton's (widespread but less abundant) | 1 (0.1%)                 | –             | 3 (0.6%)                 | 3 (5.0%)      | 3 (0.3%)                 | 5 (3.1%)      |
| Brown long-eared (widespread)              | –                        | –             | 2 (0.4%)                 | 2 (3.3%)      | –                        | –             |
| Serotine (rarer / restricted distribution) | –                        | –             | 1 (0.2%)                 | –             | –                        | –             |
| Barbastelle (rare)                         | –                        | –             | –                        | –             | 1 (0.1%)                 | –             |

## Evaluation

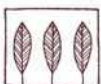
- 4.92 No evidence of the presence of building roost of bats has been recorded by the current survey.
- 4.93 A total of five field edge trees within the Site have potential bat roost features that could support multiple roosting bats and would need to be further investigated by aerial inspection if they cannot be retained and protected as part of development planning.
- 4.94 In accordance with current bat mitigation guidelines and the rarity categories ascribed to bats by Reason & Wray (2023), the seven species bat assemblage recorded next to the Longstanton Brook scores a total of 14 points out of a maximum possible total of 28 for

<sup>18</sup> Reason, P.F and Wray, S (2023) *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats*. CIEEM, Ampfield



East Anglia. This equates to 50% which is above the 45% threshold for County importance but below the 55% threshold for Regional.

- 4.95 The bulk of the Site is arable land that has a total score of 7 points out of a total of 28 (25%) which confers the arable land within the Site of no particular nature conservation importance for bats.





## Tritax Park Cambridge

### Bat activity survey setup

- Site boundary
- Survey vantage point
- SM4 long-term bat detector

**Figure 4.7**

**Map Scale @ A4: 1:5,500**

|                                 |
|---------------------------------|
| Surveyed by: RD                 |
| Survey date: May–September 2024 |
| Drawn by: RD                    |
| Checked by: DP                  |
| Status: Final                   |





## Tritax Park Cambridge

### Preliminary bat roost assessment - trees

- Site boundary
- trees with PRFs

**Figure 4.8**

**Map Scale @ A4: 1:5,500**

|                                      |
|--------------------------------------|
| Surveyed by: RD                      |
| Survey date: 22 April & 28 June 2024 |
| Drawn by: RD                         |
| Checked by: DP                       |
| Status: Final                        |



## 5 Conclusions and Recommendations

### Conclusions

#### Protected sites

- 5.1 The Site is not covered by any statutory or non-statutory wildlife site designation and does not comprise ancient woodland.
- 5.2 The nearest statutory designated site is **Overhall Grove Site of Special Scientific Interest (SSSI)**, located 3.3 km to the south-west of the Site. The Site lies within a Natural England (NE) SSSI Impact Risk Zone in relation to this SSSI. Natural England has identified six development types<sup>19</sup> they consider constitute a potential threat to the SSSI; however, a commercial distribution development as proposed is not considered to constitute a threat to the SSSI either as a result of its construction or operation.
- 5.3 No non-statutory protected sites were present within 2 km of the Site.
- 5.4 Development-related impacts on nearby protected wildlife sites are considered highly unlikely, due the type of development proposed and its distance from any protected wildlife site.

#### Habitats

- 5.5 The Site was dominated by arable and associated species-poor grassland habitats of low relative nature conservation and biodiversity importance that do not represent a significant development constraint. Hedgerows, trees and woodland, and ditches, particularly Longstanton Brook, represent habitats of elevated ecological significance and should be retained and protected where practicable during development planning.

#### Fauna

- 5.6 Great crested newt was confirmed as absent from the five waterbodies within 250 m of the Site that were not isolated by barriers impassable to dispersing GCN. The species may be considered absent from aquatic and terrestrial habitat at the Site.
- 5.7 The Site supports a relatively limited breeding bird assemblage, of no more than local importance with respect to its diversity. The assemblage is dominated by skylark, a red-

- 
- <sup>19</sup> **Infrastructure:** Airports, helipads and other aviation proposals.
  - **Wind and Solar:** Solar schemes with a footprint > 0.5ha, all wind turbines.
  - **Air Pollution:** Livestock & poultry units with a floorspace > 500m<sup>2</sup>, slurry lagoons > 750m<sup>2</sup> & manure stores > 3500 tonnes.
  - **Combustion:** General combustion processes >50MW energy input. Including: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/combustion.
  - **Waste:** Landfill. Including: inert landfill, non-hazardous landfill, hazardous landfill.
  - **Discharge:** Any discharge of water or liquid waste of more than 20m<sup>3</sup>/day that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream.



listed farmland specialist species of elevated conservation concern, with at least 13 territories present.

- 5.8 The wintering bird assemblage was unexceptional, given the size of the Site, and of no more than Local importance.
- 5.9 A number of badger setts were present within the Site, although all were low-status outliers (a likely main sett and associated annexe sett were present outside the Site boundary).
- 5.10 Longstanton Brook supported a population of water vole and was found to be of County importance on the basis of the bat assemblage it sustains. The bulk of the Site was arable land that bat survey work indicates to be of no particular importance for bats.

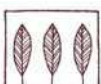
## Recommendations

### Initial development guidance

- 5.11 Precise Development mitigation and compensation requirements will be dependent on the scale of development proposed, design detail and the results of ongoing ecological survey work. However, the following high-level advice should be considered at this early stage in order to demonstrate biodiversity enhancement can be achieved in line with local and national planning policy:
- Existing trees, hedgerows and watercourses, particularly Longstanton Brook, should be retained, protected and enhanced, where feasible.
  - Consider opportunities for incorporating ecological enhancements alongside proposed drainage, access and landscape design provisions in order to achieve an overall biodiversity net gain. An initial assessment of the emerging Illustrative Framework suggests that a 10% net gain can comfortably be achieved (and exceeded) on site.
  - Artificial lighting should be avoided / minimised in proximity to retained hedgerows and boundary habitats, and any other proposed green corridors, in order to minimise disturbance to bats and other nocturnal species.
  - Incorporate bat and bird boxes into new buildings.
  - Appropriate impact avoidance measures to protect badger setts from disturbance and/or damage during the Development will need to be informed by future, detailed development proposals. Ideally, known active badger setts would be protected via development-free buffer zones, or if this is not possible, then setts may potentially be closed under Natural England licence.
  - If impacts are predicted to occur to Longstanton Brook, this is likely to require to take place under the auspices of a Natural England licence, and would require the creation of compensatory habitat and potential capture and relocations of individual water voles.

### Vegetation Clearance

- 5.12 The clearance of any vegetation and soil stripping should take place outside the bird breeding season, in the period September–February, or immediately after a check by an experienced ornithologist that verifies nesting bird absence from the Site.



# Appendix A

## Plant Species Lists



Notes: DAFOR: D = dominant, A = abundant, F = frequent, O = occasional, R = rare, (LD = locally dominant).

#### Improved grassland (eastern area, north of access track).

| Species                                           | DAFOR |
|---------------------------------------------------|-------|
| Italian rye-grass <i>Lolium multiflorum</i>       | D     |
| Bristly oxtongue <i>Picris echioides</i>          | A     |
| Black grass <i>Alopecurus myosuroides</i>         | F     |
| Meadow foxtail <i>Alopecurus pratensis</i>        | F     |
| Oat <i>Avena sativa</i>                           | F     |
| Cock's-foot <i>Dactylis glomerata</i>             | O     |
| Creeping bent <i>Agrostis stolonifera</i>         | O     |
| Soft brome <i>Bromus hordeaceus</i>               | O     |
| False oat-grass <i>Arrhenatherum elatius</i>      | O     |
| Barren brome <i>Anisantha sterilis</i>            | O     |
| Goat's-beard <i>Tragopogon pratensis</i>          | O     |
| Hogweed <i>Heracleum sphondylium</i>              | O     |
| Spear thistle <i>Cirsium vulgare</i>              | O     |
| Smooth sow-thistle <i>Sonchus oleraceus</i>       | O     |
| Field bindweed <i>Convolvulus arvensis</i>        | O     |
| Cut-leaved crane's-bill <i>Geranium dissectum</i> | O     |
| Willowherb <i>Epilobium</i> spp.                  | O     |
| Smooth tare <i>Vicia tetrasperma</i>              | O     |
| Creeping thistle <i>Cirsium arvense</i>           | O     |
| Yorkshire-fog <i>Holcus lanatus</i>               | O     |

#### Improved grassland (eastern area, south of access track).

| Species                                       | DAFOR |
|-----------------------------------------------|-------|
| Soft brome <i>Bromus hordeaceus</i>           | D     |
| Black grass <i>Alopecurus myosuroides</i>     | A     |
| Bristly oxtongue <i>Picris echioides</i>      | A     |
| Cock's-foot <i>Dactylis glomerata</i>         | F     |
| Meadow foxtail <i>Alopecurus pratensis</i>    | F     |
| Red fescue <i>Festuca rubra</i>               | F     |
| Creeping bent <i>Agrostis stolonifera</i>     | F     |
| Crested dog's-tail <i>Cynosurus cristatus</i> | O     |
| Common ragwort <i>Senecio jacobaea</i>        | O     |
| Creeping buttercup <i>Ranunculus repens</i>   | O     |
| Linseed <i>Linum usitatissimum</i>            | O     |
| Common mouse-ear <i>Cerastium fontanum</i>    | O     |
| Spear thistle <i>Cirsium vulgare</i>          | O     |
| Prickly sow-thistle <i>Sonchus asper</i>      | O     |



| Species                                           | DAFOR |
|---------------------------------------------------|-------|
| Daisy <i>Bellis perennis</i>                      | O     |
| Cut-leaved crane's-bill <i>Geranium dissectum</i> | O     |
| Black medick <i>Medicago lupulina</i>             | O     |
| Creeping thistle <i>Cirsium arvense</i>           | O     |
| Goat's-beard <i>Tragopogon pratensis</i>          | O     |
| Smooth tare <i>Vicia tetrasperma</i>              | R     |
| Oxeye daisy <i>Leucanthemum vulgare</i>           | R     |
| Smooth tare <i>Vicia tetrasperma</i>              | R     |
| Hogweed <i>Heracleum sphondylium</i>              | R     |

### Improved grassland – field east of farm buildings.

| Species                                           | DAFOR |
|---------------------------------------------------|-------|
| Italian rye-grass <i>Lolium multiflorum</i>       | A     |
| Soft brome <i>Bromus hordeaceus</i>               | A     |
| Cock's-foot <i>Dactylis glomerata</i>             | F     |
| False oat-grass <i>Arrhenatherum elatius</i>      | F     |
| Smooth meadow-grass <i>Poa pratensis</i>          | F     |
| Cleavers <i>Galium aparine</i>                    | O     |
| Hogweed <i>Heracleum sphondylium</i>              | O     |
| Cut-leaved crane's-bill <i>Geranium dissectum</i> | O     |
| Cow parsley <i>Anthriscus sylvestris</i>          | O     |
| Bristly oxtongue <i>Picris echioides</i>          | O     |

### Improve grassland – western area

| Species                                       | DAFOR |
|-----------------------------------------------|-------|
| Perennial rye-grass <i>Lolium perenne</i>     | D     |
| Yorkshire-fog <i>Holcus lanatus</i>           | O     |
| Crested dog's-tail <i>Cynosurus cristatus</i> | O     |
| Meadow barley <i>Hordeum brachyantherum</i>   | O     |
| Soft brome <i>Bromus hordeaceus</i>           | O     |
| Common bent <i>Agrostis capillaris</i>        | O     |
| Creeping bent <i>Agrostis stolonifera</i>     | O     |
| Common ragwort <i>Senecio jacobaea</i>        | O     |
| Common mouse-ear <i>Cerastium fontanum</i>    | O     |
| Creeping thistle <i>Cirsium arvense</i>       | O     |
| Bristly oxtongue <i>Picris echioides</i>      | O     |
| Spear thistle <i>Cirsium vulgare</i>          | O     |
| Slender tare <i>Vicia parviflora</i>          | O     |



**Poor semi-improved neutral grassland – banks of Longstanton Brook.**

| Species                                           | DAFOR |
|---------------------------------------------------|-------|
| Meadow foxtail <i>Alopecurus pratensis</i>        | A     |
| False oat-grass <i>Arrhenatherum elatius</i>      | F     |
| Common couch <i>Elytrigia repens</i>              | F     |
| Smooth meadow-grass <i>Poa pratensis</i>          | F     |
| False brome <i>Brachypodium sylvaticum</i>        | F     |
| Tor-grass <i>Brachypodium pinnatum</i>            | F     |
| Cock's-foot <i>Dactylis glomerata</i>             | F     |
| Meadow vetchling <i>Lathyrus pratensis</i>        | F     |
| Lesser celandine <i>Ficaria verna</i>             | F     |
| Cock's-foot <i>Dactylis glomerata</i>             | F     |
| Perennial rye-grass <i>Lolium perenne</i>         | O     |
| Cleavers <i>Galium aparine</i>                    | O     |
| Dandelion <i>Taraxacum officinale</i> agg.        | O     |
| Field horsetail <i>Equisetum arvense</i>          | O     |
| Common ragwort <i>Senecio jacobaea</i>            | O     |
| Cowslip <i>Primula veris</i>                      | O     |
| Colt's-foot <i>Tussilago farfara</i>              | O     |
| Ground-ivy <i>Glechoma hederacea</i>              | O     |
| White campion <i>Silene latifolia</i>             | O     |
| Ivy-leaved speedwell <i>Veronica hederifolia</i>  | O     |
| Wavy bittercress <i>Cardamine flexuosa</i>        | O     |
| Red dead-nettle <i>Lamium purpureum</i>           | O     |
| Cow parsley <i>Anthriscus sylvestris</i>          | O     |
| Broad-leaved dock <i>Rumex obtusifolius</i>       | O     |
| White dead-nettle <i>Lamium album</i>             | O     |
| Creeping buttercup <i>Ranunculus repens</i>       | O     |
| Ribwort plantain <i>Plantago lanceolata</i>       | O     |
| Hedge bedstraw <i>Galium mollugo</i>              | O     |
| Common nettle <i>Urtica dioica</i>                | O     |
| Hogweed <i>Heracleum sphondylium</i>              | O     |
| Garlic mustard <i>Alliaria petiolata</i>          | O     |
| cut-leaved crane's-bill <i>Geranium dissectum</i> | O     |
| Blackthorn <i>Prunus spinosa</i>                  | O     |
| Common knotgrass <i>Polygonum aviculare</i>       | O     |
| Charlock <i>Sinapis arvensis</i>                  | O     |
| Herb-Robert <i>Geranium robertianum</i>           | O     |
| Spear thistle <i>Cirsium vulgare</i>              | O     |
| Hawthorn <i>Crataegus monogyna</i> (saplings)     | O     |
| Blackthorn <i>Prunus spinosa</i> (saplings)       | O     |



| Species                             | DAFOR |
|-------------------------------------|-------|
| Lady's bedstraw <i>Galium verum</i> | R     |

### Poor semi-improved neutral grassland – arable field margins.

| Species                                           | DAFOR |
|---------------------------------------------------|-------|
| Cock's-foot <i>Dactylis glomerata</i>             | A     |
| Barren brome <i>Anisantha sterilis</i>            | A     |
| False oat-grass <i>Arrhenatherum elatius</i>      | F     |
| Barren brome <i>Anisantha sterilis</i>            | F     |
| Smooth meadow-grass <i>Poa pratensis</i>          | F     |
| Meadow foxtail <i>Alopecurus pratensis</i>        | F     |
| Common couch <i>Elytrigia repens</i>              | F     |
| Hogweed <i>Heracleum sphondylium</i>              | F     |
| Cow parsley <i>Anthriscus sylvestris</i>          | F     |
| Cleavers <i>Galium aparine</i>                    | F     |
| Common nettle <i>Urtica dioica</i>                | F     |
| Clustered dock <i>Rumex conglomeratus</i>         | F     |
| Curled dock <i>Rumex crispus</i>                  | F     |
| White dead-nettle <i>Lamium album</i>             | F     |
| Perennial rye-grass <i>Lolium perenne</i>         | O     |
| Tall fescue <i>Festuca arundinacea</i>            | O     |
| Hemlock <i>Conium maculatum</i>                   | O     |
| Field bindweed <i>Convolvulus arvensis</i>        | O     |
| Field horsetail <i>Equisetum arvense</i>          | O     |
| Creeping thistle <i>Cirsium arvense</i>           | O     |
| Cut-leaved crane's-bill <i>Geranium dissectum</i> | O     |
| Spear thistle <i>Cirsium vulgare</i>              | O     |
| Bramble <i>Rubus fruticosus</i>                   | O     |

### Poor semi-improved neutral grassland – south-east of Site.

| Species                                              | DAFOR |
|------------------------------------------------------|-------|
| Soft brome <i>Bromus hordeaceus</i>                  | F     |
| Barren brome <i>Anisantha sterilis</i>               | F     |
| Cock's-foot <i>Dactylis glomerata</i>                | F     |
| False oat-grass <i>Arrhenatherum elatius</i>         | F     |
| Red fescue <i>Festuca rubra</i>                      | F     |
| Bristly oxtongue <i>Picris echioides</i>             | F     |
| Thyme-leaved speedwell <i>Veronica serpyllifolia</i> | F     |
| Yorkshire-fog <i>Holcus lanatus</i>                  | O     |
| Tall fescue <i>Festuca arundinacea</i>               | O     |
| Black grass <i>Alopecurus myosuroides</i>            | O     |
| Hogweed <i>Heracleum sphondylium</i>                 | O     |



| Species                                      | DAFOR |
|----------------------------------------------|-------|
| Dandelion <i>Taraxacum officinale</i> agg.   | O     |
| Yarrow <i>Achillea millefolium</i>           | O     |
| Common ragwort <i>Senecio jacobaea</i>       | O     |
| Creeping thistle <i>Cirsium arvense</i>      | O     |
| Common cat's-ear <i>Hypochaeris radicata</i> | O     |
| Greater plantain <i>Plantago major</i>       | O     |
| Spear thistle <i>Cirsium vulgare</i>         | O     |
| Clustered dock <i>Rumex conglomeratus</i>    | O     |
| Wild teasel <i>Dipsacus fullonum</i>         | O     |
| Willowherb <i>Epilobium</i> spp.             | O     |
| Creeping buttercup <i>Ranunculus repens</i>  | O     |
| Hoary ragwort <i>Senecio erucifolius</i>     | O     |
| Hedge bedstraw <i>Galium mollugo</i>         | O     |
| Lady's bedstraw <i>Galium verum</i>          | R     |
| Oxeye daisy <i>Leucanthemum vulgare</i>      | R     |

**Poor semi-improved neutral grassland – along ditch on eastern boundary, north of access track.**

| Species                                      | DAFOR |
|----------------------------------------------|-------|
| Bramble <i>Rubus fruticosus</i>              | F     |
| Red fescue <i>Festuca rubra</i>              | F     |
| Yorkshire-fog <i>Holcus lanatus</i>          | F     |
| Creeping bent <i>Agrostis stolonifera</i>    | F     |
| Common couch <i>Elytrigia repens</i>         | F     |
| Great willowherb <i>Epilobium hirsutum</i>   | F     |
| Creeping thistle <i>Cirsium arvense</i>      | F     |
| Ground-ivy <i>Glechoma hederacea</i>         | F     |
| Common ragwort <i>Senecio jacobaea</i>       | O     |
| Field bindweed <i>Convolvulus arvensis</i>   | O     |
| False oat-grass <i>Arrhenatherum elatius</i> | O     |
| Cock's-foot <i>Dactylis glomerata</i>        | O     |
| Weld <i>Reseda luteola</i>                   | O     |
| Meadowsweet <i>Filipendula ulmaria</i>       | O     |
| Bristly oxtongue <i>Picris echioides</i>     | O     |
| Blackthorn <i>Prunus spinosa</i>             | O     |
| Hawthorn <i>Crataegus monogyna</i>           | O     |
| Dog rose <i>Rosa canina</i>                  | O     |
| Hogweed <i>Heracleum sphondylium</i>         | O     |
| Black horehound <i>Ballota nigra</i>         | O     |
| Willowherb <i>Epilobium</i> spp.             | O     |
| Hemlock <i>Conium maculatum</i>              | O     |



| Species                               | DAFOR |
|---------------------------------------|-------|
| Charlock <i>Sinapis arvensis</i>      | O     |
| Common mallow <i>Malva sylvestris</i> | O     |
| White campion <i>Silene latifolia</i> | O     |

### Semi-improved neutral grassland – southern boundary.

| Species                                           | DAFOR |
|---------------------------------------------------|-------|
| Oxeye daisy <i>Leucanthemum vulgare</i>           | D     |
| Red fescue <i>Festuca rubra</i>                   | F     |
| Crested dog's-tail <i>Cynosurus cristatus</i>     | F     |
| Tall fescue <i>Festuca arundinacea</i>            | F     |
| Common bent <i>Agrostis capillaris</i>            | F     |
| Red fescue <i>Festuca rubra</i>                   | O     |
| Meadow foxtail <i>Alopecurus pratensis</i>        | O     |
| Soft brome <i>Bromus hordeaceus</i>               | O     |
| Timothy <i>Phleum pratense</i>                    | O     |
| Squirrel-tail fescue <i>Vulpia bromoides</i>      | O     |
| Annual beard-grass <i>Polypogon monspeliensis</i> | R     |
| Slender tare <i>Vicia parviflora</i>              | A     |
| Bird's-foot trefoil <i>Lotus corniculatus</i>     | F     |
| Selfheal <i>Prunella vulgaris</i>                 | F     |
| Curled dock <i>Rumex crispus</i>                  | O     |
| Creeping buttercup <i>Ranunculus repens</i>       | O     |
| Yarrow <i>Achillea millefolium</i>                | O     |
| Lady's bedstraw <i>Galium verum</i>               | O     |
| Bristly oxtongue <i>Picris echinoides</i>         | O     |
| Creeping thistle <i>Cirsium arvense</i>           | O     |
| Spear thistle <i>Cirsium vulgare</i>              | O     |
| Hedge bedstraw <i>Galium mollugo</i>              | O     |
| Black medick <i>Medicago lupulina</i>             | O     |

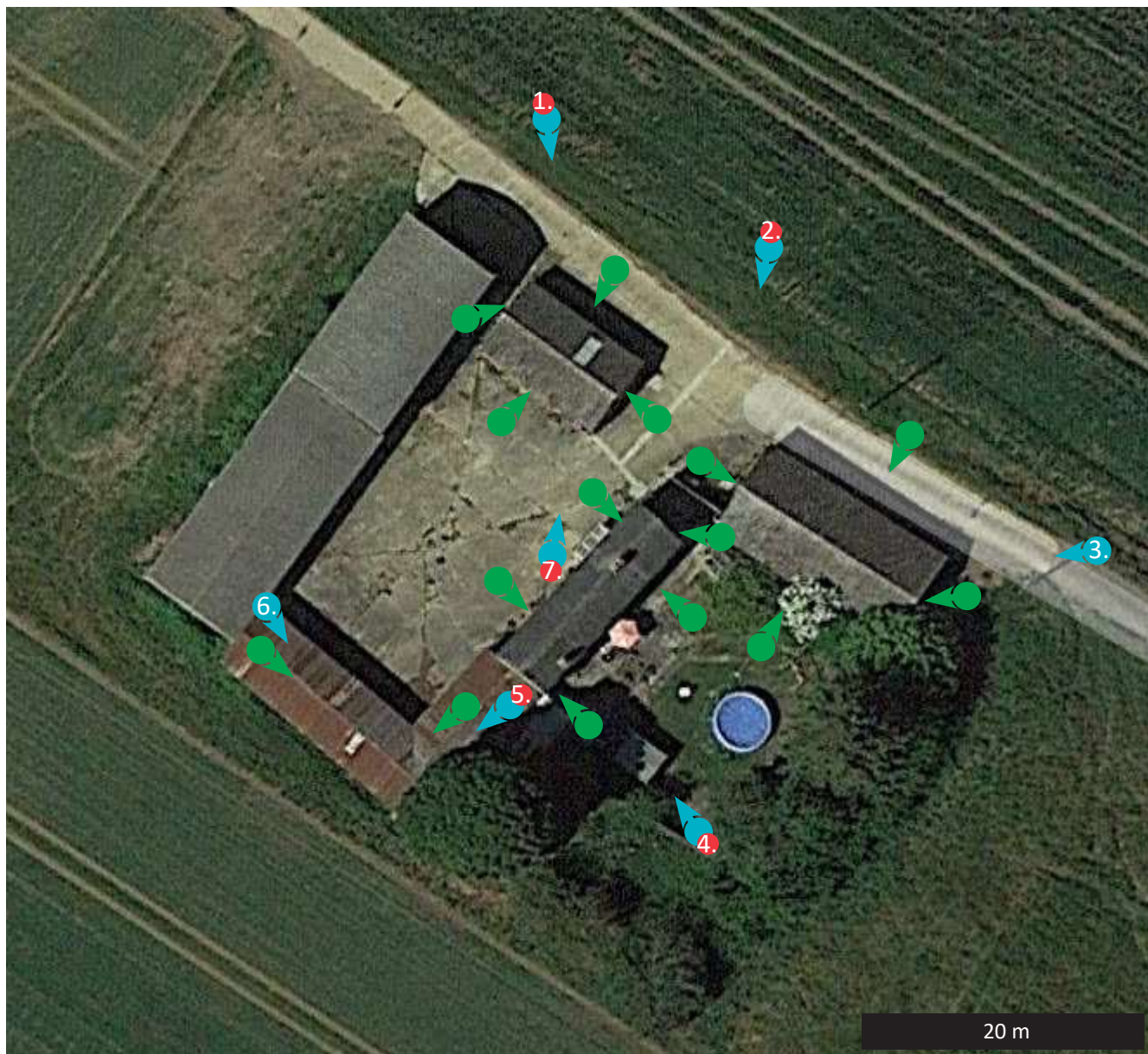
### Flowing water – Longstanton Brook (in channel and bankside vegetation).

| Species                                            | DAFOR |
|----------------------------------------------------|-------|
| Meadowsweet <i>Filipendula ulmaria</i>             | A     |
| Lesser celandine <i>Ficaria verna</i>              | A     |
| Clustered dock <i>Rumex conglomeratus</i>          | A     |
| Fool's watercress <i>Apium nodiflorum</i>          | F     |
| Yellow iris <i>Iris pseudacorus</i>                | F     |
| Curled pondweed <i>Potamogeton crispus</i>         | F     |
| Common water starwort <i>Callitriche stagnalis</i> | F     |
| Reed canary-grass <i>Phalaris arundinacea</i>      | F     |
| Hard rush <i>Juncus inflexus</i>                   | F     |



| Species                                        | DAFOR |
|------------------------------------------------|-------|
| Bramble <i>Rubus fruticosus</i>                | F     |
| Ground-ivy <i>Glechoma hederacea</i>           | F     |
| Hemlock <i>Conium maculatum</i>                | F     |
| Water figwort <i>Scrophularia auriculata</i>   | O     |
| Bulrush <i>Typha latifolia</i>                 | O     |
| Water plantain <i>Alisma plantago-aquatica</i> | O     |
| Wild teasel <i>Dipsacus fullonum</i>           | O     |
| Hemlock <i>Conium maculatum</i>                | O     |





#### Key



Tripod mounted time synchronised Anabat Express electronic bat detector - arrow shows direction of microphone



Bat surveyor equipped with hand-held Pettersson D230 electronic bat detector with ear phones



Tripod mounted FLIR thermal camera - camera fields of view and bat in flight detection distances reported separately





FLIR T860 (640 x 480 pixel resolution) with 42 degree lens = bat in flight detection distance of 66 m.  
Camera located 23 m from furthest point of building



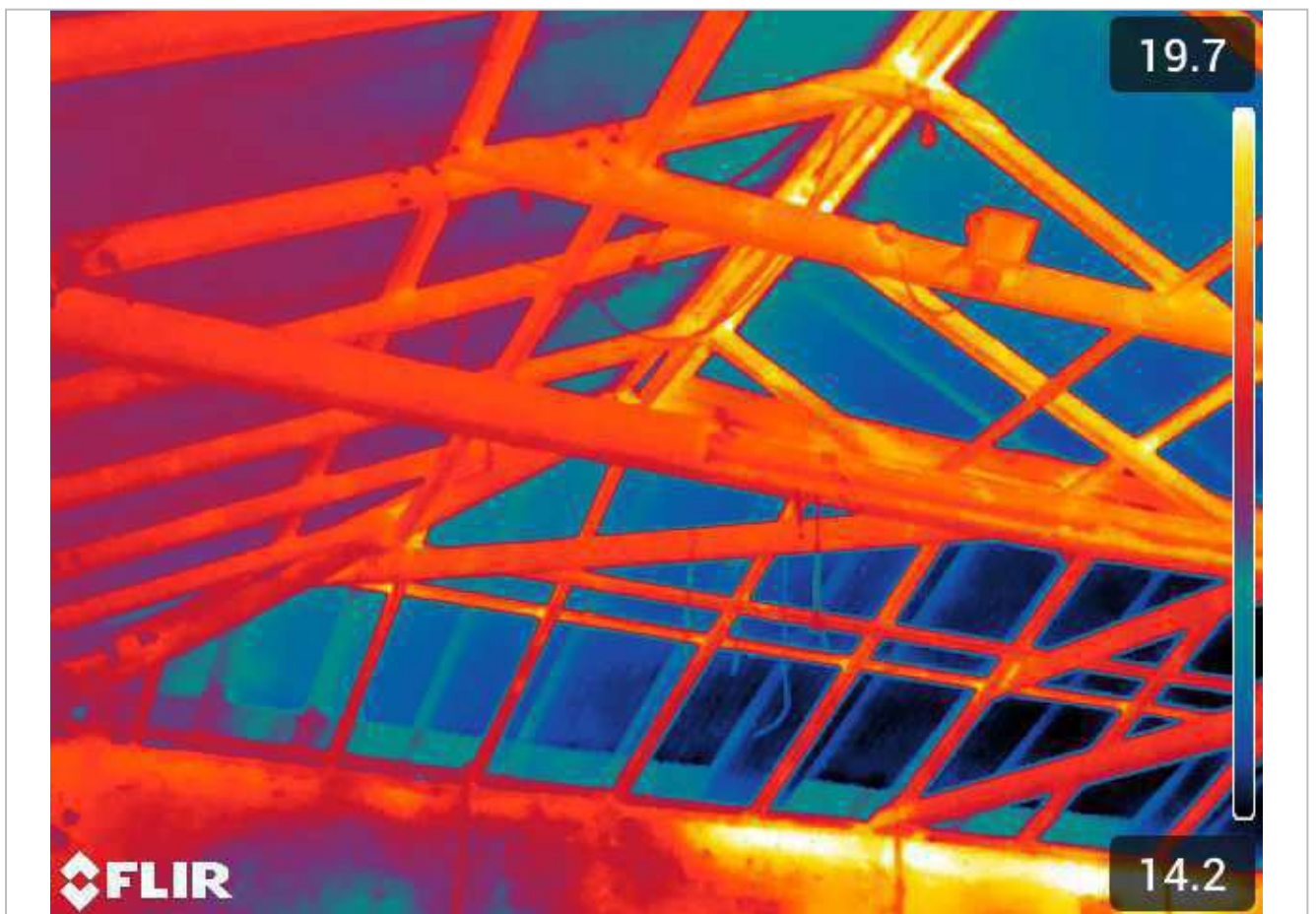
FLIR T1020 (1024 x 768 pixel resolution) with 45 degree lens = bat in flight detection distance of 104 m.  
Camera located 35 m from furthest point of building



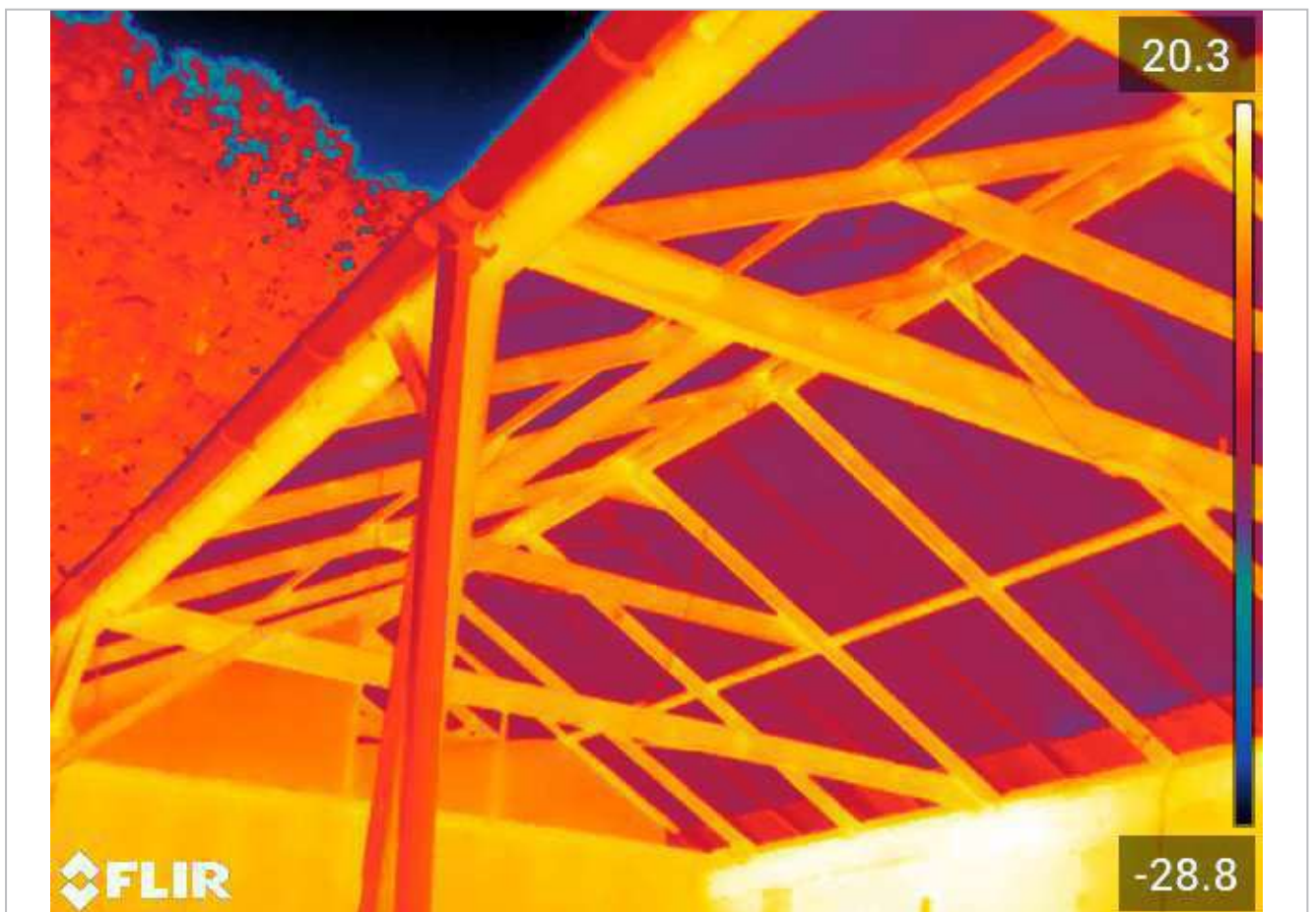
FLIR T540 (464 x 348 pixel resolution) with 42 degree lens = bat in flight detection distance of 51 m.  
Camera located 26 m from furthest point of building



FLIR T1020 (1024 x 768 pixel resolution) with 45 degree lens = bat in flight detection distance of 104 m.  
Camera located 24 m from furthest point of building



FLIR T540 (464 x 348 pixel resolution) with 42 degree lens = bat in flight detection distance of 51 m.  
Camera located 10 m from furthest point of building



FLIR T540 (464 x 348 pixel resolution) with 42 degree lens = bat in flight detection distance of 51 m.  
Camera located 17 m from furthest point of building



FLIR T540 (464 x 348 pixel resolution) with 42 degree lens = bat in flight detection distance of 51 m.  
Camera located 19 m from furthest point of building

# Appendix B

## Bat Activity Survey FLIR Views



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