

# Ecological Impact Assessment

November 2025

## Land East of Pirton

Prepared by  
CSA Environmental

On behalf of  
Gladman Developments Ltd

Report No: CSA/7345/02

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

| Report Reference | Revision | Date       | Prepared by | Approved by | Comments                                |
|------------------|----------|------------|-------------|-------------|-----------------------------------------|
| CSA/7345/02      | -        | 09/05/2025 | RG          | MJB/JW      |                                         |
|                  | A        | 14/05/2025 | RG          |             | Small amendments                        |
|                  | B        | 11/11/2025 | RG          | MJB         | Updates following completion of surveys |
|                  | C        | 13/11/2025 | RG          | MJB         | Client names changes and amends         |





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## **EXECUTIVE SUMMARY**

Residential development is proposed at Land East of Pirton, for which outline planning permission will be sought.

CSA Environmental was instructed by Gladman Developments Ltd to undertake an Ecological Impact Assessment (EclA) of the proposed development. To inform this assessment, a desktop study and UKHab survey were undertaken, in addition to hedgerow, bat activity, badger, breeding bird, reptile and great crested newt surveys.

A number of LWSs are located within walking distance of the Site. Mitigation for the likely increase in recreation pressure includes provision of open space on-site and information packs for new residents.

Habitats current present within the Site are generally common and widespread. The greatest ecological interest is associated with the hedgerows. The majority of these will be retained and buffered from the development proposals. Mitigation in the form of infill planting will be provided for the small loss of hedgerow for access.

A suite of targeted species surveys was carried out in 2025 to inform detailed mitigation and compliance with applicable legislation where relevant. Bat and breeding bird populations at the Site have been identified as important at the Local level. Great crested newt are confirmed present in ponds within a dispersible distance from the Site. Mitigation has been proposed to address potential impacts on these protected species and ensure compliance with applicable legislation.

Opportunities for ecological enhancement may be secured by planning condition. New habitat creation is proposed to include boundary planting, nectar-rich grasslands, chalk banks/scrapes, SuDS features and incorporation of swift bricks within buildings.

Based on successful implementation of the proposed avoidance, mitigation and enhancement, the development is not anticipated to result in any significant residual negative effects on important ecological features. The scheme is considered to accord with all relevant nature conservation legislation, as well as with the provisions of the North Hertfordshire Local Plan.

## 1.0 INTRODUCTION

- 1.1 This report has been prepared by CSA Environmental on behalf of Gladman Developments Ltd. It sets out the findings of an Ecological Impact Assessment (EclA) of proposed development at Land East of Pirton (hereafter 'the Site'). Residential development is proposed at the Site, for which outline planning permission is sought.
- 1.2 The scope of this assessment has been determined with consideration of best-practice guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) and the Biodiversity: Code of practice for planning and development published by the British Standards Institute (BS 42020:2013).
- 1.3 The Site occupies an area of c. 6.65ha and is located around central grid reference TL 15261 31907, to the east of Pirton, Hertfordshire. It consists of a single field with boundary hedgerows and ditches, and existing roads (see Habitats Plan in Appendix A). A new residential development is present immediately to the west of the Site, whilst the land to the north, east and west is dominated by arable land.
- 1.4 An initial desk study and field survey, including a UK Habitat Classification survey were undertaken for the Site in November 2024 as part of a Preliminary Ecological Appraisal, the findings of which are presented herein. In addition, the following further survey work was undertaken between March and October 2025:
  - Hedgerow Assessment (April 2025)
  - Bat activity surveys (April-October 2025)
  - Badger survey (March 2025)
  - Breeding bird surveys (March-July 2025)
  - Reptile surveys (April-May 2025)
  - Great crested newt HSI and eDNA surveys (March-April 2025)
- 1.5 This EclA aims to:
  - Establish baseline ecological conditions at the Site.
  - Determine the importance of ecological features which could be affected by the proposed scheme.
  - Identify any likely significant impacts or effects of the proposed development on important ecological features, in the absence of mitigation, including cumulative impacts.
  - Set out any measures necessary to effectively avoid or mitigate likely significant effects, and identify residual impacts.
  - Identify any compensation measures required to offset residual impacts.
  - Set out potential ecological enhancement measures that may be secured by the proposed scheme

- Confirm how proposed mitigation, compensation and enhancement measures could be secured.
  - Provide sufficient information to determine whether the project accords with relevant nature conservation policies and legislation, and where appropriate, to allow conditions or obligations to be imposed by the relevant authority.
- 1.6 An EclA can be used for the appraisal of projects of any scale. This is a best practice evaluation process, recommended by CIEEM (2018). It is intended that the evaluation of findings presented here-in will aid North Herts Council in their review of the planning application.
- 1.7 This report should be read in conjunction with the Biodiversity Net Gain Assessment: Design Stage report (CSA/7345/03) which details further ecological assessment undertaken for the purpose of assessing Biodiversity Net Gain (BNG), and the predicted net effect of the proposed development on biodiversity.

## **2.0 LEGISLATION, PLANNING POLICY & STANDING ADVICE**

### **Legislation**

- 2.1 Legislation relating to wildlife and biodiversity of particular relevance to this EclA includes:
- The Conservation of Habitats and Species Regulations 2017 (as amended)
  - The Wildlife and Countryside Act 1981 (as amended)
  - The Natural Environment and Rural Communities (NERC) Act 2006
  - The Protection of Badgers Act 1992
  - The Environment Act 2021
- 2.2 This legislation has been addressed, as appropriate, in the production of this report with further information provided in Appendix B.

### **National Planning Policy**

- 2.3 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities & Local Government, 2024) sets out the government planning policies for England and how they should be applied. Chapter 15: Conserving and Enhancing the Natural Environment, is of particular relevance to this report as it relates to ecology and biodiversity. Further details are provided in Appendix B.
- 2.4 Accompanying the NPPF, central government guidance on the implementation of planning policies is set out within online Planning Policy Guidance (PPG). The Natural Environment PPG addresses biodiversity conservation, from individual site and species protection through to the supporting of ecosystem services. Further guidance in respect of statutory obligations for biodiversity conservation within the planning system is provided by Government Circular 06/2005.

### **Local Planning Policy**

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

### **Standing Advice**

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

## 3.0 METHODS

### Desk Study

- 3.1 An ecological desk study was undertaken in November 2024 comprising a review of online resources and biological records centre data as detailed below.
- 3.2 The Multi-Agency Geographic Information for the Countryside (MAGIC) online database was reviewed to identify the following ecological features (based on the Site's likely 'zone of influence' in respect of such features):
  - Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites within 10km of the Site (including possible/proposed sites)
  - Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR) within 3km of the Site
  - Other relevant data e.g. Ancient Woodland Inventory within 1km of the Site
- 3.3 A review was undertaken of the location of any such designations, their distance from and connectivity with the Site, and the reasons for their designation. This information was used to determine whether they may be within the proposed development's Zone of Influence (Zol).
- 3.4 Hertfordshire Environmental Records Centre (HERC) and Bedfordshire & Luton Biodiversity Recording & Monitoring Centre (BRMC) were contacted for details of any non-statutory nature conservation designations and records of protected/notable habitats and species. This information was requested for an area encompassing the Site and adjacent land within c. 2km of its central grid reference. This search area was selected to include the likely zone of influence of effects upon non-statutory designations and protected or notable habitats and species.
- 3.5 A review of previous and current planning applications on and adjacent to the Site, identified one approved residential development adjacent to the west in 2015 (ref: 15/01618/1) and one refused residential development on-site in 2017 (ref: 17/02563/1). Ecology surveys undertaken for these applications are referenced in the relevant sections below. Not all protected species surveys were completed at the time these reports were produced.
- 3.6 Further online resources were reviewed for information which may aid the identification of important ecological features. The Woodland Trust's online Ancient Tree Inventory was reviewed for known ancient or veteran trees within the Site and adjacent land. Interactive online mapping provided by the charity 'Buglife' was used to determine whether the Site falls within an Important Invertebrate Area.

- 3.7 In accordance with Natural England's Great Crested Newt Mitigation Guidelines (2001), a desktop search was undertaken to identify ponds within 500m of the Site which may have potential to support breeding great crested newts *Triturus cristatus*, using Ordnance Survey (OS) mapping, the MAGIC database and aerial photography.
- 3.8 Where possible under the terms of the data provider, relevant desk study data are presented in Appendix C.

### **Field Surveys**

- 3.9 A UK Habitat Classification ('UKHab') survey was carried out in fine and dry weather conditions on 17 January 2025 by Rhodri Gruffydd, FISC Level 3, encompassing the Site and immediately adjacent habitats that could be viewed. An updated survey of the hedgerows was carried out on 25 April 2025 by Rhodri Gruffydd.
- 3.10 UKHab is a unified and comprehensive system for mapping and classifying habitats, designed to provide a simple and robust approach to surveying and monitoring, and replaces Phase 1 Habitat survey methods. The method allows for identification of important habitat types, including habitats of Principal Importance under Section 41 (S41) of the NERC Act (2006) and Habitats Directive Annex I habitats. This method also allows for direct translation of habitats into the Statutory Biodiversity Metric (Defra, 2024).
- 3.11 The following parameters were adopted for the UKHab survey undertaken for this PEA:
- UKHab Professional edition (Butcher *et al.*, 2020, commercial End User Licence Agreement (EULA))
  - Minimum Mappable Unit (MMU):
    - 10m<sup>2</sup>/0.001ha (polygons)
    - 5m (linear)
  - Primary Habitats recorded to a minimum of Level 2 (see below) with UKHab codes provided
  - Mandatory secondary codes used
  - Base-mapping comprising a combination of aerial imagery and topographic information
- 3.12 Primary Habitats are recorded to a minimum of Level 2. Where the survey is conducted at an appropriate time of year (e.g. May to July for grassland) habitats may be recorded to Level 3, 4 or 5, only if conditions and the experience of the surveyor allow.
- 3.13 Alongside the UKHab survey, additional field survey information was collected, comprising:
- Detailed floral species lists recorded for each identified habitat/parcel

- Evidence of, or potential for, European Protected Species (EPS) (including bats, great crested newt, dormouse and otter)
  - Evidence of, or potential for, other protected species (including birds, reptiles, water vole, badger and certain invertebrates)
  - Evidence of, or potential for, other notable species (including S41 Species of Principal Importance as well as notable, rare, protected or controlled plants and invertebrates)
  - Any other survey information relevant to ecological matters
- 3.14 Results of the UKHab survey are presented on the Habitats Plan in Appendix A. Appendix D provides photographs of the habitats at the Site and Appendix E provides a list of floral species recorded in each habitat parcel. Nomenclature for higher plants within this report is consistent with the fourth edition of The New Flora of the British Isles (Stace, 2019).

#### Further Survey Work

- 3.15 The following detailed field survey work was carried out between March and October 2025, with full methods and results provided in the relevant Appendices:
- Hedgerow assessment (Appendix G)
  - Bat activity surveys (Appendix H)
  - Badger survey (Appendix I)
  - Breeding bird surveys (Appendix J)
  - Reptile surveys (Appendix K)
  - Great crested newt surveys (Appendix L)

#### **Limitations**

- 3.16 There were no specific limitations to the desk study.
- 3.17 The field survey was conducted in January 2025, a sub-optimal time of year for botanical surveys. However, an update UKHab survey and hedgerow assessment were conducted within the optimal time of year for botanical surveys to allow a detailed assessment and thereby overcoming the limitations of the original survey.
- 3.18 Specific limitations of each survey are addressed within the appropriate appendices.

#### **Evaluation and Assessment**

- 3.19 Ecological features are identified, evaluated and assessed in accordance with the CIEEM Guidelines for Ecological Impact Assessment (2018), with detailed methods provided in Appendix F.
- 3.20 It is an established principle (CIEEM, 2018) that EcIA is an iterative process. Specialist advice on the avoidance and mitigation of the

potential negative effects of the proposed development has been input from an early design stage.

## 4.0 BASELINE ECOLOGICAL CONDITIONS

### Nature Conservation Designations

#### Statutory

- 4.1 There are no statutory designations covering any part of the Site.
- 4.2 No international statutory designations were identified within 10km of the Site.
- 4.3 Three national statutory designations were identified within 3km of the Site. Oughtonhead Lane SSSI is a geological designation and not considered further in this report.
- 4.4 One local statutory designation was identified within 3km of the Site; Oughtonhead Common LNR (c. 1.8km south-east of the Site).
- 4.5 These statutory designations are described in Table 1 below.

#### Non-Statutory

- 4.6 Ten non-statutory designations (all Local Wildlife Sites (LWSs)) were identified within 2km of the Site. These are listed in Table 1 below.

**Table 1.** Statutory and Non-Statutory Designations within search radii

| Site Name & Designation                | Distance & Direction from Survey Area | Special Interests or Qualifying Features                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| International Designations within 10km |                                       |                                                                                                                                                                                                                                                                                                                                                                   |
| -                                      |                                       |                                                                                                                                                                                                                                                                                                                                                                   |
| National Designations within 3km       |                                       |                                                                                                                                                                                                                                                                                                                                                                   |
| Knocking Hoe SSSI                      | c. 2.1km west                         | Comprises chalk escarpment with a flat-bottomed valley. The unimproved chalk grassland has several nationally rare plants, including moon carrot <i>Seseli libanotis</i> , spotted cat's-ear <i>Hypochaeris maculata</i> , field fleawort <i>Tephrosia integrifolia</i> , burnt-tip orchid <i>Neotinea ustulata</i> and pasqueflower <i>Pulsatilla vulgaris</i> . |
| Knocking Hoe NNR                       | c. 2.1km west                         | Description as above.                                                                                                                                                                                                                                                                                                                                             |
| Oughtonhead Lane SSSI                  | c. 2.4km south-east                   | Geological designation.                                                                                                                                                                                                                                                                                                                                           |
| Local Designations within 3km          |                                       |                                                                                                                                                                                                                                                                                                                                                                   |
| Oughtonhead Common LNR                 | c. 1.8km south-east                   | A 16ha area of wetland, grassland, woodland and scrub habitats situated along the northwest edge of Hitchin, North Hertfordshire. The River Oughton, a chalk stream, forms the northern boundary.                                                                                                                                                                 |

| Non-Statutory Designations within 2km           |                     |                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toot Hill Main LWS                              | c. 0.3km west       | Meadow with semi-improved neutral/calcareous grassland with several dry banks and ponds.                                                                                                                                                                                                                                                                                                                         |
| St Mary's Churchyard, Pirton LWS                | c. 0.4km west       | Churchyard supporting moderately species-diverse, neutral to somewhat calcareous grassland with boundary hedgerows.                                                                                                                                                                                                                                                                                              |
| Hitchin Road Verge LWS                          | c. 0.6km south      | Important calcareous road verges supporting a moderately diverse flora. Uncommon plants including field mouse-ear <i>Cerastium arvense</i> and cornflower <i>Centaurea cyanus</i> have been recorded.                                                                                                                                                                                                            |
| Wood Lane LWS                                   | c. 0.7km south-west | An old green lane and public bridleway supporting a variety of habitats ranging from species-rich calcareous grassland to scrub and beech <i>Fagus sylvatica</i> trees.                                                                                                                                                                                                                                          |
| Oughtonhead Common LWS                          | c. 1.0km south-east | Comprises the main area of common land in the south-east and the Wildlife Trust nature reserve to the north. Supports marshy grassland with fen but with drier areas of neutral grassland, scrub and woodland. Comprises one of the larger fen woodlands in Hertfordshire. The western sections are dominated by mature alder <i>Alnus glutinosa</i> carr (an unusual habitat in Hertfordshire).                 |
| High Down, The Close LWS                        | c. 1.4km south-west | Somewhat calcareous grassland with areas of relatively species-rich grass to the north and east but with disturbed secondary grass in the west.                                                                                                                                                                                                                                                                  |
| Tingley Wood LWS                                | c. 1.5km south-west | Ancient semi-natural woodland.                                                                                                                                                                                                                                                                                                                                                                                   |
| Tingley Wood-West Down & south field margin LWS | c. 1.5km south-west | Herb-rich unimproved chalk grassland with some ranker areas and encroaching scrub.                                                                                                                                                                                                                                                                                                                               |
| Tingley Wood-Northern Arable Field LWS          | c. 1.5km south-west | Arable field margin with a diverse flora including plants uncommon to the County and nationally notable species (UK Endangered) such as round <i>Kickxia spuria</i> and sharp-leaved fluellens <i>K. elatine</i> , parsley piert <i>Aphanes arvensis</i> , venus's-looking-glass <i>Legousia hybrida</i> , field gromwell <i>Lithospermum arvense</i> and narrow-fruited cornsalad <i>Valerianella dentate</i> . |
| Tingley Wood-North Down LWS                     | c. 1.7km south-east | Chalk grassland and scrub on a north-facing slope supporting a rich calcareous flora including scarce species.                                                                                                                                                                                                                                                                                                   |

## Habitats and Flora

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

### Irreplaceable Habitats

- 4.8 There is no ancient woodland, as shown on the ancient woodland inventory, covering any part of the Site or immediately adjacent land. The nearest ancient woodland is Tingley Wood, c. 1.6km to the south-west.
- 4.9 No trees on or adjacent to Site are listed on the Ancient Tree Inventory.

### Notable Flora Records

- 4.10 HERC provided 247 records of 79 notable plant species and BRMC provided 23 records of 16 notable plant species from within the search area. Those of potential relevance to the Site include those associated with arable land such as dwarf spurge *Euphorbia exigua*, cornflower and shepherd's-needle *Scandix pecten-veneris*. However, none of these were recorded on-site during survey visits.
- 4.11 There are six records of four species of invasive non-native species listed on Schedule 9 of the Wildlife and Countryside Act (1981). These include Himalayan balsam *Impatiens glandulifera*, giant hogweed *Heracleum mantegazzianum*, few-flowered garlic *Allium paradoxum* and water fern *Azolla filiculoides*. None of these records originate from within or adjacent to the Site and none were recorded on-site during survey visits.

### Temporary grass and clover leys (c1b)

- 4.12 The majority of the Site comprises an arable field in crop rotation. A previous ecology survey undertaken by FPCR in 2017 (FPCR, 2017) found the field to be cultivated for cereal crops. The field is currently seeded with a grass ley for haylage, with a fairly uniform sward composition and c. 10cm in height at the time of survey.
- 4.13 The sward is dominated by 'palatable' grasses, with abundant cock's-foot *Dactylis glomerata* and rye-grass *Lolium* sp., and frequent to occasional red fescue *Festuca rubra*, Yorkshire-fog *Holcus lanatus* and meadow-grass *Poa* sp.
- 4.14 Herbs are occasionally present and mostly restricted to common weeds such as dandelion *Taraxicum officinale* agg., common ragwort *Jacobaea vulgaris*, bristly oxtongue *Helminthotheca echiodides* and spear thistle *Cirsium vulgare*. There is frequent moss throughout the sward.

4.15 Field margins along the north-western, eastern and southern boundaries are narrow (<1m wide) and comprise other neutral grassland. The sward is species-poor, dominated by cock's-foot with few herbs, with the exception of the northern and south-western boundaries described below.

4.16 This habitat is species-poor, common and widespread, and therefore assessed to fall short of criteria for Local ecological importance.

Developed land; sealed surface (u1b)

4.17 Within the north-west of the Site there are existing roads "Coppers Elms" and "Drovers Way", built as part of the adjacent recent development. It also includes a surfaced footpath and very small area of short-mown grassland along the western side of hedgerow H3.

4.18 This artificial habitat is common, widespread and has negligible value to wildlife. It does not meet the criteria for Local ecological importance.

Other neutral grassland (g3c)

4.19 The northern and south-western field margins are wider (c.1-4m wide) and comprise false oat-grass *Arrhenatherum elatius*, red fescue, yarrow *Achillea millefolium*, ribwort plantain *Plantago lanceolata*, creeping buttercup *Ranunculus repens*, bristly oxtongue and white dead-nettle *Lamium album*. Encroaching bramble *Rubus fruticosus* agg. and creeping thistle *Cirsium arvense* within the sward along the northern field margin indicate a lack of regular management. A condition assessment of the grassland field margin was undertaken as part of the Biodiversity Net Gain Assessment.

4.20 Grassland field margins are species-poor, common and widespread, and therefore assessed to fall short of criteria for Local ecological importance.

Native hedgerows (h2a)

4.21 There are six hedgerows present at the Site, labelled H1-H6 on the Habitats Plan (Appendix A) and described in turn below. Full results of the hedgerow survey are presented in Appendix G.

4.22 Hedgerow H1 is non-native and as such is described under a separate heading below.

4.23 Hedgerows H2, H3, H4 and H6 all appear to be managed through lateral trimming but have been allowed to grow vertically.

4.24 H2 is c. 2m in height and includes associated trees and a dry ditch. Hedgerow species include abundant field maple *Acer campestre* and hawthorn *Crataegus monogyna*, with occasional sycamore *Acer pseudoplatanus* and bramble at the eastern end. Mature trees include ash *Fraxinus excelsior* and sycamore.

- 4.25 H3 and H4 are both up to 5m in height but narrow (c. 2m wide). Species include abundant field maple, hawthorn, hazel *Corylus avellana*, with occasional blackthorn *Prunus spinosa*, cherry *Prunus avium*, dogwood *Cornus sanguinea* and dog-rose *Rosa canina* agg.
- 4.26 H5 is a newly planted hedgerow extending south of H3 to H6. This hedgerow is less than 1m tall, sparsely planted and consists of hawthorn, hazel, holly *Ilex aquifolium*, guelder-rose *Viburnum opulus*, spindle *Euonymus europaeus*, crab apple *Malus sylvestris*, hornbeam *Carpinus betulus*, silver birch *Betulus pendula*, dogwood and wild privet *Ligustrum vulgare*. This planting may be associated with the adjacent new development to the west.
- 4.27 H6 is c. 3-4m high, defunct and associated with a dry ditch. The Icknield Way National Trail footpath, also used as a farm track, is present immediately to the south and there is a parallel hedgerow to the south of this. Species include abundant blackthorn, hawthorn, field maple, elder *Sambucus nigra* and dog-rose. Climbers include ivy *Hedera helix*, traveller's-joy *Clematis vitalba* and larger patches of bramble in hedgerow gaps.
- 4.28 Ground-flora associated with the hedgerows is generally limited to grasses from the adjacent grass ley and cow parsley *Anthriscus sylvestris*, common nettle *Urtica dioica*, cleavers *Galium aparine* and ivy.
- 4.29 Hedgerows H2-H6 are native and can therefore be classified as Section 41 Habitat of Principal Importance (S41 HoPI). H2 and H5 are species-rich, with five or more species within 30m sections. H6 is classified as an important hedgerow due to its age and presence of red/amber listed bird species recorded in the breeding bird surveys undertaken in 2025 (Appendix J).
- 4.30 Considering the above, native hedgerows at the Site are assessed to be of **Local** ecological importance.

#### Non-native and ornamental hedgerows (h2b)

- 4.31 Hedgerow H1 in the north-west corner of the Site backs onto a private garden and connects to H2. The hedgerow is dominated by Leyland cypress *Cupressus x leylandii*, with yew *Taxus baccata* and Wilson's honeysuckle *Lonicera nitida* also present. The hedgerow is infrequently managed and has been allowed to grow to c. 3m high.
- 4.32 Given the dominance by non-native species, this hedgerow would not qualify as S41 HoPI and is also not considered "ecologically important" under the Hedgerows Regulations 1997. This habitat is assessed to fall short of criteria for Local ecological importance.

## Fauna

### Bats

#### *Desk Study*

- 4.33 A total of 82 bat records were identified within the search area, dating from 1922 to 2020. Of these records, 27 were given to a grid reference accuracy of 1km or less and therefore their exact location could not be determined. Records include the following species: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *P. pygmaeus*, noctule *Nyctalus noctula*, serotine *Eptesicus serotinus*, brown long-eared bat *Plecotus auritus*, barbastelle *Barbastella barbastellus*, Daubenton's bat *Myotis daubentonii* and Natterer's bat *Myotis nattereri*. The two barbastelle records are historical, both dating from 1922.
- 4.34 The majority of records are associated with the village of Pirton to the west. The closest record is of a common pipistrelle unspecified roost from 2009, c. 40m west of the Site. However, this record is associated with a farm building no longer present. The most recent records of bat roosts are for common pipistrelle, soprano pipistrelle, brown long-eared bat and Natterer's bat from 2017, all in the same location c. 1.1km west of the Site.
- 4.35 Previous surveys at the adjacent development site to the west in 2015 identified low numbers of barbastelle, *Plecotus* sp. and *Myotis* sp. during activity surveys (FPCR, 2015).

#### *Use of the Site*

- 4.36 Mature trees along the northern boundary of the Site have the potential to provide suitable habitat for roosting bats. However, these trees are not anticipated to be impacted.
- 4.37 The main field within the Site provides sub-optimal habitat for foraging bats, however, the current ley likely provides slightly greater foraging opportunities than the rotational crops present at other times. Boundary hedgerows and grassland field margins provide opportunities for foraging and navigation. The majority of the Site is not subjected to large amounts of permanent artificial lighting, with some screening from the new residential development to the west afforded by hedgerows. The majority of habitats in the wider landscape, namely arable farmland, provide sub-optimal foraging opportunities for bats, although the hedgerow network provides navigational opportunities and connectivity between the Site and wider landscape. A day-time bat walkover survey assessed the Site as having moderate suitability for bat activity.
- 4.38 Bat activity surveys, including night-time bat walkover and automated/static monitoring surveys were undertaken from April to October 2025. At least seven species of bat were identified during

activity surveys, including common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle *Pipistrellus nathusii*, noctule, brown long-eared bat and barbastelle. Additional bat calls were present which fall within the genera of *Myotis* sp., *Nyctalus* sp., *Nyctalus/Eptesicus* sp., and *Pipistrellus* sp. but were not identified to species level. The majority of activity recorded was attributable to common pipistrelle, with foraging and commuting behaviour observed during night-time bat walkovers. Much lower levels of activity were found for all other species, including the rarer barbastelle, and mostly associated with occasional passes.

- 4.39 During night-time bat walkover surveys, there was very little activity during the stationary observations. During the transect survey, activity on-site was concentrated along linear features, with most activity associated with H4. Very little activity was associated with H3. There were no activity patterns or observations to suggest that bats are roosting on or adjacent to the Site. However, first bats detected for common pipistrelle and noctule were within the recognised emergence times for these species. Observations for all other species fall outside the recognised emergence times. Considering that the noctule observation was only just within the upper standard deviation for emergence time, combined with a lack of other evidence, there is unlikely to be a nearby noctule roost. There remains the possibility of a nearby common pipistrelle roost.
- 4.40 During the automated monitoring, common pipistrelle activity was considerably higher at monitoring location 2 (ML2) compared to ML1. The same pattern was observed for barbastelle but the difference in the number of bat contacts was much lower given the low activity level for this species. There was little difference between monitoring locations for other species.
- 4.41 Full methods and results are provided in Appendix H.

#### *Importance*

- 4.42 Boundary hedgerows at the Site provide foraging and dispersal opportunities for bats. Following the methodology in the UK Bat Mitigation Guidelines (Reason and Wray, 2023), the importance of the bat assemblage at the Site was determined by scoring each species depending on their rarity in the 'South-East England and East Anglia to the Wash' region within which the Site lies. This gives a total score for the assemblage and determines its importance in a geographical context (see Tables 2 and 3).
- 4.43 It should be noted that bat contacts attributable to *Myotis* and *Nyctalus/Eptesicus* species were not identified to species level and therefore whilst the species listed in Table 2 are known to be present in Hertfordshire, it is likely that not all of these species use the Site. Therefore, when determining the importance of the bat assemblage at the Site,

species recorded in the local data search (serotine, Daubenton's bat and Natterer's bat) were used.

**Table 2.** Categorising bats by rarity (adapted from Reason and Wray, 2023)

| Rarity in South-East England and East Anglia to The Wash (score assigned per species present) | Species known to occur in the same region as the Site                    | Species recorded on-site                                      |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------|
| Widespread in all geographies (1)                                                             | Common pipistrelle<br>Soprano pipistrelle<br>Brown long-eared            | Common pipistrelle<br>Soprano pipistrelle<br>Brown long-eared |
| Widespread in many geographies, but not as abundant in all (2)                                | Daubenton's<br>Natterer's<br>Noctule                                     | Daubenton's*<br>Natterer's*<br>Noctule                        |
| Rarer or restricted distribution (3)                                                          | Brandt's<br>Whiskered<br>Serotine<br>Leisler's<br>Nathusius' pipistrelle | Serotine*<br>Nathusius' pipistrelle                           |
| Rarest Annex II species and very rare (4)                                                     | Barbastelle<br>Alcathoe                                                  | Barbastelle                                                   |
| <b>Total assemblage score</b>                                                                 | <b>28</b>                                                                | <b>19</b>                                                     |

\*Assumed present based on habitats present on-site and records returned within the desk study.

**Table 3.** Categorising bat assemblage importance for the South-East England and East Anglia to The Wash region (adapted from Reason and Wray, 2023)

| Geographical Importance | Score threshold for South-East England and East Anglia to The Wash Region |
|-------------------------|---------------------------------------------------------------------------|
| County                  | 13                                                                        |
| Regional                | 15                                                                        |
| National                | 20                                                                        |

- 4.44 Based on Reason and Wray's methodology, species identified at the Site during activity surveys, in combination with desk study records where species groups could not be identified to species level, the Site is assessed to have a possible count of nine bat species and a bat assemblage of Regional ecological importance. However, the majority of bat contacts at the Site were attributed to common pipistrelle, with much lower activity for all other species, including the rare barbastelle. Activity for these species was mostly associated with occasional passes and opportunistic use of the Site, with not all species recorded foraging and no pattern to suggest a roost nearby. In addition, although habitats at the Site provide navigational features and some foraging habitat, they are not considered to be an important resource at the county level or higher and there were no obvious roosting features identified at the

Site. Therefore, the bat assemblage at the Site is considered to be of no more than **Local** ecological importance.

### Badger

#### *Desk Study*

- 4.45 HERC has provided 29 records and BRMC two records of badger *Meles meles* within the search area, dating from 1975 to 2022. The closest record is c. 0.7km from the Site, dating from 2018. Only two records from 2019 and 2022, both c. 2km from the Site makes reference to a badger sett.
- 4.46 Previous surveys at the adjacent site in 2015 found no evidence of badger (FPCR, 2015).

#### *Use of the Site*

- 4.47 The PEA identified boundary hedgerows, scrub and ditches within the Site as providing suitable habitat for sett creation, with arable land also providing foraging opportunities for badger.
- 4.48 Mammal digging found along the northern boundary (Target Note 1 on the Habitats Plan) and a disused mammal hole identified in the south-west corner (Target Note 2) during the PEA survey could be attributed to badger but no further evidence was recorded. A dedicated badger survey was undertaken on 25 March 2025 and recorded no definitive evidence of badger. Full methods and results are provided in Appendix I.

#### *Importance*

- 4.49 Badgers are not of current conservation interest but both badgers, and their setts, are protected under the Protection of Badgers Act 1992 and are therefore considered as part of this assessment on this basis only.

### Dormouse

#### *Desk Study*

- 4.50 There is one record of dormouse *Muscardinus avellanarius* within the search area, dating from 1982 and c. 1.1km south-east of the Site. This record is associated with an occupied nest at the base of a hedgerow.
- 4.51 Dormice have historically been present within Hertfordshire, although their current distribution is known to be very limited due to fragmentation of suitable habitat for this species within the county. Historical populations dating from pre-1985 are concentrated in a few places far from the Site, with urban development and infrastructure presenting barriers to dispersal. More recent records as referenced in the Hertfordshire Biodiversity Action Plan show the closest population to be within Breachwood Green, c. 9km south of the Site with the A505 dual carriageway presenting a barrier to dispersal.

- 4.52 Previous surveys for dormouse associated with the adjacent development in 2015 (FPCR, 2015), including within H3 which bounds the Site, found no evidence of dormice during the first visit.

#### *Use of the Site*

- 4.53 Habitats within the Site are sub-optimal for dormouse. Although native hedgerows provide some foraging habitat, hedgerows bounding the Site are narrow, likely species-poor and lack connectivity to the west and north. In the wider landscape, the nearest area of substantial woodland providing optimal habitat is c. 1.5km south-west of the Site with limited connectivity of suitable habitats.
- 4.54 Given the above, dormice are likely absent from the Site and not considered further in this report.

#### Riparian mammals

##### *Desk Study*

- 4.55 A total of 24 records of water vole *Arvicola amphibius* were identified within the search area, dating from 1975 to 1999. These records appear to be restricted to the riparian habitats of the Oughtonhead LNR, c 1.8km south-east of the Site.
- 4.56 A total of five records of otter *Lutra lutra* were identified within the search area, dating from 1937 to 2022. These records are given to a grid reference accuracy of 1km so their exact locations cannot be determined.

#### *Use of the Site*

- 4.57 No evidence of water vole or otter was identified on-site. Ditches on-site were dry at the time of survey and lack optimal foraging habitat for water vole.
- 4.58 Considering the lack of suitable habitat on-site and lack of connectivity to the nearest watercourse, the River Oughton c. 1.8km south-east of the Site, water vole and otter are not considered further in this report.

#### Other Mammals

##### *Brown Hare*

- 4.59 There were 150 records of brown hare *Lepus europaeus* identified within the search area, dating from 1930 to 2023. The closest record is c. 0.7km south of the Site within arable farmland.
- 4.60 Brown hare are listed as a species of Principal Importance under Section 41 of the NERC Act (2006). The main field and scrub on-site provide suitable habitat for brown hare. However, the ley provides sub-optimal habitat as it lacks the long grassland and habitat mosaic that this species favours. The close proximity of the adjacent residential development further reduces the suitability of on-site habitats. Brown hare occupy

large home ranges and there is extensive arable farmland surrounding the Site, providing suitable habitat for brown hare. The Site is therefore unlikely to be of significant importance to local brown hare populations.

#### *Hedgehog*

- 4.61 Seventeen records of hedgehog *Erinaceus europaeus* were identified within the search area by HERC dating from 1975 to 2021. The majority of these records are associated with residential areas in Pirton. The closest record is c. 0.2km west of the Site.
- 4.62 No evidence of hedgehog was identified during the survey. On-site opportunities for hedgehog are provided by hedgerows and grassland margins which provide shelter and foraging opportunities. Within the wider landscape, nearby residential gardens situated within Pirton provide further opportunities for this species.
- 4.63 Hedgehog are listed as a species of Principal Importance under Section 41 of the NERC Act (2006). As such, ecological enhancement measures have been set out to ensure hedgehog and other small mammals can make use of garden habitats at the Site following construction. However, hedgehog are not considered to be an important ecological feature in the context of this assessment.

#### *Harvest Mouse*

- 4.64 There were 14 records of harvest mouse *Micromys minutus* identified within the search area, dating from 1975 to 2002. The majority of these records are from the Oughtonhead LNR. However, a small number of records are from east of Pirton, with one record from Hambridge Way, within 0.3km of the Site.
- 4.65 Harvest mice are listed as a species of Principal Importance under Section 41 of the NERC Act (2006). No evidence of harvest mouse was recorded during the surveys. The majority of the Site, within arable rotation provides sub-optimal habitat for this species. Narrow, unmanaged field margins provide limited opportunities. Therefore, the site is unlikely to be of importance to local harvest mouse populations.

#### *Polecat*

- 4.66 BRMC has provided one record of polecat *Mustela putorius* from 2013. This record is only given to 1km accuracy but is of a roadkill and associated with Pegsdon.
- 4.67 Polecat are listed as a species of Principal Importance under Section 41 of the NERC Act (2006). The majority of hedgerows are thin and provide limited opportunities for polecat, and no evidence of rabbit *Oryctolagus cuniculus* (their main diet) was recorded on-site. Therefore, the site is unlikely to be of importance to polecat.

## Birds

### *Desk Study*

- 4.68 A total of 4820 records of 90 bird species were identified within the search area, dating from 1994 to 2022. Those of potential relevance to the Site include species associated with farmland, hedgerows and scrub.
- 4.69 Notable records for the winter/passage periods include lapwing *Vanellus vanellus* and golden plover *Pluvialis apricaria*, in addition to species listed on Schedule 1 of the Wildlife & Countryside Act (1981), as amended, such as Fieldfare *Turdus pilaris* and Redwing *Turdus iliacus*.
- 4.70 Records for the breeding season include species of nature conservation importance including house sparrow *Passer domesticus*, corn bunting *Emberiza calandra*, nightingale *Luscinia megarhynchos* and swift *Apus apus*, as well as a number of Wildlife & Countryside Act Schedule 1, such as barn owl *Tyto alba*.
- 4.71 No breeding bird surveys were undertaken as part of the adjacent development in 2015. However, red and amber listed bird species including dunnoek *Prunella modularis*, bullfinch *Pyrrhula pyrrhula* and song thrush *Turdus philomelos* were recorded incidentally on the adjacent site in 2015 (FPCR, 2015).

### *Use of the Site*

- 4.72 The Site is small, adjacent to a residential area and has evidence of informal access by local residents. Due to the close proximity and resultant disturbance from the adjacent development, the Site is unlikely to support wintering birds such as lapwing and golden plover. In addition, there are no large waterbodies in close proximity, for which the Site could provide supporting habitat. Therefore, wintering birds are not considered to be of importance beyond the Site level and are scoped out of further assessment.
- 4.73 Arable land, hedgerows and scrub on-site provide suitable foraging/nesting habitat for a range of urban fringe birds.
- 4.74 Incidental sightings during site visits included wren *Troglodytes troglodytes*, rook *Corvus frugilegus* and woodpigeon *Columba palumbus*. A cuckoo *Cuculus canorus* was heard in the distance, off-site to the south.
- 4.75 Six breeding bird surveys were undertaken at the Site between March and July 2025 which recorded 39 native bird species, including 21 priority species. The majority of species recorded are woodland and urban fringe species. Farmland birds, including skylark, grey partridge and linnet, were recorded in low number and associated with the field and hedgerow H6. Skylark breeding territories were recorded within adjacent

fields off-site. No skylark territories were recorded on-site, with only one individual recorded flying over the Site during one survey visit.

#### *Importance*

- 4.76 In accordance with Fuller (1980), the breeding bird assemblage at the Site is considered to be of **Local** importance.

#### Reptiles

##### *Desk Study*

- 4.77 A total of 11 records of four reptile species were identified within the search area. These include grass snake *Natrix Helvetica*, slow-worm *Anguis fragilis* and common lizard *Zootoca vivipara*. There were also four historical records of adder *Vipera berus*, dating from 1934.
- 4.78 Previous reptile surveys associated with the adjacent development in 2015 found no reptiles during the first three visits.

##### *Use of the Site*

- 4.79 The majority of the Site is likely of limited suitability for reptiles. However, field margins, hedgerows and scrub offer opportunities for common and widespread reptiles to shelter, forage and bask.
- 4.80 Seven reptile surveys were undertaken at the Site in April and May 2025 and no reptiles were recorded. Full methods and results are provided in Appendix K.

#### *Importance*

- 4.81 All British reptile species are listed as a species of Principal Importance under Section 41 of the NERC Act (2006). However, no reptiles or evidence of reptiles were found during the survey. Therefore, reptiles are considered likely absent from the Site and not considered further within this report.

#### Amphibians

##### *Desk Study*

- 4.82 A total of 45 records of two amphibian species were identified within the search area: common toad *Bufo bufo* and great crested newt *Triturus cristatus*. Great crested newt records date from 1934 to 2022, however all records were given to a grid reference accuracy of 1km or less, and therefore their exact location could not be determined. No great crested newt class licence returns were identified within the search area.
- 4.83 Despite spending much of their annual lifecycle within the terrestrial environment, great crested newts are dependent upon the presence of suitable aquatic breeding habitat in order for a population to persist. While no potential breeding ponds were identified on-site during the site

survey, there are six ponds and eight ditches apparently present within a dispersible range of the Site, based on OS mapping.

- 4.84 A Habitat Suitability Index (HSI) assessment was undertaken on Ponds P2 and P3 in 2015 as part of the adjacent development. Both these ponds were assessed as 'below average' (FPCR, 2015). One pond (referenced as P2 in the 2015 report) appears to have been developed on and is no longer present. All other ponds were not accessible. No further presence/likely absence surveys for great crested newt were undertaken.

#### *Use of the Site*

- 4.85 The majority of the Site is likely of limited suitability for great crested newt. However, field margins, hedgerows and scrub provide suitable dispersal corridors, along with foraging and sheltering opportunities for great crested newt that may be present in surrounding waterbodies. Ditches along the northern and southern boundaries of the Site were dry at the time of survey with no evidence of aquatic vegetation, suggesting they are unlikely to provide significant opportunities for breeding.
- 4.86 A HSI assessment was undertaken on eight ponds and four ditches within 500m of the Site in March 2025. Following this, an eDNA survey was undertaken on five ponds (P2-P6) in April 2025. This found a positive result for great crested newt in four ponds (P3-P6) and a negative result for P2. Full methods and results are provided in Appendix L.

#### *Importance*

- 4.87 Despite the majority of the Site providing sub-optimal habitat for great crested newt, given their presence in ponds within a dispersible distance of the Site and connection from these ponds to the Site via suitable habitat, there is the potential for this species to use suitable habitat along boundary features at the Site during the terrestrial phase. Given the legal protection afforded to great crested newt, this species is taken through to the assessment section.

#### Invertebrates

##### *Desk Study*

- 4.88 A total of 838 records of 124 invertebrate species were identified within the search area. Those of potential relevance to the Site include small heath *Coenonympha pamphilus* and white-letter hairstreak *Satyrus w-album* butterflies, and cinnabar *Tyria jacobaeae* and white ermine *Spilosoma lubricipeda* moths. The Site is not close to any Important Invertebrate Areas (IIA).

##### *Use of the Site*

- 4.89 The main field is in crop rotation and therefore unlikely to support a locally important assemblage of invertebrates. Field margins, scrub and

hedgerows present on-site have the potential to support a range of common and widespread species but there is no indication that these habitats would support large or notable invertebrate assemblages.

#### *Importance*

- 4.90 There is no indication that habitats within the Site would support a particularly notable or large assemblage of invertebrates. As such, the invertebrate assemblage at the Site is anticipated to fall short of the criteria for Local ecological importance and invertebrates are not considered further in this assessment.

#### **Future Baseline**

- 4.91 The Site is presently under active arable management, including the periodic cutting of field margins and hedgerows. Notwithstanding the potential rotation of crop-type, these management interventions maintain the on-site conditions in a relatively stable state. There is no known intention to cease this management, other than to accommodate the proposed development should planning permission be granted. As such, the future baseline status of important ecological features is not anticipated to vary significantly from that at present.

#### **Summary of Ecological Features**

- 4.92 Table 4 below summarises all important ecological features identified within the respective zones of influence, together with the geographic context of their importance:

**Table 4.** Summary of preliminary important ecological features and their geographic context

| <b>Ecological Feature</b>                | <b>Geographic Context of Importance and/or Protection Status</b>                                                                                 |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Knocking Hoe SSSI                        | National                                                                                                                                         |
| Knocking Hoe NNR                         | National                                                                                                                                         |
| Oughtonhead Common LNR                   | Local/County                                                                                                                                     |
| Non-statutory designations (10 No. LWSs) | County                                                                                                                                           |
| Hedgerows (h2a)                          | Local                                                                                                                                            |
| Bats                                     | Local<br>Protected (Wildlife and Countryside Act, 1981 [as amended];<br>The Conservation of Habitats and Species Regulations, 2010 [as amended]) |
| Badger                                   | Protected (Protection of Badgers Act 1992)                                                                                                       |
| Breeding birds                           | Local                                                                                                                                            |
| Nesting birds                            | Protected (Wildlife and Countryside Act, 1981 [as amended])                                                                                      |
| Reptiles                                 | Local<br>Protected (Wildlife and Countryside Act, 1981 [as amended])                                                                             |
| Great crested newt                       | Protected (Wildlife and Countryside Act, 1981 [as amended];<br>The Conservation of Habitats and Species Regulations, 2010 [as amended])          |

## 5.0 ASSESSMENT OF EFFECTS

### The Proposed Development

- 5.1 Outline planning permission is sought for residential development at the Site, with all matters reserved save for access. The following impact assessment is based on the Development Framework Plan prepared by Icení Projects Limited (plan ref: I000652\_DL02\_DFP\_REVD) on behalf of Gladman Developments Ltd.
- 5.2 The construction phase of the proposed development will comprise the following:
- Cessation of arable cultivation
  - Removal of a section of hedgerow from H3 (c. 10m) for vehicular access
  - Construction of c. 130 residential dwellings
  - Construction of associated gardens, parking, access infrastructure and pump station
  - The establishment of Public Open Space (POS) and green infrastructure totalling c. 2.40ha, including neutral grassland, modified grassland and scrub concentrated to the south of the Site
  - Establishment of Sustainable Urban Drainage Systems (SUDS) including two large attenuation basins set within the south-east of the Site
- 5.3 The operational phase of the proposed development will comprise the following:
- Occupation of new residential dwellings
  - Increase in human activity, including use of vehicles and presence of domestic pets
  - Increased artificial lighting and anthropogenic noise

### Assumptions

- 5.4 The following assumptions have been made during the assessment of potential effects of the proposed development on important ecological features. Although 'assumed' and therefore taken as part of the pre-mitigation scenario, these measures are referenced in the proceeding sections where integral to the mitigation strategy.
- 5.5 In accordance with BS42020:2013, it is assumed that a Construction Environmental Management Plan (CEMP) will be secured by planning condition and prepared at the detailed design stage. In addition to the construction phase impact avoidance and mitigation measures identified in the following sections, the CEMP will detail standard environmental control measures, including though not limited to the following:

- Implementation of strict protection measures for the root protection areas of retained trees and hedgerows, in accordance with BS5837:2012
  - Standard best practice construction phase pollution prevention and control measures
  - Sensitive working methods and timing to avoid direct impacts to nesting birds (generally vegetation removal outside nesting season of March through August)
  - Updated ecological surveys, where necessary, to identify shifts in the baseline ecological condition in order that revised impact avoidance and mitigation measures can be adopted as required
- 5.6 In accordance with BS42020:2013, it is assumed that a Landscape and Ecology Management Plan (LEMP) will be secured by planning condition and prepared at the detailed design stage. The LEMP will set out measures for the establishment and long-term management of newly created and retained habitats to maximise benefits for biodiversity.

### **Mitigation Hierarchy**

- 5.7 It is an established principle (CIEEM, 2018) that, wherever possible, potential negative effects should be avoided through 'Mitigation by Design', as this gives greater certainty over deliverability, demonstrates a well-designed scheme and ensures the correct application of the 'Mitigation Hierarchy' (as advocated by BS42020:2013, Defra 2019 and CIEEM, CIRIA & IEMA 2016).
- 5.8 The proposed development has sought to minimise effects on existing ecological habitat features at the Site through sensitive design, maintaining and buffering the majority of green corridors currently present at the Site, including the on-site hedgerows. These existing habitats are to be incorporated into green corridors within the proposed Public Open Space, as shown on the Development Framework Plan.
- 5.9 The proposed development will create of a greater variety of habitats and structures than currently present at the Site, which will provide benefits to a range of species.

### **Potential Impacts and Ecological Effects**

#### Knocking Hoe SSSI/NNR

- 5.10 The Knocking Hoe SSSI and NNR are located c. 2.1km west of the Site. The SSSI is designated for its lowland calcareous grassland (condition 'favourable') and vascular plant assemblage ('favourable').
- 5.11 The Site is not located within the Impact Risk Zone for the SSSI and no direct impact pathways have been identified between the Site and these designations. However, there is potential for indirect impacts from

recreational activities. The Icknield Way Trail public footpath lies immediately to the south of the Site, connecting the Site to the designations.

- 5.12 A walk from the Site to these designated sites would cover a distance of c. 2.4km in one direction, and a minimum circular walk of c. 4km. This is more than the c. 2.63km average daily walking distance for dog walkers from a study at Thames Basin Heaths SPA (Natural England, 2014). Additionally, current pressures associated with the SSSI are not related to recreational activities. Considering the above, there is unlikely to be a significant impact from recreation on these designations and therefore no mitigation required.

#### Oughtonhead Common LNR

- 5.13 The Oughtonhead Common LNR is located c. 1.8km south-east of the Site. It comprises wetland, grassland, woodland and scrub habitats. The River Oughton, a chalk stream, forms the northern boundary. No direct impact pathways have been identified between the Site and designated sites, however, there is the potential for indirect impacts from recreational activities. Footpaths and bridleways connect the Site to this designated site.

- 5.14 A walk from the Site to this designated site would cover a distance of c. 2.3km in one direction, and a minimum circular walk of c. 4.5km. As above, this is more than the c. 2.63km average daily walking distance for dog walkers from a study at Thames Basin Heaths SPA (Natural England, 2014). Considering the above, there is unlikely to be a significant impact from recreation on this designation and therefore no mitigation required.

#### Local Wildlife Sites (10No.)

- 5.15 No nature conservation designations are present on-site or adjacent to the Site. The closest non-statutory designation is Toot Hill Main LWS, located c. 0.3km west of the Site. No LWSs have been identified to be directly affected by the proposed scheme, either in construction or in operation.
- 5.16 The LWSs within the surrounding area are all acknowledged to be sensitive to a range of factors, including potential recreational pressure (i.e. trampling of grassland flora) and increase in cat predation (on birds and other wildlife).

#### *Mitigation*

- 5.17 The provision of open space at the Site will provide some mitigation for potential impacts. In addition, the following should be secured via appropriate condition:
- Signage and promotion of open spaces on-site

- Information packs to new residents explaining the sensitivities of the LWSs, responsible recreation (dog walking) and alternative recreational spaces
- Detailed design and implementation of open spaces to maximise 'door-step' recreation away from the LWSs

#### Hedgerows (h2a)

- 5.18 The proposed development will result in the loss of a small section of hedgerow H3 to provide vehicular access. The severance of this hedgerow will result in a reduction in connectivity along this hedgerow. Damage of any retained hedgerows could also occur due to construction works located close to hedgerows or within Root Protection Areas.

#### *Mitigation*

- 5.19 H3 is not well-connected to the hedgerow network, particularly to the south. However, to compensate for the severance of this hedgerow, H6 will be 'gapped up' with new shrub and tree planting. Planting will comprise native species of local provenance, with new hedgerows proposed to be species-rich (>7 species per 30m).
- 5.20 This habitat creation would be secured by an appropriately worded planning condition and control of detailed landscape design.
- 5.21 Retained hedgerows and mature trees will be protected in line with standard arboricultural practice (BS5837:2012).

#### *Residual Effects*

- 5.22 Providing the above measures are implemented, no significant residual effect upon the designation is anticipated.

#### Bats

- 5.23 All British bat species and their roosts are protected under Regulation 43 of the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended).
- 5.24 The on-site arable habitats provide some sub-optimal opportunities for foraging bats. However, hedgerows provide greater opportunities including navigational features and foraging opportunities for bats.
- 5.25 The proposed development will result in severance and the loss of a small section of hedgerow H3 for Site access, resulting in a reduction of foraging opportunities and connectivity.
- 5.26 The Site is not currently subjected to large amounts of light. New artificial lighting of retained habitat during the construction and operational phases may lead to adverse disturbance impacts to bats and other nocturnal wildlife, with a reduction of use and diversity in these areas.

- 5.27 Overall, given the impacts to the hedgerows on-site and in the absence of mitigation, the scheme will result in an adverse effect on the local bat population significant at the **Local** level.

#### *Mitigation*

- 5.28 It is not predicted that the loss of habitat on-site would have a significant adverse effect on the bat population within the local area. Creation of grassland and scrub habitats within Informal Open Space, structural landscaping, and provision of SuDS features, will provide enhancement of foraging habitat available to bats at the Site.
- 5.29 Dark corridors will be maintained where practicable. Where this is not possible, the lighting scheme for the Site will be sensitively designed so as to avoid/minimise light spill onto created habitat, existing hedgerows and retained vegetation during the construction and operational phases, thereby maintaining these habitats as foraging/commuting features for bats. This would be secured via control of detailed lighting designs and/or a suitably worded planning condition.
- 5.30 In addition to the above mitigation, enhancement measures will include integrated roosting features into new building/structures across the Site.

#### *Residual Effects*

- 5.31 Subject to the full implementation of the above mitigation no significant adverse effects are predicted.

#### Badger

- 5.32 Badgers are protected under the Protection of Badgers Act (1992). Killing or injury of a badger, or interference with a sett is prohibited.
- 5.33 No definitive evidence of badger was recorded on-site. However, badger may still use the Site for dispersal or for other requirements in the future. The Site is currently unlit and new artificial lighting of retained habitat during the works may lead to adverse disturbance impacts to badger and other nocturnal wildlife, with a reduction of use and diversity in these areas.
- 5.34 During the proposed works, badgers are at risk of falling into open excavations or entering open ended pipework (above 150mm diameter), risking an offence under the above legislation.

#### *Mitigation*

- 5.35 Given the protection badgers received under the Protection of Badgers Act 1992, the following precautionary measures will be implemented which could be secured via a suitably worded Planning Condition:
- Pre-construction badger survey and monitoring for signs of new sett digging.

- Covering any open excavations with wooden boards, or fitting them with appropriate escape ramps, in order to prevent badgers falling into them and injuring themselves or becoming trapped.
- Monitoring of works area for any new sett excavation during prolonged remediation, construction or landscaping works.
- Night working within 30m of any active existing or new setts (if present) will be avoided to prevent noise disturbance and night-time illumination near to setts.

5.36 These measures would be secured by an appropriately worded planning condition.

5.37 In order to maintain ecological functionality of retained and proposed habitats for badger and other nocturnal wildlife, a sensitive external lighting scheme will be prepared for areas where dark corridors cannot be maintained. The future lighting scheme will be developed in consultation with an ecologist to avoid/minimise light spill onto retained and created habitat.

#### *Residual Effects*

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

#### Breeding Birds

5.39 Surveys have confirmed the Site supports an assemblage of breeding birds that is typical of farmland and urban fringe habitats. A total of 39 native species were recorded within the Site and its immediate surroundings during the six survey visits, including 21 priority species.

5.40 The proposed development would result in the permanent loss of all arable land and field margins (6.44ha) within the Site. Whilst the proposed residential areas would account for 4.05ha of this land-take, a further 2.40ha of arable land would be subject to soft landscaping works to deliver the provision of green infrastructure.

5.41 The majority of breeding territories identified at the Site are associated with hedgerows and woodland edge and will largely be retained. No species were recorded in significant numbers during the survey to warrant individual valuation.

5.42 Despite no public right of way at the Site, the Site is currently accessed by local people for dog walking. There are small gaps along H4 that may be accessed by new residents, which could lead to disturbance of ground-nesting birds in the adjacent off-site field to the east. Three skylark territories were identified in this off-site field.

5.43 Overall, in the absence of mitigation, the scheme would result in an adverse effect on breeding birds, significant at the **Local** level.

### *Mitigation*

- 5.44 The design of the Informal Open Space is expected to offer benefits to the assemblage of passerines recorded during the breeding bird surveys, including food resource and nesting opportunities, through the creation of neutral grassland and scrub. This habitat creation measure would be achieved by planting a mix of native species.
- 5.45 The design of the Informal Open Space includes the retention of the majority of existing hedgerows within the Site. The small-scale losses of hedgerow habitat within H3 would be outweighed by the 'gapping up' of H6, along with the creation of neutral grassland, scrub and structural planting to offer benefits to the assemblage of passerines recorded during the breeding bird surveys, including food resource and nesting opportunities. The species composition would comprise a diverse mix of native trees and shrubs. This would include a variety of fruit- and seed-bearing species to provide additional foraging and nesting resources for birds, particularly greenfinch and linnet. These species were recorded during the breeding bird surveys, and an increase in the availability of seed and fruit-bearing shrubs and trees could lead to increases in the local breeding populations of these birds.
- 5.46 Planting of scrub along H4 will strengthen this boundary and prevent local people from accessing the off-site field to the east from the Site. This will minimise any disturbance to ground-nesting birds.

### *Residual Effects*

- 5.47 The habitat creation and enhancement measures that are embedded in the design of the Informal Open Space proposals are considered sufficient to offset any associated adverse impacts upon the Site's breeding bird assemblage.
- 5.48 With the implementation of the above mitigation measures, no residual effects on breeding birds are anticipated.

### Nesting Birds

- 5.49 Wild birds, their active nests, and their eggs are protected under the Wildlife and Countryside Act 1981 (as amended). Throughout the works there is the risk of offences in respect of any birds nesting in vegetation during the nesting bird season (March to August, inclusive).

### *Mitigation*

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

#### *Residual Effects*

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

#### Great Crested Newt

- 5.52 Great crested newts and their habitats are strictly protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010. In combination, this legislation protects great crested newts from deliberate capture, killing and injury, intentional or reckless disturbance, damage or destruction of a resting site or breeding place, and intentional or reckless damage, destruction or obstruction of a breeding site or rest place.
- 5.53 The Site is within a dispersible distance of ponds with great crested newt. Therefore, in the absence of mitigation there is the potential to kill or injure great crested newt and therefore result in offences being caused under their protective legislation.
- 5.54 The loss of habitat on-site is not predicted to have a significant adverse effect on the great crested newt population within the local area. Furthermore, creation of structural landscaping and Informal Open Space across the Site will provide enhancement of habitats available to great crested newt at the Site.

#### *Mitigation*

- 5.55 Great crested newt are confirmed to be present in ponds within a dispersal distance of the Site. Given the habitat connectivity between the ponds and the Site, mitigation will be required.
- 5.56 The Site falls within Natural England's 'green' risk zone, making it suitable for District Level Licensing (DLL). The Site will be registered under the Hertfordshire DLL scheme in association with Natural England, whereby an off-site payment is made to provide strategic mitigation at a landscape scale.

#### *Residual Effects*

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

#### **Residual Effects**

- 5.58 Table 5 below summarises the assessment of potential impacts on each important ecological feature, proposed mitigation and the assessed residual effects.

**Table 5.** Summary of effects

| <b>Important Ecological Feature</b>      | <b>Potential Impacts and Effects</b>                            | <b>Avoidance &amp; Mitigation Measures</b>                                       | <b>Mechanism by which Measures are Secured</b>                                            | <b>Residual Effects</b>                            |
|------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------|
| Knocking Hoe SSSI/NNR                    | No significant effect                                           | -                                                                                | -                                                                                         | -                                                  |
| Oughtonhead Common LNR                   | No significant effect                                           | -                                                                                | -                                                                                         | -                                                  |
| Non-statutory designations (10 No. LWSs) | Increased recreational pressure                                 | On-site open space, information for residents                                    | Detailed design secured through planning condition                                        | No significant effect                              |
| Hedgerows                                | Removal of hedgerow section for vehicular and pedestrian access | Strengthening of boundary vegetation and management of POS for biodiversity gain | CEMP/LEMP and detailed design secured through planning condition                          | No significant effect                              |
| Bats                                     | Local, adverse                                                  | New habitat creation, hedgerow infill planting, sensitive lighting strategy      | Detailed design and lighting strategy secured through planning condition                  | No significant effect                              |
| Badger                                   | Potential offences caused                                       | Pre-commencement badger survey, precautionary working methods, lighting scheme   | CEMP secured through planning condition                                                   | No legal infringement                              |
| Birds                                    | Local, adverse<br><br>Potential offences caused                 | Habitat creation<br><br>Nesting bird avoidance measures                          | CEMP/LEMP and detailed design secured through planning condition<br><br>Legal requirement | No significant effect<br><br>No legal infringement |
| Great crested newt                       | Potential offences caused                                       | DLL scheme, habitat creation, management of habitats on-site                     | Legal requirement                                                                         | No legal infringement                              |

## **Enhancement**

- 5.59 The Development Framework Plan includes landscape planting enhancements which will make positive contributions to on-site biodiversity.
- 5.60 New habitat creation will provide opportunities for species confirmed to be present on-site at baseline, such as nesting birds. In addition to these

enhancements which are embedded into development proposals, a range of additional ecological enhancement measures will be delivered as part of the proposed development, as identified below. Further details will be set out in a LEMP at the detailed design stage, however as an indicative guide:

- Inclusion of plant species of known wildlife value within the landscaping scheme, including night-scented varieties to benefit bats.
- Structural planting to include 'ecotones' from high canopy down through shrub layers to tall herbs and grassland, to provide botanical and structural interest along areas of new structural planting and retained hedgerows.
- Chalk banks/scrapes will be created within the Site, such as along SuDS features. Part of the Site falls within the Hertfordshire Ecological Network strategic area for chalk grassland. This will provide habitat for chalk grassland plant and invertebrate species and contribute to habitat connectivity in the landscape.
- Integrated ecological niches: dwellings across the scheme will integrate features to benefit birds (swift 'S-bricks' and conventional bird boxes), bats (bat boxes such as Schwegler or Habibat) and invertebrates (bee-bricks). The provisional number of features will include 13No. bat boxes, 15No. swift bricks (grouped in threes), 102No. bird boxes and 13No. bee bricks. The final quantum and locations of these niches will be determined at the detailed design stage and set out within the LEMP.
- Creation of log piles: Timber generated from hedgerow clearance works at the Site will be used to make at least three log piles for wildlife benefit. These will be sited within boundary vegetation where they will be least disturbed. New material can be added as required following any future management works.
- Provision of hedgehog gaps: Hedgehogs have been scoped out of detailed assessment and no specific mitigation is proposed, however it is important that opportunities for hedgehogs to move through the landscape are preserved. Although not strictly an 'enhancement' measure, provision of hedgehog-friendly gravel boards or equivalent, providing a minimum 13cm x 13cm gap, will be used to maintain permeability for hedgehogs across the development and associated gardens. The number and location of hedgehog gaps will be determined at the detailed design stage and set out within the LEMP.

## 6.0 CONCLUSIONS

- 6.1 In the absence of any mitigation measures, the proposed development would have the potential to result in negative effects significant at up to the Local level. However, with the implementation of some straightforward mitigation and precautionary measures as proposed here, the development is not anticipated to result in any significant residual negative effects on important ecological features.
- 6.2 The Development Framework Plan demonstrates the potential to deliver net benefits for wildlife in the form of additional habitats, with the opportunity to provide additional biodiversity enhancement measures alongside the new housing.
- 6.3 The measures set out herein can be secured through appropriate conditions attached to any planning consent, and the development may therefore be delivered without harm to nature conservation interests. Specifically, it is anticipated that planning conditions would be used to secure:
- Construction Environmental Management Plan (CEMP): In addition to wider environmental controls and best practice construction management, the CEMP will set out construction-phase impact avoidance measures with respect to nesting birds and badgers.
  - Landscape and Ecology Management Plan (LEMP): The LEMP will detail the establishment and long-term management of retained and newly created habitats to maximise benefits for wildlife. It will include a graphical Ecological Enhancement Plan, setting out the number, type and position of enhancement features.
  - Lighting Strategy: A sensitive lighting strategy will accompany the detailed layout, ensuring that dark corridors are maintained, and minimising light spill to retained and newly created habitats.
- 6.4 Measures to minimise impacts and avoid significant negative effects on great crested newts will include the registration of the Site under the Hertfordshire DLL scheme.
- 6.5 Based on the successful implementation of avoidance, mitigation and enhancement measures set out herein, the scheme is considered to accord with all relevant nature conservation legislation, as well as with the provisions of the North Hertfordshire Local Plan.

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## **Appendix A**

### Habitats Plan



- Site boundary
- Temporary grass and clover leys (c1b)
- Developed land, sealed surface (u1b)
- Other neutral grassland (g3c)
- Native hedgerows (h2a)
- Non-native and ornamental hedgerows (h2b)
- Target note:
  - TN1 - mammal digging
  - TN2- disused mammal burrow

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|               |                              |       |                |             |              |
|---------------|------------------------------|-------|----------------|-------------|--------------|
| Project       | Land at Holwell Road, Pirton | Date  | October 2025   | Drawing No. | CSA/7345/109 |
| Drawing Title | Habitats Plan                | Scale | Refer to scale | Rev         | C            |
| Client        | Gladman Developments Ltd     | Drawn | RG             | Checked     | MJB          |

## **Appendix B**

### Legislation and Planning Policy

- 1.1. The **Conservation of Habitats and Species Regulations 2017** (as amended) make prescriptions for the designation and protection of Sites of Community Importance ('European sites', i.e. Special Areas of Conservation and Special Protection Areas) and European Protected Species (EPS). The latter include all native bats, great crested newts, dormice, otters and certain reptiles, listed under Annex II of the Regulations. Following the UK's departure from the European Union, the provisions of the Regulations have been retained through enactment of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which came into force on 31 December 2020.
- 1.2. The **Wildlife and Countryside Act 1981** (as amended, principally by the Countryside and Rights of Way Act 2000) forms the basis for protection of statutory designated sites of national importance (e.g. Sites of Special Scientific Interest; SSSIs) and native species that are rare and vulnerable in a national context. Additionally, badgers are protected under the **Protection of Badgers Act 1992**.
- 1.3. The **Environment Act 2021** received Royal Assent in November 2021. Through an amendment to the Town and Country Planning Act 1990 the Environment Act introduced a mandatory requirement for all planning permissions to be conditional upon the submission of a Biodiversity Gain Plan for approval by the Local Planning Authority. The Plan will need to demonstrate a net gain of at least 10% in the biodiversity value of the development site.
- 1.4. Section 40(1) of the **Natural Environment and Rural Communities (NERC) Act 2006** (as amended) states that each public authority, "must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving and enhancing biodiversity." This legislation makes it clear that planning authorities should consider impacts to biodiversity when determining planning applications, with particular regard to the Section 41 (S41) lists of 56 habitats and 943 species of principal importance. The UK Biodiversity Action Plan (BAP) has been superseded by the Biodiversity 2020 Strategy, however Local BAPs continue to influence biodiversity management and conservation effort, including through the spatial planning system, at the local scale.
- 1.5. The **National Planning Policy Framework (2024)** (NPPF) sets out the government planning policies for England and how they should be applied. With regards to ecology and biodiversity, Chapter 15: Conserving and Enhancing the Natural Environment, paragraph 187, states that the planning system and planning policies should minimise impacts on and provide net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

- 1.6. Paragraph 193 sets out the principles that local planning authorities should apply when determining planning applications:
- If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.
  - Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest.
  - Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.
  - Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.
- 1.7. Accompanying the NPPF, central government guidance on the implementation of planning policies is set out within online Planning Policy Guidance (PPG). The Natural Environment PPG addresses principles across a broad spectrum of topics targeting biodiversity conservation, from individual site and species protection through to the supporting of ecosystem services, and the use of local ecological networks to support the national Nature Recovery Network. In particular, the PPG promotes the delivery of measurable Biodiversity Net Gain through the creation and enhancement of habitats alongside development.
- 1.8. The **Government Circular 06/2005**, which is referred to within the NPPF, defines statutory nature conservation sites and protected species as a material consideration in the planning process.
- 1.9. Local planning policies of relevance to ecology, biodiversity and/or nature conservation have been set out in Table 1 below.

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

| Policy                                                           | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>North Hertfordshire Local Plan (adopted November 2022)</b>    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Policy SP1:<br>Sustainable development in North Hertfordshire    | <p>This Plan supports the principles of sustainable development within North Hertfordshire. We will:</p> <ol style="list-style-type: none"> <li>Maintain the role of key settlements within and adjoining the District as the main focus for housing, employment and new development making use of previously developed land where possible;</li> <li>Ensure the long-term vitality of the District's villages by supporting growth which provides opportunities for existing and new residents and sustains key facilities;</li> <li>Grant planning permission for proposals that, individually or cumulatively: <ol style="list-style-type: none"> <li>deliver an appropriate mix of homes, jobs and facilities that contribute towards the targets and aspirations in this Plan;</li> <li>create high-quality developments that respect and improve their surroundings and provide opportunities for healthy lifestyle choices;</li> <li>provide the necessary infrastructure required to support an increasing population;</li> <li>protect key elements of North Hertfordshire's environment including biodiversity, important landscapes, heritage assets and green infrastructure (including the water environment); and</li> <li>secure any necessary mitigation measures that reduce the impact of development, including on climate change; and</li> </ol> </li> </ol> <p>Support neighbourhood plans and other local planning initiatives where they are in general conformity with the strategic policies of this Local Plan.</p> |
| Policy SP12:<br>Green infrastructure, landscape and biodiversity | <p>We will accommodate significant growth during the plan period whilst ensuring the natural environment is protected and enhanced. We will:</p> <ol style="list-style-type: none"> <li>Protect, identify, manage and where possible enhance a strategic multi-functional network of green infrastructure;</li> <li>Consider and respect landscape character, scenic beauty and locally sensitive features, particularly in relation to the Chilterns Area of Outstanding Natural Beauty;</li> <li>Protect, enhance and manage designated sites in accordance with the following hierarchy of designations and features: <ul style="list-style-type: none"> <li>Internationally designated sites</li> <li>Nationally designated sites</li> <li>Locally designated sites;</li> <li>Non-designated sites that include important habitats and species</li> </ul> </li> <li>Protect, enhance and manage biodiversity networks including wildlife corridors, ancient woodlands and hedgerows, wetland and riverine habitats, Local Geological Sites, protected species, priority species and habitats, and non-designated sites of ecological</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                           |

| Policy                                                   | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                          | <p>value and ensure measurable net gains for biodiversity; and</p> <p>Protect other open spaces and support provision of new and improved open space.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p>Policy NE4:<br/>Biodiversity and geological sites</p> | <p>Planning permission will only be granted for development proposals that appropriately protect, enhance and manage biodiversity in accordance with the hierarchy and status of designations and features listed in Policy SP12.</p> <p>All development should deliver measurable net gains for biodiversity and geodiversity, contribute to ecological networks and the water environment, and/or restore degraded or isolated habitats where possible.</p> <p>Applicants should, having regard to the status of any affected site(s) or feature(s):</p> <ul style="list-style-type: none"> <li>a) Submit an ecological survey that is commensurate to the scale and location of the development and the likely impact on biodiversity, the legal protection or other status of the site;</li> <li>b) Demonstrate that adverse effects can be avoided and / or satisfactorily minimised having regard to the hierarchy of protection below: <ul style="list-style-type: none"> <li>i. locating on an alternative site with a less harmful impact;</li> <li>ii. providing adequate mitigation measures; or</li> <li>iii. as a last resort compensated for.</li> </ul> </li> </ul> <p>The acceptability of approach(es) to avoidance, mitigation and compensation will be commensurate with the status of the asset(s) likely to be affected by the application; Compensation is unlikely to be an appropriate solution for proposals affecting nationally or internationally designated sites other than in the most exceptional circumstances.</p> <ul style="list-style-type: none"> <li>c) Include appropriate measures to manage construction impacts by demonstrating how existing wildlife habitats supporting protected or priority species will be retained, safeguarded and managed during construction;</li> <li>d) Integrate appropriate buffers of complimentary habitat for designated sites and other connective features, wildlife habitats, priority habitats and species into the ecological mitigation and design. The appropriateness of any buffers will be considered having regard to the status of the relevant habitat. 12 metres of complimentary habitat should be provided around wildlife sites (locally designated sites and above), trees and hedgerows. It may be necessary to exceed this distance for fragile habitats such as ancient woodland or to provide appropriate root protection for mature trees; and</li> <li>e) Provide a long-term management and monitoring plan including mitigation measures as necessary.</li> </ul> <p>Local Geological Sites are ratified by the Herts &amp; Middlesex Wildlife Trust (HMWT) and are afforded the same protection as Local Wildlife Sites.</p> |

| Policy                                                | Summary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Policy NE9:<br>Water quality and environment          | <p>Planning permission for development proposals will be granted provided that they make appropriate space for water, including (as applicable):</p> <ul style="list-style-type: none"> <li>a) Maintaining a minimum 8 metre wide undeveloped buffer zone from all designated main rivers;</li> <li>b) Maintaining a minimum 5m wide undeveloped buffer zone for ordinary watercourses; and</li> </ul> <p>River restoration and resilience improvements where proposals are situated close to a river or considered to affect nearby watercourses.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Pirton Neighbourhood Plan (adopted April 2018)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Policy PNP4:<br>Hedgerows, Trees and Verges           | <ul style="list-style-type: none"> <li>• Proposals for new development should include an assessment of trees and hedges on the site.</li> <li>• The retention and maintenance of existing trees and hedgerows is encouraged in all development or if their removal is demonstrated to be necessary they should be replaced in an appropriate location with trees of no less arboriculture or amenity value.</li> <li>• Where the boundary of a new development is adjacent to the edge of the village, existing hedgerows and trees should be protected to give the village a green and soft edge, with additional landscaping and planting to minimise the visual impact of new development.</li> <li>• Landscaping must be incorporated in the design of all new development to mitigate the visual impact of development and ensure that the development merges into the existing village context. Landscaping schemes should seek to include predominately native species.</li> <li>• New development or the construction process of new development must not damage or destroy the Heritage Verge which runs along both sides of the Hitchin Road from Walnut Tree Road to the Barton Road, as shown on the Map on page 30.</li> </ul> |
| Policy PNP4:<br>Wildlife                              | <ul style="list-style-type: none"> <li>• Proposals for development must demonstrate how consideration has been given to the maintenance, protection and enhancement of the wildlife habitats of Pirton and Pirton Parish.</li> <li>• Development proposals must demonstrate that they have met the legal requirements for establishing the presence or otherwise of protected species.</li> <li>• Boundaries between dwellings should be marked, where possible, by hedge planting rather than hard fencing or wall boundaries to provide green routes for wildlife.</li> <li>• It is expected that development proposals would meet this policy through the submission of appropriate and proportionate information taking into account both the type of development proposed and its location.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## **Appendix C**

### Desk Study Information



-  Site boundary
-  10km search radius

\*No designations found within search area



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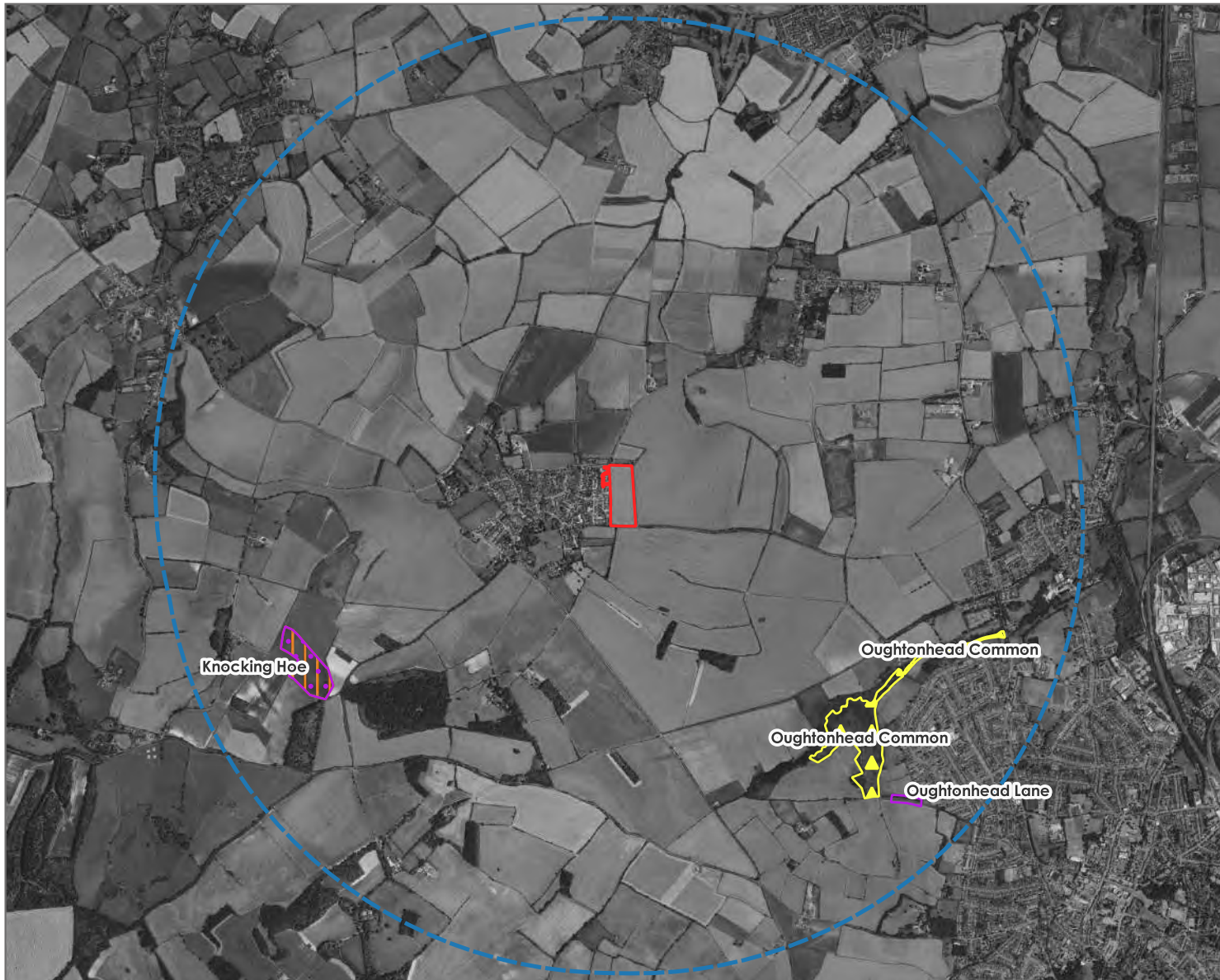
|               |                                      |       |                |             |              |
|---------------|--------------------------------------|-------|----------------|-------------|--------------|
| Project       | Land East of Pirton                  | Date  | November 2024  | Drawing No. | CSA/7345/101 |
| Drawing Title | International Statutory Designations | Scale | Refer to scale | Rev         | A            |
| Client        | Gladman Developments Ltd             | Drawn | DW             | Checked     | AC           |



-  Site boundary
-  3km search radius
-  Site of Special Scientific Interest (SSSI)
-  National Nature Reserve (NNR)
-  Local Nature Reserve (LNR)



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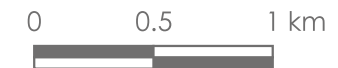
|               |                                           |       |                |             |              |
|---------------|-------------------------------------------|-------|----------------|-------------|--------------|
| Project       | Land East of Pirton                       | Date  | November 2024  | Drawing No. | CSA/7345/102 |
| Drawing Title | National and Local Statutory Designations | Scale | Refer to scale | Rev         | A            |
| Client        | Gladman Developments Ltd                  | Drawn | DW             | Checked     | AC           |



-  Site boundary
-  2km search radius
-  Local Wildlife Sites



Contains information from Hertfordshire Environmental Records Centre (HERC). Exact boundaries of designations may differ.  
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|               |                            |
|---------------|----------------------------|
| Project       | Land East of Pirton        |
| Drawing Title | Non-Statutory Designations |
| Client        | Gladman Developments Ltd   |

|       |                |             |              |
|-------|----------------|-------------|--------------|
| Date  | November 2024  | Drawing No. | CSA/7345/103 |
| Scale | Refer to scale | Rev         | A            |
| Drawn | DW             | Checked     | AC           |



- Site boundary
- 2km search radius
- Deciduous woodland
- Good quality semi improved grassland
- Lowland calcareous grassland
- Lowland meadows
- No main habitat but additional habitats present
- Traditional orchard



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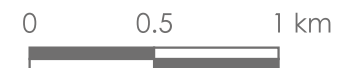
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|               |                          |
|---------------|--------------------------|
| Project       | Land East of Pirton      |
| Drawing Title | Priority Habitats        |
| Client        | Gladman Developments Ltd |

|       |                |             |              |
|-------|----------------|-------------|--------------|
| Date  | November 2024  | Drawing No. | CSA/7345/104 |
| Scale | Refer to scale | Rev         | A            |
| Drawn | DW             | Checked     | AC           |



-  Site boundary
-  2km search radius
-  Ancient & Semi-Natural Woodland



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|               |                          |       |                |             |              |
|---------------|--------------------------|-------|----------------|-------------|--------------|
| Project       | Land East of Pirton      | Date  | November 2024  | Drawing No. | CSA/7345/105 |
| Drawing Title | Ancient Woodlands        | Scale | Refer to scale | Rev         | A            |
| Client        | Gladman Developments Ltd | Drawn | DW             | Checked     | AC           |



-  Site boundary
-  2km search radius
-  Granted European Protected Species licence (EPS); bats



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|                                                                                    |                                                                                |  |               |                                                 |       |                |             |              |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--|---------------|-------------------------------------------------|-------|----------------|-------------|--------------|
|  | Dixies Barns, High Street,<br>Ashwell, Hertfordshire SG7 5NT                   |  | Project       | Land East of Pirton                             | Date  | November 2024  | Drawing No. | CSA/7345/106 |
|                                                                                    | † 01462 743647<br>e ashwell@csaenvironmental.co.uk<br>w csaenvironmental.co.uk |  | Drawing Title | Granted European Protected Species applications | Scale | Refer to scale | Rev         | A            |
|                                                                                    |                                                                                |  | Client        | Gladman Developments Ltd                        | Drawn | DW             | Checked     | AC           |



-  Site boundary
-  1 km search radius

\*No licence returns were found within the search area



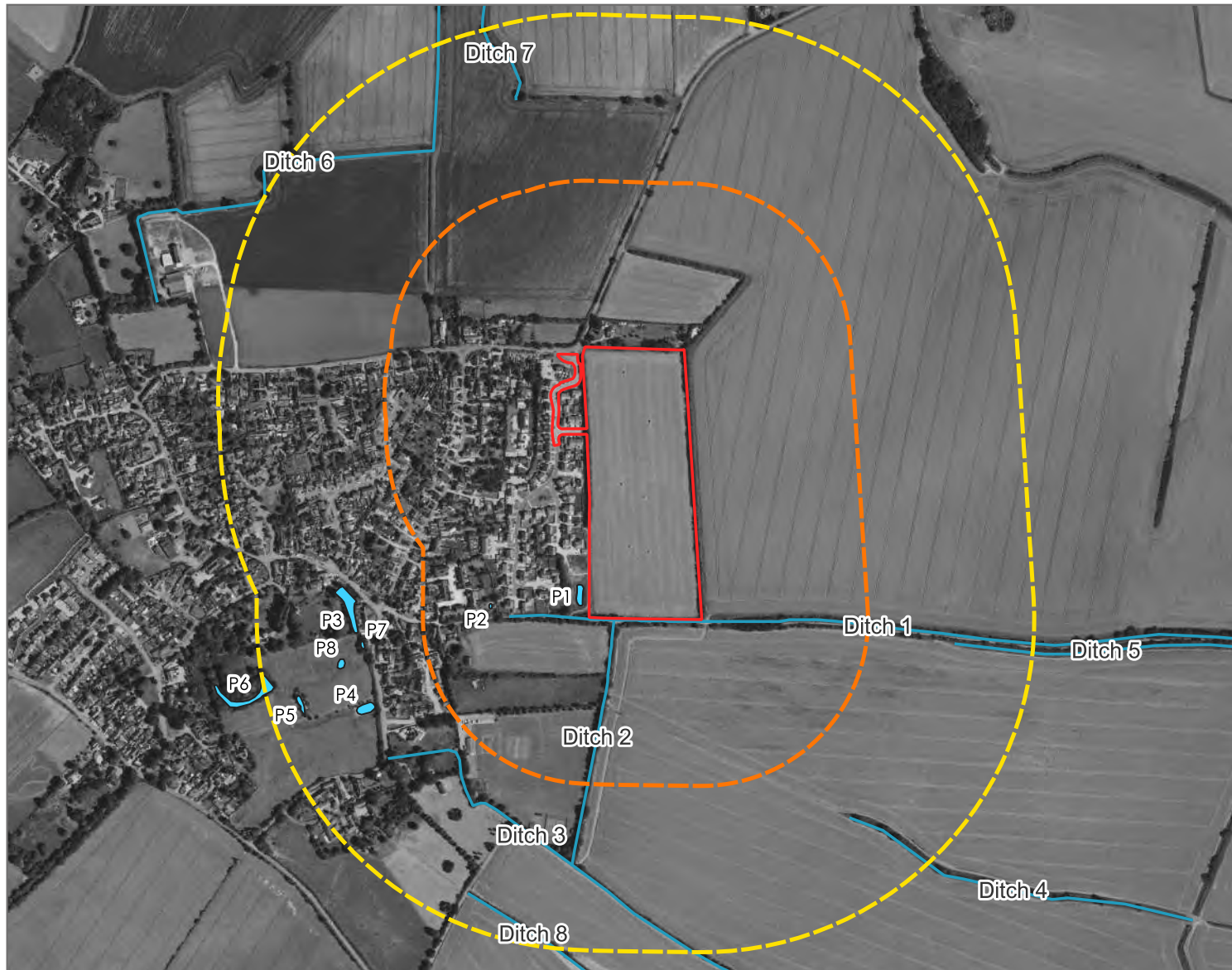
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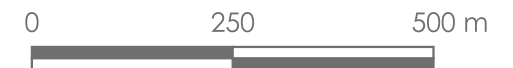
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|               |                           |       |                |             |              |
|---------------|---------------------------|-------|----------------|-------------|--------------|
| Project       | Land East of Pirton       | Date  | November 2024  | Drawing No. | CSA/7345/108 |
| Drawing Title | GCN Class Licence Returns | Scale | Refer to scale | Rev         | A            |
| Client        | Gladman Developments Ltd  | Drawn | DW             | Checked     | AC           |



- Site boundary
- 500m radius
- 250m radius
- Ponds (with reference no.)
- Ditches (with reference no.)



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**Project** Land East of Pirton

**Drawing Title** Pond plan

**Client** Gladman Developments Ltd

**Date** January 2025

**Scale** Refer to scale

**Drawn** RG

**Drawing No.** CSA/7345/107

**Rev** A

**Checked** MJB

## **Appendix D**

### Photographs



Photograph 1. Arable field with grass ley.



Photograph 2. Neutral grassland field margin in south-west corner.



Photograph 3. Outgrown native hedgerow (H4) along eastern boundary.



Photograph 4. Defunct hedgerow with ditch (H6) along southern boundary.



Photograph 5. Non-native hedgerow (H1) in north-west corner.

## **Appendix E**

### Habitats and Flora Species List

Table 1. Habitat Polygons

| Site Name                        | Land East of Pirton        |                                                   |                                               |
|----------------------------------|----------------------------|---------------------------------------------------|-----------------------------------------------|
| Survey Date and Surveyor(s)      | 17/01/2025 Rhodri Gruffydd |                                                   |                                               |
| Scientific Name                  | Common Name                | Habitat Parcel Number/Habitat Type                |                                               |
|                                  |                            | Temporary grass and clover ley (c1b) - main field | Other neutral grassland (g3c) - field margins |
| Herb Species                     |                            |                                                   |                                               |
| <i>Achillea millefolium</i>      | Yarrow                     |                                                   | X                                             |
| <i>Cirsium arvense</i>           | Creeping thistle           |                                                   | X                                             |
| <i>Cirsium vulgare</i>           | Spear thistle              | X                                                 |                                               |
| <i>Dipsacus fullonum</i>         | Wild Teasel                |                                                   | X                                             |
| <i>Helminthotheca echiioides</i> | Bristly oxtongue           | X                                                 | X                                             |
| <i>Jacobaea vulgaris</i>         | Common ragwort             | X                                                 |                                               |
| <i>Lamium album</i>              | White dead-nettle          |                                                   | X                                             |
| <i>Plantago lanceolata</i>       | Ribwort plantain           |                                                   | X                                             |
| <i>Potentilla reptans</i>        | Creeping cinquefoil        |                                                   | X                                             |
| <i>Prunella vulgaris</i>         | Selfheal                   | X                                                 |                                               |
| <i>Ranunculus repens</i>         | Creeping buttercup         |                                                   | X                                             |
| <i>Rumex obtusifolius</i>        | Broad-leaved dock          |                                                   | X                                             |
| <i>Taraxacum</i> agg.            | Dandelion                  | X                                                 |                                               |
| Grasses                          |                            |                                                   |                                               |
| <i>Agrostis stolonifera</i>      | Creeping bent              |                                                   | X                                             |
| <i>Arrhenatherum elatius</i>     | False oat-grass            |                                                   | X                                             |
| <i>Dactylis glomerata</i>        | Cock's-foot                | X                                                 | X                                             |
| <i>Festuca rubra</i>             | Red fescue                 | X                                                 | X                                             |
| <i>Holcus lanatus</i>            | Yorkshire-fog              | X                                                 |                                               |
| <i>Lolium</i> sp.                | Rye-grass sp.              | X                                                 |                                               |
| <i>Poa</i> sp.                   | Meadow-grass               | X                                                 | X                                             |
| Woody Species                    |                            |                                                   |                                               |
| Broadleaved                      |                            |                                                   |                                               |
| <i>Rubus fruticosus</i> agg.     | Bramble                    |                                                   | X                                             |

Table 2. Linear Habitats

| Site Name                       | Land East of Pirton        |                                               |                                                                            |                            |                            |                                         |
|---------------------------------|----------------------------|-----------------------------------------------|----------------------------------------------------------------------------|----------------------------|----------------------------|-----------------------------------------|
| Survey Date and Surveyor(s)     | 17/01/2025 Rhodri Gruffydd |                                               |                                                                            |                            |                            |                                         |
| Scientific Name                 | Common Name                | Habitat Parcel Number/Habitat Type            |                                                                            |                            |                            |                                         |
|                                 |                            | Non-native and ornamental hedgerow (h2b) - H1 | Species-rich native hedgerow with trees - associated with ditch (h2a) - H2 | Native hedgerow (h2a) - H3 | Native hedgerow (h2a) - H4 | Species-rich native hedgerow (h2a) - H5 |
| Herb Species                    |                            |                                               |                                                                            |                            |                            |                                         |
| <i>Anthriscus sylvestris</i>    | Cow parsley                | X                                             | X                                                                          | X                          | X                          |                                         |
| <i>Cirsium arvense</i>          | Creeping thistle           |                                               |                                                                            |                            |                            | X                                       |
| <i>Clematis vitalba</i>         | Traveller's-joy            |                                               |                                                                            |                            |                            |                                         |
| <i>Dipsacus fullonum</i>        | Wild Teasel                |                                               |                                                                            |                            |                            | X                                       |
| <i>Galium aparine</i>           | Cleavers                   |                                               | X                                                                          | X                          | X                          |                                         |
| <i>Helminthotheca echioides</i> | Bristly oxtongue           |                                               |                                                                            |                            |                            | X                                       |
| <i>Heracleum sphondylium</i>    | Hogweed                    |                                               |                                                                            |                            |                            |                                         |
| <i>Plantago lanceolata</i>      | Ribwort plantain           |                                               |                                                                            |                            |                            | X                                       |
| <i>Potentilla reptans</i>       | Creeping cinquefoil        |                                               |                                                                            |                            |                            | X                                       |
| <i>Ranunculus repens</i>        | Creeping buttercup         |                                               |                                                                            |                            |                            | X                                       |
| <i>Rumex sp.</i>                | Dock                       |                                               | X                                                                          |                            | X                          | X                                       |
| <i>Taraxacum agg.</i>           | Dandelion                  | X                                             | X                                                                          |                            |                            |                                         |
| <i>Urtica dioica</i>            | Common nettle              | X                                             | X                                                                          |                            |                            |                                         |
| Grasses                         |                            |                                               |                                                                            |                            |                            |                                         |
| <i>Dactylis glomerata</i>       | Cock's-foot                |                                               |                                                                            |                            |                            | X                                       |
| Woody Species                   |                            |                                               |                                                                            |                            |                            |                                         |
| Coniferous                      |                            |                                               |                                                                            |                            |                            |                                         |
| <i>Cupressus × leylandii</i>    | Leyland cypress            | X                                             |                                                                            |                            |                            |                                         |
| <i>Taxus baccata</i>            | Yew                        | X                                             |                                                                            |                            |                            |                                         |
| Broadleaved                     |                            |                                               |                                                                            |                            |                            |                                         |
| <i>Acer campestre</i>           | Field maple                |                                               | X                                                                          | X                          | X                          |                                         |
| <i>Acer pseudoplatanus</i>      | Sycamore                   |                                               | X                                                                          |                            |                            |                                         |
| <i>Betula pendula</i>           | Silver birch               |                                               |                                                                            |                            |                            | X                                       |
| <i>Carpinus betulus</i>         | Hornbeam                   |                                               |                                                                            |                            |                            | X                                       |
| <i>Cornus sanguinea</i>         | Dogwood                    |                                               |                                                                            |                            | X                          | X                                       |
| <i>Corylus avellana</i>         | Hazel                      |                                               |                                                                            | X                          | X                          | X                                       |
| <i>Crataegus monogyna</i>       | Hawthorn                   | X                                             | X                                                                          | X                          | X                          | X                                       |
| <i>Euonymus europaeus</i>       | Spindle                    |                                               |                                                                            |                            |                            | X                                       |
| <i>Fraxinus excelsior</i>       | Ash                        |                                               | X                                                                          |                            |                            |                                         |
| <i>Hedera helix</i>             | Ivy                        | X                                             | X                                                                          | X                          |                            |                                         |
| <i>Ilex aquifolium</i>          | Holly                      |                                               |                                                                            |                            |                            | X                                       |
| <i>Ligustrum vulgare</i>        | Wild privet                |                                               |                                                                            |                            |                            | X                                       |
| <i>Lonicera nitida</i>          | Wilson's honeysuckle       | X                                             |                                                                            |                            |                            |                                         |
| <i>Malus domestica</i>          | Apple                      |                                               |                                                                            | X                          | X                          |                                         |
| <i>Malus sylvestris</i>         | Crab Apple                 |                                               |                                                                            |                            |                            | X                                       |
| <i>Prunus avium</i>             | Cherry                     |                                               |                                                                            |                            | X                          |                                         |
| <i>Prunus spinosa</i>           | Blackthorn                 |                                               | X                                                                          |                            | X                          |                                         |
| <i>Rosa canina sp.</i>          | Dog-rose                   |                                               | X                                                                          | X                          | X                          |                                         |
| <i>Rubus fruticosus agg.</i>    | Bramble                    | X                                             | X                                                                          | X                          | X                          |                                         |
| <i>Sambucus nigra</i>           | Elder                      |                                               |                                                                            | X                          |                            |                                         |
| <i>Taxus baccata</i>            | Yew                        | X                                             |                                                                            |                            |                            |                                         |
| <i>Viburnum opulus</i>          | Gelder-rose                |                                               |                                                                            |                            |                            | X                                       |

Table 2. Linear Habitats

|                                    |                            |                                                  |
|------------------------------------|----------------------------|--------------------------------------------------|
| <b>Site Name</b>                   | Land East of Pirton        |                                                  |
| <b>Survey Date and Surveyor(s)</b> | 17/01/2025 Rhodri Gruffydd |                                                  |
| <b>Scientific Name</b>             | <b>Common Name</b>         | Native hedgerow associated with ditch (h2a) - H6 |
| <b>Herb Species</b>                |                            |                                                  |
| <i>Anthriscus sylvestris</i>       | Cow parsley                | X                                                |
| <i>Cirsium arvense</i>             | Creeping thistle           |                                                  |
| <i>Clematis vitalba</i>            | Traveller's-joy            | X                                                |
| <i>Dipsacus fullonum</i>           | Wild Teasel                |                                                  |
| <i>Galium aparine</i>              | Cleavers                   | X                                                |
| <i>Helminthotheca echioides</i>    | Bristly oxtongue           |                                                  |
| <i>Heracleum sphondylium</i>       | Hogweed                    | X                                                |
| <i>Plantago lanceolata</i>         | Ribwort plantain           |                                                  |
| <i>Potentilla reptans</i>          | Creeping cinquefoil        |                                                  |
| <i>Ranunculus repens</i>           | Creeping buttercup         |                                                  |
| <i>Rumex</i> sp.                   | Dock                       |                                                  |
| <i>Taraxacum</i> agg.              | Dandelion                  |                                                  |
| <i>Urtica dioica</i>               | Common nettle              | X                                                |
| <b>Grasses</b>                     |                            |                                                  |
| <i>Dactylis glomerata</i>          | Cock's-foot                |                                                  |
| <b>Woody Species</b>               |                            |                                                  |
| <b>Coniferous</b>                  |                            |                                                  |
| <i>Cupressus × leylandii</i>       | Leyland cypress            |                                                  |
| <i>Taxus baccata</i>               | Yew                        |                                                  |
| <b>Broadleaved</b>                 |                            |                                                  |
| <i>Acer campestre</i>              | Field maple                | X                                                |
| <i>Acer pseudoplatanus</i>         | Sycamore                   |                                                  |
| <i>Betula pendula</i>              | Silver birch               |                                                  |
| <i>Carpinus betulus</i>            | Hornbeam                   |                                                  |
| <i>Cornus sanguinea</i>            | Dogwood                    |                                                  |
| <i>Corylus avellana</i>            | Hazel                      |                                                  |
| <i>Crataegus monogyna</i>          | Hawthorn                   | X                                                |
| <i>Euonymus europaeus</i>          | Spindle                    |                                                  |
| <i>Fraxinus excelsior</i>          | Ash                        |                                                  |
| <i>Hedera helix</i>                | Ivy                        | X                                                |
| <i>Ilex aquifolium</i>             | Holly                      |                                                  |
| <i>Ligustrum vulgare</i>           | Wild privet                |                                                  |
| <i>Lonicera nitida</i>             | Wilson's honeysuckle       |                                                  |
| <i>Malus domestica</i>             | Apple                      |                                                  |
| <i>Malus sylvestris</i>            | Crab Apple                 |                                                  |
| <i>Prunus avium</i>                | Cherry                     |                                                  |
| <i>Prunus spinosa</i>              | Blackthorn                 | X                                                |
| <i>Rosa canina</i> sp.             | Dog-rose                   | X                                                |
| <i>Rubus fruticosus</i> agg.       | Bramble                    | X                                                |
| <i>Sambucus nigra</i>              | Elder                      | X                                                |
| <i>Taxus baccata</i>               | Yew                        |                                                  |
| <i>Viburnum opulus</i>             | Gelder-rose                |                                                  |

## **Appendix F**

### Evaluation & Assessment Methods

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

#### Establishing Potentially Important Ecological Features

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

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

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

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

#### Establishing Likely Zone of Influence

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

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

- International statutory nature conservation designations up to 10km from the Site
  - National and local statutory nature conservation designations up to 3km from the Site
  - Non-statutory locally designated wildlife sites up to 1km from the Site
- 1.5. These arbitrary distances are considered sufficient for identifying the nature conservation designations which could be subject to significant effects. However, it is acknowledged that in certain circumstances effects beyond these distances are possible and should be considered as far as is reasonably practicable to do so.
- 1.6. For other ecological features, such as habitats and species, the appropriate zone of influence is described and justified as appropriate within the report, depending on their respective sensitivity to an environmental change.
- 1.7. The results of professionally accredited or published scientific studies have been used and referenced, where available, to establish the spatial and temporal limits of the biophysical changes likely to be caused by specific activities, and to justify decisions about the zone of influence.

#### Geographic Context and Significance Criteria

- 1.8. The importance of ecological features, as well as the significance of any likely impacts and their effects, are considered here within a defined geographic context:
- International
  - National
  - Regional
  - County
  - Local
- 1.9. While higher geographic tiers correspond to clearly defined areas, local context is subjective and will vary on a case-by-case basis. It will range from the Site and its surroundings, to ecologically connected environs, to the scale of the District/Borough, according to the professional judgement of the author.
- 1.10. The size, conservation status and the quality of features are all relevant in determining their importance and assigning this to the geographic scale. Where the importance of a feature is considered to fall below the Local scale, they are scoped out of detailed assessment.

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

#### Characterising Ecological Impacts and their Effects

- 1.12. Where likely significant ecological impacts and effects are identified in connection with the proposed project, these are considered and described with reference to the following characteristics (where this is helpful in accurately portraying the ecological effect and determining the scale of significance):
- Positive or negative (i.e. does the anticipated change accord with nature conservation policies and objectives?)
  - Extent (i.e. the spatial area over which the impact or effect may occur)
  - Magnitude (i.e. the quantified size, amount, intensity or volume)
  - Duration (i.e. the timeframe over which the impact or effect may occur, in both human and ecological terms)
  - Frequency and timing (i.e. the number of times an activity occurs, where this is likely to influence the effect)
  - Reversibility (i.e. is spontaneous recovery possible or may the effect be counteracted by mitigation?)

## **Appendix G**

Hedgerows

## 1.0 Legislation

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

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

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

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

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

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

1.4 In terms of length of hedgerows and their measurement:

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

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

## 2.0 Methods

2.1 The hedgerow assessment survey was undertaken on 25 April 2025 by Rhodri Gruffydd, FISC Level 3, encompassing all hedgerows within and bounding the Site.

2.2 The information collected via desktop and during the site survey, and the methods of assessment are based on the Criteria for Determining 'Important' Hedgerows as outlined within the Hedgerows Regulations.

Species-richness is determined using criteria from the Hedgerow Survey Handbook. In addition to this, a Condition Assessment of each hedgerow was undertaken in-line with the Statutory Biodiversity Metric (Natural England, 2025).

- 2.3 Each hedgerow was assigned a reference number H1 to H6, and the location of each hedgerow is shown on the Habitats Plan (CSA/7345/109).

#### Criteria for Determining 'Important' Hedgerows

##### *Archaeological and Historical*

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

##### *Wildlife and Landscape*

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

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

- 2.4 The number of woody species is reduced by one in northern counties. The list of 56 woody species comprises mainly of shrubs and trees. It generally excludes climbers and bramble, but includes wild roses.
- 2.5 Hedgerows that are located adjacent to a footpath, bridleway, or Road Used as a Public Path (RUPP), or byway open to all traffic AND include at least four specified woody species, on average, in a 30m length AND has at least two of the Associated Features listed below.

### *Associated Features*

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

### Criteria for Determining 'Species-rich' Hedgerows

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

### Statutory Biodiversity Metric Condition Assessment

- 2.7 The Biodiversity Metric condition assessment criteria for hedgerows uses a series of ten attributes, representing key physical characteristics to determine whether a hedgerow is in favourable condition.
- 2.8 Each attribute is assigned to one of five functional groups (A-E), as indicated below, and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.
- 2.9 The hedgerow condition assessment generates a weighting (score) ranging from 1-3 which is used in the Statutory Biodiversity Metric. The scores places each hedgerow in a category of 'Good', 'Moderate' or 'Poor' condition.

### *Attributes*

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

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

\* Additional group, applicable to hedgerows with trees only

#### Limitations

- 2.10 Some hedgerows within the survey area continue off-site, beyond the redline boundary. For the purpose of this assessment, only the length of hedgerow which falls within the redline boundary has been surveyed.

### 3.0 Results

- 3.1 Full hedgerow descriptions are provided in Section 4.0 of this EclA report. Hedgerow numbers are shown on the Habitats Plan (CSA/7345/109) in Appendix A. Full survey results are shown in Tables 1-4 below and species lists for each hedgerow are available in Appendix E (Table 2).

**Table 1.** Hedgerow Survey Results Overview

| <b>Number</b> | <b>Length<br/>(m)</b> | <b>S41<br/>Priority<br/>Habitat?</b> | <b>Important<br/>Hedgerow?<br/>(As defined<br/>by<br/>'Hedgerows<br/>Regs')</b> | <b>Species<br/>Rich?<br/>(5 or more<br/>woody<br/>species<br/>along<br/>selected 30m<br/>section?)</b> | <b>Condition:<br/>'Good', 'Moderate'<br/>or 'Poor'?<br/>(As defined by the<br/>Statutory Biodiversity<br/>Metric Condition<br/>Assessment)</b> |
|---------------|-----------------------|--------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| H1            | 40                    | ×                                    | ×                                                                               | ×                                                                                                      | N/A                                                                                                                                            |
| H2            | 105                   | ✓                                    | ×                                                                               | ✓                                                                                                      | Moderate                                                                                                                                       |
| H3            | 260                   | ✓                                    | ×                                                                               | ×                                                                                                      | Moderate                                                                                                                                       |
| H4            | 405                   | ✓                                    | ×                                                                               | ×                                                                                                      | Good                                                                                                                                           |
| H5            | 125                   | ✓                                    | ×                                                                               | ✓                                                                                                      | Poor                                                                                                                                           |
| H6            | 170                   | ✓                                    | ✓                                                                               | ×                                                                                                      | Moderate                                                                                                                                       |

## **Appendix H**

Bats

## **1.0 Legislation**

- 1.1 All British bat species are legally protected under Regulation 43 of the Conservation of Habitats and Species Regulations 2017 (as amended). These Regulations make it an offence to:
- Deliberately capture, injure, or kill a bat
  - Deliberately disturb bats, impairing their ability to survive, breed, reproduce or rear/nurture their young, or which significantly affects the local distribution or abundance of the species
  - Damage or destroy a breeding site or resting place used by bats
- 1.2 All bats and their roosts in the UK were previously fully protected under the Wildlife & Countryside Act 1981 (as amended). Amendments to the Act have removed most provisions as they relate to bats, however it remains an offence to:
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection
  - Intentionally or recklessly obstruct access to any structure or place used for shelter or protection
- 1.3 It is important to note that bat roosts are protected throughout the year, regardless of whether or not bats are present at the time. Under the Regulations, the offence of damaging or destroying a breeding site or resting place is subject to 'strict liability', i.e. an offence is committed irrespective of whether the causal act was deliberate or otherwise.
- 1.4 Where development is proposed that would result in an offence under the Regulations, a European Protected Species (EPS) statutory derogation licence (often termed 'EPS Mitigation Licence') will need to be secured from Natural England to permit an act that would otherwise be unlawful. Such a licence can only be granted following receipt of planning permission with all relevant conditions discharged, and where it has been demonstrated that specific statutory derogation tests have been met.

## **2.0 Methods**

- 2.1 The following survey methods, design, data analysis and interpretation have been undertaken with due consideration of the Bat Conservation Trust (BCT) guidelines 4<sup>th</sup> edition (Collins, 2023).

### Daytime Bat Walkover

- 2.2 A Daytime Bat Walkover (DBW) was undertaken as part of the PEA survey on 17 January 2025 by Rhodri Gruffydd in fine and dry weather conditions. The aim of the survey is to observe, assess and record any habitats suitable for bats to roost, commute and forage on-site and within the surrounding area.

- 2.3 As part of the survey, surveyors identified any structures, trees or other features that could be suitable for bats to roost in, and habitats that could be suitable for bats to use to commute, forage or swarm.
- 2.4 Following the survey, suitability of commuting and dispersal habitats are assigned under the following categories:
- 2.5 *Either:*
- **High** – Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
  - **Moderate** – Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
  - **Low** – Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
  - **Negligible** – No obvious habitat features on-site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
  - **None** – No habitat features on-site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flightlines, or generate/shelter insect populations available to foraging bats).

#### Activity Surveys

##### *Night-time Bat Walkover/Vantage Point Surveys*

- 2.6 Night-time Bat Walkover (NBW) surveys were undertaken in May, July and September 2025. On each occasion, surveyors were stationed at specific points within the Site prior to sunset, and stationed on potential flight lines close to potential roost sources such as groups of buildings or woodland. Locations were predetermined by the results of the Daytime Bat Walkover (see Figure 1).



**Stationed Surveyor Locations**  SSL1  SSL2

**Figure 1.** Stationed surveyor locations (SSL) during the Night-time Bat Walkover Surveys undertaken in May, July and September 2024.

2.7 The surveys were led by Matthew Dale ACIEEM, Daniel Willits and Rhodri Gruffydd in suitable weather conditions (see Table 1).

**Table 1.** Night-time Bat Walkover survey timings and weather conditions

| Survey Date | Sunset Time | Start Time | End Time | Temp. (°C) |     | Cloud Cover (oktas) |     | Wind (Beaufort Scale) |     | Precipitation |
|-------------|-------------|------------|----------|------------|-----|---------------------|-----|-----------------------|-----|---------------|
|             |             |            |          | Start      | End | Start               | End | Start                 | End |               |
| 12/05/25    | 20:44       | 20:44      | 22:44    | 15         | 13  | 1                   | 1   | 0                     | 1   | None          |
| 10/07/25    | 21:19       | 21:19      | 23:19    | 22         | 19  | 3                   | 1   | 3                     | 4   | None          |
| 09/09/25    | 19:29       | 19:29      | 21:29    | 16         | 12  | 7                   | 5   | 1                     | 1   | None          |

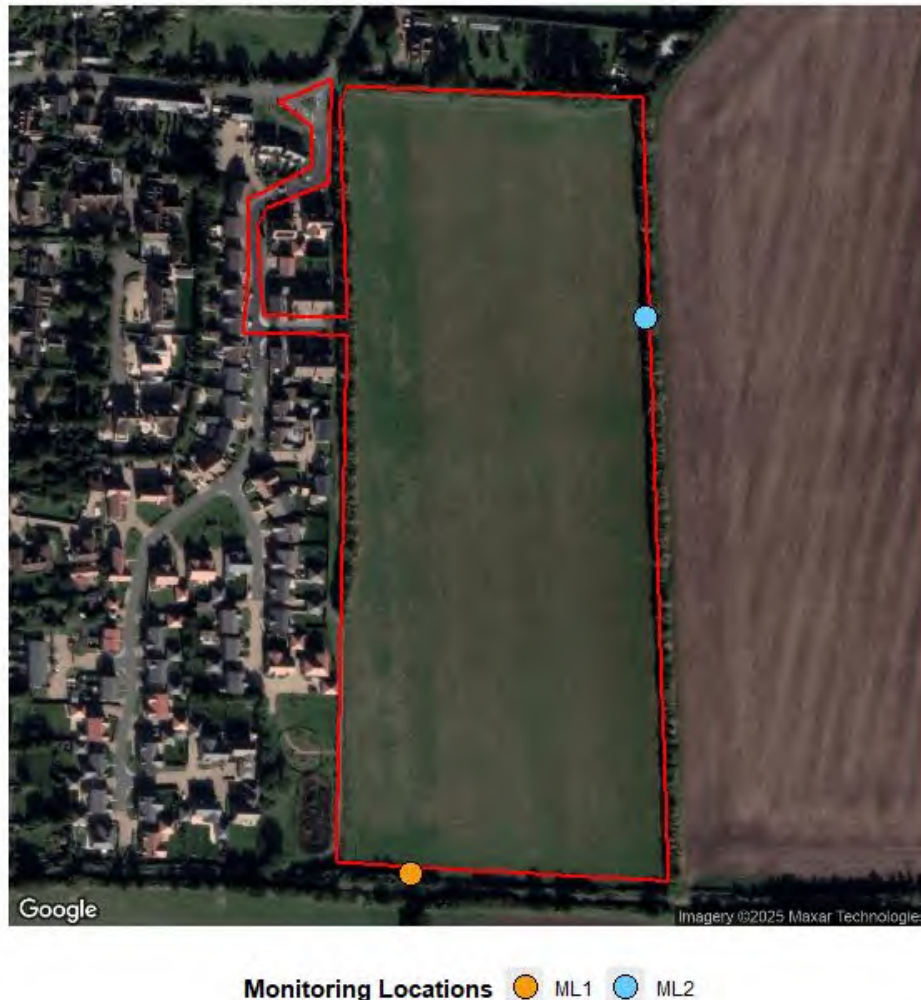
2.8 Surveyors remained in position to count, observe behaviour and make acoustic recordings of commuting (or foraging) bats for up to two hours after sunset. Any observations of bat activity such as feeding or commuting behaviour was noted, or identification of key flightlines (such as height, direction of travel, numbers of bats and response to weather or other features on-site). Alternatively, if streams of commuting bats were noted elsewhere on-site, surveyors used back-tracking methods to

move towards a roost, responding to live observations. Surveyors were equipped with BatLogger M/M2 bat detectors and Nightfox binocular cameras to assist with observations after sunset and allow any bat contacts to be recorded.

- 2.9 As part of the stationed observation, whilst surveyors are positioned across the Site at the start of the survey, vantage point observations were undertaken, including notes on early emerging/high-flying bats such as noctule. Notes made on behaviour include flight height, numbers of bats and direction of travel.
- 2.10 Following 30 minutes of stationed observations, surveyors walked a single transect route, which aimed to cover all accessible areas, features and habitats at the Site. Each transect route was repeated at least once during each survey to minimise temporal bias and walked at a moderate and consistent speed with qualitative observations of bat behaviour made by the surveyor.
- 2.11 Transect surveys are intended to gather data on the spatial distribution of bat activity across the Site, identifying areas of relative importance for bats, including key flight lines. In addition direct observation of bats allows for qualitative assessments of how bats use the Site to be made complementing quantitative data collected through remote monitoring.

#### *Automated/Static Surveys*

- 2.12 Two Wildlife Acoustics Songmeter (SM4) detectors were deployed monthly from April to October 2025 to provide a total of seven data-sets. The position of these Monitoring Locations (ML) are shown on Figure 2 below.



**Figure 2.** The position of each Monitoring Location (ML) surveyed during remote monitoring survey in April-October 2025

- 2.13 The detectors were setup to automatically record ultrasonic signals for the period from half an hour before sunset to half an hour after sunrise each night, with each monitoring period spanning at least five consecutive nights.
- 2.14 Static detectors were deployed across the Site to provide a representative sample of hedgerows at the Site. This habitat provides the highest value to bats. Detectors were placed along hedgerows H4 and H6.
- 2.15 Weather conditions were obtained for each night surveyed using historical weather data from the World Weather Online website, with weather observations taken from the nearest weather station in Pirton. The five nights showing the most optimal weather conditions (in terms of temperature, precipitation and wind speed, see Table 1) were taken forward for analysis.
- 2.16 Recordings are triggered when a bat echolocation call is detected and will contain a variable number of call 'pulses'. Each file containing call

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

### Analysis of Data

#### *Call Analysis*

- 2.17 Bat calls were recorded using Elekon Batlogger M/M2 detectors. This detector automatically records ultrasonic signals with a one second delay between recordings. Recordings of bat contacts were subsequently analysed using BatExplorerPro software, with sonograms reviewed to confirm bat identification to genera, or where possible, species level.
- 2.18 Each of the recorded files, which contain a variable number of call 'pulses', was designated a 'bat contact'. At the point of contact, each sound file is assigned a GPS location.
- 2.19 For analysis of data recorded during static monitoring, quantitative analysis of bat activity was then undertaken by calculating the average bat contacts per hour on each night monitored, for each species.
- 2.20 Bat activity can show considerable inter-night variability and is dependent on a number of variables, including temperature, wind, and seasonality, amongst others. To account for this variability the median values for the average hourly bat contacts per night are reported, rather than a mean value which would misrepresent the average activity.

#### *Limitations*

- 2.21 It should be noted that the findings described herein for remote monitoring surveys are based on the bat activity recorded at the location immediate to each detector, and therefore only describe localised activity at the Site. Where possible, in line with best practice guidance static detectors have been placed c. 1.5m from any nearby vegetation however due to the potential for disturbance from the public, this has not always been possible. Where needed to be located within hedgerows, surrounding foliage has been removed to prevent interference from vegetation covering the microphone.
- 2.22 In addition, comparisons drawn on the number of detector activations by different species/genera can only give an indication of relative species abundance at the Site, as detectability varies between species.
- 2.23 It is acknowledged that the quantum of bat contacts recorded during a survey may not give a true reflection of the abundance of bats using the Site. For example, a single bat foraging close to a detector may

trigger several hundred activations in the course of one night. However, this activity level does provide a proxy for the level of use by bats, and therefore its relative importance.

- 2.24 Very light rain (<0.25mm/hr) was present on two of the 35 nights during the static monitoring. However, this does not appear to correspond with any reduced bat activity for these nights. Some nights, especially during the spring months had low overnight temperatures which does appear to correspond with reduced bat activity at the Site. Low temperatures are to be expected during spring months and, therefore, this presents only a minor limitation and does not impact the overall aim of the survey to identify bat species and activity levels across the Site.
- 2.25 The temperature dropped to a minimum of below 6°C during three nights in the April and May monitoring periods. Studies have shown bat activity to be very low or absent at this temperature (Collins, 2023). This does appear to have resulted in reduced bat activity at the Site in comparison with other months. However, low minimum temperatures are expected during spring months. The night of 7<sup>th</sup> June was cooler than the rest of the nights in June and appears to have resulted in lower activity.

### **3.0 Results**

- 3.1 The Site comprises a single field in arable rotation with boundary hedgerows. The wider landscape comprises predominantly arable land to the north, east and south, with residential housing of Pirton to the west.

#### Daytime Bat Walkover

- 3.2 The majority of the Site provides sub-optimal habitat for foraging bats, although the current grass ley is assumed to afford greater foraging opportunities than crops. Boundary hedgerows act as potential navigational features for dispersing/commuting bats.
- 3.3 Considering the above, the Site is assessed as having moderate suitability for bat activity.
- 3.4 Mature trees along the northern boundary of the Site have the potential to provide suitable habitat for roosting bats. A full ground-level tree assessment for potential bat roosting features was not carried out, however, no obvious bat roosting features were identified on these trees during the daytime bat walkover.

#### Activity Surveys

##### *Night-time Bat Walkover*

- 3.5 Very little bat activity was recorded at both stationed surveyor locations (SSLs) during the stationary observations. Bats were only recorded during the third survey in September, and this was only at SSL2. Species recorded were common pipistrelle *Pipistrellus pipistrellus* and noctule

*Nyctalus noctula*, with the earliest observations c. 14 minutes and c. 29 minutes after sunset respectively. These observations are within the standard deviation for emergence times for common pipistrelle, suggesting that a roost is possibly nearby. However, the only suitable roosting habitat at the Site includes the mature trees along the northern boundary and no bat activity was recorded at SSL1, which is located near to these trees. The noctule observation is just within the upper standard deviation and along with lack of any other evidence, this suggests there is unlikely to be a roost within or in close proximity to the Site for this species.

- 3.6 At least five species of bat were recorded at the Site during the transect element of the surveys, comprising common pipistrelle, noctule, brown long-eared bat *Plecotus auritus* and barbastelle *Barbastella barbastellus*. Contacts were also recorded for *Myotis* sp. which could not be identified to species level. The majority of contacts were attributed to common pipistrelle, with a low number of contacts recorded for all other species, of which the majority of contacts were recorded during the September survey. The earliest observations for species recorded during the transect are c. 52 minutes after sunset for barbastelle, c. 102 minutes after sunset for brown long-eared bat and c. 104 minutes after sunset for *Myotis* sp. These observations are all outside the standard deviation for emergence times recorded for these species, indicating that it is unlikely that a roost is present in close proximity to the Site.
- 3.7 With the exception of one noctule flying over the main field during the September survey, all contacts were associated with boundary hedgerows. The majority of contacts were recorded along hedgerow H4, with fewer contacts along other hedgerows. There was a notable lack of contacts along H3, with just three for common pipistrelle and one for brown long-eared bat. Patterns identified within species shows noctule only associated with the southern boundary and barbastelle only associated with the eastern boundary (Figure 3). There was no obvious pattern for other species. Common pipistrelle were observed exhibiting foraging and commuting behaviour.
- 3.8 The number of bat contacts recorded for each species are summarised in Table 2 below. The locations of each bat contact and the overall distribution of activity across the Site are illustrated in Figures 3 and 4.

**Table 2.** Summary of bat contacts recorded during transect surveys

| Month                          | Barbastelle | Brown long-eared bat | Common pipistrelle | Myotis sp. | Noctule |
|--------------------------------|-------------|----------------------|--------------------|------------|---------|
| May                            | 0           | 0                    | 15                 | 1          | 0       |
| July                           | 0           | 0                    | 42                 | 0          | 0       |
| September                      | 9           | 2                    | 45                 | 0          | 3       |
| <b>Total</b>                   | 9           | 2                    | 102                | 1          | 3       |
| <b>Percentage of Total (%)</b> | 7.7         | 1.7                  | 87.2               | 0.8        | 2.6     |



**Figure 3.** Locations of bat contacts recorded across all transect surveys

- 3.9 Figure 4 below provides an indicative illustration of 'hotspots' in bat activity recorded across all transect surveys undertaken at the Site. Activity hotspots are associated with the Site boundaries, with the largest activity hotspot along H4.



**Figure 4.** Indicative 'Utilisation Distribution' (UD) of all bat species/genera at the Site estimated from all transect data combined. The UD illustrates the relative probability of a bat in flight being present at a given point at the Site, with higher/central contours having a greater probability, and lower/peripheral contours having less probability.

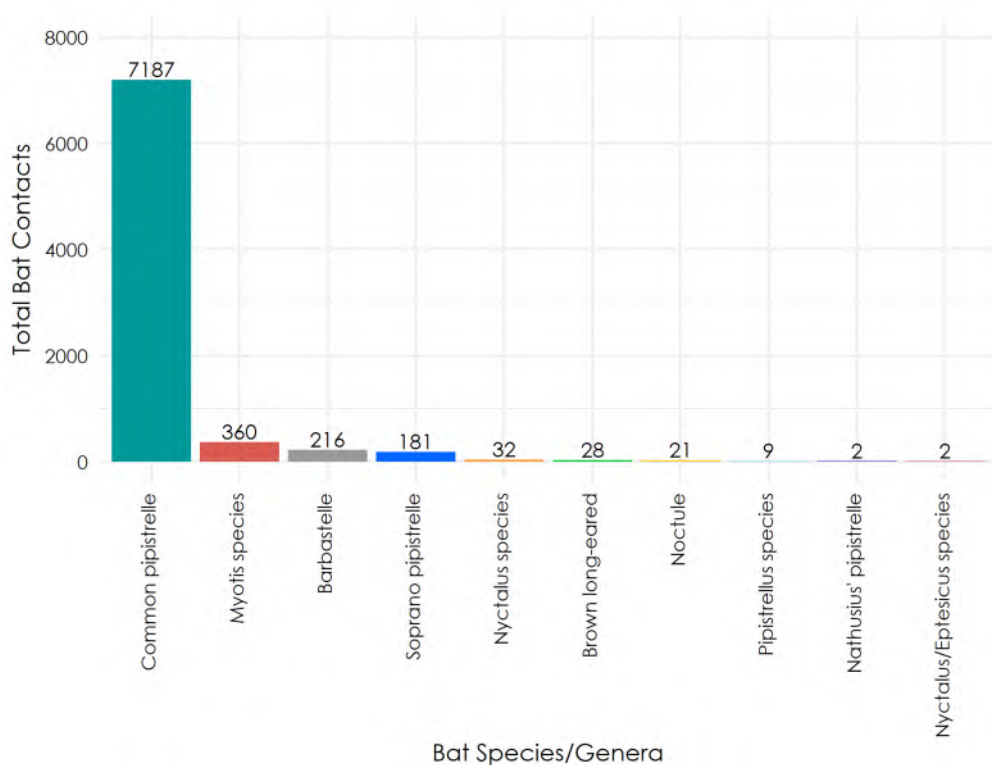
#### *Static/Automated Monitoring*

- 3.10 The weather conditions experienced during the 35 nights where data was analysed are provided in Table 3 below.

**Table 3.** Overnight weather conditions during remote monitoring

| Survey Month | Dates Sampled | Temp. (°C) |     | Cloud Cover (%) |     | Wind (km/h) |     | Precipitation                         |
|--------------|---------------|------------|-----|-----------------|-----|-------------|-----|---------------------------------------|
|              |               | Min        | Max | Min             | Max | Min         | Max |                                       |
| Apr          | 09/04/25      | 3          | 5   | 3               | 100 | 10          | 12  | None                                  |
|              | 10/04/25      | 6          | 9   | 0               | 0   | 5           | 10  | None                                  |
|              | 11/04/25      | 6          | 11  | 0               | 0   | 6           | 10  | None                                  |
|              | 12/04/25      | 8          | 12  | 43              | 94  | 12          | 17  | None                                  |
|              | 13/04/25      | 4          | 8   | 3               | 15  | 10          | 12  | None                                  |
| May          | 08/05/25      | 5          | 7   | 4               | 15  | 10          | 13  | None                                  |
|              | 09/05/25      | 6          | 9   | 3               | 12  | 8           | 12  | None                                  |
|              | 10/05/25      | 8          | 13  | 3               | 8   | 10          | 11  | None                                  |
|              | 11/05/25      | 12         | 15  | 20              | 86  | 5           | 11  | None                                  |
|              | 12/05/25      | 10         | 14  | 24              | 42  | 7           | 11  | None                                  |
| June         | 05/06/25      | 9          | 12  | 15              | 78  | 16          | 23  | None                                  |
|              | 06/06/25      | 9          | 12  | 83              | 100 | 6           | 15  | Very light rain for some of the night |
|              | 07/06/25      | 7          | 9   | 9               | 92  | 18          | 24  | None                                  |
|              | 08/06/25      | 8          | 10  | 18              | 22  | 10          | 15  | None                                  |
|              | 09/06/25      | 11         | 13  | 81              | 100 | 16          | 23  | None                                  |
| July         | 10/07/25      | 18         | 20  | 5               | 18  | 7           | 18  | None                                  |
|              | 11/07/25      | 16         | 20  | 0               | 6   | 7           | 17  | None                                  |
|              | 12/07/25      | 15         | 19  | 2               | 4   | 10          | 11  | None                                  |
|              | 13/07/25      | 16         | 21  | 19              | 27  | 11          | 17  | None                                  |
|              | 14/07/25      | 12         | 16  | 4               | 85  | 12          | 24  | None                                  |
| Aug          | 06/08/25      | 13         | 19  | 0               | 45  | 12          | 17  | None                                  |
|              | 07/08/25      | 14         | 17  | 5               | 20  | 8           | 15  | None                                  |
|              | 08/08/25      | 14         | 19  | 5               | 50  | 12          | 12  | None                                  |
|              | 09/08/25      | 13         | 18  | 1               | 34  | 4           | 12  | None                                  |
|              | 10/08/25      | 17         | 20  | 4               | 14  | 5           | 13  | None                                  |
| Sept         | 09/09/25      | 13         | 15  | 16              | 76  | 12          | 16  | None                                  |
|              | 10/09/25      | 11         | 15  | 17              | 72  | 18          | 23  | None                                  |
|              | 11/09/25      | 10         | 11  | 15              | 43  | 21          | 24  | None                                  |
|              | 12/09/25      | 11         | 12  | 73              | 99  | 18          | 25  | Very light rain for some of the night |
|              | 13/09/25      | 9          | 11  | 8               | 73  | 10          | 19  | None                                  |
| Oct          | 14/10/25      | 9          | 11  | 38              | 91  | 10          | 15  | None                                  |
|              | 15/10/25      | 9          | 12  | 15              | 89  | 8           | 12  | None                                  |
|              | 16/10/25      | 10         | 11  | 14              | 27  | 7           | 7   | None                                  |
|              | 17/10/25      | 8          | 10  | 3               | 36  | 6           | 9   | None                                  |
|              | 18/10/25      | 11         | 12  | 55              | 96  | 17          | 21  | None                                  |

3.11 The total number of bat contacts recorded across all monitoring locations and monitoring periods for each bat species/genera are provided in Figure 5 below.



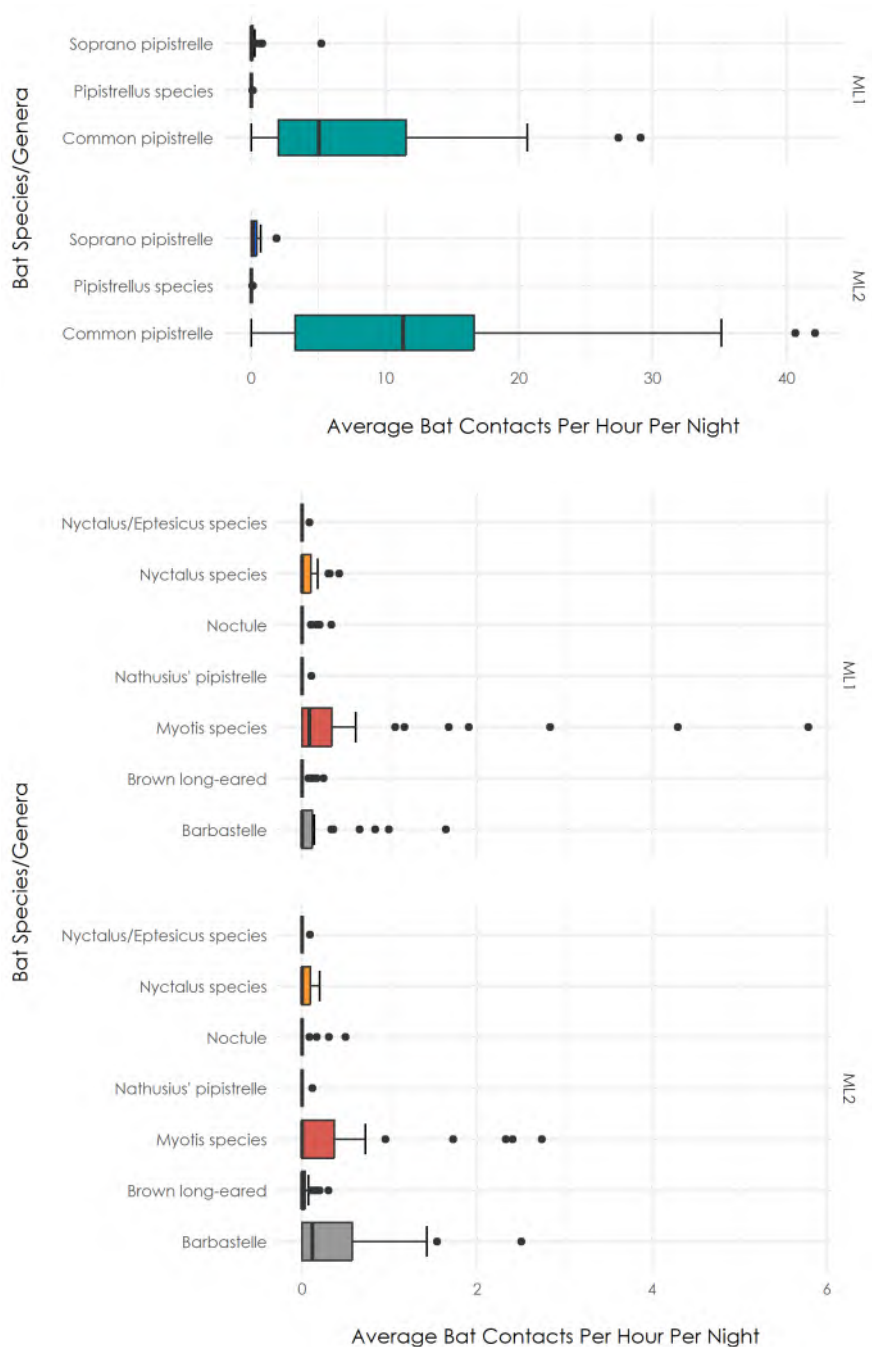
**Figure 5.** Total bat contacts by species/genera recorded across all remote monitoring periods and monitoring locations

- 3.12 At least seven species of bat were recorded during static monitoring. This includes six that could be identified to species level, comprising barbastelle, brown long-eared bat, common pipistrelle, Nathusius' pipistrelle *Pipistrellus nathusii*, noctule and soprano pipistrelle *Pipistrellus pygmaeus*.
- 3.13 Monitoring also recorded calls that could only be identified to genus or group-level including *Myotis* sp., *Nyctalus* sp., *Pipistrellus* sp., and *Nyctalus/Eptesicus* sp. Unidentified *Pipistrellus* sp. can be attributed to either common pipistrelle or soprano pipistrelle. Unidentified *Nyctalus* sp. and *Nyctalus/Eptesicus* sp. may include noctule, Leisler's bat *Nyctalus leisleri* and/or serotine *Eptesicus serotinus*. However, only noctule was recorded to species level, therefore, all calls could be attributed to noctule.
- 3.14 A high number of common pipistrelle contacts were recorded alongside much lower numbers of other species. The highest number of contacts across all species was recorded in July and August, which is when newborn pups take flight (see Table 4 below).

**Table 4.** Summary of bat contacts recorded across all remote monitoring periods and monitoring locations.

| Month                          | Barbastelle | Brown long-eared | Common pipistrelle | Myotis species | Nathusius' pipistrelle | Noctule | Nyctalus species | Nyctalus/Eptesicus | Pipistrellus species | Soprano pipistrelle | Total |
|--------------------------------|-------------|------------------|--------------------|----------------|------------------------|---------|------------------|--------------------|----------------------|---------------------|-------|
| April                          | 24          | 0                | 549                | 182            | 0                      | 0       | 4                | 1                  | 2                    | 73                  | 835   |
| May                            | 18          | 1                | 964                | 40             | 1                      | 1       | 10               | 0                  | 1                    | 15                  | 1051  |
| June                           | 7           | 0                | 738                | 85             | 0                      | 0       | 3                | 0                  | 0                    | 1                   | 834   |
| July                           | 1           | 0                | 1188               | 4              | 1                      | 0       | 2                | 0                  | 0                    | 31                  | 1227  |
| August                         | 17          | 12               | 1831               | 2              | 0                      | 11      | 9                | 0                  | 2                    | 56                  | 1940  |
| September                      | 89          | 7                | 849                | 6              | 0                      | 9       | 4                | 1                  | 2                    | 4                   | 971   |
| October                        | 60          | 8                | 1068               | 41             | 0                      | 0       | 0                | 0                  | 2                    | 1                   | 1180  |
| <b>Total</b>                   | 216         | 28               | 7187               | 360            | 2                      | 21      | 32               | 2                  | 9                    | 181                 | 8038  |
| <b>Percentage of Total (%)</b> | 2.7         | 0.3              | 89.4               | 4.5            | 0                      | 0.3     | 0.4              | 0                  | 0.1                  | 2.3                 |       |

3.15 Figures 6a and b below show the variance in nightly activity levels for each of these bat species recorded on-site. More detailed data describing Figures 6a and b are provided in Table 5. The activity data in Figures 6a and b is presented as boxplots for each bat species, which show the inter-night variability in bat activity across the 35 nights monitored. The median value (middle line of the boxplot) is taken as the typical level of activity for that species on-site at the point monitored. The length of each coloured boxplot is the interquartile range which shows the variance in nightly activity around the median value. The ends of each whisker line define the minimum and maximum nightly activity values recorded at the monitoring location. Outlying values are nightly activity levels that are greatly different when compared to the distribution of the remaining nightly activity levels. Outliers are illustrated as black points away from the boxplot. While important to note, these outliers do not represent the bat activity more commonly found at the Site for the species in question.



**Figures 6a and b.** Average bat contacts per hour per night for each bat species/genera recorded across all remote monitoring

- 3.16 Common pipistrelle activity was higher at ML2, with a median of 11 contacts per hour per night, compared to five at ML1. All other species had median of zero or less than one and there was little difference between monitoring locations except for barbastelle which was higher at ML2. The earliest contacts for common and soprano pipistrelle were within the standard deviation of emergence times for these species, however, there were no observations during the night-time bat walkover surveys to suggest there is a roost within or in close proximity to the Site. For all other species, only brown long-eared bat was within the standard deviation of emergence times for the species. This was only on one occasion and six minutes inside the upper standard deviation (Collins,

2023). Given there were only 28 sporadically distributed contacts for brown long-eared bat, it is unlikely that a roost is close to the Site.

- 3.17 For the rare barbastelle, activity is mostly limited to occasional passes with no clear pattern relating to time of night and no evidence to suggest a roost in close proximity to the Site. However, activity was higher in September and October, and there was one barbastelle social call during September.

**Table 5.** Average bat contacts per hour per night recorded during remote monitoring surveys

| Species                | ML  | Average bat contacts per hour per night |         |        |          | Total bat contacts | Number of nights monitored |
|------------------------|-----|-----------------------------------------|---------|--------|----------|--------------------|----------------------------|
|                        |     | Minimum                                 | Maximum | Median | IQ range |                    |                            |
| Barbastelle            | ML1 | 0                                       | 1.643   | 0.000  | 0.118    | 66                 | 35                         |
|                        | ML2 | 0                                       | 2.504   | 0.115  | 0.574    | 150                | 35                         |
| Brown long-eared       | ML1 | 0                                       | 0.245   | 0.000  | 0.000    | 12                 | 35                         |
|                        | ML2 | 0                                       | 0.301   | 0.000  | 0.035    | 16                 | 35                         |
| Common pipistrelle     | ML1 | 0                                       | 29.118  | 5.042  | 9.529    | 2532               | 35                         |
|                        | ML2 | 0                                       | 42.145  | 11.334 | 13.362   | 4655               | 35                         |
| Myotis sp.             | ML1 | 0                                       | 5.788   | 0.082  | 0.339    | 207                | 35                         |
|                        | ML2 | 0                                       | 2.739   | 0.000  | 0.366    | 153                | 35                         |
| Nathusius' pipistrelle | ML1 | 0                                       | 0.105   | 0.000  | 0.000    | 1                  | 35                         |
|                        | ML2 | 0                                       | 0.115   | 0.000  | 0.000    | 1                  | 35                         |
| Noctule                | ML1 | 0                                       | 0.334   | 0.000  | 0.000    | 10                 | 35                         |
|                        | ML2 | 0                                       | 0.496   | 0.000  | 0.000    | 11                 | 35                         |
| Nyctalus sp.           | ML1 | 0                                       | 0.421   | 0.000  | 0.101    | 20                 | 35                         |
|                        | ML2 | 0                                       | 0.198   | 0.000  | 0.091    | 12                 | 35                         |
| Nyctalus/Eptesicus sp. | ML1 | 0                                       | 0.082   | 0.000  | 0.000    | 1                  | 35                         |
|                        | ML2 | 0                                       | 0.089   | 0.000  | 0.000    | 1                  | 35                         |
| Pipistrellus sp.       | ML1 | 0                                       | 0.102   | 0.000  | 0.000    | 3                  | 35                         |
|                        | ML2 | 0                                       | 0.104   | 0.000  | 0.000    | 6                  | 35                         |
| Soprano pipistrelle    | ML1 | 0                                       | 5.212   | 0.000  | 0.110    | 101                | 35                         |
|                        | ML2 | 0                                       | 1.885   | 0.083  | 0.385    | 80                 | 35                         |

## **4.0 Summary**

- 4.1 The daytime bat walkover identified the Site as having moderate suitability for bat activity due to the presence of potential flight-paths and foraging habitat in the form of hedgerows and grassland field margins.
- 4.2 Night-time bat walkover surveys recorded at least five bat species within the Site. Common pipistrelle bats were observed foraging and commuting, with the majority of activity associated with hedgerow H4. There was no activity to suggest a nearby roost.
- 4.3 Static monitoring recorded at least seven bat species to be present on-site, including the rarer barbastelle. Activity was significantly higher for common pipistrelle, consistent with the foraging and commuting behaviour observed during the night-time bat walkovers. Activity for all other species is at much lower levels. There are no patterns to suggest there are roosts within or very close to the Site.
- 4.4 As bat activity can change rapidly over time, the results within this appendix are considered to be valid for two years. After this period survey work will need to be updated.

## **Appendix I**

Badgers

## 1.0 Legislation

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

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

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

## 2.0 Methods

2.1 A dedicated badger survey was conducted on 25 March 2025 by Laura Farrar ACIEEM and Francesca Smith, using standard survey methods, searching the Site and immediately adjacent areas for field signs of badger and mapping any present such as:

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

2.2 When badger setts are found the number of entrances are recorded as well as the level of usage. Recording this information gives an indication of the type of sett by categorising it according to the criteria listed in Table 1 below (Harris *et al.* 1989, Cresswell *et al.* 1990, Wilson *et al.* 1997).

**Table 1.** Descriptions of types of badger setts and sett entrances.

| Sett Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Main Setts</b> - These usually have a large number of entrances with large spoil heaps, and the sett generally looks well used. There will be well-used paths to and from the sett and between sett entrances. Although normally the breeding sett is in continuous use, it is possible to find a main sett that has become disused due to excessive digging or some other reason; it should be recorded as a disused main sett. In the first survey, the average size of an active main sett was twelve entrances (including all categories of use). |
| <b>Annexe setts</b> - They are often close to a main sett, usually less than 150 metres away, and are usually connected to the main sett by one or more obvious well-worn paths. They usually have several entrances, but may not be in use all the time even if the main sett is very active. In the first survey the average size was five entrances (including all categories of use).                                                                                                                                                                |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subsidiary setts</b> - These often only have a few; four (including all categories of use) was the average number in the first survey. They are usually at least 50 metres from a main sett, and do not have an obvious path connecting with another sett. They are not continuously active.                                                                                                                                                                                                                                                                    |
| <b>Outlying setts</b> - These usually have only one or two entrances, often have little spoil outside the entrance, have no obvious path connecting with another sett, and are only used sporadically. When not in use by badgers, they are often taken over by foxes or even rabbits. However, they can still be recognised as badger setts by the shape of the tunnel (not the actual entrance entrance), which is usually at least 250mm in diameter, and is rounded or a flattened oval shape. Fox and rabbit tunnels are smaller and often taller than broad. |
| <b>Entrance Type</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Well used entrances</b> - These are clear of any debris or vegetation, are obviously in regular use, and may or may not have been excavated recently.                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Partially used entrances</b> - These are not in regular use and have debris such as leaves and twigs in the entrance, or have moss and/or other plants growing in or around the entrance. Partially used entrances could be in regular use after a minimal amount of clearance.                                                                                                                                                                                                                                                                                 |
| <b>Disused entrances</b> - These have not been in use for some time, are partially or completely blocked, and could not be used without a considerable amount of clearance. If the entrance has been disused for some time, all that may be visible is a depression in the ground where the entrance used to be, and the remains of the spoil heap, which may be covered in moss or plants.                                                                                                                                                                        |

### *Limitations*

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

## **4.0 Results**

- 4.1 No definitive evidence of badger was recorded during the badger survey. One disused mammal hole was recorded along hedgerow H6 in the south-west corner of the Site. The size and shape of the hole did not indicate badger. Mammal digging was recorded along H1 in the north-west of the Site during the preliminary ecological appraisal. However, there was no evidence to indicate whether this was attributable to badger or not. No further evidence of mammals was recorded during the badger survey.

## **Appendix J**

Birds

## **1.0 Legislation**

- 1.1 All wild birds, their nests and eggs are protected under subsection 1(1) of the Wildlife and Countryside Act 1981 (as amended). It is an offence to kill or injure any wild bird, to take or destroy their eggs, or to take, damage or destroy their nests while in use or being built.
- 1.2 In addition, certain species of wild bird, listed within Schedule 1 of the Wildlife and Countryside Act, receive additional protection under subsection 1(5) of the Act. This makes it an offence to disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young. It is also an offence to disturb the dependent young of such a bird.
- 1.3 Consideration is also taken of Birds of Conservation Concern ('BoCC 5') (Stanbury *et al.*, 2021) which assigns bird species to a Red, Amber or Green list depending on factors such as their rarity, importance in an international context and severity of declines in population or range. Species on the Red list are of greatest conservation concern whilst those on the Green list do not fulfil any of the BoCC assessment criteria and are not currently of conservation interest. Full details can be found in Stanbury *et al.* (2021).

## **2.0 Methods**

### Breeding Birds

- 2.1 Six breeding bird surveys were undertaken by Skopeo Limited between March and July 2025 to gain an understanding of the breeding bird assemblage at the Site. Surveys were conducted with the following aims:
  - To determine the potential for breeding species of birds across the survey area;
  - To review the rarity and conservation status of each species found;
  - To review the likely breeding potential within the habitats present;
  - To assess the impacts of the proposed developments with regards to the species/ likely species determined; and
  - To recommend appropriate mitigation and protection measures where necessary.
- 2.2 The survey area included all accessible areas of the Site and immediately adjacent land visible from the Site. On each survey the surveyor walked a slow route across the whole site which ensured that both species of open and boundary habitats would be detected. Alternative versions of the route were taken on each visit so that different parts of the site would be surveyed at different parts of the morning, thus avoiding temporal bias associated with bird activity. Each survey commenced before/at/shortly after dawn, when birds are most active, and continued for approximately 1.5-2hrs during suitable weather conditions. Birds were detected by sound or sight, using a pair of

binoculars. One survey was undertaken in the evening, starting 1.5hrs before dusk and continuing for 0.5hrs after.

- 2.3 The survey methodology used considers the recommended mapping conventions given within the Bird Survey Guidelines published by the Bird Steering and Assessment Group (2022). All birds detected at the site were recorded using standardised codes to map their distribution and behaviour, and to differentiate between individuals for the purposes of territory mapping (adapted from the standard Common Birds Census method). A full map of priority species is created for each survey visit, with a consolidated map of priority species created for all survey visits combined.
- 2.4 Priority species are classified using the following hierarchy:
- 1) Species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
  - 2) Species listed under Section 41 of the Natural Environment and Rural Communities Act 2006;
  - 3) Red & Amber listed by the 5<sup>th</sup> Birds of Conservation Concern Review (Stanbury *et al*, 2021).
  - 4) Localised or highly specialised species regardless of inclusion above (e.g. crossbill in coniferous woodland);
  - 5) Nationally- or locally-declining species regardless of inclusion above
  - 6) Colonial nests or roost sites containing more than one individual of any species; or,
  - 7) Exceptional counts or aggregations of any species.
- 2.5 On each survey visit the following objectives were met:
- Identification of potential breeding species within the habitats present;
  - Identification of all birds seen and heard;
  - Breeding status of each bird seen and heard;
  - Total numbers of birds, including juveniles recorded.
- 2.6 The criteria used during the 'Bird Atlas' surveys of 2007-2011 were used to ascertain the breeding status of birds at the Site (as given in Table 1 below).

**Table 1.** Categories of Breeding Bird Evidence

| Breeding Status Categories | Evidence Criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Confirmed breeding:        | <ul style="list-style-type: none"><li>• Distraction display or injury feigning</li><li>• Used nests or eggshells found (occupied or laid within the survey period)</li><li>• Recently fledged young or downy young</li><li>• Adults entering or leaving a nest site in circumstances indicating occupied</li><li>• Nest or an adult sitting on nest</li><li>• Adults carrying food for young or faecal sacs</li><li>• Nest containing eggs</li><li>• Nest with young seen or heard</li></ul> |
| Probable breeding:         | <ul style="list-style-type: none"><li>• Pairs observed in suitable nesting habitat in breeding season</li><li>• Permanent territory presumed through registration or territorial behaviour (song etc.) on at least two different days, a week apart, at the same place</li><li>• Display and courtship</li><li>• Visiting probable nest site</li><li>• Agitated behaviour or anxiety calls from adults</li><li>• Building nest or excavating nest hole</li></ul>                             |
| Possible breeding:         | <ul style="list-style-type: none"><li>• Species observed in breeding season in possible nesting habitat</li><li>• Singing male(s) present or breeding calls heard in breeding season</li></ul>                                                                                                                                                                                                                                                                                               |

### *Limitations*

- 2.7 Only a proportion of individuals of each species will be detected on each visit, and some particularly secretive or low-density species, can be elusive and require several visits to detect. Furthermore, the importance of a site for birds can change depending on factors such as food availability, presence of roosting/nesting features and weather conditions.
- 2.8 The breeding status of non-priority species was not recorded during the surveys. Therefore, it is assumed that all non-priority species are breeding at the Site.
- 2.9 There was some very light rain during the fifth survey in June. However, this does not appear to have had a significant effect on the level of bird activity compared to the rest of the surveys.

### *Evaluation*

- 2.10 The importance of the breeding bird assemblage at the Site was assessed using the criteria suggested by Fuller (1980) (see Table 2 below).

**Table 2.** Assessment criteria for breeding bird assemblage at a Site

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

### 3.0 Results

#### Breeding Birds

- 3.1 The weather conditions during the breeding bird surveys are summarised in Table 3 below.

**Table 3.** Weather conditions for breeding bird surveys

| Date     | Start time | End time | Temp (°C) |     | Cloud (Oktas) |     | Wind (Beaufort scale) |     | Precipitation   |
|----------|------------|----------|-----------|-----|---------------|-----|-----------------------|-----|-----------------|
|          |            |          | Start     | End | Start         | End | Start                 | End |                 |
| 21/03/25 | 06:05      | 07:55    | 8         | 12  | 4             | 5   | 1                     | 1   | None            |
| 10/04/25 | 06:00      | 07:40    | 3         | 5   | 8             | 8   | 1                     | 1   | None            |
| 30/04/25 | 19:05      | 20:55    | 21        | 17  | 0             | 0   | 2                     | 2   | None            |
| 21/05/25 | 05:10      | 07:00    | 10        | 11  | 6             | 6   | 2                     | 2   | None            |
| 06/06/25 | 04:50      | 06:40    | 10        | 11  | 7             | 7   | 3                     | 3   | Very light rain |
| 02/07/25 | 04:55      | 06:45    | 17        | 17  | 8             | 8   | 2                     | 2   | None            |

- 3.2 A total of 41 species were recorded on or adjacent to the survey area during the surveys. This includes pheasant *Phasianus colchicus* and red-legged partridge *Alectoris rufa* which are non-native species. The full results of the breeding bird survey are presented at the end of this report in Table 5. The Breeding Bird Survey Plan (CSA/7345/111) shows a consolidated map from the six survey visits undertaken in 2025, highlighting suspected territories for priority species and other notable sightings.
- 3.3 Of the 39 native species, 28 were recorded to have a breeding status of either 'confirmed', 'probable' or 'possible' and are thus considered as breeding species within or adjacent to the Site. This includes all non-priority species assumed to be breeding. The remaining 11 species were either recorded flying over the Site only, or there is no suitable breeding habitat to support these species on Site.
- 3.4 A total of 21 priority species were recorded as summarised in Table 4 below.

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

| Species                  | BoCC 2021 Red/Amber | Section 41 | Sch1 | Herts LBAP | Breeding Status |
|--------------------------|---------------------|------------|------|------------|-----------------|
| Common gull              | Red                 |            |      |            | Non-breeding    |
| Cuckoo                   | Red                 | •          |      |            | Possible        |
| Duncock                  | Amber               | •          |      |            | Probable        |
| Greenfinch               | Red                 |            |      |            | Probable        |
| Grey partridge           | Red                 |            |      | •          | Possible        |
| House sparrow            | Red                 | •          |      |            | Possible        |
| Kestrel                  | Amber               |            |      |            | Non-breeding    |
| Lesser black-backed gull | Amber               |            |      |            | Non-breeding    |
| Linnet                   | Red                 | •          |      | •          | Possible        |
| Mallard                  | Amber               |            |      |            | Non-breeding    |

|              |       |   |   |   |                     |
|--------------|-------|---|---|---|---------------------|
| Meadow pipit | Amber |   |   |   | Possible            |
| Red kite     | -     |   | • |   | Non-breeding        |
| Rook         | Amber |   |   |   | Possible            |
| Skylark      | Red   |   |   | • | Probable (off-site) |
| Song thrush  | Amber | • |   | • | Probable            |
| Starling     | Red   | • |   |   | Possible            |
| Stock dove   | Amber |   |   |   | Non-breeding        |
| Swift        | Red   |   |   |   | Non-breeding        |
| Whitethroat  | Amber |   |   |   | Probable            |
| Woodpigeon   | Amber |   |   |   | Probable            |
| Wren         | Amber |   |   |   | Probable            |

Abbreviations:

BOCC Red List: Red List of Birds of Conservation Concern 5

Section 41: Listed as a priority species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006

Sch1: Schedule 1 (Part 1) of the Wildlife and Countryside Act 1981

Herts LBAP: Hertfordshire Local Biodiversity Action Plan (revised 2006)

- 3.5 The majority of species recorded at the Site include woodland and urban fringe species associated with the hedgerows. Farmland birds recorded at the Site include grey partridge and linnet in small numbers and associated with the main field and hedgerow H6.
- 3.6 Species of conservation importance that are considered possibly or probably breeding within hedgerows bounding the Site include dunnock, greenfinch, house sparrow, linnet, song thrush, whitethroat, woodpigeon and wren.
- 3.7 At least five skylark territories were identified off-site within arable fields to the east and south. One skylark was recorded flying over the Site during the fourth survey visit on 21 May 2025. Given that only one individual was seen in flight on one occasion, it is unlikely that skylark are breeding within the Site.
- 3.8 Grey partridge were recorded within the Site during the second and third survey visits. No breeding behaviour was observed but the Site does provide some suitable habitat for breeding, namely H6 where there is suitable cover.
- 3.9 A large flock of starling (50+) was recorded in the field on-site during the third visit on 30 April 2025 but this flock was not considered breeding.
- 3.10 The majority of bird activity recorded during the surveys, excluding flyovers, is associated with H1, H2 and H6, as well as off-site. There is limited use of the main field within the Site.

#### *Evaluation*

- 3.11 The value of the Site for its breeding bird assemblage is estimated to be of Local importance. No species were recorded in significant numbers during the survey to warrant individual evaluation.

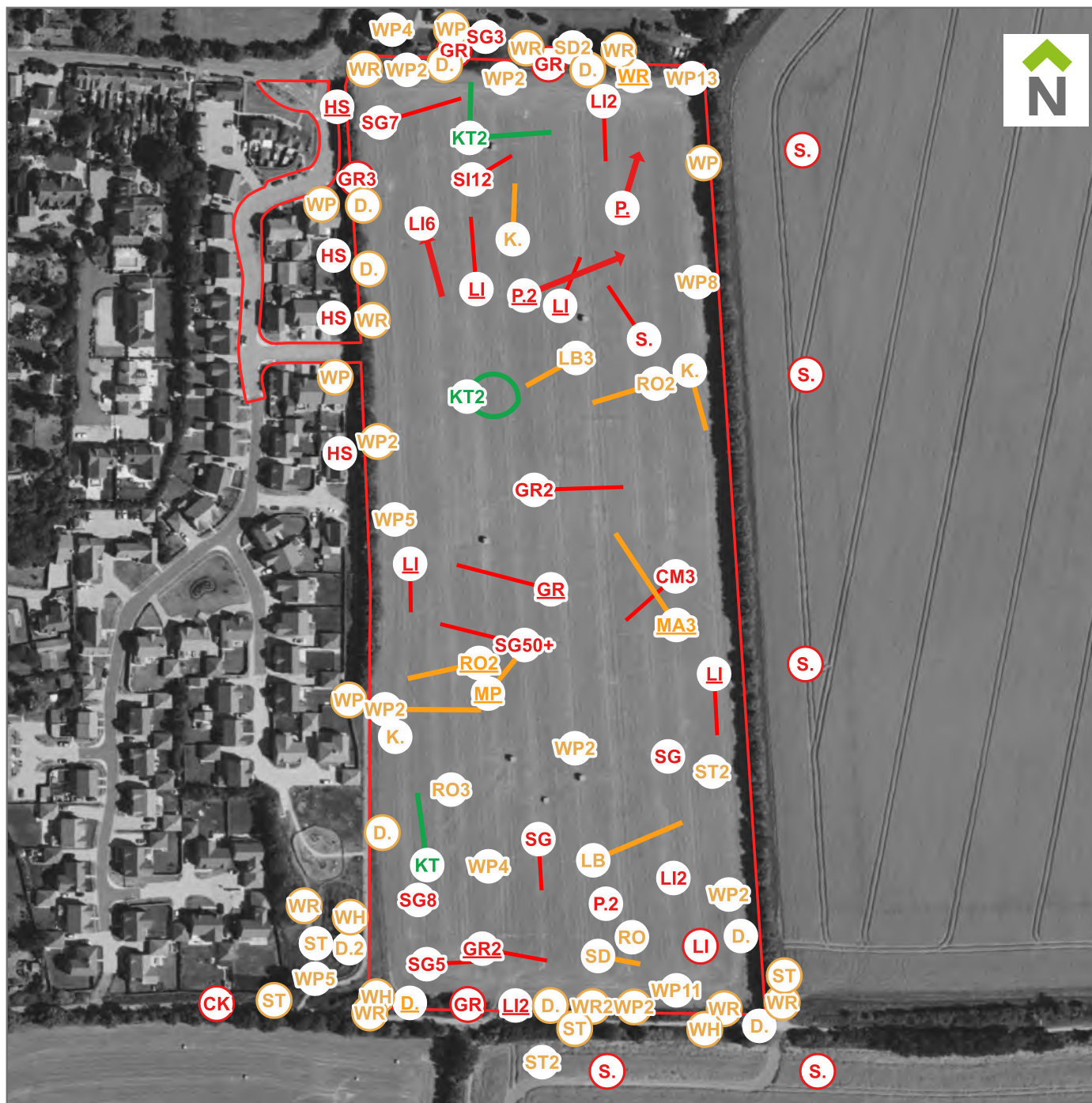
## **4.0 Summary**

- 4.1 A total of 39 native bird species were recorded within the Site and its surroundings during the six breeding bird surveys. Of these, 21 species were considered to be of nature conservation importance. The breeding bird assemblage at the Site is assessed to be of Local importance, in line with Fuller (1980).

**Table 5.** 2025 Breeding Bird Survey Results

| Species                                         | Status            | Breeding category | Comments               |
|-------------------------------------------------|-------------------|-------------------|------------------------|
| Blackbird<br><i>Turdus merula</i>               | BoCC Green        | Assumed breeding  |                        |
| Blackcap<br><i>Sylvia atricapilla</i>           | BoCC Green        | Assumed breeding  |                        |
| Blue tit<br><i>Cyanistes caeruleus</i>          | BoCC Green        | Assumed breeding  |                        |
| Buzzard<br><i>Buteo buteo</i>                   | BoCC Green        | Non-breeding      |                        |
| Carion crow<br><i>Corvus corone</i>             | BoCC Green        | Assumed breeding  |                        |
| Chaffinch<br><i>Fringilla coelebs</i>           | BoCC Green        | Assumed breeding  |                        |
| Chiffchaff<br><i>Phylloscopus collybita</i>     | BoCC Green        | Assumed breeding  |                        |
| Collared dove<br><i>Streptopelia decaocto</i>   | BoCC Green        | Assumed breeding  |                        |
| Common gull<br><i>Larus canus</i>               | BoCC Red          | Non-breeding      | Flying over            |
| Cuckoo<br><i>Cuculus canorus</i>                | BoCC Red<br>S41   | Possible          | Heard singing off-site |
| Dunnock<br><i>Prunella modularis</i>            | BoCC Amber<br>S41 | Probable          |                        |
| Goldfinch<br><i>Carduelis carduelis</i>         | BoCC Green        | Assumed breeding  |                        |
| Great tit<br><i>Parus major</i>                 | BoCC Green        | Assumed breeding  |                        |
| Greenfinch<br><i>Chloris chloris</i>            | BoCC Red          | Probable          |                        |
| Green woodpecker<br><i>Picus viridis</i>        | BoCC Green        | Assumed breeding  |                        |
| Grey heron                                      | BoCC Green        | Non-breeding      |                        |
| Grey partridge<br><i>Perdix perdix</i>          | BoCC Red          | Possible          | High count of three    |
| House sparrow<br><i>Passer domesticus</i>       | BoCC Red<br>S41   | Possible          |                        |
| Jackdaw<br><i>Coloeus monedula</i>              | BoCC Green        | Assumed breeding  |                        |
| Kestrel<br><i>Falco tinnunculus</i>             | BoCC Amber        | Non-breeding      |                        |
| Lesser black-backed gull<br><i>Larus fuscus</i> | BoCC Amber        | Non-breeding      | Flying over            |
| Lesser whitethroat<br><i>Sylvia curruca</i>     | BoCC Green        | Assumed breeding  |                        |
| Linnet<br><i>Linaria cannabina</i>              | BoCC Red<br>S41   | Possible          | High count of 12       |
| Long-tailed tit<br><i>Aegithalos caudatus</i>   | BoCC Green        | Assumed breeding  |                        |
| Mallard<br><i>Anas platyrhynchos</i>            | BoCC Amber        | Non-breeding      | No suitable habitat    |
| Magpie<br><i>Pica pica</i>                      | BoCC Green        | Assumed breeding  |                        |
| Meadow pipit<br><i>Anthus pratensis</i>         | BoCC Amber        | Possible          |                        |

|                                               |                    |                     |                                     |
|-----------------------------------------------|--------------------|---------------------|-------------------------------------|
| Pheasant<br><i>Phasianus colchicus</i>        | N/A                | N/A                 |                                     |
| Red-legged partridge<br><i>Alectoris rufa</i> | N/A                | N/A                 |                                     |
| Red kite<br><i>Milvus milvus</i>              | BoCC Green<br>Sch1 | Non-breeding        | Flying over                         |
| Robin<br><i>Erithacus rubecula</i>            | BoCC Green         | Assumed breeding    |                                     |
| Rook<br><i>Corvus frugilegus</i>              | BoCC Amber         | Possible            |                                     |
| Skylark<br><i>Alauda arvensis</i>             | BoCC Red<br>S41    | Probable (off-site) | High count of five<br>(one on-site) |
| Song thrush<br><i>Turdus philomelos</i>       | BoCC Amber<br>S41  | Probable            |                                     |
| Starling<br><i>Sturnus vulgaris</i>           | BoCC Red           | Possible            | High count of 52                    |
| Stock dove<br><i>Columba oenas</i>            | BoCC Amber         | Non-breeding        | Flying over                         |
| Swift<br><i>Apus apus</i>                     | BoCC Red           | Non-breeding        | No suitable habitat                 |
| Whitethroat<br><i>Curruca communis</i>        | BoCC Amber         | Probable            | High count of two                   |
| Woodpigeon<br><i>Columba palumbus</i>         | BoCC Amber         | Probable            |                                     |
| Wren<br><i>Troglodytes troglodytes</i>        | BoCC Amber         | Probable            |                                     |



Site boundary

Birds - territories/singing

Birds - calling

Birds - individual sightings

Birds - flight line

Birds - disturbed from habitat

#### Species List

##### Red-list species

CK - Cuckoo  
CM - Common gull  
GR - Greenfinch  
HS - House sparrow  
LI - Linnet  
P. - Grey partridge  
S. - Skylark  
SI - Swift  
SG - Starling

##### Other notable species

KT - Red kite\*\*

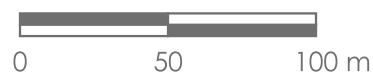
\*\*Schedule 1 species

##### Amber-list species

D. - Dunnock  
K. - Kestrel  
LB - Lesser black-backed gull  
MA - Mallard  
MP - Meadow pipit  
RO - Rook  
ST - Song thrush  
SD - Stock dove  
WH - Whitethroat  
WP - Wood pigeon  
WR - Wren

Only species included in Birds of Conservation Concern 5 (Stanbury et al, 2021), Section 41 of the NERC Act (2006) or Schedule 1 of the Wildlife and Countryside Act (1981) are considered 'notable' and included on this plan.

Locations are indicative. Circles denoting territory/colony do not show extent of territory only approximate location. Territories are presumed based on breeding evidence or multiple registrations of a species across visits.



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## **Appendix K**

### Reptiles

## **1.0 Legislation**

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

## **2.0 Methods**

- 2.1 A total of 40 reptile refugia, comprising rectangles of roofing felt measuring 1.0 x 0.5m, were installed in areas of suitable habitat present at the Site on 25 March 2025 by Laura Farrar ACIEEM and Francesca Smith. The location of these refugia is shown on the Reptile Survey Plan (CSA/7345/110).
- 2.2 It should be noted that although the Site is c. 6.65ha, suitable reptile habitat, comprising field margins, accounts for c. 0.16ha within the Site. Within this area 40 artificial refugia were used to provide a survey refugia density of 250 refugia per ha.
- 2.3 Following an initial 2-week 'bedding-in' period for refugia, surveys were carried out on seven occasions between 08 April and 21 May 2025 during favourable weather conditions (e.g. intermittent or hazy sunshine, not too windy, sunny spells following wet or cloudy weather. The surveys were led by Laura Farrar ACIEEM, Rosie Billington, Rhodri Gruffydd, Revae Tilbury, Daniel Willits and Francesca Smith. Each survey visit comprised a slow walk of the Site to visually and physically check refugia for the presence of reptiles. On each occasion a visual search was also carried out within areas of suitable habitat whilst walking between refugia locations.
- 2.4 The primary aim of the reptile survey was to establish the presence or likely absence of widespread reptile species within the survey area, rather than to estimate abundance or population size. To this end, seven survey checks, an effort generally considered 'reasonable effort' in establishing the presence or likely absence of reptiles at a Site, were carried out.

### *Limitations*

- 3.0 The reptile surveys were conducted at an optimum time of year and in good conditions.
- 3.1 A small number of mats had been moved during some surveys. However, the density of refugia per ha of suitable habitat is high and, therefore, not considered to affect the findings of the survey.

## **4.0 Results**

- 4.1 No reptiles were recorded during the seven surveys. Full weather conditions and survey results are provided in Table 1 below.

Table 1. Reptile survey results

| Job Name & No.                      | 7345 Land East of Pilton   |          |                      |                            |                             |                              |                    | Beaufort Scale: 0. Calm. Vertical smoke. 1. Light air. Smoke drifts. 2. Light breeze. Leaves rustle. 3. Gentle breeze. Small twigs constantly move. 4. Moderate breeze. Small branches begin to move. 5. Fresh breeze. Small trees in leaf begin to sway. |                          |                       |                |         |                                       |        |                       |                |         |                                     |        |                       |                |         | Other Notes                                                                                    |
|-------------------------------------|----------------------------|----------|----------------------|----------------------------|-----------------------------|------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------|----------------|---------|---------------------------------------|--------|-----------------------|----------------|---------|-------------------------------------|--------|-----------------------|----------------|---------|------------------------------------------------------------------------------------------------|
| Set-up Surveyor/<br>Project Manager | Set-up: LF & FS<br>PM: RG  |          |                      |                            |                             |                              |                    | Precipitation: [Type] No Rain / Light / Moderate / Heavy [Duration] Intermittent / Continuous                                                                                                                                                             |                          |                       |                |         |                                       |        |                       |                |         |                                     |        |                       |                |         |                                                                                                |
| Set-Up Date                         | 25/03/2025                 |          |                      | Total Number of Refugia    |                             |                              | 40                 |                                                                                                                                                                                                                                                           |                          |                       |                |         |                                       |        |                       |                |         |                                     |        |                       |                |         |                                                                                                |
| Date                                | Start/End Times            | Surveyor | Weather              |                            |                             |                              | Area/<br>Field No. | Slow worm <i>Anguis fragilis</i>                                                                                                                                                                                                                          |                          |                       |                |         | Common lizard <i>Zootoca vivipara</i> |        |                       |                |         | Grass snake <i>Natrix helvetica</i> |        |                       |                |         |                                                                                                |
|                                     |                            |          | Temp (°C)            | Cloud Cover<br>(Okta; n/8) | Wind<br>(Beaufort<br>Scale) | Rain<br>(Type &<br>Duration) |                    | Adult Male<br>(>230mm)                                                                                                                                                                                                                                    | Adult Female<br>(>230mm) | Unidentified<br>Adult | Sub-<br>adult  | Newborn | Male                                  | Female | Unidentified<br>Adult | Sub-<br>adult  | Newborn | Male                                | Female | Unidentified<br>Adult | Sub-<br>adult  | Newborn |                                                                                                |
| Survey 1                            |                            |          |                      |                            |                             |                              |                    |                                                                                                                                                                                                                                                           |                          |                       |                |         |                                       |        |                       |                |         |                                     |        |                       |                |         |                                                                                                |
| 08/04/2025                          | Start: 15:38<br>End: 16:38 | LF + FS  | Start: 14<br>End: 14 | Start: 6<br>End: 5         | Start: 3<br>End: 2          | None                         | N/A                | 0                                                                                                                                                                                                                                                         | 0                        | 0                     | 0              | 0       | 0                                     | 0      | 0                     | 0              | 0       | 0                                   | 0      | 0                     | 0              | 0       | No reptiles found. 1 mat folded with the note removed on the W boundary. 1 further mat folded. |
| Survey 2                            |                            |          |                      |                            |                             |                              |                    |                                                                                                                                                                                                                                                           |                          |                       |                |         |                                       |        |                       |                |         |                                     |        |                       |                |         |                                                                                                |
| 14/04/2025                          | Start: 14:00<br>End: 14:28 | RB + FS  | 14                   | 7                          | 4                           | None                         | N/A                | 0                                                                                                                                                                                                                                                         | 0                        | 0                     | 0              | 0       | 0                                     | 0      | 0                     | 0              | 0       | 0                                   | 0      | 0                     | 0              | 0       | No reptiles found. 1 mat moved in the SW corner to next mat along the southern boundary.       |
| Survey 3                            |                            |          |                      |                            |                             |                              |                    |                                                                                                                                                                                                                                                           |                          |                       |                |         |                                       |        |                       |                |         |                                     |        |                       |                |         |                                                                                                |
| 25/04/2025                          | Start: 9:45<br>End: 11:00  | RG       | Start: 11<br>End: 13 | 6                          | 1                           | None                         | N/A                | 0                                                                                                                                                                                                                                                         | 0                        | 0                     | 0              | 0       | 0                                     | 0      | 0                     | 0              | 0       | 0                                   | 0      | 0                     | 0              | 0       | No reptiles found.                                                                             |
| Survey 4                            |                            |          |                      |                            |                             |                              |                    |                                                                                                                                                                                                                                                           |                          |                       |                |         |                                       |        |                       |                |         |                                     |        |                       |                |         |                                                                                                |
| 30/04/2025                          | Start: 10:22<br>End: 10:31 | FS + LF  | Start: 17<br>End: 18 | 0                          | 1                           | None                         | N/A                | 0                                                                                                                                                                                                                                                         | 0                        | 0                     | 0              | 0       | 0                                     | 0      | 0                     | 0              | 0       | 0                                   | 0      | 0                     | 0              | 0       | No reptiles found.                                                                             |
| Survey 5                            |                            |          |                      |                            |                             |                              |                    |                                                                                                                                                                                                                                                           |                          |                       |                |         |                                       |        |                       |                |         |                                     |        |                       |                |         |                                                                                                |
| 08/05/2025                          | Start: 13:35<br>End: 14:15 | FS       | 15                   | 8                          | Start: 4<br>End: 3          | None                         | N/A                | 0                                                                                                                                                                                                                                                         | 0                        | 0                     | 0              | 0       | 0                                     | 0      | 0                     | 0              | 0       | 0                                   | 0      | 0                     | 0              | 0       | No reptiles found.                                                                             |
| Survey 6                            |                            |          |                      |                            |                             |                              |                    |                                                                                                                                                                                                                                                           |                          |                       |                |         |                                       |        |                       |                |         |                                     |        |                       |                |         |                                                                                                |
| 13/05/2025                          | Start: 09:50<br>End: 10:20 | DJW      | 17                   | 0                          | 3                           | None                         | N/A                | 0                                                                                                                                                                                                                                                         | 0                        | 0                     | 0              | 0       | 0                                     | 0      | 0                     | 0              | 0       | 0                                   | 0      | 0                     | 0              | 0       | No reptiles found.                                                                             |
| Survey 7                            |                            |          |                      |                            |                             |                              |                    |                                                                                                                                                                                                                                                           |                          |                       |                |         |                                       |        |                       |                |         |                                     |        |                       |                |         |                                                                                                |
| 21/05/2025                          | Start: 19:15<br>End: 19:50 | RT       | Start: 15<br>End: 13 | 0                          | Start: 3<br>End: 2          | None                         | N/A                | 0                                                                                                                                                                                                                                                         | 0                        | 0                     | 0              | 0       | 0                                     | 0      | 0                     | 0              | 0       | 0                                   | 0      | 0                     | 0              | 0       | No reptiles found                                                                              |
|                                     |                            |          |                      |                            |                             |                              |                    | Total Adult                                                                                                                                                                                                                                               |                          |                       | Total Juvenile |         | Total Adult                           |        |                       | Total Juvenile |         | Total Adult                         |        |                       | Total Juvenile |         |                                                                                                |
|                                     |                            |          |                      |                            |                             |                              |                    | 0                                                                                                                                                                                                                                                         |                          |                       | 0              |         | 0                                     |        |                       | 0              |         | 0                                   |        |                       | 0              |         |                                                                                                |



- Site boundary
- Reptile Mat Locations (and number of mats)



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|               |                          |       |                |             |              |
|---------------|--------------------------|-------|----------------|-------------|--------------|
| Project       | Land East of Pirton      | Date  | April 2025     | Drawing No. | CSA/7345/110 |
| Drawing Title | Reptile Survey Plan      | Scale | Refer to scale | Rev         | -            |
| Client        | Gladman Developments Ltd | Drawn | RG             | Checked     | MJB          |

## **Appendix L**

Great Crested Newts

## 1.0 Legislation

- 1.1 Great crested newts *Triturus cristatus* are legally protected as European Protected Species (EPS) under Regulation 43 of the Conservation of Habitats and Species Regulations 2017. These Regulations make it an offence to:
- Deliberately capture, injure or kill a great crested newt
  - Deliberately disturb great crested newts, impairing their ability to survive, breed, reproduce or rear/nurture their young
  - Damage or destroy a breeding site or resting place used by a great crested newt
- 1.2 Great crested newts are also fully protected under the Wildlife & Countryside Act 1981 (as amended), making it an offence to:
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place of shelter or protection
  - Intentionally or recklessly obstruct access to any structure or place of shelter or protection
- 1.3 Disturbance of great crested newts is covered by both the 2017 Regulations and the 1981 Act. Disturbance that impairs survival or successful reproduction would be covered by the Regulations, while less significant acts of disturbance may only be covered by the Act.
- 1.4 It is important to note that great crested newts and their habitats (such as breeding ponds) are protected throughout the year, regardless of whether or not newts are present at the time.
- 1.5 Great crested newts are also listed as a species of principal importance for the conservation of biodiversity in England, under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006. The S41 species list is used to guide decision-makers, including planning authorities, in implementing their duty under Section 40 of the NERC Act to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

### Licensing

- 1.6 Where development is proposed that would result in an offence under the Habitats and Species Regulations, a statutory derogation licence may be granted by Natural England to permit an act that would otherwise be unlawful. To obtain an EPS licence for development, it must be demonstrated that the purpose of the act to be licensed is for:
- “preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic nature and beneficial consequences of primary importance for the environment” (Regulation 55(2)(e))

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

- "There is no satisfactory alternative" (Regulation 55(9)(a))
- "The action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range" (Regulation 55(9)(b))

## **2.0 Methods**

### Desk Study

2.1 In accordance with Natural England's Great Crested Newt Mitigation Guidelines (2001), a desktop search was undertaken in November 2024 to identify ponds within 500m of the Site which may have potential to support breeding great crested newts, using Ordnance Survey (OS) mapping, the MAGIC database and aerial photography. 500m is the generally accepted typical maximum dispersal range of this species, with great crested newt most likely to use terrestrial habitat within 250m of breeding ponds.

### Habitat Suitability Index (HSI) Assessment

2.2 Where ponds and ditches were situated within a 500m radius and connected to the Site by traversable terrestrial habitats, access permission was requested to undertake a Habitat Suitability Index (HSI) assessment, using the standard approach set out by Oldham *et al.* (2000). These assessments were undertaken on 25 March 2025 by Laura Farrar ACIEEM (Natural England Class Licence WML-CL08 – Registration Number 2019-41162-CLS-CLS) and Francesca Smith.

### Environmental DNA (eDNA) Sampling

2.3 Environmental DNA (eDNA) sampling was used to determine the presence/likely absence of great crested newts from ponds P2-P6. This method has been shown to be highly effective in detecting the presence of great crested newts (Biggs *et al.*, 2014).

2.4 Water samples were collected from P2-P6 on 30 April 2025 by Laura Farrar ACIEEM (Natural England Class Licence WML-CL08 – Registration Number 2019-41162-CLS-CLS) following the recommended procedure. Appropriate biosecurity measures were taken to avoid cross contamination of great crested newt eDNA. Subsequently, the samples were sent to ADAS for DNA analysis.

### Limitations

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

### **3.0 Results**

#### Desk Study

- 3.1 The desktop search for ponds and subsequent site visits identified 14 waterbodies (six ponds and eight ditches) occurring within 500m of the Site. These ponds are identified on the Pond Plan (CSA/7345/107). Ponds P1-P6 are connected to the Site via a network of ditches. Therefore, these ponds, along with the ditches between the ponds and the Site were taken forward for HSI assessment. Ditches 4 and 6-8 are not well connected to the Site and are scoped out of further assessment.

#### Habitat Suitability Index (HSI) Assessment

- 3.2 An HSI assessment was undertaken on P1-P6. Two further ephemeral ponds (P7 and P8) were found during the survey and included in the assessment.
- 3.3 All ponds scored 'poor' or 'below average' in their suitability for great crested newt, with the exception of P6 which scored 'average' and P4 which scored 'excellent'.
- 3.4 Pond P1 was dry during the survey and scored 'poor' and all ditches scored 'below average' or lower and not considered suitable habitat for breeding great crested newt. Therefore, these were scoped out of further assessment.
- 3.5 Ponds P7 and P8 were originally intended to be taken forwards for eDNA sampling but were then found to be dry at the time of sampling and thus unsuitable for breeding great crested newt and not able to be surveyed.
- 3.6 Full results of the HSI assessment are included in Tables 1a and 1b below.

#### Environmental DNA (eDNA) Sampling

- 3.7 Environmental DNA sampling was undertaken of ponds P2-P6. The eDNA found a positive result for great crested newt in P3-P6, indicating the presence of great crested newt in these ponds. P2 returned a negative result, indicating great crested newt are likely absent.
- 3.8 All water sample volumes passed the condition test, with samples either good or containing low sediment. P4 contained a high amount of algae which can make eDNA extraction more difficult. However, this sample returned a positive result and therefore this is not considered a limitation.
- 3.9 Full results of the eDNA sampling are included at the end of this appendix.

### **4.0 Summary**

- 4.1 The desk study identified 14 waterbodies within 500m of the Site. An HSI assessment was undertaken on 10 of these waterbodies and two further

ponds. P6 scored 'average' and P4 scored 'excellent', with all other waterbodies scoring 'poor' or 'below average'.

- 4.2 Environmental DNA sampling was undertaken on P2-P6. The results found great crested newt to be present in four ponds (P3-P6).
- 4.3 Given the above results, mitigation for great crested newt will be required.

**Table 1a.** Habitat Suitability Index assessment results

| Habitat Suitability Factors:                                            |          | Pond Number and Grid Reference |                |                |                |                |                |
|-------------------------------------------------------------------------|----------|--------------------------------|----------------|----------------|----------------|----------------|----------------|
|                                                                         |          | P1                             | P2             | P3             | P4             | P5             | P6             |
|                                                                         |          | TL 15180 31724                 | TL 15043 31708 | TL 14841 31732 | TL 14853 31554 | TL 14760 31562 | TL 14687 31579 |
| Map location                                                            | Category | Zone A                         | Zone A         | Zone A         | Zone A         | Zone A         | Zone A         |
|                                                                         | SI Value | 1                              | 1              | 1              | 1              | 1              | 1              |
| Pond area in m <sup>2</sup>                                             | Category | 275m2                          | <50m2          | 1000m2         | 1000m2         | <50m2          | 1800m2         |
|                                                                         | SI Value | 0.55                           | 0.05           | 0.955          | 0.955          | 0.05           | 0.835          |
| Permanence / Desiccation                                                | Category | Dries Annually                 | Never Dries    | Never Dries    | Never Dries    | Rarely Dries   | Never Dries    |
|                                                                         | SI Value | 0.1                            | 0.9            | 0.9            | 0.9            | 1              | 0.9            |
| Water quality                                                           | Category | Poor                           | Moderate       | Good           | Moderate       | Poor           | Moderate       |
|                                                                         | SI Value | 0.33                           | 0.67           | 1              | 0.67           | 0.33           | 0.67           |
| Percentage perimeter shade to at least 1m from shore                    | Category | 96-100%                        | 0-60%          | 66-70%         | 0-60%          | 71-75%         | 96-100%        |
|                                                                         | SI Value | 0.2                            | 1              | 0.8            | 1              | 0.7            | 0.2            |
| Waterfowl impact (excluding moorhen)                                    | Category | Major                          | Minor          | Major          | Absent         | Minor          | Minor          |
|                                                                         | SI Value | 0.01                           | 0.67           | 0.01           | 1              | 0.67           | 0.67           |
| Fish presence                                                           | Category | Absent                         | Major          | Possible       | Absent         | Minor          | Possible       |
|                                                                         | SI Value | 1                              | 0.01           | 0.67           | 1              | 0.33           | 0.67           |
| Number of ponds within 1km not separated by barriers                    | Category | 7                              | 7              | 7              | 7              | 7              | 7              |
|                                                                         | SI Value | 0.85                           | 0.85           | 0.85           | 0.85           | 0.85           | 0.85           |
| Terrestrial habitat                                                     | Category | Moderate                       | Moderate       | Moderate       | Good           | Moderate       | Good           |
|                                                                         | SI Value | 0.67                           | 0.67           | 0.67           | 1              | 0.67           | 1              |
| Percentage of pond surface occupied by aquatic vegetation (March – May) | Category | 96-100%                        | 16-20%         | 31-35%         | 1-5%           | 16-20%         | 1-5%           |
|                                                                         | SI Value | 0.8                            | 0.5            | 0.65           | 0.35           | 0.5            | 0.35           |
| Product                                                                 |          | 1.65383E-05                    | 5.75209E-05    | 0.001705367    | 0.171319838    | 0.000727167    | 0.013448392    |
| HSI Score                                                               |          | 0.332543937                    | 0.376688694    | 0.528666481    | 0.838263903    | 0.485471172    | 0.649930676    |
| HSI Suitability                                                         |          | Poor                           | Poor           | Below Average  | Excellent      | Poor           | Average        |

Disclaimer: The HSI Calculator is a tool to provide a general assessment of great crested newt *Triturus cristatus* habitat suitability in accordance with Oldham et al., 2000 and Brady, 2010. It is the responsibility of the user to check the accuracy of the outputs. The copyright holder accepts no responsibility for repercussions (financial and/or legal) resulting from inaccurate or incorrect outputs.

**Table 1b.** Habitat Suitability Index assessment results

| Habitat Suitability Factors:                                                   |          |                      |                |                |                |                      |                 |
|--------------------------------------------------------------------------------|----------|----------------------|----------------|----------------|----------------|----------------------|-----------------|
|                                                                                |          | P7                   | P8             | Ditch 1        | Ditch 2        | Ditch 3              | Ditch 5         |
|                                                                                |          | TL 14850 31650       | TL 14817 31620 | TL 15490 31687 | TL 15199 31510 | TL 15001 31467       | TL 15818 31641  |
| <b>Map location</b>                                                            | Category | Zone A               | Zone A         | Zone A         | Zone A         | Zone A               | Zone A          |
|                                                                                | SI Value | 1                    | 1              | 1              | 1              | 1                    | 1               |
| <b>Pond area in m<sup>2</sup></b>                                              | Category | 225m2                | 175m2          | 800m2          | 350m2          | 500-700m2            | 175m2           |
|                                                                                | SI Value | 0.45                 | 0.35           | 0.985          | 0.7            | 1                    | 0.35            |
| <b>Permanence / Desiccation</b>                                                | Category | Dries Annually       | Dries Annually | Dries Annually | Dries Annually | Sometimes Dries      | Sometimes Dries |
|                                                                                | SI Value | 0.1                  | 0.1            | 0.1            | 0.1            | 0.5                  | 0.5             |
| <b>Water quality</b>                                                           | Category | Poor                 | Poor           | Bad            | Bad            | Poor                 | Moderate        |
|                                                                                | SI Value | 0.33                 | 0.33           | 0.01           | 0.01           | 0.33                 | 0.67            |
| <b>Percentage perimeter shade to at least 1m from shore</b>                    | Category | 86-90%               | 0-60%          | 96-100%        | 96-100%        | 96-100%              | 96-100%         |
|                                                                                | SI Value | 0.4                  | 1              | 0.2            | 0.2            | 0.2                  | 0.2             |
| <b>Waterfowl impact (excluding moorhen)</b>                                    | Category | Minor                | Minor          | Absent         | Absent         | Absent               | Absent          |
|                                                                                | SI Value | 0.67                 | 0.67           | 1              | 1              | 1                    | 1               |
| <b>Fish presence</b>                                                           | Category | Absent               | Absent         | Absent         | Absent         | Absent               | Absent          |
|                                                                                | SI Value | 1                    | 1              | 1              | 1              | 1                    | 1               |
| <b>Number of ponds within 1km not separated by barriers</b>                    | Category | 7                    | 7              | 7              | 7              | 7                    | 6               |
|                                                                                | SI Value | 0.85                 | 0.85           | 0.85           | 0.85           | 0.85                 | 0.84            |
| <b>Terrestrial habitat</b>                                                     | Category | Good                 | Good           | Poor           | Poor           | Moderate             | Poor            |
|                                                                                | SI Value | 1                    | 1              | 0.33           | 0.33           | 0.67                 | 0.33            |
| <b>Percentage of pond surface occupied by aquatic vegetation (March – May)</b> | Category | 36-40%               | <1%            | <1%            | <1%            | <1%                  | 1-5%            |
|                                                                                | SI Value | 0.7                  | 0.3            | 0.3            | 0.3            | 0.3                  | 0.35            |
| <b>Product</b>                                                                 |          | 0.002367981          | 0.001973318    | 1.65776E-05    | 0.000011781    | 0.00563805           | 0.002275119     |
| <b>HSI Score</b>                                                               |          | 0.546308328          | 0.001973318    | 0.332622815    | 0.321453542    | 0.595817003          | 0.002275119     |
| <b>HSI Suitability</b>                                                         |          | <b>Below Average</b> | <b>Poor</b>    | <b>Poor</b>    | <b>Poor</b>    | <b>Below Average</b> | <b>Poor</b>     |

*Disclaimer: The HSI Calculator is a tool to provide a general assessment of great crested newt Triturus cristatus habitat suitability in accordance with Oldham et al., 2000 and Brady, 2010. It is the responsibility of the user to check the accuracy of the outputs. The copyright holder accepts no responsibility for repercussions (financial and/or legal) resulting from inaccurate or incorrect outputs.*

Client:  
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1040079-MD-CSA, 7345, version 1



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Sample ID: ADAS-7287

Client Identifier: Pond2

Grid references/coordinates: TL1504331708

Description: pond water samples in preservative

Condition on Receipt: Low Sediment

Date of Receipt : 06/05/2025

Volume: Passed

| Determinant                                                           | Result             | Method            | Date of Analysis |
|-----------------------------------------------------------------------|--------------------|-------------------|------------------|
| Inhibition Control <sup>†</sup>                                       | 2 of 2             | Real Time PCR     | 13/05/2025       |
| Degradation Control <sup>§</sup>                                      | Within limits      | Real Time PCR     | 13/05/2025       |
| Great Crested Newt*                                                   | 0 of 12 (negative) | Real Time PCR     | 13/05/2025       |
| Negative PCR Control<br>(Nuclease Free Water)                         | 0 of 4             | Real Time PCR     | As above for GCN |
| Positive PCR Control (GCN<br>DNA 10 <sup>-4</sup> ng/μL) <sup>#</sup> | 4 of 4             | Real Time PCR     | As above for GCN |
| Report Prepared by:                                                   | Dr Helen Rees      | Report Issued by: | Dr Ben Maddison  |

Signed:

Signed:

Position:

Director: Biotechnology

Position:

MD: Biotechnology

Date of preparation:

15/05/2025

Date of issue:

15/05/2025

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

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

*<sup>†</sup> Recorded as the number of positive replicate reactions at expected C<sub>t</sub> value. If the expected C<sub>t</sub> value is not*

*<sup>§</sup> No degradation is expected within time frame of kit preparation, sample collection and analysis.*

*<sup>#</sup> Additional positive controls (10<sup>-1</sup>, 10<sup>-2</sup>, 10<sup>-3</sup> ng/μL) are also routinely run, results not shown here.*

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Sample ID: ADAS-7290

Client Identifier: P3

Grid references/coordinates: TL1484131732

Description: pond water samples in preservative

Condition on Receipt: Good

Date of Receipt : 06/05/2025

Volume: Passed

| Determinant                                                           | Result             | Method            | Date of Analysis |
|-----------------------------------------------------------------------|--------------------|-------------------|------------------|
| Inhibition Control <sup>†</sup>                                       | 2 of 2             | Real Time PCR     | 13/05/2025       |
| Degradation Control <sup>§</sup>                                      | Within limits      | Real Time PCR     | 13/05/2025       |
| Great Crested Newt*                                                   | 1 of 12 (positive) | Real Time PCR     | 13/05/2025       |
| Negative PCR Control<br>(Nuclease Free Water)                         | 0 of 4             | Real Time PCR     | As above for GCN |
| Positive PCR Control (GCN<br>DNA 10 <sup>-4</sup> ng/μL) <sup>#</sup> | 4 of 4             | Real Time PCR     | As above for GCN |
| Report Prepared by:                                                   | Dr Helen Rees      | Report Issued by: | Dr Ben Maddison  |

Signed:

Signed:

Position:

Director: Biotechnology

Position:

MD: Biotechnology

Date of preparation:

15/05/2025

Date of issue:

15/05/2025

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

*<sup>†</sup> Recorded as the number of positive replicate reactions at expected C<sub>t</sub> value. If the expected C<sub>t</sub> value is not*

*<sup>§</sup> No degradation is expected within time frame of kit preparation, sample collection and analysis.*

*<sup>#</sup> Additional positive controls (10<sup>-1</sup>, 10<sup>-2</sup>, 10<sup>-3</sup> ng/μL) are also routinely run, results not shown here.*

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Sample ID: ADAS-7286

Client Identifier: P4

Grid references/coordinates: TL1485331554

Description: pond water samples in preservative

Condition on Receipt: High Algae Present

Date of Receipt : 06/05/2025

Volume: Passed

| Determinant                                                           | Result             | Method            | Date of Analysis |
|-----------------------------------------------------------------------|--------------------|-------------------|------------------|
| Inhibition Control <sup>†</sup>                                       | 2 of 2             | Real Time PCR     | 14/05/2025       |
| Degradation Control <sup>§</sup>                                      | Within limits      | Real Time PCR     | 14/05/2025       |
| Great Crested Newt*                                                   | 1 of 12 (positive) | Real Time PCR     | 14/05/2025       |
| Negative PCR Control<br>(Nuclease Free Water)                         | 0 of 4             | Real Time PCR     | As above for GCN |
| Positive PCR Control (GCN<br>DNA 10 <sup>-4</sup> ng/μL) <sup>#</sup> | 4 of 4             | Real Time PCR     | As above for GCN |
| Report Prepared by:                                                   | Dr Helen Rees      | Report Issued by: | Dr Ben Maddison  |

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Director: Biotechnology

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Date of preparation:

15/05/2025

Date of issue:

15/05/2025

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*<sup>†</sup> Recorded as the number of positive replicate reactions at expected C<sub>t</sub> value. If the expected C<sub>t</sub> value is not*

*<sup>§</sup> No degradation is expected within time frame of kit preparation, sample collection and analysis.*

*<sup>#</sup> Additional positive controls (10<sup>-1</sup>, 10<sup>-2</sup>, 10<sup>-3</sup> ng/μL) are also routinely run, results not shown here.*

Client:  
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Sample ID: ADAS-7288

Client Identifier: P5

Grid references/coordinates: TL1476031562

Description: pond water samples in preservative

Condition on Receipt: Low Sediment

Date of Receipt : 06/05/2025

Volume: Passed

| Determinant                                                           | Result             | Method            | Date of Analysis |
|-----------------------------------------------------------------------|--------------------|-------------------|------------------|
| Inhibition Control <sup>†</sup>                                       | 2 of 2             | Real Time PCR     | 13/05/2025       |
| Degradation Control <sup>§</sup>                                      | Within limits      | Real Time PCR     | 13/05/2025       |
| Great Crested Newt*                                                   | 5 of 12 (positive) | Real Time PCR     | 13/05/2025       |
| Negative PCR Control<br>(Nuclease Free Water)                         | 0 of 4             | Real Time PCR     | As above for GCN |
| Positive PCR Control (GCN<br>DNA 10 <sup>-4</sup> ng/μL) <sup>#</sup> | 4 of 4             | Real Time PCR     | As above for GCN |
| Report Prepared by:                                                   | Dr Helen Rees      | Report Issued by: | Dr Ben Maddison  |

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Date of preparation:

15/05/2025

Date of issue:

15/05/2025

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

*<sup>†</sup> Recorded as the number of positive replicate reactions at expected C<sub>t</sub> value. If the expected C<sub>t</sub> value is not*

*<sup>§</sup> No degradation is expected within time frame of kit preparation, sample collection and analysis.*

*<sup>#</sup> Additional positive controls (10<sup>-1</sup>, 10<sup>-2</sup>, 10<sup>-3</sup> ng/μL) are also routinely run, results not shown here.*

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Sample ID: ADAS-7289

Client Identifier: P6

Grid references/coordinates: TL1468731579

Description: pond water samples in preservative

Condition on Receipt: Low Sediment

Date of Receipt : 06/05/2025

Volume: Passed

| Determinant                                                           | Result             | Method            | Date of Analysis |
|-----------------------------------------------------------------------|--------------------|-------------------|------------------|
| Inhibition Control <sup>†</sup>                                       | 2 of 2             | Real Time PCR     | 13/05/2025       |
| Degradation Control <sup>§</sup>                                      | Within limits      | Real Time PCR     | 13/05/2025       |
| Great Crested Newt*                                                   | 7 of 12 (positive) | Real Time PCR     | 13/05/2025       |
| Negative PCR Control<br>(Nuclease Free Water)                         | 0 of 4             | Real Time PCR     | As above for GCN |
| Positive PCR Control (GCN<br>DNA 10 <sup>-4</sup> ng/μL) <sup>#</sup> | 4 of 4             | Real Time PCR     | As above for GCN |
| Report Prepared by:                                                   | Dr Helen Rees      | Report Issued by: | Dr Ben Maddison  |

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Date of preparation:

15/05/2025

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*<sup>†</sup> Recorded as the number of positive replicate reactions at expected C<sub>t</sub> value. If the expected C<sub>t</sub> value is not*

*<sup>§</sup> No degradation is expected within time frame of kit preparation, sample collection and analysis.*

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## Appendix 1: Interpretation of results

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### Sample Condition

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

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

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

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

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

### What do my results mean?

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

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

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

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

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



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