Land to the east and west of Home Road, Gibraltar Corner

Preliminary Ecological Appraisal

Produced for Axis Land Partnerships Ltd

By Applied Ecology Ltd

August 2021

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1 Introduction

Background

1.1 In July 2021, Applied Ecology Ltd (AEL) was commissioned by Axis Land Partnerships Ltd to carry out a Preliminary Ecological Appraisal (PEA) of land to the east and west of Home Road, Gibraltar Corner, Bedfordshire ("the Site"). A plan showing the location of the Site is provided in **Figure 1.1**.

1.2 The study was required to determine the likely ecological constraints associated with a proposal for a residential development at the Site ("the Development"), and to establish the potential scope of further, more detailed ecological surveys which may be needed to support any future planning application(s).

1.3 The proposed Development Opportunities and Constraints plan is provided in **Appendix A**.

Purpose of this report

1.4 This report provides details relating to the surveys undertaken on the Site in August 2021. It includes a description of the Site's habitat features and protected species interest, and a summary of its biodiversity opportunities and constraints. Recommendations for further survey are also described, where these are considered relevant.

Legislation and Planning Policy

Legislation

1.5 The Wildlife and Countryside Act 1981 (as amended) provides the main legal framework for nature conservation and species protection in the UK. The Site of Special Scientific Interest (SSSI) is the main statutory nature conservation designation in the UK. Such sites are notable for their plants, or animals, or habitats, their geology or landforms, or a combination of these. Natural England is the key statutory agency in England for advising Government, and for acting as the Government's agent in the delivery of statutory nature conservation designations.

1.6 Designation of a SSSI is a legal process, by which sites are notified under the Wildlife and Countryside Act 1981. The 1981 Act makes provision for the protection of sites from the effects of changes in land management, and owners and occupiers receive formal notification specifying why the land is of special scientific interest, and listing any operations likely to damage the special interest.

1.7 The Countryside and Rights of Way Act 2000, and The Natural Environment and Rural Communities (NERC) Act 2006, provide supplementary protected species legislation. Specific protection for badgers *Meles meles* is provided by the Protection of Badgers Act 1992.

Habitats and Species of Principal Importance in England

1.8 The Natural Environment and Rural Communities (NERC) Act came into force on 1 October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act.

1.9 The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Habitats of Principal Importance

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

Species of Principal Importance

1.11 There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. In addition, the hen harrier *Circus cyaneus* has also been included on the list because without continued conservation action it is unlikely that the hen harrier population will increase from its current very low levels in England.

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

National Planning Policy Framework

1.13 The National Planning Policy Framework (NPPF) was published in March 2012 (and replaced previous planning policy guidance (PPS 9) on biodiversity. The NPPF was updated in July 2018, February 2019, and in July 2021, and states the following in relation to biodiversity and planning:

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

- *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; and*
- *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.*

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

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

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

Land to the east and west of Home Road, Gibraltar Corner

Site location

Site boundary

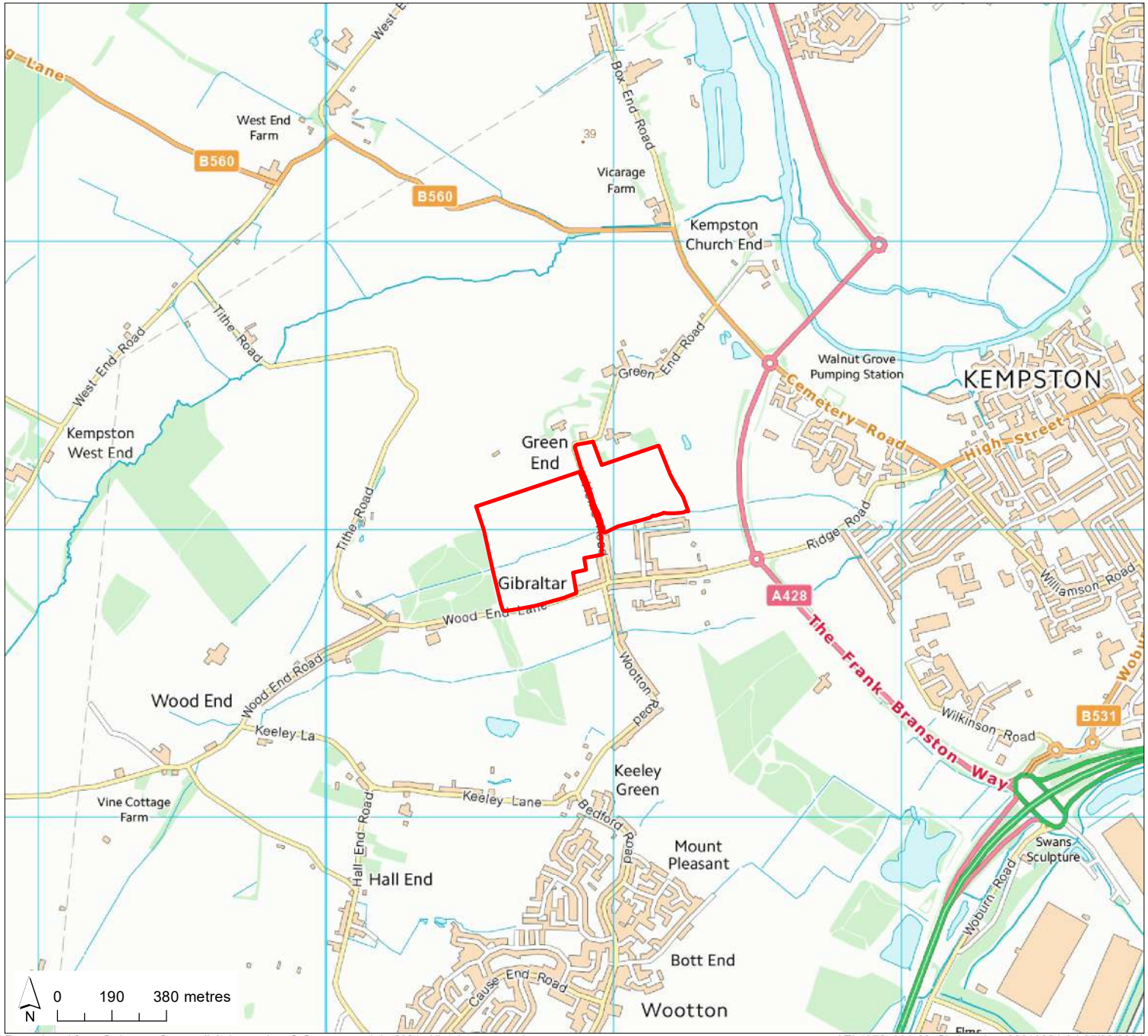

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Figure 1.1

Map Scale @ A4: 1:20,000

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

Applied Ecology Ltd

2 Methodology

Pre-existing Data Records

2.1 Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BLBRMC) was commissioned by AEL in August 2021 to complete a search of its database for existing biological records. This included a search for records of statutory and non-statutory wildlife sites, ancient woodland, and protected and notable species both on the Site and within 2 km of the Site's central point.

Habitats and Plants

2.2 An extended Phase 1 habitat survey was undertaken for the Site on 12 August 2021 by AEL ecologist Richard Dale MCIEEM[1] in dry and bright conditions. The methodology adopted followed the standard JNCC approach to Phase 1 habitat survey (JNCC, 1993[2]) by which all habitats present within the site were classified and mapped according to standard categories. Target notes were used to describe areas of both typical and unique botanical character. Habitat patches were mapped as polygon features, and if sufficient space on the map linear features (such as walls and fences) as lines where this provided added value. Point features were recorded where there were notable isolated trees or scrub. Plant species abundance was noted using the DAFOR[3] system.

2.3 The habitat map was subsequently digitised using a Geographical Information System (ArcGIS).

2.4 The survey was completed within the accepted season for completing Phase 1 habitat survey (which runs from late March until mid-October in southern England).

Fauna

2.5 The standard Phase 1 habitat survey was "extended" to include a search for evidence of or potential for the presence of protected species or species of nature conservation interest within and close to the Site. This was not a detailed survey for such species, but included noting the presence of habitats suitable to support specific protected species, and where seen, any evidence of presence such as droppings, mammal tracks and footprints, shelters (or nests/roosts), hair caught on fence-wire, foraging signs, and so on.

Great crested newt

2.6 In advance of the survey the 1:25,000 scale Ordnance Survey map was checked and online aerial photos inspected to identify any ponds within 250 m of the Site that could

[1] Level 4 Botanical Society of Britain and Ireland (BSBI) Field Identification Skills Certificate.

[2] JNCC (1993) *Handbook for Phase 1 Habitat Survey – A technique for Environmental Audit*. JNCC, Peterborough.

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

potentially support breeding populations of the legally protected amphibian great crested newt *Triturus cristatus* (GCN).

Habitat Suitability Index

2.7 Visual inspections of all accessible ponds identified within 250 m of the Site were undertaken as part of the survey in order to confirm their suitability for GCN (a so-called Habitat Suitability Index (HSI) assessment). The HSI method is based on criteria developed by Oldham *et al* (2000)[4] and uses ten key habitat criteria that have a bearing on the suitability of waterbodies for breeding GCN, including, for instance, geographic location, pond area, pond permanence, water quality, shading and the occurrence of fish. The HSI score is calculated using the geometric mean of the ten suitability indices: HSI = $(SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$.

2.8 The HSI scores for each waterbody are evaluated against the five suitability categories set out by the Amphibian and Reptile Groups of the United Kingdom (ARG, 2010)[5] which are:

- Poor suitability for breeding GCN – HSI score below 0.5;
- Below average – 0.5 – 0.59;
- Average – 0.6 – 0.69;
- Good – 0.7 – 0.79;
- Excellent – Above 0.8.

Bats

2.9 The potential of on-Site trees to support roosting bats was assessed from ground level in line with Collins (2016)[6] using binoculars.

Table 2.1: Guidelines for assessing the potential suitability of trees for roosting bats, to be applied using professional judgement (after Collins, 2016).

Suitability	Description of roosting habitat
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain Potential Roost Features (PRFs) but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

[4] Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000) *Evaluating the suitability of habitat for the great crested newt Triturus cristatus*. Herpetological Journal. 10 (4) (143–155).

[5] Amphibian and Reptile Groups of the United Kingdom (May, 2010) *ARG UK Advice Note 5 – Great Crested Newt Habitat Suitability Index*.

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

3 Results

Pre-existing Data Records

Protected sites

3.1 The Site is not covered by any statutory wildlife site designation and does not support any ancient woodland.

3.2 The closest statutory designated site is **Hanger Wood Site of Special Scientific Interest (SSSI)**, located 2.3 km to the north-west of the Site. This is one of the best remaining examples of wet ash-maple woodland in Bedfordshire and exhibits a flora characteristic of heavy, slightly basic clay soils. The wood is typical of an ancient semi-natural woodland, formerly managed as coppice-with-standards with a rich variety of shrubs and a diverse ground flora including species uncommon in the county.

3.3 There were four non-statutory designated sites in relative proximity to the Site, as follows:

- River Great Ouse County Wildlife Site (CWS), 670 m to the north-east. Recognized as a CWS for the river and adjacent habitats which are considered part of the river system.
- Kempston Wood County Wildlife Site (CWS), 760 m to the west. Recognised as a CWS as it comprises ancient semi-natural woodland.
- Ransom's Wood CWS, 1.2 km to the west. Recognised as a CWS as it comprises ancient semi-natural woodland.
- Wooton Wood CWS, 1.4 km to the south. Recognised as a CWS as it comprises ancient semi-natural woodland and neutral grassland.

3.4 The closest area of ancient woodland was Kempston Wood, 760 m to the west.

3.5 The location of the statutory designated wildlife sites in proximity to the Site are shown in **Figure 3.1**.

Protected species

3.6 A total of 2,738 records were returned by the data search. The records are summarised as follows:

- Birds – 1,799 records of a wide range of species. Particular species of elevated conservation concern of possible relevance to the Site include barn owl *Tyto alba* (52 records), skylark *Alauda arvensis* (44 records), song thrush *Turdus philomelos* (86 records) and yellowhammer *Emberiza citrinella* (52 records).
- Mammals – 90 records, including 919 records of badger, 23 records of otter *Lutra lutra* (largely associated with the River Great Ouse) and 28 records of hedgehog *Erinaceus europaeus*.
- Amphibians – 114 records, including 52 records of great crested newt. Of these, the closest to the Site were from waterbodies located 85 m to the east of the Site.
- Reptiles – seven records of grass snake *Natrix helvetica*.

- Invertebrates – 643 records, of which 541 were of moths, mostly recorded at a single site in Kempston.
- Plants – 64 records, of a rage of species, although very few records were more recent than 2000.

Habitats

3.7 The Phase 1 habitat map is shown in **Figure 3.2**. A summary of the habitats recorded is provided in **Table 3.1** below, and lists of the plant species found in each habitat are displayed in **Appendix B**. A selection of habitat survey photographs can be found in **Figure 3.3**.

3.8 In summary, the Site comprised three fields, two of which were arable farmland and one was a grazed semi-improved grassland. Field boundaries comprised species-poor hedgerows and various mature trees were present in the north-west grassland field and in boundary hedgerows.

Arable

3.9 The north-east and south-west land parcels within the Site were arable fields under a winter-sown wheat crop at the time of the survey. Sparse black grass *Alopecurus myosuroides*, smooth sow-thistle *Sonchus oleraceus* and groundsel *Senecio vulgaris* were present within the crop.

3.10 Both fields had narrow grassy margins, with the south-west field margin comprising false oat-grass *Arrhenatherum elatius*, common couch *Elytrigia repens*, cock's-foot *Dactylis glomerata*, Yorkshire-fog *Holcus lanatus*, wall barley *Hordeum murinum* and a range of common forb species including Canadian fleabane *Conyza canadensis* and yarrow *Achillea millefolium*.

3.11 The eastern field margins contained a similar range of grasses but a slightly more diverse range of other species. The southern boundary of this field was marked by a slightly wider field margin, separating it from the ditch which ran along the Site boundary. This field margin comprised false oat-grass, common couch and meadow brome *Bromus commutatus*, as well as a range of mostly tall ruderal species such as hemlock *Conium maculatum*, common nettle *Urtica dioica* and bristly oxtongue *Picris echioides*.

Poor semi-improved neutral grassland

3.12 The north-west field comprised species-poor semi-improved neutral grassland, grazed by cattle. It had an average species density of seven species per m^2. Despite the grazing, this had a generally relatively long sward, but it lacked species diversity, being dominated by a small range of grass species, namely crested dog's-tail *Cynosurus cristatus*, perennial rye-grass *Lolium perenne* and timothy *Phleum pratense*. Other species present included occasional meadow buttercup *Ranunculus acris*, white clover *Trifolium repens* and common mouse-ear *Cerastium fontanum*.

Hedgerows and trees

3.13 All the field boundaries were marked by species-poor intact hedgerows that varied in species composition. Most were managed and therefore relatively low, with the exception of the northern hedgerow of the eastern field, which comprised tall *Prunus* spp., field maple *Acer campestre*, elm *Ulmus* spp. and dog rose *Rosa canina*.

3.14 Typical hedgerow species elsewhere at the Site included blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna*, ash and elm *Ulmus* spp.

3.15 A line of trees marked the southern boundary of the south-west field, including semi-mature ash, pedunculate oak *Quercus robur*, field maple and some blackthorn.

3.16 Small sections of hedge in the south-east of the south-west field were marked by garden hedges of non-native Leyland cypress *Cupressus* x *leylandii* and cotoneaster *cotoneaster* spp.

3.17 Trees within hedgerows have been marked individually on **Figure 3.2**. These included a line of Lombardy poplar *Populus nigra* 'Italica' at the southern end of the eastern boundary hedgerow, as well as various ash, field maple and pedunculate oak.

3.18 A number of mature and semi-mature trees, principally pedunculate oak but also including white willow *Salix alba* and ash, were present in the north-west grassland field. One of the oaks was dead and many others supported standing dead wood.

Dry ditch

3.19 The southern boundary of the eastern field was marked by a ditch that was dry at the time of survey but was considered likely to hold water for some of the year. Species present included great willowherb *Epilobium hirsutum*, common nettle and occasional reed canary-grass *Phalaris arundinacea*.

3.20 A dry ditch was also present to the south of the hedgerow separating the two western fields.

Japanese knotweed

3.21 A small stand of the invasive non-native species Japanese knotweed *Fallopia japonica* was present towards the western end of the eastern field's southern boundary, indicated by Target Note 1 in **Figure 3.2**.

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

Habitat	Area (ha)	% of Site
Arable	12.69	59.5
Poor semi-improved neutral grassland	8.63	40.5

Fauna

Great crested newt

3.22 There were two waterbodies within 250 m of the Site boundary, as shown by **Figure 3.3**. Both were inspected and found to be dry; however, both contained vegetation typical of very wet conditions including bulrush *Typha latifolia* and greater pond-sedge *Carex riparia* and are likely to be seasonally wet. As such, the ponds were subject to Habitat Suitability Index (HSI) assessment. The HSI score for Pond 1 was calculated at **0.65** and the score for Pond 2 was calculated at **0.66** (see **Table 3.2** and **3.3** below), which suggests that both are of **average** suitability suitability for great crested newt (GCN).

Table 3.2: GCN HSI score for Pond 1.

Element Assessed	Field Score	Suitability Index
Location	Optimal	1.00
Pond area	193 m^2	0.39
Pond drying	Frequently dries	0.10
Water quality	Moderate	0.67
Shade	0%	1.00
Fowl	Absent	1.00
Fish	Absent	1.00
Ponds / km^2	7	0.86
Terrestrial habitat	Good	1.00
Macrophytes	100 %	0.80
HSI score		0.65
Pond Suitability		**Average**

Table 3.3: GCN HSI score for Pond 1.

Element Assessed	Field Score	Suitability Index
Location	Optimal	1.00
Pond area	218 m^2	0.43
Pond drying	Frequently dries	0.10
Water quality	Poor	0.67
Shade	0%	1.00
Fowl	Absent	1.00
Fish	Absent	1.00
Ponds / km^2	7	0.86
Terrestrial habitat	Good	1.00
Macrophytes	100 %	0.80
HSI score		0.66
Pond Suitability		**Average**

3.23 The likelihood of potential adverse effects on GCN occurring as a consequence of the development can be evaluated using the Natural England (NE) GCN risk assessment

calculator tool. The NE calculator assumes GCN are present in the pond being considered, and that the entire Site is suitable terrestrial GCN habitat, all of which will be lost to Development. In this instance the two ponds are considered as one, as they are directly adjacent to each other and any GCN present are likely to part of a functionally linked population. The results of the risk assessment calculations are shown in **Table 3.4**.

Table 3.4: NE GCN risk assessment calculator for Ponds 1 and 2.

Component	Likely effect	Notional offense probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100 m of any breeding pond(s)	0.1–0.5 ha lost or damaged	0.5
Land 100–250 m from any breeding pond(s)	1–5 ha lost or damaged	0.4
Land >250 m from any breeding pond(s)	1–5 ha lost or damaged	0.04
Individual great crested newts	No effect	0
	Maximum:	0.5
Rapid risk assessment result:	**AMBER: OFFENCE LIKELY**	

3.24 In summary, the NE risk calculator gives an **Amber: offence likely** warning for Pond 1 and 2, assuming GCN to be present.

Reptiles

3.25 The grassland at the Site was grazed and lacked the requisite sward structure to support common reptile species.

Bats

Roosting bats

3.26 A number of mature trees with bat roost potential were identified, particularly within the north-west grassland field. The majority of these trees were mature pedunculate oaks with a range of features including rot holes, lifted bark, limb scars and split branches. In total there were seven trees of low bat roost suitability and nine of moderate bat roost suitability, as assessed in line with Collins (2016), as shown by **Figure 3.4**.

Commuting and foraging bats

3.27 In general, the arable habitats were of low relative value to foraging bats; however, the semi-improved grassland and particularly the boundary hedgerows and mature trees, were of elevated value to both foraging and commuting bats. Overall, in line with Collins (2016), the Site was assessed as being of low value to commuting and foraging bats.

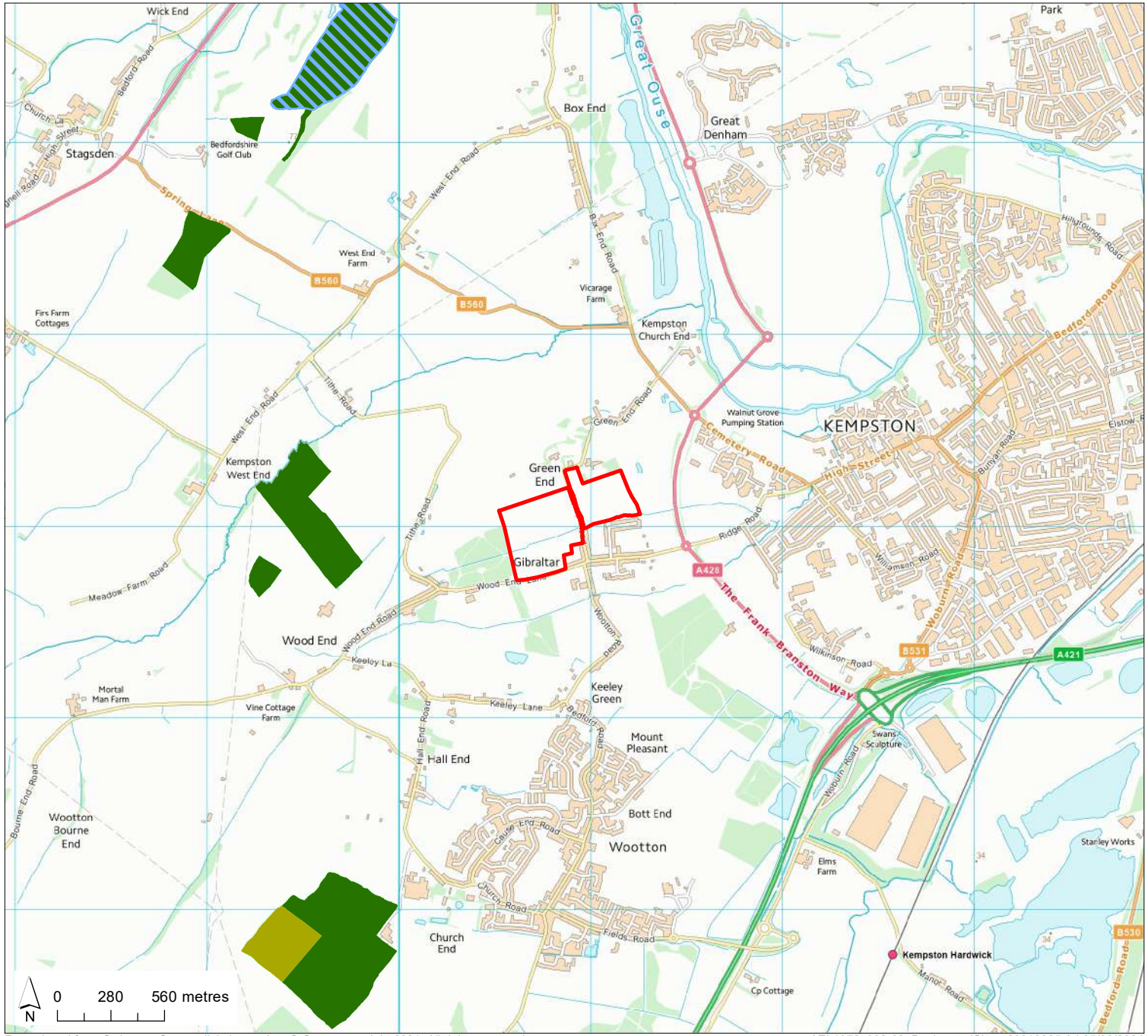
Badger

3.28 No badger setts were obviously present within the Site boundary and no evidence, such as well-worn mammal trails, latrines or foraging signs, were present.

Birds

3.29 A range of bird species was recorded during the survey, mostly comprising common garden of hedgerow species such as wren *Troglodytes troglodytes*, robin *Erithacus rubecula*, blackcap *Sylvia atricapilla* and whitethroat *Sylvia communis*. However, more notable species included a little owl *Athene noctua* roosting at a probable nest site in an ash tree in the north-west grassland field, as well as a small number of the red-listed house sparrow *Passer domesticus* in hedgerows in the south-east of the Site, in proximity to nearby gardens.

3.30 The Site is likely to support an assemblage of breeding birds including a range of typical garden and hedgerow species, as well as potentially small numbers of farmland specialists of elevated conservation concern, including the ground-nesting skylark.



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Land to the east and west of Home Road, Gibraltar Corner

Statutory designated sites and ancient woodland

- Site boundary
- Hanger Wood SSSI
- ancient semi-natural woodland
- ancient replanted woodland

Figure 3.1

Map Scale @ A4: 1:30,000

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

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Land to the east and west of Home Road, Gibraltar Corner

Phase 1 habitat map

- Site boundary
- poor semi-improved neutral grassland
- arable
- dry ditch
- line of trees
- non-native hedge
- species-poor intact hedge
- individual tree (indicative location)
- scattered scrub
- target note

Figure 3.2

Map Scale @ A4: 1:4,000

Surveyed by: RD	
Survey date: 12 August 2021	
Drawn by: RD	
Checked by: DP	
Status: Final	

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Figure 3.3: Selection of habitat survey photographs.

(a) Mature pedunculate oak in north-west corner of Site.

(b) Poor semi-improved neutral grassland, hedgerow and trees in south of north-west grassland field.

(c) Mature oaks along eastern boundary of north-west grassland field.

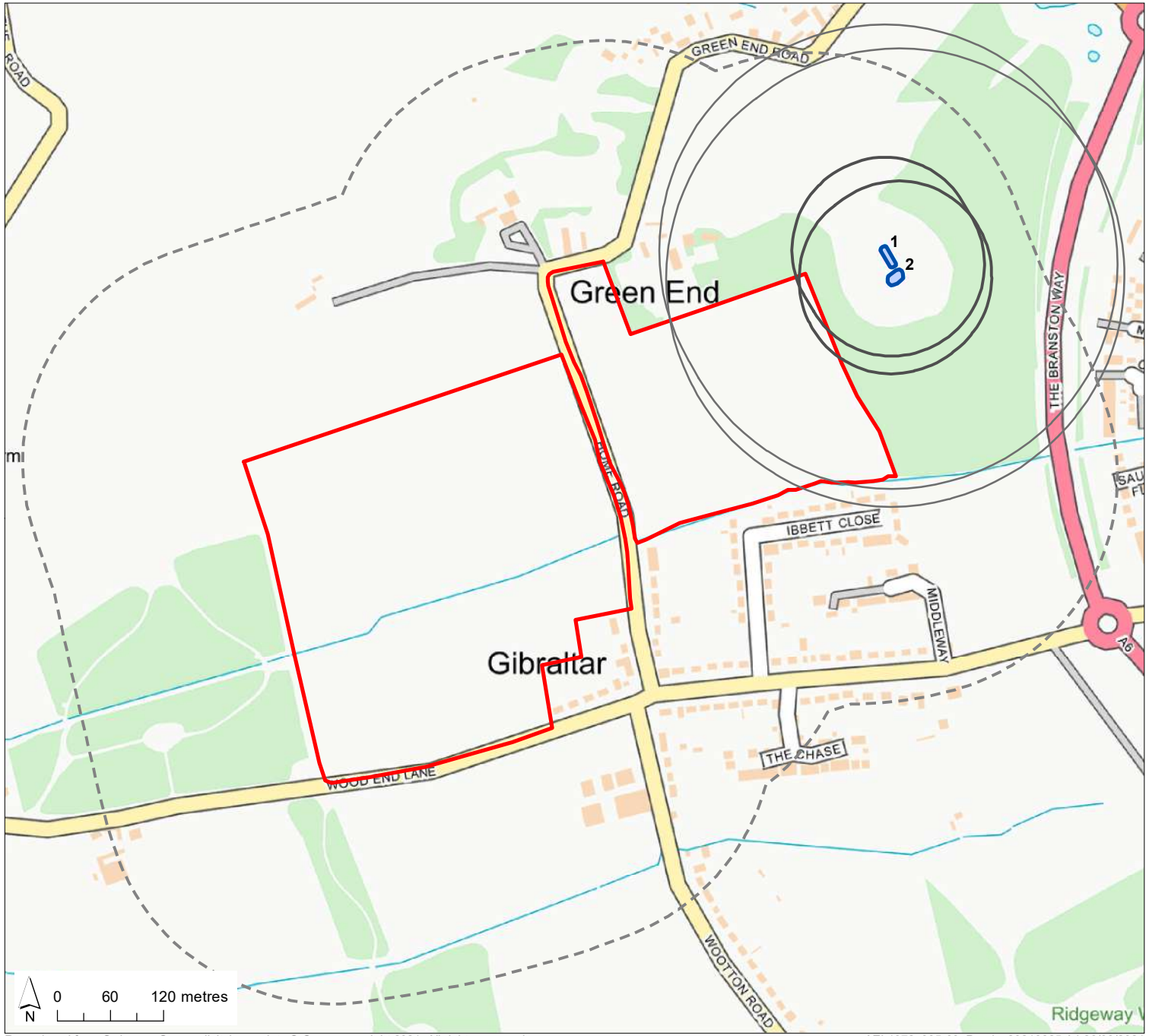
(d) Line of trees along southern boundary of south-west arable field.

(e) Mature oaks on eastern boundary of south-west arable field.

(f) Species-poor intact hedge along northern boundary of north-east arable field.

(g) Dry ditch along southern boundary of eastern arable field, with Lombardy poplars on eastern boundary.

(h) Japanese knotweed on southern boundary of eastern arable field.



Land to the east and west of Home Road, Gibraltar Corner

Waterbodies within 250 m

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

Figure 3.4

Map Scale @ A4: 1:6,500

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

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Land to the east and west of Home Road, Gibraltar Corner

Bat roost suitbaility of trees

- Site boundary
- low bat roost suitbaility
- moderate bat roost suitbaility

Figure 3.5

Map Scale @ A4: 1:4,000

Surveyed by: RD	
Survey date: 12 August 2021	
Drawn by: RD	
Checked by: DP	
Status: Final	

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4 Biodiversity Net Gain Assessment

Biodiversity Impact Assessment Calculator

4.1 Changes in biodiversity value as a result of the proposed Development have been assessed using Natural England's Biodiversity Metric 3.0 Calculation Tool[7]. This is a calculator that compares the ecological value of pre-development habitats with proposed post-development habitats. It does this by assigning habitats on the Site relative biodiversity values, which are based on factors such as habitat condition and difficulty of creation (for new habitats) as well as habitat type.

4.2 This assessment is provisional only, as the Development proposals do not yet include detailed landscaping and planting plans, and a range of assumptions have been made with regard to the likely type and extent of post-development habitats.

Pre-development Habitats

4.3 The Phase 1 habitat survey methodology adopted during the Preliminary Ecological Appraisal followed the standard JNCC approach to Phase 1 habitat survey by which all habitats present within the Site were classified and mapped according to standard categories (as described in **Chapter 2** of this report). For the purposes of the Biodiversity Metric Calculation the Phase 1 habitat types, as shown in the Phase 1 habitat map (**Figure 3.2**), were converted into their respective habitat types as described under the UK Habitat Classification (UKHab) and condition assessments for each habitat have been carried out in accordance with the condition assessment criteria laid out in the relevant guidance[8].

4.4 Condition assessments of the habitats present, in line with the relevant guidance, were made in the field and are summarised for each habitat below:

- Grassland: Modified grassland (Poor semi-improved neutral grassland) assigned to moderate condition as it passes five of the seven low distinctiveness grassland condition assessment criteria (#1, 2, 3, 5 and 6).

The pre-development habitats and loss to Development are shown in **Table 4.1**.

The Site has a total pre-development biodiversity value of **59.90** biodiversity habitat units.

Table 4.1: Pre-development habitats.

Habitat (Phase 1)	Habitat (UKHab)	Condition	Area (ha)	Area lost to development (ha)	Area enhanced (ha)
Arable	Cropland: Cereal crops	N/A – Agricultural	12.69	12.69	–

[7] Available from http://nepubprod.appspot.com/publication/6049804846366720

[8] Panks, S.; White, N.; Newsome, A.; Potter, J.; Heydon, M.; Mayhew, E.; Alvarez, M.; Russel, T; Scott, S.J.; Heaver, M.; Scott, S.C.; Treweek, J.; Butcher, B. and Stone, D. (2021) *Biodiversity Metric 3.0: Auditing and accounting for biodiversity – technical supplement*. Natural England.

Habitat (Phase 1)	Habitat (UKHab)	Condition	Area (ha)	Area lost to development (ha)	Area enhanced (ha)
Poor semi-improved neutral grassland	Grassland: Modified grassland	Moderate	8.63	8.10	0.53

Post-development Habitats

4.5 The post-development habitats, including retained and newly created habitats, are presented in **Table 4.2** and are shown in **Figure 4.1**. These habitats are based on the proposed development layout in **Appendix A**, but no detailed soft landscaping scheme was available. In the absence of detailed habitat and planting details, the following assumptions regarding habitat types and target conditions have been made, aiming for good condition where possible for newly created semi-natural habitats:

- The development area will comprise 70% hard surface (default N/A condition) and 30% gardens (default poor condition);
- The 'regenerating woodland' in the north-west corner will comprise retained grassland enhanced to moderate condition woodland (Other woodland, broadleaved) through tree planting.
- The greenspace area will comprise a mix of grassland (Other neutral grassland – good condition), scrub (Mixed scrub – good condition) and amenity grassland (Modified grassland – poor condition);
- The SuDS features will be in good condition;
- A total of 100 medium-sized street trees is included, in moderate condition, using the in-built street tree calculation tool.

4.6 The Site has a total potential post-development biodiversity value of **65.41** biodiversity habitat units.

Table 4.2: Post-development habitats.

Enhanced habitats		
Habitat (UKHab)	**Condition**	**Area (ha)**
Woodland: Other woodland, broadleaved (enhanced from Grassland: Modified grassland)	Moderate	0.53
Created habitat		
Habitat (UKHab)	**Condition**	
Urban: Developed land, sealed surface (70% of development area)	Good	8.68
Grassland: Modified grassland (30 % of development area)	N/A Other	3.72
Grassland: Other neutral grassland (50% of POS)	Good	4.10
Heathland and scrub: Mixed scrub (20% of POS)	Good	1.64
Grassland: Modified grassland (30% of POS)	Poor	2.46
Urban: Sustainable urban drainage feature	Good	1.19
Urban: Street tree (100 medium-sized street trees)	Moderate	0.4069

4.7 No hedgerow assessment has been completed at this stage as the extent of post-development hedgerows is unknown. However, given that almost all the pre-development

hedgerows are likely to be retained and enhanced, and new hedgerow creation is likely, it seems certain that the scheme will result in a significant net gain in hedgerow biodiversity units.

4.8 This provisional assessment based on the proposed layout shown in **Appendix A** returns an overall potential net gain of **+5.51 habitat units (+9.20%)**. While this will be further refined via the detailed soft landscaping proposals for the Development, it indicates that the Development is capable of delivering a measurable biodiversity net gain.

Land to the east and west of Home Road, Gibraltar Corner

Post development habitats

- Site boundary
- development
- SUDS
- greenspace
- woodland

Figure 4.1

Map Scale @ A4: 1:4,000

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

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5 Conclusions and Recommendations

Conclusions

Protected sites

5.1 The Site is not covered by any statutory or non-statutory wildlife site designation and does not comprise ancient woodland.

5.2 The closest statutory designated site is Hanger Wood SSSI, 2.3 km to the north-west. The Site sits within a Natural England (NE) Impact Risk Zone in relation to this SSSI; however, residential developments are not considered likely to have an impact on the SSSI at this distance. Given this and the distance from any other designated site, adverse impacts from development of the Site on such designated sites are not anticipated.

Habitats

5.3 The majority of the habitats at the Site were of low relative conservation or biodiversity importance and do not present a significant development constraint. The boundary hedgerows and particularly the various mature trees in the western part of the Site were of elevated ecological value and should be retained and protected as part of development planning where practical to do so.

5.4 The biodiversity net gain assessment in Chapter 4 indicates that the development has the capacity to deliver a measurable net gain, as long as sufficient semi-natural habitat creation is incorporated into the greenspace.

Fauna

Great crested newt

5.5 Ponds 1 and 2, to the east of the Site, had the potential to support breeding great crested newt (GCN) and had historical records of the species. Development of the Site could theoretically result in an offense under UK wildlife legislation should GCN be present in the pond.

Bats

5.6 The Site was assessed, in line with best practice guidelines, as being of low value to commuting and foraging bats. A number of mature trees were assessed as being or low or moderate value to roosting bats.

Breeding birds

5.7 The Site is likely to support an assemblage of mostly common garden and hedgerow species as well as a small number of farmland specialist species of elevated conservation concern.

Recommendations

Further ecological survey

Bats

5.8 Bat activity survey work to establish the presence / absence of a bat flight corridor / commuting route across the proposed development area and the areas of most value to foraging bats is considered necessary to inform development planning.

5.9 If any of the trees identified as having moderate bat roost suitability are to be impacted by the development these should be subject to bat activity survey to verify bat roosting presence/absence.

5.10 The bat activity survey season is April to September, with the key months being May to August which coincides with the bat maternity period. Three bat activity transect / automated detector surveys should be completed during the bat activity period, with a visit conducted in spring (April–May), summer (June–August) and autumn (September–October) in appropriate weather conditions.

Breeding birds

5.11 In line with best practice guidance[9], a six-visit breeding birds survey should be completed during the main bird breeding season (March–June) to establish the extent of the breeding bird populations at the Site, particularly in regard to red-listed farmland specialist species.

Great crested newt

5.12 Ponds 1 and 2 should be subject to a great crested newt presence/absence eDNA survey during the accepted sampling period (mid-April–June) to verify great crested newt (GCN) presence/absence. If GCN are found to be present, development of the Site may need to proceed under the auspices of a NE European Protected Species Licence – either a site-specific licence (which would need to be informed by further population size class survey) or a under the NE District Licence Scheme. The latter approach requires a conservation payment to compensate for the loss of terrestrial habitat in proximity to Pond 1 and 2 but would remove the need for the delays and expense associated with further survey and a Site-specific licence.

Protection of Existing Site Ecology

5.13 If any clearance of trees, hedgerows, scrub or tall ruderal vegetation is required this should take place outside of the bird breeding season, in the period September–February, or immediately after a check by an experienced ornithologist that verifies nesting bird absence from the Site.

[9] Bird Survey & Assessment Steering Group (2021) *Bird Survey Guidelines for assessing ecological impacts, v.0.1.0.* https://birdsurveyguidelines.org [accessed 26/08/2021]

Initial Development Guidance

5.14 The proposed layout is provided in **Appendix A**. This indicates the majority of habitats at the Site are likely to be lost, but that boundary habitats, including trees and hedgerows, are likely to be retained. Precise Development mitigation and compensation requirements will be dependent on design detail and the results of ongoing ecological survey work. However, the following high-level advice should be considered at this early stage in order to demonstrate biodiversity enhancement can be achieved in line with local and national planning policy.

- Existing trees and boundary hedgerows should be retained, protected and enhanced, where feasible.
- Consider opportunities for incorporating ecological enhancements alongside proposed drainage, access and landscape design provisions.
- Artificial lighting should be avoided / minimised in proximity to retained boundary habitats, particularly with respect to the watercourse along the eastern boundary, and any other proposed green corridors, in order to minimise disturbance to bats and other nocturnal species.
- Incorporate bat and bird boxes in to new buildings.

Appendix A
Development Opportunities and Constraints Plan

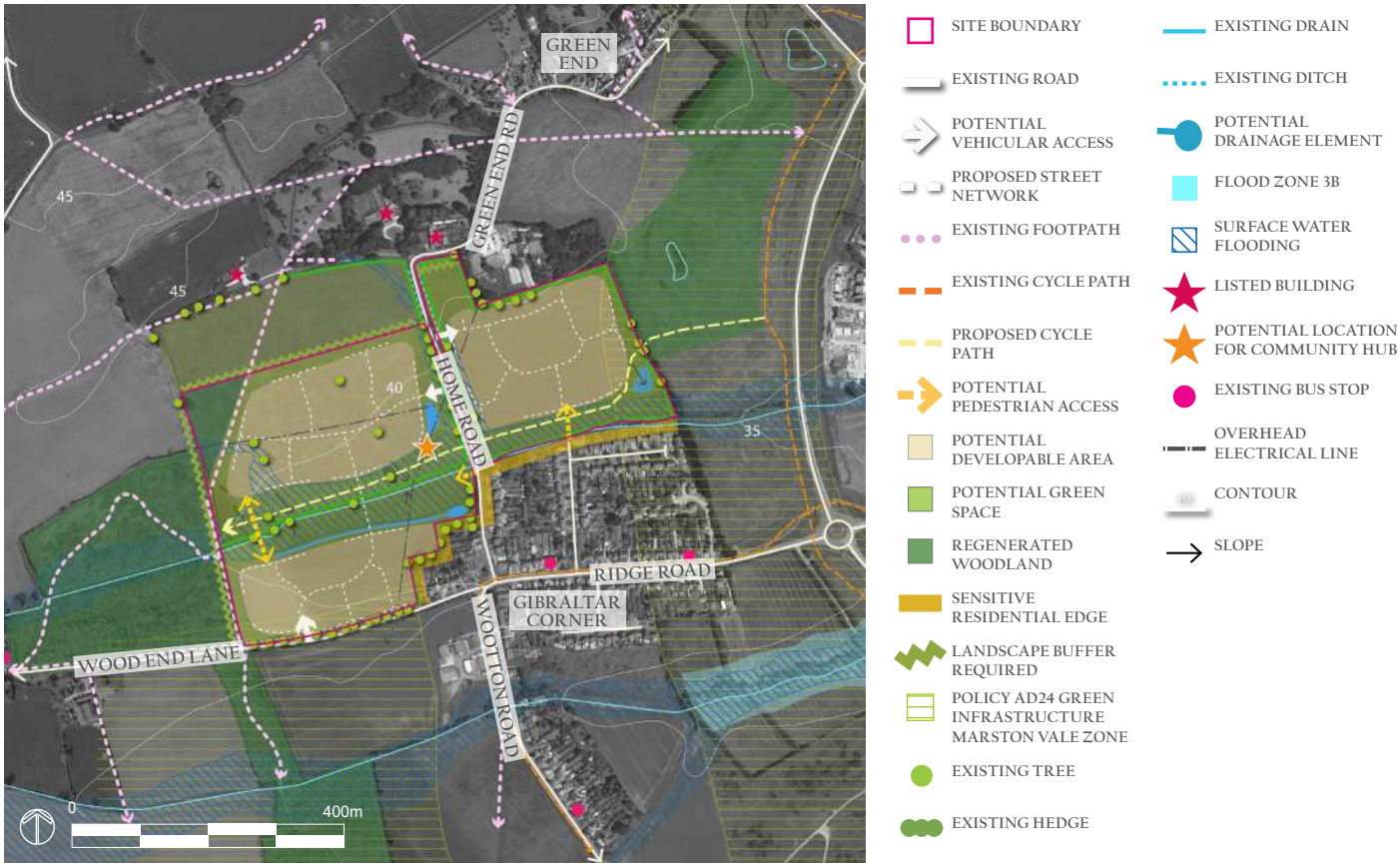
SITE CONSIDERATIONS & TECHNICAL SUMMARIES

The plan below outlines the key opportunities and constraints afforded by the site. The potential developable area is divided into three parcels with vehicular, pedestrian and cycle access to each from existing roads and footpaths.

The central east-west drain is surrounded by a swathe of surface water flooding, where no development is permitted. Instead, this area will be used as a generous green corridor, along which a new foot and cycle path will be created, as well as public open space for recreation and relaxation. Buttons Ramsey wood will be extended into the north-western part of the site, to maintain the natural setting of the John Bunyan Trail. Other areas of open space will be used for sustainable drainage elements to ensure the site is drained effectively and efficiently.

There is the opportunity to provide a community hub, which could be located in the heart of the site, easily accessible by foot, bicycle and vehicles along the existing and new routes.

Further detail on the landscape, drainage and site access elements is explored over the following pages.



OPPORTUNITIES AND CONSTRAINTS PLAN

Appendix B
Plant species lists

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

Poor semi-improved neutral grassland.

Species	DAFOR
Crested dog's-tail *Cynosurus cristatus*	D
Perennial rye-grass *Lolium perenne*	A
Timothy *Phleum pratense*	F
Smooth meadow-grass *Poa pratensis*	O
Meadow barley *Hordeum brachyantherum*	O
Wavy hair-grass *Deschampsia flexuosa*	O
Wall barley *Hordeum murinum*	O
False oat-grass *Arrhenatherum elatius*	O
Yorkshire-fog *Holcus lanatus*	O
Meadow buttercup *Ranunculus acris*	O
Creeping thistle *Cirsium arvense*	O
Greater plantain *Plantago major*	O
Autumn hawkbit *Leontodon autumnalis*	O
Dandelion *Taraxacum officinale* agg.	O
Red clover *Trifolium pratense*	O
White clover *Trifolium repens*	O
Common nettle *Urtica dioica*	O
Daisy *Bellis perennis*	O
Creeping cinquefoil *Potentilla reptans*	R
Spear thistle *Cirsium vulgare*	R
Common knapweed *Centaurea nigra*	R
Lady's bedstraw *Galium verum*	R
Bird's-foot trefoil *Lotus corniculatus*	R

South-west arable field margins.

Species	DAFOR
False oat-grass *Arrhenatherum elatius*	A
Common couch *Elytrigia repens*	A
Wall barley *Hordeum murinum*	F
Black grass *Alopecurus myosuroides*	F
Cock's-foot *Dactylis glomerata*	F
Meadow brome *Bromus commutatus*	F
Common nettle *Urtica dioica*	O
Oat *Avena sativa*	O
Yorkshire-fog *Holcus lanatus*	O
Herb-Robert *Geranium robertianum*	O

Species	DAFOR
Canadian fleabane *Conyza canadensis*	O
Comfrey *Symphytum* spp.	O
Field bindweed *Convolvulus arvensis*	O
Meadow vetchling *Lathyrus pratensis*	O
Bristly oxtongue *Picris echioides*	O
Yarrow *Achillea millefolium*	O
Hemlock *Conium maculatum*	O
Common ragwort *Senecio jacobaea*	O

Eastern arable field margins.

Species	DAFOR
False oat-grass *Arrhenatherum elatius*	A
Yorkshire-fog *Holcus lanatus*	F
Red fescue *Festuca rubra*	F
Barren brome *Anisantha sterilis*	F
Meadow brome *Bromus commutatus*	F
Soft brome *Bromus hordeaceus*	O
Cow parsley *Anthriscus sylvestris*	O
Common nettle *Urtica dioica*	O
Common mallow *Malva sylvestris*	O
Scarlet pimpernel *Anagallis arvensis*	O
Field forget-me-not *Myosotis arvensis*	O
Hoary willowherb *Epilobium parviflorum*	O
Willowherb *Epilobium* spp.	O
Smooth meadow-grass *Poa pratensis*	O
Broad-leaved dock *Rumex obtusifolius*	O
Smooth sow-thistle *Sonchus oleraceus*	O
Thyme-leaved speedwell *Veronica serpyllifolia*	O
Common field-speedwell *Veronica persica*	O
Common couch *Elytrigia repens*	O
White dead-nettle *Lamium album*	O
Red dead-nettle *Lamium purpureum*	O
Curled dock *Rumex crispus*	O
Wall barley *Hordeum murinum*	O
Autumn hawkbit *Leontodon autumnalis*	O
Creeping thistle *Cirsium arvense*	O
Wavy hair-grass *Deschampsia flexuosa*	O
Oat *Avena sativa*	O

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