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Land off Collin Lane, Willersey, Broadway,
Gloucestershire, WR12 7PE

Ecological Appraisal (Revision 1)

November 2015

Notice to readers:

The results of the survey and assessment work undertaken by All Ecology are representative at the time of surveying.

Every endeavour has been made to identify the presence of protected species on site, where this falls within the agreed scope of works.

The flora and fauna detailed within this report are those noted during the field survey and from anecdotal evidence. It should not be viewed as a complete list of flora and fauna species that may frequent or exist on site at other times of the year.

Up to date standard methodologies have been used, which are accepted by Natural England and other statutory conservation bodies. No responsibility will be accepted where these methodologies fail to identify all species on-site.

All Ecology cannot take responsibility where Government, national bodies or industry subsequently modify standards.

All Ecology cannot accept responsibility for data collected from third parties.

Reference to sections or particular paragraphs of this document taken out of context may lead to misrepresentation.

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1.0 Introduction

Background

- 1.1 All Ecology was commissioned to update an Ecological Appraisal of an area of land off Collin Lane, Willersey, Broadway, Gloucestershire, WR12 7PE (Grid Ref: SP 1021 3975). The site is comprised of two fields of poor semi-improved grassland that are separated by a hard standing area. The field to the west is mainly enclosed by post and wire fences with a species-rich hedge forming the north boundary and a species-poor hedge along the west boundary. The field to the east is enclosed with post and wire fences with hedgerows at the south and west boundaries and a watercourse marking the east boundary. An agricultural building, former stables and wooden shed are present within the hard standing area and a stream borders this area to the east. A pony paddock is also present to the northwest of the main hard standing area. The site is bordered by a playing field to the east, and a mix of residential housing and open fields on all other aspects. The surrounding area is made up of mainly agricultural fields and the residential areas of Willersey.
- 1.2 An Ecological Appraisal was carried out by All Ecology in June 2014 to provide supporting information for an outline planning application for a housing development. One of the most notable findings on site was the presence of a single hole Badger sett just off site to the north with characteristics of an outlying sett. Outline approval was subsequently granted with the following condition:

“Condition 19 – No development shall take place until a full badger mitigation strategy has been submitted to and approved in writing by the Local Planning Authority. The development shall be completed and thereafter maintained fully in accordance with the approved details unless otherwise agreed in writing by the Local Planning Authority”
- 1.3 A Reserved Matters application is to be submitted and in order to meet the requirements of Condition 19, it was decided that an update to the Ecological Appraisal should be carried out to establish the current level of Badger activity on and near the site, as well as to provide an up to date report for the application. A small part of the current site not previously surveyed is also included.
- 1.4 The aim of the survey was to identify any new features of ecological interest, undertake a basic search of habitats present for evidence of use, or potential use, by protected species, Badgers in particular, and to identify any other possible ecological constraints to the development.

Site Location



2.0 Methodology

Personnel

- 2.1 The survey was carried out by Laura Cuming BSc Hons, Grad CIEEM and James Godbeer BSc Hons MCIEEM, an ecologist with over 8 years experience working as a consultant. James has extensive experience of managing environmental contracts, and particular experience in surveying, assessment and mitigation for rare and protected species. He has considerable knowledge of the development and planning process including Ecological Impact Assessments, sustainable ecological design and he has completed ecology chapters of Environmental Statements. James holds a number of protected species licences including bats (all species, all counties, Licence No. CLS01752), and Great Crested Newts (Class Licence Registration No. 2015-8038-CLS-CLS). He has successfully obtained European Protected Species mitigation licences for a number of bat species including Lesser Horseshoe, Serotine, Brown Long-eared, Common Pipistrelle and Natterer's bats, for a number of roost types including maternity and hibernation sites for Lesser Horseshoe bats.

Desk Study

- 2.2 A data search was conducted in June 2014 for this site. As this was just over a year previously, another data search was not considered necessary and data sourced from the Gloucestershire Centre for Environmental Records (GCER) originally will be used in this report.
- 2.3 Information requested was as follows:
- Statutory site designations on or within 1 km of the site
 - Non-statutory site designations on or within 1 km of the site.
 - Records of protected species within the 1 km of the site.
 - Records of rare or notable species within the 1 km of the site.

Habitat Survey

- 2.4 The site was visited on the 2nd of November 2015 and surveyed in accordance with the Joint Nature Conservation Committee (JNCC) Phase I Habitat Survey methodology (JNCC, 2007). This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential that might warrant further study.
- 2.5 The observable higher plant species in each habitat type within the site, and their abundance, were recorded using the DAFOR scale:

D	Dominant
A	Abundant
F	Frequent
O	Occasional

R Rare

Fauna

- 2.6 Habitats present on the site were searched for signs of faunal activity. The trees were assessed for their potential to support bat roosts by visually inspecting them from the ground using binoculars and high-powered torches where appropriate. Potential features such as holes, cavities or splits were recorded and then inspected where possible for signs of bats, which including grease/urine stains, scratch marks, droppings or the bats themselves.
- 2.7 The site and surroundings, for a minimum distance of 30 m, were searched for signs of Badgers. These include setts, latrines, dung pits, snuffle marks or hairs caught in hedges or on fencing.
- 2.8 A casual search for evidence of Dormice such as nests and/or gnawed nuts was also carried out.
- 2.9 Incidental observations of invertebrates and birds were recorded and a search made for any signs of current or previous nesting.
- 2.1 Habitats present on the site were searched for obvious signs of faunal activity, e.g. presence of badger setts, mammal tracks or herpetofauna under refugia. Any mature trees on site were visually examined from the ground to identify features with the potential to support roosting bats.

Valuation of Ecological Features

- 2.2 The valuation process used in this report follows the guidance on ecological evaluation and assessment from the Chartered Institute of Ecology and Environmental Management (CIEEM, 2006).
- 2.3 The value of areas of habitat and plant communities has been measured against published criteria where available. Biodiversity Action Plans (BAPs) have been searched to identify whether action has been taken to protect all areas of a particular habitat and to identify current factors causing loss and decline of particular habitats. The presence of injurious and legally controlled weeds has also been taken into account.
- 2.4 When assigning a level of value to a species, its distribution and status (including a consideration of trends based on available historic records) has been taken into account. Other factors influencing the value of a species are: legal protection, rarity and Species Action Plans (SAPs). Guidance, where it is available, for the identification of populations of sufficient size for them to be considered of national or international importance has also been taken into account.

Nomenclature

- 2.5 The English name only of flora and fauna species is given in the main text of this report; however, scientific names are used for invertebrates where no English name is available. Vascular plants and charophytes follow the nomenclature of The Botanical Society for the British Isles (BSBI) 2007 database (BSBI, 2007) with all other flora and fauna following the

Nameserver facility of the National Biodiversity Network Species Dictionary (<http://www.nhm.ac.uk/nbn/>), which is managed by the Natural History Museum.

3.0 Legislation

- 3.1 The United Kingdom Biodiversity Action Plan (BAP) 1994 sets out a strategy for implementing the Convention on Biological Diversity, which was signed by the United Kingdom at the Rio de Janeiro Earth Summit in 1992. The published report contains action plans for the United Kingdom's most threatened species and habitat plans for the most vulnerable areas.
- 3.2 The Local BAP sets out the county's part in the UK biodiversity planning process, in the form of local habitat and species action plans. Local BAPs are intended to focus resources, to conserve and enhance biodiversity, by taking account of national and local priorities.
- 3.3 Schedule 1 Part 1 of The Wildlife and Countryside Act 1981 (and amendments) – this lists birds protected by special penalties at all times. It prohibits intentional killing/injuring, taking, possessing, disturbing and selling (including parts and derivatives, eggs, nests, *etc.* as applicable) as well as damaging, destroying or disturbing nests in current use or dependent young, *etc.*
- 3.4 Schedule 5 of The Wildlife and Countryside Act 1981 (and amendments) – this prohibits deliberate killing, injuring, taking, possessing, disturbing and selling (including parts and derivatives) as well as damaging, destroying or obstructing any structure or place of refuge of listed fauna, such as Dormouse, Otter and bat species.
- 3.5 The Conservation of Habitats and Species Regulations 2010, consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994, in respect of England and Wales. It is illegal to kill, disturb, destroy eggs, breeding sites or resting places, to pick, collect, take cuttings, uproot or destroy in the wild as well as keep, transport, sell/exchange and offer for sale/exchange species listed.
- 3.6 The Countryside and Rights of Way Act 2000 – this increases protection given by The Wildlife and Countryside Act 1981 (and amendments). The offence to intentionally damage any structure or place that a wild animal listed in Schedule 5 of the Act uses for shelter or protection or deliberately disturbing any such animal while in such a structure or place is extended so that the offence also covers reckless damage or disturbance. The CRoW Act also places a duty on Ministers and Government Departments to have regard for the purpose of conserving biological diversity in accordance with the Convention on Biological Diversity.
- 3.7 The Protection of Badgers Act 1992 - this Act makes it illegal to wilfully kill, injure or take any Badger, or attempt to do so and it is an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a Badger sett.
- 3.8 The Natural Environment and Rural Communities Act, 2006 - as well as creating Natural England, this act gives all public authorities the duty to have regard for conserving biodiversity within the commission of their duties. This includes a duty to restore and enhance as well as maintain biodiversity. The act also strengthens protection for Sites of Special Scientific Interest (SSSI) and makes authorities liable for allowing damage to such sites or their features.

4.0 Results

Desk Study

- 4.1 There are no statutory designated sites within 1 km of the site.
- 4.2 There are no non-statutory designated sites located within 1 km of the site.
- 4.3 GCER provided the following records for protected and notable species within 1 km of the site boundary:

Birds – European Turtle Dove, Barn Owl.

Invertebrates – Grizzled Skipper, Small Heath.

Habitats

- 4.4 The following habitats or vegetation types were identified on the site during the course of the habitat survey:

- Poor semi-improved grassland
- Improved grassland
- Amenity grassland
- Species-rich hedge and trees
- Species-poor hedge
- Defunct species-poor hedge
- Standard trees
- Scrub
- Hard standing
- Buildings
- Running water
- Arable
- Wall
- Fences

Poor semi-improved grassland

- 4.5 Poor semi-improved grassland was the main habitat on site in the form of two fields, east and west. The west field was grazed by sheep and contained abundant Timothy, Crested Dog's-tail, Black Medic and White Clover. Frequent Perennial Rye-grass and Yorkshire-fog were also present. Common Chickweed, Annual Meadow-grass, Creeping Buttercup and Meadow

Buttercup occurred occasionally whilst Dandelion, Broad-leaved Dock, Red Clover, Common Nettle and Creeping Thistle were rare occurrences. The grassland in the east field had a similar species composition to that listed above but was less heavily grazed. The northern compartment of the eastern field (separated from the rest of the field by post and wire fence) also contained Ox-eye Daisy.

Photograph 1: Poor semi-improved grassland within the west field.



Photograph 2: Poor semi-improved grassland within the east field.



Improved grassland

- 4.6 The pony paddock to the northwest of the central hard standing area contained intensively grazed improved grassland; it was comprised of Perennial Rye-grass, White Clover and Creeping Buttercup with areas of bare ground also present. This also extended around the edge west side of the large barn in the centre of the site.

Photograph 3: The pony paddock to the northwest of the main hard standing area.



Photograph 4: The pony paddock extending along barn edge.



Amenity grassland

- 4.7 Amenity grassland lay southeast of the west field within the garden of a residential property. It was dominated by Perennial Rye-grass, with abundant White Clover and Fescue sp., as well as occasional Creeping Buttercup and Black Medic.

Photograph 5: Amenity grassland situated southeast of the west field.



Species-rich hedge and trees

- 4.8 A species-rich hedge was present along the north boundary of the west field. It was formed mainly of Hawthorn, English Elm and Field Maple with occasional Blackthorn and Wild Plum. Individuals of Ash, Dog-rose and Elder were also recorded along the length of the hedge. The ground flora of the hedge included Bittersweet, Common Nettle, Cleavers, Hedge Bindweed and Ivy.

Photograph 6: Species-rich hedge along the north boundary of the west field.



Species-poor hedge

- 4.9 A species-poor hedge was present along the west boundary of the west field; this was dominated by Hawthorn with abundant Elder with occasional Blackthorn and Dog Rose. Species-poor hedge was also present on the west boundary of the east field; it was formed by

a mix of Hawthorn, Blackthorn, Crack Willow and Field Maple. A small section of Leyland Cypress hedge was present along the site boundary southeast of the agricultural building. Additionally, a well maintained conifer hedge partly enclosed the amenity grassland within the residential garden, part of which is included in the site.

Photograph 7: Species-poor hedge along west boundary of the east field.



Photograph 8: Leyland Cypress hedge at the site boundary (southeast of the agricultural building).



Defunct hedge

- 4.10 A defunct hedge comprised mainly of Hawthorn with a few small sections of Elm and Elder was present along the south boundary of the east field.

Photograph 9: Defunct hedge along south boundary of the east field.



Standard trees

- 4.11 There were two standard trees on site. An apple tree was present close to the open west boundary of the west field. Within the east field a White Willow was present at the east boundary. There was a clump of large Ash trees present offsite, adjacent to the southwest corner of the site.

Photograph 10: Apple tree close to the open south boundary of the west field.



Photograph 11: White Willow on the east boundary of the east field.



Scrub

- 4.12 A small area of scrub was situated along the north section of the east boundary of the east field; it contained Hawthorn, Goat Willow, Bramble, Dog-rose and Honeysuckle.

Photograph 12: Small area of scrub within the north section of the east boundary of the east field.



Hard standing

- 4.13 An area of gravel hard standing was situated between the two fields. This area provides access to the three buildings on site.

Photograph 13: Gravel hard standing situated between the two fields.



Buildings

- 4.14 All three buildings were associated with the gravel area. A large metal agricultural building and a small wooden shed were situated close to the east boundary of the west field. Former stables adjacent to the pony paddock were also present; these had concrete walls and asbestos roofs.

Photograph 14: Metal agricultural building (June 2014).



Photograph 15: Small timber shed (June 2014).



Photograph 16: Former stables (June 2014).



Running water

- 4.15 Running water was present in the form of a small stream flowing from south to north along the east edge of the gravel area. On the east side of the stream was the west boundary hedgerow of the east field. The west side of the stream was vegetated with Great Willowherb, Perennial Sow-thistle, Hogweed, Cleavers, Garlic Mustard, Herb-Robert, False Oat-grass, Common Nettle and Water Forget-me-not. A second small stream marked the east boundary of the east field; again flowing from south to north. In addition to the vegetation mentioned above, Pendulous Sedge and Fool's Watercress were also present. Both streams were approximately 0.5 metres wide and shallow throughout, being just a few centimetres deep.

Photograph 17: Small stream flowing along the east edge of the gravel area.



Arable

- 4.16 A garden vegetable plot was present in part of the residential garden on site.

Wall

- 4.17 A concrete block wall approximately 0.6 metres high surrounded the garden vegetable plot.

Photograph 18: Garden vegetable plot surrounded by a concrete block wall within the residential garden.



Fences

- 4.18 Post and wire fences were present in both fields. In the west field, a post and wire fence was present along part of the east boundary, part of the south boundary and in front of the species-rich hedge at the north boundary. Post and wire fences enclosed all of the east field, except at

the north boundary where timber fencing and metal gates were present. A post and wire fence also ran across the east field; creating a smaller compartment at the northern end. A small stretch of timber panel fencing was present on the site boundary southeast of the agricultural building.

Photograph 19: Post and wire fence and timber panel fence typical of that found at the site.



Fauna

Bats

- 4.19 GCER did not provide records of any bats within 1 km of the site. None of the buildings on site were suitable for use by roosting bats. Although the White Willow on site did have some minor fissures within its bark, these were not of sufficient size to provide suitable roosting sites for bats. The apple tree on site also lacked any suitable features for bats such as flaking bark, splits or rot holes.
- 4.20 Multiple White Willow trees overhung the east boundary of the east field. None of these trees appeared to have any obvious features that could be used by roosting bats; however, the trees were viewed at a distance and so potential features may have been missed.
- 4.21 It is possible that small numbers of bats forage along the streams, hedgerows and trees on the site boundaries but overall the site is poor for bats; the hedgerows on site are connected to a tree lined disused railway to the northwest, but the surrounding open farmland is considered to be generally poor for bats with areas of woodland and water bodies generally absent.

Photograph 20: Minor fissures within the bark of the White Willow on site; not of sufficient depth to provide good roosting sites for bats.



Badgers

4.22 There are no records of Badgers within 1 km of the site. The site is mainly open fields of short grassland, which provides optimal foraging habitat for this species, and boundary hedgerows could be used for the construction of setts with the disused railway embankment off site to the northwest likely to provide optimal conditions for the construction of setts. During the previous survey in June 2014, a single well used mammal run under the fence and species-rich hedge at the north boundary of the west field was recorded as well as a single dung pit, which contained dung that was most probably a few weeks old. A search within and immediately to the north of the species-rich hedge at this time revealed a single Badger hole approximately six metres off site to the north of the hedge within adjacent scrub. These were investigated during the current survey to assess current usage which found no evidence of dung pits or latrines. The single Badger hole contained leaf litter and large numbers of Rabbit droppings were present at the entrance. Additional rabbit holes were also present. No setts were noted in the area and no other setts were found on the site itself. The site was searched for evidence of Badgers such as dung pits, hair and digging of which none was found.

Photograph 21: Former Badger hole with Rabbit droppings present at entrance (Target note 1).



Photograph 22: Rabbit holes adjacent to the former Badger hole (Target note 2).



Dormice

- 4.23 There are no records of Dormice occurring within 1 km of the site. The potential for the site to support Dormice is minimal. The species-rich north boundary hedgerow within the west field could be used by Dormice as it contains the variety of species preferred by Dormice. However, none of the hedgerows on site are connected to any nearby off site areas of suitable habitat such as woodland. It is therefore likely that Dormice are absent from the site.

Water Voles and Otters

- 4.24 There are no records of Otters or Water Voles within 1 km of the site. The streams present on site do not appear to be suitable for Water Voles. Generally Water Voles prefer sites with wide swathes of riparian vegetation, both growing from the banks and from the water. This serves as both their food and shelter. Water Voles also prefer slow-flowing, relatively deep (over 1 m depth) water courses (Strachan & Moorhouse, 2006). Both streams were shallow on the day of

the survey with little aquatic vegetation and only narrow fringes of marginal vegetation; conditions that Water Voles tend to avoid. The banks of the stream were searched for evidence of Water Voles such as burrows, lawns, feeding remains and latrines, but none was discovered.

- 4.25 Although Otters have been recorded using rivers and streams of all sizes, the small size of these streams and their lack of connectivity to nearby larger water courses limits this potential. The banks of the streams were searched for evidence of Otters such as holts, hovers, spraints or footprints but none was discovered.

Other mammals

- 4.26 There are no records of other protected species of mammal within 1 km of the site. The hedgerows and small area of scrub provide minimal cover for a range of mammal species but the majority of the site is open short grassland and as such is only expected to support a limited number of common small mammals.

Birds

- 4.27 GCER provided records of two protected and/or notable bird species. These were European Turtle Dove and Barn Owl. Species recorded during the survey were Blackbird, Robin, Chaffinch, Great Tit, Blue Tit, Woodpigeon and Magpie.
- 4.28 The grassland on site is unsuitable for ground nesting birds but the hedgerows, mature trees and scrub on site offer potential nesting habitat for a range of bird species. The survey was carried out in November, which is outside the nesting season. No evidence of previous nesting birds was observed although it is possible that nests could have been missed in the denser sections of hedgerow along parts of the boundary.
- 4.29 In terms of foraging habitat, the grassland on site is grazed and as such is likely to provide only a limited foraging resource for a range of bird species; the hedgerows, scrub and mature trees are considered to be the most important habitats on site for birds both in terms of nesting and foraging.

Reptiles

- 4.30 There are no records of reptiles within 1 km of the site. The site is generally unsuitable for reptiles; the hedgerows and small area of scrub provide the only cover but these are not associated with open undisturbed areas for basking. The grazed poor semi-improved grassland, which comprises the majority of the site, is considered unsuitable for foraging. It is likely that reptiles are absent from the site with the potential for them to occur regarded as minimal.

Amphibians

- 4.31 There are no records of amphibian species within 1 km of the site. The hedgerows and scrub provide only limited terrestrial habitat for amphibian species and no ponds are present on site. With regard to the specially protected Great Crested Newt, there are no ponds shown on maps of the area within 500 m of the site and it is therefore likely that Great Crested Newts are absent from the site.

Invertebrates

- 4.32 GCER provided records of Grizzled Skipper and Small Heath within 1 km of the site. However, overall the site is comprised of common habitats types that do not provide much potential for rare invertebrate species; only common species are expected to be present on site.

5.0 Development Constraints and Recommendations

- 5.1 The site is the subject of a potential housing development, which currently has outline planning permission. A Reserved Matters application is to be submitted with the present report used as supporting information to provide an up to date assessment of the site to enable possible ecological constraints and recommendations to be determined; these are discussed below.

Habitats

- 5.2 The UK BAP Priority Habitats include all hedgerows with at least 80% cover of at least one woody UK native species (JNCC, 2015). With the exception of the Leyland Cypress hedge and the conifer hedge, all other hedges on site were formed by native species and therefore qualify as UK BAP Priority Habitats; these are to be retained with the exception of a section of the west boundary hedge of the east field, which is proposed to be removed in order to create a new access road. The creation of this new entrance is not in substitution for an existing entrance, as none currently exists, and the hedge should therefore be subject to a hedgerow assessment to establish if it is classed as important under the Hedgerow Regulations 1997. However, this assessment was not requested by Cotswold District Council for the outline planning application and it is possible that they were satisfied with the planting of new hedgerows as compensation.
- 5.3 An assessment is not required for the creation of the new entrance through the conifer hedge on the south boundary as this forms part of the curtilage of a residential dwelling and is therefore exempt from the regulations; in any case it would not qualify.
- 5.4 Where new hedgerows are planted the following species rich mix is recommended to encourage wildlife: 50% Hawthorn, 20% Field Maple, 15% Blackthorn and 15% mix of Hazel, Spindle, Dog-Rose and Holly (Gilbert and Anderson, 1998). Additionally, there are a number of gaps in the defunct hedge at the south boundary of the east field; this could be augmented with the same species rich mix to enhance the hedgerow as part of the landscape proposals for the site. Management practices include the planting of gaps in existing hedgerows (using suckering species such as Dogwood and Blackthorn, or trees to fill larger gaps), laying new hedgerows to encourage bushy growth low down, trimming on a 2 - 3 year rotation or trimming alternate sides of the hedgerows every other year and avoiding trimming hedges too heavily to keep them in a good condition.
- 5.5 The remaining habitats on site do not currently qualify as UK BAP Priority Habitats as the grassland, streams, mature trees and scrub do not fit the criteria to qualify as UK BAP Priority Habitats (JNCC, 2014). In order to qualify as a UK BAP Priority Habitat, grassland typically has to be unimproved (good semi-improved grassland can also qualify) and would have to be examples of lowland calcareous grassland or lowland dry acid grassland, habitats not found on site.
- 5.6 Although the streams on site do not qualify as UK BAP Priority Habitats, any changes to the streams could have a detrimental effect on areas further downstream. The following recommendations are made to protect the streams and areas downstream. During the construction phase of the project on no account should any chemicals, including vehicle fuels

or lubricants be left on site at night where they might be accessed by accident or deliberately (e.g. vandals) resulting in spillage to the stream. Any contractors engaged in works on the site should have in place secure storage facilities and an agreed pollution prevention plan. Appropriate pollution control equipment should be available at the site to control spillages if they do occur. This equipment could include the installation of a surface run off drainage gully and a petrol interceptor to prevent spillages entering the streams. It is likely that assurances and provision will also need to be made to address the long-term potential impacts to the streams by providing sufficient measures to ensure that potential pollutants from new residents (detergents, nutrient enrichment etc.) can be avoided.

- 5.7 Overall, the proposed development would result in the loss of mainly poor semi-improved grassland, which is not considered to be significant in the wider context. However, where new areas of habitat are to be created, consideration should be given to the seeding of these areas using appropriate seed mixes. Where possible these seeds should be locally sourced to support the genetic integrity of local wild plant populations. Where new trees or shrubs are to be planted, native tree and shrub species should be used as these are most beneficial to invertebrates, and many also produce seeds, nuts and berries that are food for native mammals and birds. Planting of non-native plant species should be limited to those that are not invasive, and should prioritise those that provide a good source of nectar for invertebrates e.g. Butterfly-bush, Jasmine.
- 5.8 A new pond is to be created on site, part of which has been designed to permanently hold some water with the remainder only filling after rainfall. There would also be a small stream running through the pond, which will be surface water run off. The opportunities for significant biodiversity gains from such a pond are limited; however, any permanent or semi-permanent standing water has the potential to be valuable habitat for a number of species groups. Depending on the final character of the pond, it may be beneficial to plant native local plants to increase its value; non-native plants, many of which are invasive, should be avoided. Given the likely limited depth and area of water, planting should concentrate on marginal plants such as Brooklime, Water Mint, Marsh Marigold, Water Plantain, Yellow Iris, and rushes.

Protected and Notable Species

Bats

- 5.9 The hedgerows and streams on site provide potential foraging habitat for bats and may be used as navigational flight lines by bats commuting from potential roosts in the surrounding area. In order to create a new access road on to the site, a section of hedgerow along the west boundary of the east field, and a section of conifer hedge on the south boundary of the site will be lost. These hedgerows terminate and run along side Collin Lane and do not provide good connectivity to the wider area. The removal of short sections is unlikely to impact on bats using them and the planting of new hedgerows will provide additional commuting and foraging habitats. Measures will also need to be in place to restrict lighting of the hedgerows and trees across the site, in particular the hedgerows and streams on site. As a general rule external lighting should be kept to a minimum in order to minimise disturbance to foraging and commuting bats. Where lighting is necessary for reasons of security and/or health and safety, the use of column lighting, with full cut-off directional shielding and low UV

bulbs is recommended. Provided these recommendations can be implemented no further surveys for bats are considered necessary.

5.10 None of the buildings on site provide any roosting opportunities for bats and no restrictions on their removal are necessary. None of the trees on site or overhanging the boundary appeared to have any features with high potential for roosting bats. If any of these trees require tree surgery works, then it is recommended that the following procedures be employed in the unlikely event a bat or bats are discovered:

- If the roost is still on the tree and bats are not injured, seek advice from a licensed ecologist. If help is not available, allow bats to fly out of harm's way.
- If the timber is felled, the roost is not exposed and the bats are not injured, temporarily seal and isolate the roost and seek advice from a licensed ecologist. If advice is not readily available, position the roost off the ground, re-open it and allow bats to relocate of their own accord.
- If the roost has been exposed, and especially if bats have been injured, collect bats in a secure box or bag (using a glove) and contact a licensed ecologist.
- Note the date, locality, type of tree, situation in tree and bat species if known.

5.11 The proposed development provides an opportunity to significantly enhance the site for bats. The creation of new residential gardens is likely to provide foraging habitat and the provision of roosting opportunities would be of significant value. These could be incorporated into the development and/or bat boxes provided on mature trees.

5.12 The types of residential buildings proposed for the site means that the provision of large open roof spaces for species such as long-eared and horseshoe bats is unlikely to be desirable but there are many ways in which the buildings could be enhanced for crevice-dwelling species without inconveniencing prospective occupants. Bat panels such as Schwegler Bat Access Panel 1FE, or bat tubes such as the Schwegler 2FR Bat Tube can be incorporated into the building exteriors with little visual impact, or roosts such as the Schwegler Bat Roost 1FQ can be erected after building completion.

5.13 In terms of the trees the Schwegler 2F bat box is a good general design that will attract many species. Bats are very particular about the internal conditions of bat boxes, so providing several bat boxes with different aspects creates differences in temperature, humidity etc. thereby increasing the chance of colonisation.

Badgers

5.14 The site as a whole provides foraging habitat for Badgers and the boundary hedges provide suitable habitat for the construction of setts. During the previous survey in June 2015, Badger activity was recorded on site in the form of a run and dung pit on the site boundary. Additionally, an active Badger hole was recorded off site to the north of the species-rich hedge along the north boundary of the west field. The presence of just one hole, along with the absence of obvious pathways to other setts, indicated that this hole was consistent with an outlying sett (Neal and Cheeseman, 1996).

5.15 During the present survey no recent evidence of Badgers was found on site or in the location of previous activity. No dung pits were found and although the Badger hole found during the

last survey was still present, this contained leaf litter with large numbers of Rabbit droppings at the entrance. A number of associated Rabbit holes were also present in close association. Although Rabbits and Badgers will cohabit, the presence of litter in the hole and the absence of other field signs, previously recorded i.e. the dung pit and the well worn run, suggests that Badgers are no longer present. As a precaution it is recommended that the former sett be inspected a week prior to construction works to determine that the sett is still disused before works commence. It is recommended that during the construction phase of the project any trenches or other excavations should be back-filled before nightfall or a ramp left to allow animals to easily exit, and any open pipes larger than 150 mm should be capped off overnight.

Other mammals

- 5.16 The potential for other species of protected or notable mammals to use the site is deemed to be low. No constraints are predicted as a result of the likely presence of common small mammals, including rabbits.

Birds

- 5.17 GCER provided records of two protected and/or notable bird species: European Turtle Dove and Barn Owl. Species recorded during the survey were Blackbird, Robin, Chaffinch, Great Tit, Blue Tit, Woodpigeon and Magpie.
- 5.18 The survey was carried out in November, which is outside the nesting season. No evidence of previous nesting by birds was noted but nests could have been missed in the hedgerows and scrub. The fields themselves are unsuitable for ground nesting birds.
- 5.19 Nesting birds are protected under The Wildlife and Countryside Act 1981 (and amendments). It is recommended that any vegetation clearance, be carried out outside of the bird-nesting season of March to August. Where this is not possible, vegetation should be surveyed for nesting birds by a suitably qualified ecologist prior to works commencing. If they are found, then the nest and surrounding habitat must remain intact until the young have fledged.
- 5.20 Based on the current proposed development on the site, the loss of nesting habitat would be restricted to the Apple tree and a section of the west boundary hedge within the east field; this loss would be negligible in the wider context. The loss of grassland in the fields is not considered to be important and there is scope to enhance the site for birds. Any enhancement of existing hedgerows, the addition of new hedgerows and the creation of new residential gardens is likely to provide additional foraging and nesting habitats and specific features could be incorporated into the buildings and hedgerows, which would further enhance the site.
- 5.21 The vegetation on site to be lost is mostly poor-semi improved grassland, which is considered to be of low value for birds. Any new planting on site should concentrate on species that are native to the area and ideally produce a range of seeds and berries at varying times of the year. Nectar rich plants could also be used to encourage invertebrates on to the site, which in turn provide food for birds as well as other species such as bats.

- 5.22 The development should include enhancements for birds as part of the overall scheme site. This could be achieved by erecting bird boxes for small birds on mature trees on the site; these should be fixed a minimum of 2 m from the ground, with the entrance hole between north and east. This avoids the worst of the weather and prevents the box and its inhabitants becoming overheated in sunny weather.
- 5.23 Consideration should also be given to the incorporation of new nesting sites for small birds on the new residential buildings. Nest boxes for Swifts and House Martins could be installed under the eaves or on north-facing walls at a height of at least 6 m. Colony type boxes could also be installed at a height of least 2 m to provide nesting sites for birds such as House Sparrows.

6.0 References

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7.0 Plans

Survey Results

