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Preliminary Ecological Appraisal and Phase 1 Habitat Survey

Land adjacent to Orchard Business Park, Yapton

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Report Summary

1. The Ecology Co-op has been commissioned by Crayfern Homes to undertake an Extended Phase 1 Habitat Survey at land adjacent to Orchard Business Park. A site walkover survey visit was carried out on the 21st February 2018, to map the habitat types and evaluate the site for its potential to support EU and UK protected species. The purpose of this report is to record the findings of the survey and identify potential ecological constraints to a proposed development of 6 new residential properties on the site.
2. This survey was undertaken by Emma Baker BSc (Hons), MSc and Jess Burkitt BSc (Hons), GradCIEEM.
3. The site is situated adjacent to Orchard Business Park, which is located in the village of Yapton, West Sussex. It comprises a dirt track driveway, and 3 parcels of closely-mown amenity grassland, two of which appear to be used as garden spaces. These are each partially separated by a fence line, and scattered trees. The site is bordered by a small portion of scattered scrub, intact hedges, a wooden fence line and scattered trees. To the north, west and east of the site there are a number of arable fields and to the south is a large residential area.
4. A reptile survey is recommended for the site. The standard approach to reptile presence/absence surveys require a minimum of eight site visits, to first to set out artificial refuges ('reptile mats'), followed by seven survey visits. The optimal months for survey are April, May and September, however they can be undertaken at any time from April to October, provided weather conditions are suitable.
5. To enhance the ecological value of the site, the hedge to be planted on the northern boundary should contain only native species. This should comprise 50% hawthorn or blackthorn, with the remainder of the hedge composition made up of at least four other tree species. Recommendations for installing new nesting features for house sparrows, house martins and swifts are outlined in section 4.11.

This report has been prepared by The Ecology Co-operation Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client. This report only becomes the property of the client once payment for it has been received in full.

We disclaim responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.



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1 INTRODUCTION

1.1 Purpose of the Report

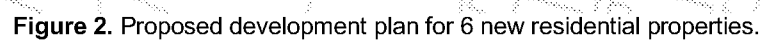
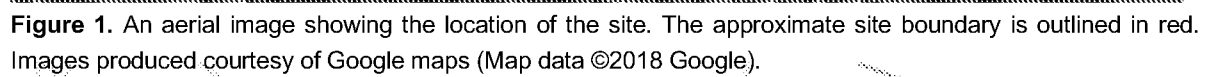
The Ecology Co-op has been commissioned to undertake an Extended Phase 1 Habitat Survey of land adjacent to Orchard Business Park, North End Road, Yapton, West Sussex, BN18 0GA by Crayfern Homes. This report presents the findings of a walkover survey undertaken by Emma Baker BSc (Hons) MSc and Jess Burkitt BSc (Hons) GradCIEEM on the 21st of February 2018. It provides details on the potential for any protected species and/or habitats to be present at the site and provides an assessment of the potential ecological constraints to the new development which will include the construction of 6 new residential properties. Recommendations for further surveys that are likely to be required to inform a planning application and any required Ecological Impact Assessment (EclA) of the proposal are provided. Where appropriate, measures to avoid, mitigate and/or compensate for impacts are outlined.

1.2 Background

The site is located in the village of Yapton, south-west of Arundel in West Sussex. The central grid reference for the site is SU979037.

This is a small site, measuring approximately 0.28Ha. It is predominantly comprised of closely-mown amenity grassland, which is separated into three parcels of land. There is a tightly-mown parcel of land on the western end of the site and two small parcels of land which appear to be garden spaces. The westernmost parcel of land is partially separated from the garden spaces by an ivy covered fence line and between the two gardens are scattered trees. The furthest garden space has a portion of hard standing, bordered by ornamental shrubs, which is used as a driveway/parking area. Running along the northern boundary of the site is a dirt track, which provides access to a number of houses at the eastern boundary of the site. The western and southern boundaries are comprised of a wooden fence, scattered trees, a small portion of scattered scrub and intact species-poor hedges. The eastern boundary of the site is a continuation of the garden space, running up to a residential property, which is not included in the proposed development plans. Figure 1 shows the boundary of the site.

The proposed development includes the construction of 6 new residential properties. Figure 2 shows the development plans for the site.





1.3 Policy and Legislation

Legal protection applying to relevant bird, mammal, herpetofauna and invertebrate species and current nature conservation planning policy is outlined in Appendix 1 of this report.

2 METHODOLOGY

The methodology used for this survey are in accordance with the Guidelines for Preliminary Ecological Appraisal (CIEEM 2017)¹.

2.1 Desk Study

A search for existing records of protected species, species of conservation concern and invasive non-native species was requested from the Sussex Biodiversity Records Centre within a radius of 2km of the site.

A search of on-line mapping resources was undertaken to identify the location of any features of potential ecological interest including ponds within 500m (relevant to great crested newts), watercourses (relevant to riparian mammals and crayfish) and connectivity to woodland, scrub, and hedgerow networks (relevant to bats, dormice) in the wider landscape around the site. The connectivity of the site to these features, buildings and other semi-natural habitats such as grassland and heathland are also relevant to bats, great crested newts and reptiles.

The MAGIC website resource (www.magic.gov.uk) was used to identify the location of designated sites for nature conservation and EPS licences granted in relation to the survey site.

2.2 Phase 1 Habitat Survey

A site walkover survey was undertaken on the 21st February 2018, during which the habitats contained within the site were described and evaluated in accordance with standard Phase 1 Habitat Survey Methodology². The dominant species and indicators of important habitat types such as ancient woodland or unimproved grasslands, were recorded.

A phase 1 habitat survey presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas. The aim of Phase 1 survey is to provide, relatively rapidly, a record of the vegetation and wildlife habitats present over large areas of countryside. The habitat classification is based principally on vegetation, augmented by reference to topographic and substrate features, particularly where vegetation is not the dominant component of the habitat.

¹ CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

² JNCC (2010) *Handbook for Phase 1 habitat survey: A technique for environmental audit*. Joint Nature Conservation Committee, Peterborough.



Data is gathered through a site walk-over survey and use of on-line aerial photography to broadly categorise the habitats present using the JNCC Phase 1 classifications. The results are presented as a map showing the distribution of habitat categories across the site. Target notes are used to describe specific features of biodiversity interest and record indicator species where appropriate. In addition to this, notable habitats, such as local and national Biodiversity Action Plan habitats are highlighted.

The Phase 1 Survey methodology is a recognised tool for initial scoping of potential ecological constraints and identifying potential impacts as part of the planning application process.

As part of the 'Extended' Phase 1 Habitat Survey, the site features were evaluated for their potential to support legally protected species and observations of any important plant communities, bird assemblages or other potentially valuable ecological features were recorded. Details of the preliminary survey methods for each legally protected species are given below.

2.3 Badgers

Habitats within the site and surrounding areas were broadly assessed for their potential to support badgers. Any signs of badger activity, for example setts, footprints, latrines, well-worn paths, foraging marks, were recorded.

Any limitations to the survey for badgers are set out in Section 3.11.

2.4 Bats

Bats can use a wide range of features including loft spaces, cavity walls, loose tiles, mortice joints and cracks/gaps in a variety of built structures. They can also be found in trees with holes, splits, cracks, cavities, ivy, and loose bark.

Trees, buildings, and other structures were broadly assessed for their potential to support roosting bats and further surveys are recommended as appropriate.

The potential for roosting bats for each feature, or group of features was assessed as either negligible, low, moderate, or high, in accordance with the Bat Conservation Trust Survey Guidelines (Collins, J.(ed.) (2016)³. Any evidence confirming the presence of bats that was found was clearly recorded including photos and samples (e.g. droppings) where appropriate. Further surveys are recommended where necessary.

2.5 Breeding Birds

The habitats contained within the site and adjacent areas were broadly assessed for their potential to support important bird species/assemblages, and breeding birds. Any birds identified during the site

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



visit were recorded. Special attention was paid to notable species such as red-listed Birds of Conservation Concern (Eaton *et al.* 2015)⁴ and those species afforded special protection on Schedule 1 of the Wildlife and Countryside Act (1981). Further surveys are recommended as appropriate.

2.6 Dormice

The site was broadly assessed for its potential to support hazel dormouse. This included use of on-line mapping resources to assess the surrounding area for connectivity to large blocks of woodland, scrub and extensive hedgerow networks. Further surveys are recommended as appropriate in accordance with best practice guidance (Bright *et al.* 2006)⁵.

2.7 Great Crested Newt

A desk study was undertaken to identify ponds within 500m of the site. Where access permission was granted, or ponds could be viewed from public roads or footpaths, the ponds were assessed for their potential to support great crested newts using the Habitat Suitability Index (H.S.I.) (Oldham *et al.* 2000)⁶.

Further surveys are recommended as appropriate, in accordance with best practice guidance (English Nature 2001)⁷.

Any survey or access limitations are clearly set out in Section 3.11.

2.8 Reptiles

Habitats on the site were broadly assessed for their potential to support reptiles. Particular attention was paid to those features that provide suitable basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of rotting vegetation) and opportunities for foraging (rough grassland and scrub). The common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis* grass snake *Natrix natrix* and adder *Vipera berus* are widespread species that can be found in any of these habitats, whereas smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis* have much more restricted and isolated populations on lowland heathland and sand dunes.

2.9 Riparian wildlife

Any watercourses identified during the desk study or field survey were assessed for their suitability to support otter, water vole and American mink.

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

⁵ Bright, P., Morris, P. and Mitchell-Jones, T. (2006) *The dormouse conservation handbook 2nd Ed.* English Nature, Peterborough.

⁶ Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000) Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *Herpetological Journal* 10, 143-155.

⁷ English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough.



2.10 Other notable species

The site habitats were broadly assessed for their potential to support species of principle importance for nature conservation (Section 41 NERC Act 2006) and other notable species. This includes mammals such as harvest mouse, hedgehog, brown hare, and many bird species. The site was broadly assessed for it's potential to support important invertebrate assemblages with specific attention paid to features such as standing dead-wood, wet flushes, bare earth banks and botanically rich areas.

3 BASELINE CONDITIONS

3.1 Designated Sites

There are no statutory designated sites located within 2km of the site boundary.

There are no granted EPS licenses for mitigation projects within 1km of the site boundaries. The closest EPS license to the site concerns a bat license from 2016 for the destruction of a resting place of Common pipistrelle *Pipistrellus pipistrellus* 2.6km away.



Figure 3. Designated sites within a radius of 2km of the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).



Figure 4. EPS Licenses within a radius of 1km of the application site. Images produced courtesy of Magic maps (<http://www.magic.gov.uk/>, contains public sector information licensed under the Open Government Licence v3.0).

3.2 Phase 1 Habitats

The site is predominantly comprised of closely-mown amenity grassland (see Figure 7), which is separated into three parcels of land. Running the northern boundary of the entire site is a dirt track (Figure 8), providing access to a number of houses at the eastern boundary of the site.

The first parcel of land on the western end of the site, closest to the road, is tightly-mown and bordered by scattered cypress trees *Cypressus sp.* (see Figure 9), scattered sycamore *Acer pseudoplatanus* trees, and an intact cypress hedge (see Figure 7). Underneath the scattered sycamore trees is a small portion of scattered scrub. In the south-west corner of this grassland are brash and log piles (see Figure 9).

The second and third parcels of land are garden spaces, which are separated from the westernmost land parcel by an intermittent wooden fence covered in dense ivy *Hedera sp.* and bramble *Rubus fruticosus* (see Figure 7). Continuing from this fence line, this central parcel is bordered to the west by further scattered cypress, and scattered chestnut *Castanea sativa*, which then comprises a wooden fence line. Within this garden space, parallel with the driveway, is a low earth bank covered in scattered bramble and ivy scrub as well as tussocky grass. A large mature ash tree is also present here (see Figure 10).

Separating this central parcel from the final parcel is scattered blackthorn *Prunus spinosa* and ash



Fraxinus excelsior as well as further ivy and bramble (see Figure 11). This final garden space leads into further amenity grassland and a house on the eastern boundary, which is not included in the development site (Figure 12). The southern boundary of this space comprised of a wire mesh fence and platform covered in dense ivy (see Figure 13), as well as a small portion of intact cypress hedge (see Figure 12). This parcel of land also contained a small area of hard standing, used as a driveway/parking space which is bordered by palm trees and ornamental shrubs (see Figure 14). In the south-west corner is a derelict shed structure covered completely with ivy and lacking a roof, door or walls (see Figure 15).

Table 2 below lists the Phase 1 Habitat categories found at the site, with target notes on specific features of interest and the general species composition. Note that detailed information on buildings and ponds with respect to bats and great crested newts are presented in the following sections. The Phase 1 Habitat Map for the site and key to the standard mapping symbols used are presented in Figure 4 and 5.

Table 2. The Phase 1 habitats contained within the site.

Habitat type	JNCC Code	Area(Ha)/ Length (meters)	Target note including general species composition
Cultivated/ disturbed land - amenity grassland	J1.2	0.26Ha	In the westernmost parcel of land there is fairly closely-mown amenity grassland with small bare patches. It includes the following species: creeping buttercup <i>Ranunculus repens</i>, dandelion <i>Taraxacum officinale</i>, daisy <i>Bellis perrenis</i>, white clover <i>Trifolium repens</i>, germander speedwell <i>Veronica chamaedrys</i>. In the central garden parcel, the grass is again closely-mown amenity grassland and it includes the same plant species. In the garden parcel leading up the house, the species-poor amenity grassland is less closely mown and comprises: mosses <i>Bryophyta</i> sp., broad-leaved dock <i>Rumex obtusifolius</i>, ribwort plantain <i>Plantago lanceolata</i>, dandelion and creeping buttercup. There are also some small patches of bare ground and a dead/fallen tree present.
Bare ground	J4	0.056Ha	There is a driveway/dirt track running alongside the entire northern boundary of the site, which gives access to houses situated on the eastern boundary. On the north-eastern boundary of the site, there is also a small area of hard standing, used as a driveway/parking space.
Broadleaved Parkland/scattered trees	A3.1	115m	On the southern border of the westernmost parcel of land is a row of scattered sycamore trees.



			On the western boundary of the central garden parcel, adjacent to the ivy covered wooden fence are scattered cypress and sweet chestnut trees, as well as brambles, ivy and common nettle <i>Urtica dioica</i>. Partially separating the central and final garden parcel is scattered blackthorn <i>Prunus spinosa</i> and ash, with dense patches of ivy and bramble within this. In the final garden parcel in front of the mesh fence on the southern boundary are scattered alder saplings (<i>Alnus glutinosa</i>).
Coniferous Parkland/ scattered trees	A3.2	10m	Along the western boundary of the westernmost land parcel are scattered cypress trees, covered with ivy. Underneath is ground ivy <i>Glechoma hederacea</i> , cleavers <i>Galium aparine</i> , common nettle, brambles and further ivy growth.
Mixed Parkland/scattered trees	A3.3	5m	Bordering the hardstanding used as a drive/parking space on the north-eastern boundary there were a few scattered ornamental shrubs and palm trees.
Intact hedge – species-poor	J2.1.2	50m	On the southern boundary of the westernmost parcel of land, there is a small portion of intact cypress hedge, and underneath this, common nettles and ivy. In the final garden parcel, the southern boundary contained a very small portion of intact cypress hedge.
Scrub - scattered	A2.2	0.0087Ha	In the westernmost parcel of land, in front of the scattered sycamore trees was a narrow strip of scattered bramble scrub. In front of the mesh fence running along the southern boundary in the final garden parcel is a bank or low wall covered in dense ivy, holly <i>Ilex aquifolium</i> and hawthorn scrub <i>Crataegus monogyna</i>, there is also cleavers, lords and ladies <i>Arum maculatum</i>, herb robert <i>Geranium robertianum</i> and common nettle present.
Fence	J2.4	60m	Bordering the access track on the northern boundary of the site was a portion of green metal security fence which met the front of the business park buildings. Between westernmost parcel of land and central garden space is a wooden fence completely covered in dense ivy and brambles which had a small gap on the northern end, providing access into the central garden area. On the south-western boundary of the central garden area is a low wooden fence, separating the space from the



			neighbouring garden, which progresses into a taller close board fence line along the southern boundary. On the southern boundary of the final garden parcel is a wooden and metal mesh fence covered in dead plants.
Earth bank	J2.8	0.005Ha	In the central garden area, parallel with the dirt track on the northern boundary is a low earth bank, covered in scattered bramble and ivy scrub as well as tussocky grass, and on top of this on the eastern end was a large ash tree.

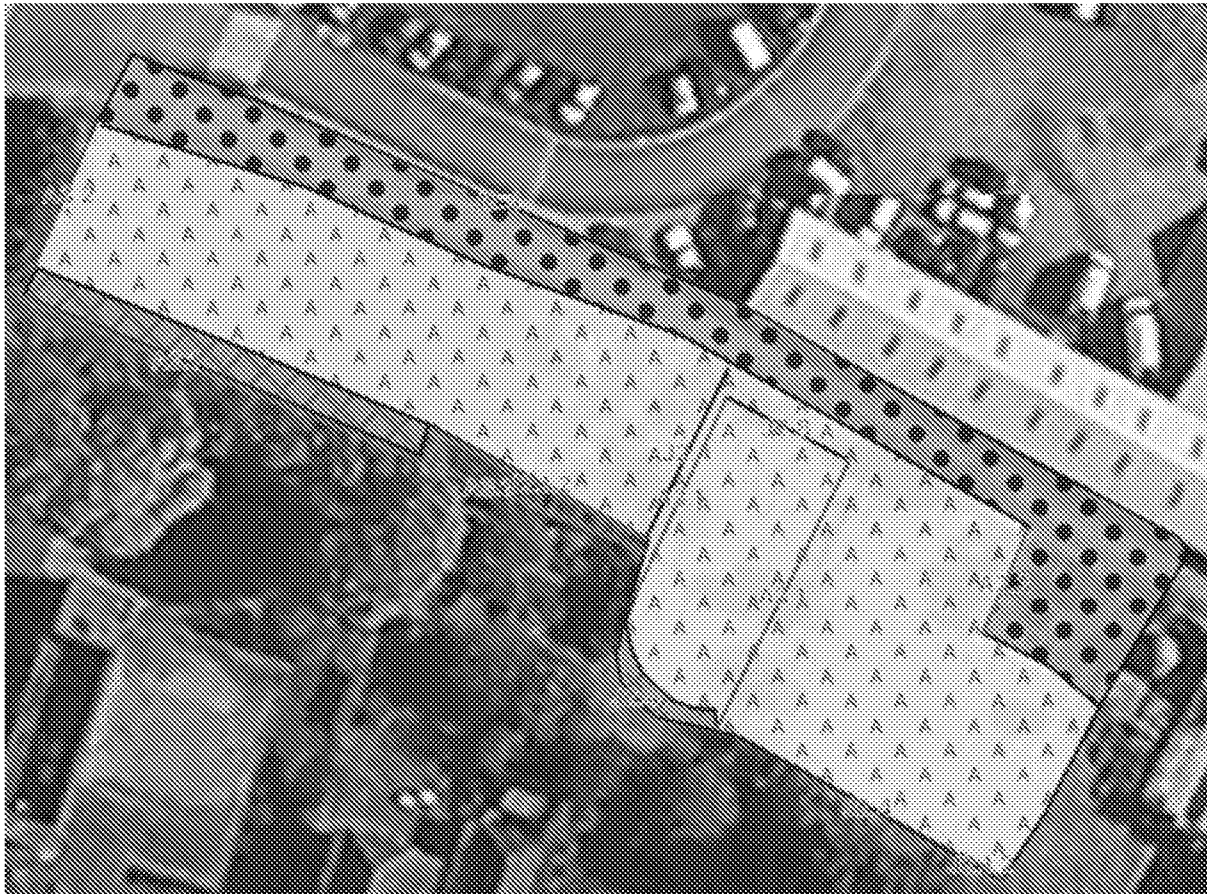


Figure 5. Phase 1 map of Land adjacent to Orchard Business Park.

Polygons		
	A2.2	Scrub - scattered
	J1.2	Cultivated/disturbed land - amenity grassland
	J4	Bare ground
Lines		
	A3.1	Broadleaved Parkland/ scattered trees
	A3.3	Mixed Parkland/ scattered trees
	J2.1.2	Intact hedge - species-poor
	J2.4	Fence

Figure 6. Key for Phase 1 habitat map for land adjacent to Orchard Business Park.



Figure 7. View east across amenity grassland in westernmost parcel of land with intact cypress hedge and ivy covered wooden fence.



Figure 8. Dirt track facing west towards access from the main road.



Figure 9. Brash piles under scattered cypress trees on western boundary of site.



Figure 10. Earth bank, with scrub and ash tree.



Figure 11. Scattered trees and shrubs partially separating the central and final garden parcel.



Figure 12. Amenity grassland running eastwards up to the house, and intact cypress hedge on southern boundary.



Figure 13. Wire mesh fence along southern boundary in final garden parcel, with ivy covered platform in front.



Figure 14. Concrete driveway/parking space on northern boundary of final garden parcel.



Figure 15. Derelict shed structure completely covered by ivy.

3.3 Badgers

No signs of any badger activity were seen during the survey assessment, though there are habitats of value for this species within the site and surrounding landscape. It is likely that if any setts were situated within 30m of the site boundary, then some evidence of badger activity would have been observed.

Records of badgers are not provided by the records centre, due to the sensitive nature of this information.

3.4 Bats

There are no trees on the site with the potential to support bats and no buildings are present on the site. The foraging potential of the site is low, though the intact cypress hedgerows and the scattered trees along the boundary of the site may be used as a commuting route.

The Sussex Biodiversity Records Centre provided 22 bat records in the search area comprising 10 identified species. There was serotine *Eptesicus serotinus* – 2 records, common pipistrelle *Pipistrellus pipistrellus* – 5 records, soprano pipistrelle *Pipistrellus pygmaeus* – 1 record, Nathusius's pipistrelle *Pipistrellus nathusii* – 1 record, a long-eared bat sp. *Plecotus sp.* – 1 record, Natterer's bat *Myotis nattereri* – 1 record, Noctule bat *Nyctalus noctula* – 1 record, Barbastelle *Barbastella barbastellus* – 7 records, and unspecified bat records (2 records). The closest of these was a field record which included Noctule *Nyctalus noctula*, Natterer's *Myotis nattereri* bat and a Pippistelle sp. *Pippistrellus sp.* approximately 770m from the site, dated 2000-2010.



3.5 Breeding Birds

All of the scrub, saplings, semi-mature and occasional large mature trees have the potential to support a variety of common nesting birds.

The Sussex Biodiversity Records Centre biological record centre provided numerous bird records for the search area concerning a total of 166 species. Most of these species are relatively common and widespread, but the list includes 32 species of principle importance for conservation (S41 NERC Act 2007), and 33 species listed on Schedule 1 of the Wildlife and Countryside Act. In addition, 14 species are red listed on the Birds of Conservation Concern.

A high proportion of the records are non-breeding visitors or occasional visitors to the adjacent coastline and not relevant to the application site. However, within 297m of the site, records were returned for 9 house sparrows *Passer domesticus* (S41) in 2011, which may be likely to use the intact hedgerows, scattered trees and scrub present on the site, and these habitats may also be used by dunnock *Prunella modularis* and song thrush *Turdus philomelos*.

3.6 Dormice

The site contains no woodland, scrub or hedgerows suitable for dormice and this species is highly unlikely to be present. Connectivity to woodland in the surrounding landscape is poor as the site is surrounded to the west, east and north by arable farmland.

While no records of this species were provided by Sussex Biodiversity Records Centre this species is known to be under-recorded and could occur in any suitable habitat.

3.7 Great Crested Newts and other amphibians

Within 500m of the site, one pond was identified 415m from the site, however, there are no waterbodies present at the site itself, or in between the site and this identified pond. There are significant amounts of suitable habitat immediately surrounding the identified pond, providing better cover and foraging potential. The site itself is well-managed and closely-mown, with areas of bare ground, and no scrub or other favourable habitat, meaning that it provides little foraging value. Great crested newts and other amphibians are therefore highly unlikely to be present at the site.

The Sussex Biodiversity Record Centre provided 44 amphibian records in the search area. This included 7 records for great crested newt *Triturus cristatus*, 12 records for smooth newt *Lissotriton vulgaris*, 7 records for palmate newt *Lissotriton helvetica*, 11 records for common frog *Rana temporaria* and 6 records for common toad *Bufo bufo*. The closest of these was 434m from the boundary of the site, dated 04/05/2002 and was a record for several great crested newt *Triturus cristatus* adults and the presence of ova. However, during the desk based study, searching aerial imagery for this pond returned an area with roads and no waterbodies. As the record is nearly 16 years old, it is likely the pond no longer exists.



3.8 Reptiles

The closely-mown species-poor amenity grassland on the proposed development has areas of bare ground and hard standing, which is not suitable habitat for reptiles. However, there are a number of areas of scrub, tussocky grassland and brash across the site, which may provide habitat and additional cover for common reptile species.

The Sussex Biodiversity Records Centre provided 96 reptile records in the search area. There were 45 records of slow worm, 15 of Grass snake, 1 Adder and 35 for Common lizard. The closest of these was for the presence of 26 slow worms at 601m from the boundary of the site, dated between the 30/08/2010-17/09/2010.

3.9 Riparian wildlife

There are no watercourses passing through or within 500m of the site boundaries.

The Sussex Biodiversity Records Centre provided 11 records of water vole in the search area. The closest of these was at 1.1km from the boundary of the site, dated 19/5/2016.

3.10 Invasive non-native species

No evidence of invasive non-native species was found during the walkover survey.

The Sussex Biodiversity Records Centre provided 2 records of Giant hogweed *Heracleum mantegazzianum* and 7 records of Japanese knotweed *Fallopia japonica* in the search area. The closest of these was a record of Japanese knotweed *Fallopia japonica*, which was 1.9km from the boundary of the site, dated 21/08/1998.

3.11 Other notable species

Sussex Biodiversity Records Centre returned 39 records for West European Hedgehog *Erinaceus europaeus*, 3 for Brown hare *Lepus europeaeus* and 1 for Harvest mouse *Micromys minutus*. There were also 8 records for Stag beetle *Lucanus cervus*. The closest of these was for 1 West European Hedgehog *Erinaceus europaeus* found in October 2017, 575m from the site.

The piles of brash and logs underneath the scattered cypress trees in the westernmost parcel of land may have the potential to support West European hedgehog.

3.12 Survey Limitations

An initial site assessment such as this is only able to act like a 'snapshot' to record any flora or fauna that is present at the time of the survey. It is therefore possible that some species may not have been present during the survey, but may be evident at other times of the year. For this reason, habitats are assessed for their potential to support some species, even where no direct evidence (such as



droppings) has been found.

4 ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

4.1 Designated sites

There are no designated sites within 2km of the site and as this is a fairly small development, it is unlikely that there will be any noise, pollution or physical impacts on any designated sites.

4.2 Habitats

The proposed development of the 6 new residential properties will result in the loss of amenity grassland, scattered scrub, broadleaved parkland/scattered trees and an earth bank with scrub habitat. However, the intact cypress hedgerows, broadleaved/ coniferous parkland and scattered trees bordering the site will be retained. A new hedgerow is included in the development plans, to be installed along the northern border of the site. This should be a native hedgerow to provide habitat of value for breeding birds and invertebrates.

The scrub habitat to be removed may have the potential to support reptiles and the scrub and scattered tree habitat removed may potentially support breeding birds. However, overall, there will be a small loss in ecological value to the site, and opportunities for enhancement to offset this impact are outlined in section 4.11.

4.3 Badgers

No signs of badger activity were identified during the assessment and no badger setts are situated on or near of the proposed construction zone. No further mitigation for badgers is advised, however if any signs of digging by large animals is identified on or near to the site prior to construction, then an ecologist should be contacted for advice.

4.4 Bats

The amenity grassland that makes up the majority of the site has very little foraging value for bats, however the scattered tree lines and hedgerows that border the site are likely to be used by commuting bats.

While it is not planned for these scattered trees and hedgerows to be removed as part of the development, as the site may be used by commuting bats, it is important that the potential for disturbance from artificial lights is considered. The proposed development should include an 'ecologically sensitive lighting scheme' in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 2).



4.5 Breeding Birds

All the hedgerows, scrub and woodland habitat contained in the site has a high potential to support a variety of common nesting birds. It will be essential for any future development to consider the nesting bird season and any vegetation removal and/or building demolition should be timed outside of the nesting bird season (typically 1st March to 31st August), unless features are first searched by a suitably qualified ecologist and no active nests are found.

The scrub and scattered trees which are planned to be removed during the development should be checked?

4.6 Dormice

The proposed development does not result in significant impacts on the woodland, hedgerow and scrub habitats contained within/bordering the site.

As dormice are nocturnal, it is important that the potential for disturbance from artificial lights is considered, as for bats (see Appendix 2).

4.7 Great Crested Newts

No further surveys are recommended with respect to great crested newts, as no waterbodies that might support breeding newts have been identified within 250 metres of the site (the most utilised area of habitat by a breeding population) and it is considered extremely unlikely that this species would be found on the site at any time given the barriers to movement and more suitable habitat associated within a pond identified 415 metres from the site.

4.8 Reptiles

The proposed development would result in the loss of suitable reptile habitat at the site. The development proposal would be highly likely to impact on reptiles should a population be present and a presence/likely absence survey is therefore recommended. The standard approach to reptile presence/likely absence surveys requires a minimum of eight site visits, first to set out artificial refuges ('reptile mats'), followed by seven survey visits. The optimal months for survey are April, May and September but they can be undertaken at any time from April to October, provided weather conditions are suitable.

If presence of reptiles is confirmed through such a survey, a reptile mitigation strategy would be required to detail how reptiles would be protected from harm through the development and the conservation status of the species would be protected. Due to the small amount of retained habitat at the site, this would likely require the capture and release of all reptiles to a suitable receptor site.

4.9 Other notable species

All of the log and brash piles at the site should be hand-searched by an ecologist to check for the



presence of hedgehogs prior to removal.

4.10 Enhancement opportunities

The proposed development represents an opportunity for habitat enhancement to benefit insects, birds, and bats. Any planting scheme could include native shrub species and flowering species known to encourage insect diversity. Such enhancement measures are in line with the recommendations of the NPPF and as such would be considered favourably when determining the planning application.

The landscaping plan could incorporate a variety of native trees to create greater habitat for a variety of birds and invertebrates. The plans indicate a new hedgerow to be placed along the northern boundary of the site up to the business park buildings along the metal security fence. This could be a native species hedge including species such as: hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), alder (*Alnus glutinosa*) and hazel (*Coryllus avellana*). Any hedge should comprise of at least 50% hawthorn or blackthorn by composition, with at least four other native tree species forming the remainder of the hedge composition.

Schwegler bird boxes, and in particular, sparrow terraces could be placed on the scattered trees across the site or incorporated into the new properties. At least two new schwegler 1SP sparrow terraces, two Schwegler 9A house martin nests and two woodstone swift boxes are recommended for installation on properties at a height above 3.5 metres away from windows

4.11 Conclusions.

While the majority of the site comprises bare ground and closely-mown amenity grassland, there are habitats present that may support reptiles and hedgehog on the site.

It will be important that if this development is to proceed that a reptile presence/absence survey will be required.

As the scattered trees and intact hedgerows may be used by commuting bats, it is important that the potential for disturbance from artificial lights is considered. The proposed development should include an 'ecologically sensitive lighting scheme' in accordance with guidance produced by the Bat Conservation Trust (summarised in Appendix 2).

By including landscaping with native trees and a native hedge along the northern boundary, the development has the potential to offset much of the development impact upon biodiversity.

If any protected species are found during the proposed work, work should be stopped immediately, and an ecologist must be contacted for advice.

Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op, info@ecologyco-op.co.uk, www.ecologyco-op.co.uk, Office: 01798 861800.



APPENDIX 1 –Wildlife Legislation and National Planning Policy

Introduction

The following text is intended for general guidance only and does not constitute comprehensive professional legal advice. It provides a summary of the current legal protection afforded to wildlife in general and certain species. It includes current national planning policy relevant to nature conservation.

The ‘Birds Directive’, ‘Habitats Directive’ and ‘Natura 2000 Sites’.

The Council Directive 79/409/EEC on the Conservation of Wild Birds (“the Birds Directive”) sets a framework for the protection of wild birds. Under the directive, several provisions are made including the designation and protection of ‘Special Protection Areas’ (SPAs) – areas which support important bird populations, and the legal protection of rare or vulnerable species.

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the “Habitats Directive”) directs member states of the EU to take measures to maintain favourable conservation status of important habitats and species. This requires the designation of a series of sites which contain important populations of species listed on Annex II of the directive (for example Bechstein’s bat *Myotis bechsteinii*, Barbastelle bat *Barbastella barbastellus* and white-clawed crayfish *Austropotamobius pallipes*). Together with ‘Special Areas of Conservation’ (SPAs), designated under the Birds Directive, SACs form a network across Europe of protected areas known as the ‘Natura 2000 sites’.

Annex IV lists species in need of more strict protection, these are known as “European Protected Species (EPS)”. All bat species, common dormice *Muscardinus avellana*, otter *Lutra lutra* and great crested newts *Triturus cristatus* are examples of EPS that are regularly encountered during development projects.

The ‘Habitats Regulations’

The Conservation of Habitats and Species Regulations 2010 (the “Habitats Regulations”) is the principle means of transposing the Habitats Directive and the Birds Directive, and updates the Conservation (Natural Habitats, &c.) Regulations 1994 (“the 1994 regulations”) in England and Wales.

‘Natura 2000’ sites receive the highest level of protection under this regulation which requires that any activity within the zone of influence of these sites would be subject to a Habitats Regulations Assessment (HRA) by the competent authority (e.g. planning authority), leading to an Appropriate Assessment (AA) in cases where ‘likely significant effects on the integrity of the site are identified.

For European Protected Species, Regulation 41 makes it a criminal offence to;

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb wild animals of such species;
- Deliberately take or destroy their eggs (where relevant);
- Damage or destroy a *breeding or resting place* of such an animal;
- Possess, control, sell or exchange any live or dead animal or plant, of such species;
- Deliberately pick, collect, cut, uproot or destroy a wild plant of such species.

The Habitats Directive and Habitats Regulations provide for the derogation from these prohibitions for



specific reasons provided certain conditions are met. An EPS licensing regime allows operations that would otherwise be unlawful acts to be carried out lawfully. Natural England is the licensing Authority and, in order to grant a license, ensures that three statutory conditions (sometimes referred to as the 'three derogation tests') are met:

- A licence can be granted for the purposes of “preserving public health or safety or for other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment” (Regulation 53 (2) (e).
- A licence can be granted if “there are no satisfactory alternatives” to the proposed action.
- A licence shall not be granted unless 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.

Wildlife and Countryside Act (1981) as amended.

This remains one of the most important pieces of wildlife legislation in the UK. There are various schedules to the Act protecting birds (Schedule 1), other animals including insects (Schedule 5), plants (Schedule 8), and control of invasive non-native species (Schedule 9).

Under the Wildlife and Countryside Act (WCA) 1981, all wild birds (with the exception of those listed on Schedule 2), their eggs and nests are protected by law and it is an offence to:

- Take, damage or destroy the nest of any wild bird while it is in use or being built.
- Take or destroy the egg of any wild bird.
- Disturb any bird listed on Schedule 1, while it is nest building, or at a nest with eggs or young, or disturb the dependant young of any such bird.

Schedule 5 lists all non-avian animals receiving protection to a varied degree. At its strongest, the Act makes it an offence to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturb animals while occupying such places. Examples of species with *full protection* include all EPS, common reptile species, water vole *Arvicola amphibius*, white-clawed crayfish *Austropotamobius pallipes* and Roman snail *Helix pomatia*. Other species are protected from sale, barter or exchange only, such as white letter hairstreak *Satyrrium w-album*.

The Act makes it an offence to intentionally pick, uproot or destroy any plant or seed, and sell or possess any plant listed on Schedule 8. It is also an offence to intentionally uproot any wild plant not listed on Schedule 8 unless authorised [by the land owner]. Species on Schedules 5 and 8 are reviewed every 5 years when species can be added or removed.

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife is included in the Act, which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9 (for example Japanese knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandifera*, New Zealand Pygmyweed *Crassula helmsii*).

The Wildlife and Countryside Act 1981 (as amended) also prohibits certain inhumane methods of traps and devices for the capture or killing of wild animals and certain additional methods such as fixed trap, poisoning with gas or smoke, or spot-lighting with vehicles for killing species listed on Schedule 6 of the Act (this includes all bat species, badger, otter, polecat, dormice, hedgehog and red squirrel).

Natural Environment and Rural Communities (NERC) Act (2006)



The NERC Act (2006) created the statutory nature conservation body Natural England, and places a statutory duty on all public bodies, including planning authorities, under Section 40, to take, or promote the taking by others, steps to further the conservation of *habitats and species of principal importance for the conservation of biodiversity* in England (commonly referred to as the 'Biodiversity Duty'). This duty extends to all public bodies the biodiversity duty of Section 74 of the Countryside and Rights of Way (CROW) Act 2000, which placed a duty only on Government and Ministers. Section 41 of the NERC Act lists the habitats and species of principle importance. This includes a wide range of species from mosses, vascular plants, invertebrates through to mammals and birds. It originates from the priority species listed under the UK Biodiversity Action Plan (UK BAP) with some omissions and additions.

Protection of Badgers Act (1992)

The Badger *Meles meles* is afforded specific legal protection in Britain under the Protection of Badgers Act (1992), and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) (see above).

Under this legislation, it is a criminal offence to:

- intentionally kill, injure, take, possess, or cruelly ill-treat, a Badger, or to attempt to do so;
- interfere with a sett, by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

A licence may be obtained from Natural England to permit certain prohibited actions for a number of defined reasons including interference of a sett for the purpose of development, provided that a certain number of conditions are met. Note that licenses are not normally granted for works affecting badgers between the end of November and the start of July.

National Planning Policy Framework

The National Planning Policy Framework (NPPF 2012) sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regard to the operation of the planning system.

The NPPF states that the wider benefits of an ecosystem should be recognised, and the presence of a protected species is a material consideration for a development proposal (Circular 06/2005, 2005).

In accordance with the NPPF, it is important that developments should contribute to and enhance the natural and local environment by:

- Minimising impacts on existing biodiversity and habitats,
- Providing net gains in biodiversity and habitats, wherever possible,
- establishing coherent ecological networks that are more resilient to current and future pressures.

UK Post-2010 Biodiversity Framework

The UK Biodiversity Action Plan (UK BAP), first published in 1994, was the UK's response to the commitments of the Rio Convention on Biological Diversity (1992) until 2010, when the UK BAP was replaced by the UK Post-2010 Biodiversity Framework. This framework covers the period 2011 to 2020 and forms the UK government's response to the new strategic plan of the United Nations Convention on Biodiversity (CBD) published in 2010. This promotes a focus on individual countries delivering target for



protection for biodiversity through their own strategies.

The most recent biodiversity strategy for England, 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' was published by Defra (2011), and a progress update was provided in July 2013 (Defra 2013).

'Biodiversity 2020' builds on the Natural Environment White Paper for England – 'The Natural Choice', published on 7 June 2011, and sets out the strategic direction for biodiversity policy for the next decade. Biodiversity 2020 deliberately avoids setting specific targets and actions for local areas and species because the Government believes that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their local area or situation.

Birds of Conservation Concern (BoCC)

In 1996, the UK's leading non-governmental bird conservation organisations listed the conservation status of all bird species in the UK against a series of criteria relating to their population size, trends and relative importance to global conservation. The lists, known as the 'Red', 'Amber' and 'Green' lists (in order of decreasing concern) are used to inform key conservation policy and decisions. The lists are reviewed every 5 years and are a useful reference for determining the current importance of a particular site for birds. The most recent review was undertaken in 2015 (Eaton et al, 2015), which provides an up to date assessment of the conservation status of birds in the UK.

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APPENDIX 2 - Reducing impacts of artificial light

Bright external lighting can have a detrimental impact upon foraging and commuting bat flight paths, but more importantly can also cause bats to remain in their roosts for longer. Artificial lighting can also cause significant impacts on other nocturnal species, most notably moths and other nocturnal insects. It can also result in disruption of the circadian rhythms of birds, reducing their fitness. Guidelines issued by the Bat Conservation Trust⁸ should be considered while designing the lighting scheme. This includes the following measures:

Do not:

- provide excessive lighting. Use only the minimum amount of light needed for the task.
- directly illuminate bat roosts or important areas for nesting birds

Avoid:

- installing lighting in ecologically sensitive areas such as: near ponds, lakes, rivers, areas of high conservation value; sites supporting particularly light-sensitive species of conservation significance (e.g. glow worms, rare moths, slow-flying bats) and habitat used by protected species.
- using reflective surfaces under lights.

Do:

- consider employing a competent lighting designer who will apply the principals of providing the right light, in the right place, at the right time and controlled by the right system.
- minimise the spread of light to at, or near horizontal and ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required.
- consider the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light-spill or require more columns. Column height should be carefully considered to balance task and mitigation measures.
- consider no lighting solutions where possible such as white lining, good signage, and LED cats eyes. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times.
- use temporary close-boarded fencing until vegetation matures, to shield sensitive areas from lighting.
- limit the times that lights are on to provide some dark periods. The task being lit often varies, for example roads are less used after 23.00hrs and car parks are empty. A lighting designer can vary the lighting levels as the use of the area changes reducing lighting levels or perhaps even switching installations off after certain times. This use of adaptive lighting can tailor the installation to suit human health and safety as well as wildlife needs.

⁸ Bat Conservation Trust (2014) Artificial Lighting and Wildlife - Interim Guidance: Recommendations to help minimise the impact artificial lighting. Available at: http://www.bats.org.uk/pages/bats_and_lighting.html



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