CSA environmental

Land South of Henfield Road,
Albourne, West Sussex

Ecological Impact Assessment

Prepared by
CSA Environmental

on behalf of
Croudace Homes Ltd

Report No: CSA/4426/03/A

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

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EXECUTIVE SUMMARY

Residential development is proposed at Land south of Henfield Road, Albourne, West Sussex, for which outline planning permission is sought.

CSA Environmental was instructed by Croudace Homes Ltd to undertake an Ecological Impact Assessment (EcIA) of the proposed development. To inform this assessment, a desktop study followed by a suite of targeted species and habitat surveys were undertaken; with just wintering bird and dormouse surveys to be completed at the time of writing.

The Site is situated along the western edge of the village of Albourne; central grid ref TQ 261166 and comprises four fields bounded by native hedgerows and treelines. These fields include an orchard, a field of improved grassland and two arable fields bordered by improved grassland margins. Patches of scattered scrub, tall ruderal vegetation and bracken are also present within southern Site boundaries. The scheme seeks to retain hedgerows and other habitats wherever practicable, with compensatory planting provided within retained open space areas.

Bat activity levels across much of the Site were relatively low during bat surveys, with exception of the western boundaries where foraging and commuting activity was fairly high. Recordings were mostly of common and widespread species including common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*, with only low numbers of registrations of less common species such as Nathusius' pipistrelle *Pipistrellus nathusii*, brown long-eared bat *Plecotus auritus* and barbastelle *Barbastella barbastellus*. Dormouse *Muscardinus avellanarius* surveys are still underway, but to date no dormice have been found (monthly surveys completed thus far include May to July). Breeding bird surveys have recorded an assemblage of Local importance including 42 breeding species, 26 of which are conservation importance, such as Red and Amber BoCC species, S41 birds and a Schedule 1 species. Those recorded include those typical of farmland, woodland, hedgerow and garden habitats. Wintering bird surveys are to be completed in winter 2022, however the two visits to date have recorded an assemblage of Local importance.

Low grass snake *Natrix natrix (syn. N. Helvetica)* and slow worm *Anguis fragilis* populations are present on-Site within grassland habitats including F2, the orchard and grassland margins. Great crested newt *Triturus cristatus* have also been recorded within a dispersible range of the Site and are likely to use terrestrial habitats on-Site.

Mitigation has been proposed where applicable to address potential impacts on these protected species and ensure compliance with relevant legislation. This includes embedded mitigation delivered as part of the scheme design including native wildflower planting, tree and

shrub planting, attenuation basins and associated marginal planting, all of which will be of benefit for a variety of species.

Opportunities for ecological enhancement may be secured by planning condition, including the provision of a range of semi-natural habitats, particularly in the southern POS; significantly diversifying habitats available on-Site and providing a variety of opportunities for a range of species. Other enhancements include planting of species known to benefit wildlife, infill planting within the orchard, the provision of bat and bird boxes, log piles, insect boxes and integrating hedgehog *Erinaceus europaeus* gaps within new fencing.

Based on successful implementation of the proposed avoidance, mitigation and enhancement, the development is not anticipated to result in any significant residual negative effects on important ecological features. Furthermore, it has been demonstrated that the scheme can secure a significant net gain in biodiversity through on-site habitat creation. The scheme is considered to accord with all relevant nature conservation legislation, as well as with the provisions of Strategic Policy DP38 of the Mid Sussex District Plan 2014-2031.

1.0 INTRODUCTION

1.1 This report has been prepared by CSA Environmental on behalf of Croudace Homes Ltd. It sets out the findings of an Ecological Impact Assessment (EcIA) of proposed development at Land south of Henfield Road, Albourne, West Sussex (hereafter 'the Site'). Residential development is proposed at the Site, for which outline planning permission is sought.

1.2 The scope of this assessment has been determined with consideration of best-practice guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) and the Biodiversity: Code of practice for planning and development published by the British Standards Institute (BS 42020:2013).

1.3 The Site occupies an area of c. 11.54ha and consists of two large arable fields which are cut for hay/silage with improved rough grassland field margins and a smaller field consisting of improved grassland. A small triangular field with a traditional orchard (S41 habitat) and associated improved grassland of moderate species diversity, is located to the north, separated from the southern fields by a mature hedgerow and a seasonally wet ditch. Native hedgerows (S41 habitat) and treelines of varying densities, structure and species richness, associated mature trees, a small pond and a broadleaved woodland (S41 habitat) edge form the Site boundaries. Other habitats present include patches of scrub, tall ruderal and an area of bracken located along the southern boundary. Section 41 habitats of priority for conservation should, where possible be retained, protected and buffered from development edge effects.

1.4 An initial desk study and extended Phase 1 Habitat survey was undertaken for the Site in June 2019 as part of a Preliminary Ecological Appraisal, and was updated in July 2021, the findings of which are presented herein. In addition, the following further survey work was undertaken beginning in March 2022, with some surveys ongoing throughout Summer 2022 and wintering bird surveys which will be completed in winter 2022:

- Bat activity surveys (May – August 2022)
- Dormouse presence / likely absence surveys (May – Sept 2022)
- Breeding bird survey (March – July 2022)
- Wintering bird survey (January – December 2022)
- Reptile presence / likely absence surveys (March – May 2022)
- GCN presence / likely absence surveys (March – May 2022)

1.5 This EcIA aims to:

- Establish baseline ecological conditions at the Site.
- Determine the importance of ecological features which could be affected by the proposed scheme.
- Identify any likely significant impacts or effects of the proposed development on important ecological features, in the absence of mitigation, including cumulative impacts.
- Set out any measures necessary to effectively avoid or mitigate likely significant effects, and identify residual impacts.
- Identify any compensation measures required to offset residual impacts.
- Set out potential ecological enhancement measures that may be secured by the proposed scheme, and quantify the overall net change in biodiversity using Biodiversity Metric 3.0.
- Confirm how proposed mitigation, compensation and enhancement measures could be secured.
- Provide sufficient information to determine whether the project accords with relevant nature conservation policies and legislation, and where appropriate, to allow conditions or obligations to be imposed by the relevant authority.

1.6 An EcIA can be used for the appraisal of projects of any scale. This is a best practice evaluation process, recommended by CIEEM (2018). It is intended that the evaluation of findings presented here-in will aid the Mid Sussex District Council in their review of the planning application.

2.0 LEGISLATION, PLANNING POLICY & STANDING ADVICE

Legislation

2.1 Legislation relating to wildlife and biodiversity of particular relevance to this EcIA includes:

- The Conservation of Habitats and Species Regulations 2017 (as amended)
- The Wildlife and Countryside Act 1981 (as amended)
- The Natural Environment and Rural Communities (NERC) Act 2006
- The Protection of Badgers Act 1992

2.2 This above legislation has been addressed, as appropriate, in the production of this report. Further information on the above legislation is provided in Appendix B.

National Planning Policy

2.3 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021) sets out the government planning policies for England and how they should be applied. Chapter 15: Conserving and Enhancing the Natural Environment, is of particular relevance to this report as it relates to ecology and biodiversity. Further details are provided in Appendix B.

2.4 Accompanying the NPPF, central government guidance on the implementation of planning policies is set out within online Planning Policy Guidance (PPG). The Natural Environment PPG addresses biodiversity conservation, from individual site and species protection through to the supporting of ecosystem services. Further guidance in respect of statutory obligations for biodiversity conservation within the planning system is provided by Government Circular 06/2005.

Local Planning Policy

2.5 A number of local planning policies relate to ecology, biodiversity and/or nature conservation. These are summarised in Table 1 of Appendix B. These policies have been addressed, as appropriate, in the production of this report.

Standing Advice

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

3.0 METHODS

Desk Study

3.1 The Multi-Agency Geographic Information for the Countryside (MAGIC) online database was reviewed in April 2022 to identify the following ecological features (based on the Site's likely 'zone of influence' in respect of such features):

- Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar sites within 10km of the Site (including possible/proposed sites)
- Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR) within 3km of the Site
- Other relevant data e.g. Ancient Woodland Inventory within 1km of the Site

3.2 Sussex Biological Records Centre (SxBRC) was contacted in April 2022 for details of any non-statutory nature conservation designations and records of protected/notable habitats and species. This information was requested for an area encompassing the Site and adjacent land within c. 2km of its central grid reference. This search area was selected to include the likely zone of influence of effects upon non-statutory designations and protected or notable habitats and species.

3.3 Further online resources were reviewed for information which may aid the identification of important ecological features. The Woodland Trust's online Ancient Tree Inventory was reviewed for known ancient or veteran trees within the Site and adjacent land. Interactive online mapping provided by the charity 'Buglife' was used to determine whether the Site falls within an Important Invertebrate Area.

3.4 In accordance with Natural England's Great Crested Newt Mitigation Guidelines (2001), a desktop search was undertaken to identify ponds within 500m of the Site which may have potential to support breeding great crested newts *Triturus cristatus*, using Ordnance Survey (OS) mapping, the MAGIC database and aerial photography.

3.5 Where possible under the terms of the data provider, relevant desk study data are presented in Appendix C.

Field Surveys

Extended Phase 1 Habitat Survey and Habitat Condition Assessment

3.6 An extended Phase 1 Habitat survey was carried out in fine and dry weather conditions on 14 July 2021 by Clare Caudwell CEcol MCIEEM and Aaron White ACIEEM, encompassing the Site and immediately adjacent habitats that could be viewed. This survey provided updated information to the original survey which was undertaken in June 2019.

3.7 Phase 1 Habitat survey is a method of classification and mapping wildlife habitats in Great Britain. It was originally intended to provide "…*relatively rapidly, a record of the semi-natural vegetation and wildlife habitat over large areas of countryside*." The Phase 1 Habitat Survey method has been widely 'extended' beyond its original purpose to allow the capture of information at an intermediate level between Phase 1 and Phase 2 Habitat surveys. Here, the standard survey method has been 'extended' in this report to include the following:

- More detailed floral species lists for each identified habitat
- Descriptions of habitat structure, the evidence of management and a broad assessment of habitat condition
- Mapping of additional habitat types (e.g. hardstanding)
- Identification of Habitats of Principal Importance in respect of Section 41 (S41) of the NERC Act 2006
- Identification of Habitats Directive Annex I habitat types
- Evidence of, or potential for, European Protected Species (EPS) (including bats, great crested newt, dormouse and otter)
- Evidence of, or potential for, other protected species (including birds, reptiles, water vole, badger and certain invertebrates)
- Evidence of, or potential for, other notable species (including S41 Species of Principal Importance as well as notable, rare, protected or controlled plants and invertebrates)

3.8 A Habitat Condition Assessment was carried out alongside the Phase 1 Habitat survey to inform the Biodiversity Metric 3.0 in July 2021. Habitat condition was assigned following guidance from the 'Technical Supplement' document (Natural England, 2021) which accompanies the Biodiversity Metric 3.0. Assessment criteria were followed for each broad habitat type, to determine the condition of each habitat present.

3.9 Results of the extended Phase 1 Habitat survey are presented on the Habitats Plan in Appendix A. Appendix D provides a list of floral species recorded in each habitat. The Condition Assessment results are provided alongside the Biodiversity Net Gain Assessment Report (CSA/4426/04).

<u>Further Survey Work</u>

3.10 The following detailed field survey work has been undertaken, with final surveys ongoing between June and December 2022, full methods and results provided in the relevant Appendices:

- Bat Activity Surveys (Appendix G)
- Dormouse Surveys (Appendix H)
- Breeding Bird Survey (Appendix I)
- Wintering Bird Survey (Appendix J)
- Reptile Survey (Appendix K)
- Great Crested Newt Surveys (Appendix L)

Limitations

3.11 There were no specific limitations to the desktop study or extended Phase 1 Habitat survey, which was conducted at a suitable time of year and in good weather conditions. Limitations to individual surveys are addressed in the relevant appendices.

Evaluation and Assessment

3.12 Ecological features are identified, evaluated and assessed in accordance with the CIEEM Guidelines for Ecological Impact Assessment (2018), with detailed methods provided in Appendix E.

3.13 It is an established principle (CIEEM, 2018) that EcIA is an iterative process. Specialist advice on the avoidance and mitigation of the potential negative effects of the proposed development has been input from an early design stage.

4.0 BASELINE ECOLOGICAL CONDITIONS

Nature Conservation Designations

Statutory

4.1 There are no statutory designations covering any part of the Site, whilst no international statutory designations were identified within 10km of the Site.

4.2 One national statutory designation was identified within 3km of the Site. This is the Wolstonbury Hill SSSI (c. 2.7km south-east of the Site). This statutory designation is described in Table 1 below. As SSSIs are administered and designated under national legislation, these sites are considered to be important at the National level. No direct or indirect impacts to Wolstonbury Hill SSSI are anticipated as a result of the proposed development due to the small scale of the development and the distance from the Site to the designation.

4.3 No local statutory designations were identified within a 3km radius.

Non-Statutory

4.4 No non-statutory designations were identified within 2km of the Site.

Table 1. Statutory Designations within search radii

Site Name & Designation	Distance & Direction from Survey Area	Special Interests or Qualifying Features
National Designations within 3km		
Wolstonbury Hill SSSI	c. 2.93km south-east	This site is an area of chalk downland which contains a rich mixture of flowering plants including a number of uncommon species. Species present include sheep's fescue *Festuca ovina,* upright brome *Bromus erectus,* eyebright *Euphrasia nemorosa,* squinancywort *Asperula* cynanchica, round-headed rampion *Phyteuma tenerum* and a number of orchids such as bee orchid *Ophrys apifera*, fly orchid *Ophrys insectifera*, pyramidal orchid *Anacamptis pyramidalis* and early purple orchid *Orchis mascula.* The site also contains Dyer's greenweed *Genista tinctoria* within grassland. Patches of woodland are also present.

Habitats and Flora

Ancient Woodland

4.5 There is no designated Ancient Woodland covering any part of the Site or immediately adjacent land. No trees on-Site are listed on the Ancient Tree Inventory, however one mature and veteran pedunculate oak *Quercus robur* was noted. c. 15m south of the Site, with another two individuals of the same species c. 80m south and c. 285m south-west of the Site [see https://ati.woodlandtrust.org.uk/]. The specimen situated c. 15m south of the Site is a large veteran with a girth of c. 6.65m from a height of 1.5m and was noted to have a barn owl *Tyto alba* box.

Notable Flora Records

4.6 A total of 101 records of 40 notable plant species were identified within the search area. Those of potential relevance to the Site include quaking grass *Brizia media*, false flax *Camelina sativa*, harebell *Campanula roytundifolia*, tufted-sedge *Carex elata*, bladder sedge *Carex vesicaria*, field mouse-ear *Cerastium arvense*, wild strawberry *Fragaria vesca*, bluebell *Hyacinthoides non-scripta*, field scabious *Knautia arvensis*, bitter vetch *Lathyrus linifolius*, corn mint *Mentha arvensis*, corn parsley *Petroselinum segetum*, Jacob's ladder *Polemonium caeruleum*, lesser spearwort *Ranunculus flammula*, sanicle *Sanicula europaea* and wood bitter-vetch *Vicia orobus*.

4.7 It is possible that these species may occur on-Site, although none were recorded during the Phase 1 habitat survey. However, bluebell *Hyacinthoides* sp. was recorded within the woodland (W1) and in H6, although it was not possible to confirm identification to the species-level as it had already flowered.

4.8 No invasive non-native plant species were identified during the extended Phase 1 Habitat survey or subsequent visits to the Site.

Habitats

4.9 The following habitats were recorded on-site and classified in line with current Phase 1 Habitat species guidance (JNCC, 1990), as illustrated in Appendix A. Where relevant the corresponding habitat type from the UK Habs classification system has also been provided to inform an assessment of Biodiversity Net Gain. Detailed species lists for each habitat are provided in Appendix D.

Arable

4.10 Fields F3 and F4 were cultivated for arable crops at the time of survey, these fields have improved grassland margins. This habitat equates to the UK Habs classification 'cropland – cereal crop'. Condition assessments do not apply to agricultural habitats.

4.11 This habitat is of relatively low ecological value, and is common and widespread, so is overall considered to be of less than Local importance, and is **scoped out** of further assessment.

Improved grassland

4.12 Improved grassland margins border F3 and F4 as well as the entirety of F1 (orchard) and F2. The sward within the orchard exhibits a good mixture of grasses and herbs, with Yorkshire fog *Holcus lanatus* being the most dominant grass species, as well as meadow barley *Hordeum secalinum*, soft brome *Bromus hordeaceus*, upright brome *Bromus erectus,* sweet vernal-grass *Anthoxanthum odoratum*, smooth meadow-grass *Poa pratensis*, false oat-grass *Arrhenatherum elatius* (mostly along the margins), small Timothy-grass *Phleum bertolonii*, perennial ryegrass, giant fescue *Festuca gigantea* and cock's-foot *Dactylis glomerata*.

4.13 Forb species noted include common mouse-ear *Cerastium fontanum*, meadow buttercup *Ranunculus acris*, creeping buttercup *Ranunculus repens*, common sorrel *Rumex acetosa*, common hogweed *Heracleum sphondylium*, creeping thistle *Cirsium arvense*, yarrow *Achillea millefolium*, lesser stitchwort *Stellaria graminea*, smooth tare *Vicia tetrasperma*, common vetch *Vicia sativa*, bird's-foot trefoil *Lotus corniculatus*, grass vetchling *Lathyrus nissolia*, dandelion *Taraxacum* sp., white clover *Trifolium repens*, perforate St John's wort *Hypericum perforatum* (mostly along the margins) and ragwort *Senecio jacobaea*. A sedge species *Carex* sp. and soft rush *Juncus effusus* were also recorded.

4.14 The northern margins of F2 has a width of c. 2-3m and were also noted to have a good range of species. Species recorded include pendulous sedge *Carex pendula*, bramble *Rubus frutigosus* agg., common nettle *Urtica dioica*, false oat-grass, cut-leaved cranesbill *Geranium dissectum*, dock *Rumex* sp., young grey willow *Salix cinerea*, meadow vetchling *Lathyrus pratensis*, common vetch, dog rose *Rosa canina*, hedge woundwort *Stachys sylvatica*, common hogweed, common couch *Elymus* repens, wild parsnip *Pastinaca sativa*, great willowherb *Epilobium hirsutum*, Yorkshire fog, hedge bindweed *Calystegia sepium*, bristly oxtongue *Helminthotheca echioides*, meadowsweet *Filipendula ulmaria*, creeping buttercup and giant fescue.

4.15 Other areas of improved grassland showed a less diverse range of species, with the most abundant species within these areas of improved grassland including perennial ryegrass with very limited other species recorded comprising selfheal dock *Rumex* sp., cock's-foot creeping buttercup cranesbill and white clover.

4.16 Under UK Habs classifications improved grassland habitats on-site equate to 'grassland – modified grassland' and they have been assessed to be in 'moderate condition'. Despite the greater diversity of species in F1 and the northern margins of F2, both were deemed to have

'moderate condition' due to there being fewer than nine species per m^2 in accordance with the criteria within the Condition Assessment sheets, which needs to be met to obtain 'good condition'.

4.17 Arable field margins are common and widespread both locally to the Site and within the wider landscape. Adopted as a Habitat of Principle Importance in England under the NERC Act 2006, those on-Site are relatively wide, however the species recorded here represent a fairly typical assemblage associated with this habitat (although limitations to botanical survey noted due to seasonality). As a result, the field margins at the site are not considered to be important at a less than Local level and have been **scoped out** of further assessment.

Orchard

4.18 Within F1 is an orchard which is comprised of cherry *Prunus* sp., apple *Malus* sp. and walnut *Juglans regia*. This equates to 'grassland – traditional orchard' under UK Habs classifications. It has been assessed to be in 'moderate' condition. This orchard is surrounded by improved grassland margins and is a S41 habitat of principal importance, as well as a Sussex BAP habitat and is considered to be of **Local** importance.

Hedgerows and Lines of Trees

4.19 The Site contains a total of twelve hedgerows, and one line of trees (H6). These vary in density and species composition and richness. Table 2 shows the species recorded in each hedgerow/treeline, excluding ground flora.

4.20 H1 is located along the west of F1 and is approximately c. 4-5m tall with a dense width of c. 4-5m. Blackthorn *Prunus spinosa* is the most abundant species within this hedgerow, with pedunculate oak, ash *Fraxinus excelsior*, dog rose, field rose *Rosa arvensis* and elder *Sambucus nigra* also recorded. Ground flora recorded amongst this hedgerow include dock *Rumex* sp., bramble, common nettle, bittersweet *Solanum dulcamara*, cleavers *Galium aparine*, lesser stitchwort, ground ivy *Glechoma hederacea* and cut-leaved cranesbill.

4.21 Hedgerow H2 is located along the eastern boundary of F1 and adjacent to Henfield Road. This hedgerow is slightly more intensively managed than H1 and H3, however it is more species diverse than H1. Hawthorn *Crategus monogyna* and blackthorn are the most abundant tree species noted in this hedgerow, with midland hawthorn *Crataegus laevigata*, pedunculate oak, dog rose, field rose, field maple *Acer campestre*, grey willow, dogwood *Cornus sanguinea* and field rose also recorded. Ground flora recorded include common hogweed, bramble, cow parsley *Anthriscus sylvestris*, lesser stitchwort, hedge bindweed, common nettle, dock *Rumex* sp., spear thistle *Cirsium vulgare*, creeping thistle, wood avens *Geum urbanum*, bittersweet, hedge woundwort, oval sedge *Carex 9eporine,* false fox-sedge *Carex otrubae* and

common fleabane *Pulicaria dysenterica*. There was a notable difference in the flora within the south-east of this hedgerow, with more wet ground-associated species such as the oval and false fox-sedge being recorded exclusively in this section.

4.22 Hedgerow H3 is a tall and dense hedgerow (c. 3-4m in height and width) situated with F1 to its north, and fields F2 and F3 to its south. The most abundant tree species within this hedgerow are hawthorn and blackthorn, with holly *Ilex aquifolium*, dog rose, field maple, hazel *Corylus avellana*, silver birch *Betula pendula*, ivy, elder, goat willow *Salix cinerea* and field rose also noted. This hedgerow has a seasonally wet ditch (D1) running along its southern edge with a range of ground flora at and around its base including pendulous sedge, dock *Rumex* sp., bramble, common nettle, cleavers, bittersweet, common hogweed, creeping thistle, great willowherb, upright brome, field horsetail *Equisetum arvense* and ground ivy.

4.23 Hedgerow H4 is located along the north-western boundary, adjacent to the western end of W1, it is also associated with D1. Hawthorn and blackthorn are the most abundant species in this hedgerow, whilst pedunculate oak, ash, dog rose, field rose, field maple, hazel, dogwood, ivy, elder and crack willow *Salix fragilis* were recorded. Ground flora include dog's mercury, hedge bindweed, bittersweet and great willowherb. Running along the western boundary of F2 is H5 which comprises primarily field maple as well as pedunculate oak, ash, hawthorn, blackthorn, dog rose and crack willow. Ground flora includes creeping buttercup, bramble, nettle and wood false-brome *Brachypodium sylvaticum*.

4.24 The line of trees of H6 occurs between H7 and H8. Tree species recorded include pedunculate oak, hawthorn, *cherry Prunus avium*, dog rose hazel, ivy and elder. Ground flora comprise bramble, sorrel *Rumex* sp., bluebell *Hyacinthoides* sp., wood false-brome and bracken *Pteridium aquilinum*.

4.25 Along the centre of the Site and dividing F2 from F3 lies H7. This is a newly planted hedge, comprised of a mixture of native species including hawthorn, blackthorn, field maple, hazel, holly, cherry, birch *Betula* sp., spindle *Euonymus europaeus*, yew *Taxus baccata*, guelder rose *Viburnum opulus*, willow *Salix* sp. and poplar *Populus* sp.. As this is a young and recently planted hedgerow, no ground flora had yet colonized due to the presence of a weed mat. Hedgerow H9 comprises the same species as this hedgerow.

4.26 Hedgerow H8 lies on the south-western boundary and displays a similar species composition as H5, although blackthorn and hazel are most abundant, with other species recorded including pedunculate oak, hash, hawthorn, dog rose, field rose and crack willow. Ground flora

noted include bramble, bracken, dock *Rumex* sp., common nettle, common hogweed, cleavers and hedge woundwort.

4.27 Hedgerow H10 forms a small section of the south-eastern boundary and includes primarily hazel as well as pedunculate oak, holly, blackthorn, dog rose, sycamore *Acer pseudoplatanus*, dogwood and ivy. Ground flora are limited and include wood avens, common nettle and bramble.

4.28 North of H10 lies H11 which contains a mixture of mature trees including hawthorn, dog rose, field maple, sycamore, hazel, ivy, scots pine *Pinus sylvestris* and white bryony *Bryonia dioica*. This hedgerow has limited ground flora.

4.29 Hedgerow H12 is situated west of Albourne Primary School. Species noted within H12 include pedunculate oak, blackthorn, field maple, sycamore, hazel, silver birch, sweet chestnut *Castanea sativa* and beech *Fagus sylvatica*.

4.30 Hedgerow H13 is a short section of hedge along the southern boundary of F4 and contains oak, field maple and hazel.

4.31 Of the thirteen hedgerows situated on-Site, all hedgerows excluding H6, H12 and H13 are likely to be regarded as species-rich under the Hedgerow Regulations (1997) as they contain at least five woody species. Additionally, H2, H3, H4, H7 and H9 are likely to be considered 'important' under the Regulations as they contain at least seven woody species.

4.32 In line with the Biodiversity Metric 3.0, hedgerows H1, H2 and H5 are considered to be species rich hedgerow with trees, hedgerows H3 and H4 are native species rich hedgerows with trees, associated with a bank or ditch. Hedgerows H7, H8, H9, H10 and H11 are native species-rich hedgerows, H12 is a native hedgerow with trees and H13 is a native hedgerow. All hedgerows are considered to be in 'good' condition, with the exception of H7 and H9 which are in 'moderate' condition.

4.33 Hedgerows are a Habitat of Principal Importance in accordance with Schedule 41 of the NERC Act (2006) and will likely provide foraging and refuge opportunities for a wide range of fauna. The hedgerows on-Site are considered to be of **Local** importance.

Broadleaved woodland

4.34 A small parcel of broadleaved woodland (W1) is located south-west of F1 and between H1 and H3. This woodland is comprised of a number of trees including oak, holly, dog rose *Rosa canina*, dogwood, hazel, honeysuckle *Lonicera periclymenum*, bramble and field maple. The woodland contained an understory and a number of species amongst its ground flora including field rose *Rosa arvensis*, herb-Robert *Geranium robertianum*, red campion *Silene dioica*, wood avens, remote sedge

Carex remota, black Bryony *Dioscorea communis* and dock *Rumex* sp., ground ivy, bluebell *Hyacinthoides* sp., cleavers and hedge bindweed. Some grass species were also noted such as wood false-brome, false oat-grass, cock's-foot, Yorkshire fog and smooth meadow-grass.

4.35 Semi-natural broadleaved woodland is a S41 habitat of importance, however bands of woodland habitat within the Site are not considered to meet the criteria for Lowland Mixed Deciduous Woodland priority habitat. As such, in line with the Biodiversity Metric 3.0 the woodland resource is considered to equate to 'other broadleaved woodland' in 'good' condition. The woodland resource is considered to be importance at the **Local** level.

Seasonally wet ditches

4.36 A seasonally wet ditch (D1) is located south of H3 and on the border of F2. It runs along the southern edge of H3 and H4, before running along H4's northern side (off-Site). Sections of this ditch were wet at the time of survey, although the flow rate was slow and the ditch had very low levels of water. The ditch is c. 1-2m wide and contained a mixture of species both within the ditch and along its bank including common nettle, bramble, soft rush, hawthorn, common hogweed, bittersweet, male-fern *Dryopteris filix-mas*, shield fern *Polystichum setiferum* and remote sedge *Carex remota*.

4.37 In line with the Biodiversity Metric 3.0 all ditches on-site have been categorized with their associated hedgerows. Therefore, they have been included within the assessment for H3 and H4 as native 'Native Species Rich Hedgerow with trees - Associated with bank or ditch'.

4.38 Ditches are abundant in the local landscape and D1 is shaded and lacking in marginal vegetation, therefore it is deemed to be of poor quality. The ditch has little connectivity to any major streams or rivers. This ditch is regarded to be of Site level importance and is **scoped out** of further assessment.

Pond

4.39 One pond (P1) lies within the northwest corner of the Site, just west of the orchard and above the woodland parcel. This is a 'non-priority pond' as it does not meet the description within the UK Habs classification habitat definitions, and is deemed as being in 'poor' condition and was dry at the time of survey. This pond is regarded to be of Site level importance and is **scoped out** of further assessment.

Scattered scrub

4.40 Patches of scattered scrub are present along some of the Site's margins, such as within the western margin of F1. This habitat is comprised of primarily bramble, as well as blackthorn and common nettles. These species are common and widespread and therefore this habitat is **scoped out** of further assessment.

Tall ruderal vegetation

4.41 Tall ruderal species are located along the edges of a number of hedgerows on-Site. Species which form the tall ruderal habitat include common nettle, dock *Rumex* sp., and common hogweed *Heracleum sphondylium*.

4.42 In line with the biodiversity metric both areas of tall ruderal vegetation and scattered scrub are associated with the improved grassland margins and have been classified as 'modified; grassland' in 'moderate' condition using the criteria for grassland from Biodiversity Metric 3.0. These parcels contain common and widespread species and are considered to be of importance at the Site level only and are therefore **scoped out** of further assessment.

Bracken

4.43 A large and dense stretch of bracken is situated along the southern boundary of the Site. The bracken stretches along an area of c. 200m and is approximately 5-10m wide. This has it's own category within the Biodiversity Metric and has a fixed condition of 'poor'. This bracken parcel is of limited ecological value, containing a common and widespread species and is considered to be of importance at the Site level only, and therefore is **scoped out** of further assessment.

Fauna

Bats

4.44 A total of 133 records of twelve different bat species, in addition to records of unidentified bat species, were provided by the SxBRC. These include the following species: common pipistrelle *Pipistrellus pipistrellus*, *Pipistrellus sp.,* soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, brown long-eared *Plecotus auratus, Plecotus sp.,* Natterer's bat *Myotis nattereri, Daubenton's* bat *Myotis daubentonii,* whiskered bat *Myotis mystacinus,* Brandt's Bat *Myotis brandtii,* Bechstein's bat *Myotis bechsteinii,* serotine *Eptesicus serotinus* and barbastelle *Barbastella barbastellus.*

4.45 56 records of 20 bat roosts were provided by the SxBRC, the closest of which is from c. 400m north-west of the Site and from 1988 of an unspecified roost. The most recent bat roost record is from a common pipistrelle roosting in a bat box from 2018, this record comes from c. 1.45km north of the Site in an area of woodland.

4.46 These two roosts have strong connectivity to the Site through the network of treelines, hedgerows, and woodland parcels. The on-Site hedgerows, treelines, orchard, woodland, seasonally wet ditch and adjacent pond may provide good dispersal corridors and foraging opportunities for a range of bat species.

4.47 Six trees with bat roost potential were noted (in line with criteria set out within Collins, 2016) during the Phase 1 habitat survey conducted in June 2019. These include five trees with 'Low' bat roost potential (two pedunculate oaks and one ash in F1, and a pedunculate oak and crack willow along H4). Another pedunculate oak with 'High' bat roost potential is located within the western edge of H4. This tree was seen to have a large rot-hole on its south-facing branch which appeared to have high suitability for roosting bats.

Bat Activity Surveys

4.48 Static and transect monitoring surveys have been carried out in May and June 2022, with further surveys scheduled in August 2022. To date, at least ten species of bat have been recorded at the Site during the transect and static monitoring surveys. The confirmed species/genera were common pipistrelle, soprano pipistrelle, *Nyctalus* sp., *Myotis* sp., noctule, brown long-eared, Nathusius' pipistrelle, serotine, barbastelle and unidentified pipistrelle sp. The majority of activity was dominated by common pipistrelle and soprano pipistrelle passes, followed by *Myotis* sp. and noctule. Infrequent passes from other rarer species included brown long-eared, Nathusius' pipistrelle and serotine. Only one pass from a barbastelle was recorded. Most bat activity was recorded along the western boundary, with particular hotspots noted around hedgerows H1, H5, H6 and H8 which are likely a key commuting corridor and important foraging habitat. Fairly low levels of activity were noted elsewhere, whilst no activity was recorded in the central arable fields or along the eastern boundary of the Site, except for the eastern orchard during static monitoring.

4.49 Most bat activity at the Site consisted of common widespread bat species (population over 100,000 in UK): common pipistrelle, soprano pipistrelle and brown long-eared bats. Several rarer bat species (population 10,000- 100,000) were also recorded on-Site, although at lower levels: Nathusius' pipistrelle, serotine, noctule and *Nyctalus* sp. were also recorded. One pass from a barbastelle, which is classed as 'rarest' (population under 10,000), was also recorded. Although foraging and commuting activity was fairly high along the western boundary, activity here was of primarily common and widespread species. Given the widespread nature of habitats on-Site, relatively low activity across most of the Site and the absence of significant roost records in close proximity to the Site or concentrated activity for these rarer/rarest bat species, the Site is not considered to constitute a key habitat resource for the rarer bat species recorded. The full results of the surveys are provided in Appendix G.

4.50 In light of the above, all bat species at the Site are collectively considered to be important at the **Local Level**.

<u>Badger</u>

4.51 The SxBRC do not provide records of badger *Meles meles* as these are considered confidential due to the threat of persecution.

4.52 However, some evidence of badger using the Site was recorded during the initial Phase 1 habitat survey in 2019, including a badger ditch crossing and badger print within W1 (see TN1 on the Habitats Plan CSA/4426/100/C). Although, no evidence of the species has been observed during the update Phase 1 Habitat Survey carried out in 2021, nor during any other subsequent Site visit. As such, badgers therefore expected to occasionally make use of the Site's woodland, hedgerows, scrub, bracken and grassland field margins for dispersal and foraging purposes. No evidence of setts were noted during any Site visit.

4.53 Badgers are a common and widespread species with their legal protection intending to prevent cruelty rather than as a reflection of any conservation concern. Badgers and their setts are protected under the Protection of Badgers Act 1992; potential impacts to badger from the proposed development will be considered further in relation to their legal protection.

Dormouse

4.54 Two dormouse *Muscardinus avellanarius* records were provided by the SxBRC from 1981 and 2011, the exact location of the 1981 record is not provided, however the 2011 record is located c. 1.9km south in an area of woodland within Shaves Wood; an ancient woodland which has connectivity to the Singing Hills Golf Course immediately north, and to the Site via H8.

4.55 The Site's dense and well-connected species-rich hedgerows provide good potential nesting, foraging and dispersal habitat for dormouse. Furthermore, these hedgerows provide connectivity to other parcels of woodland to the west of the Site, including an area of ancient woodland c. 1.5km west, adjacent to Blackstone Lane. It is therefore considered possible that dormouse are using the Site if a source population still persists locally. A series of six dormouse surveys are scheduled between April and September 2022, with four surveys undertaken to date.

4.56 The results of the surveys to date have shown no evidence of dormice; however, it is considered likely that they would utilise on-site habitats given the suitability on site.

4.57 Full methods and results of surveys completed to date are provided in Appendix H.

4.58 Although widespread in Sussex, Dormice are a European Protected Species and S41 species in respect of the NERC Act 2006. Should dormice be confirmed to be present during the course of further surveys, the presence of this species would be considered to be of **Local to**

County level importance, given their local distribution and conservation status.

Hedgehog

4.59 43 records of hedgehog *Erinaceus europaeus* were identified within the search area, dating from 2001 to 2021. The closest of these records are from a residential garden c. 70m east of the Site and are from both 2016 and 2018. This residential area has strong connectivity to the Site and therefore hedgehogs can access the Site easily from this location. A number of opportunities are available for hedgehog on-Site within the woodland, hedgerows, scrub and improved grassland. These are likely to serve not only as dispersal corridors but also breeding and foraging habitat.

4.60 This species is widespread in Sussex and considered likely to be present on-site, however, the Site is considered unlikely to represent a key resource at the Local level given the availability of other suitable habitats locally. As such, this species is **scoped out** of further assessment.

Harvest mouse

4.61 A single harvest mouse *Micromys minutus* record was provided by the SxBRC from 1996. The precise location of this record is not provided; however, it is known to be from Church Lane, Albourne, which directly borders the southern boundary of the Site. Some potential suitable habitat for harvest mouse is present on-Site within the improved grassland of F1 and the improved margins around the Site.

4.62 Harvest mice are listed as a UK BAP (Biodiversity Action Plan) Species as well as a species of principal importance in respect of Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006). They have become much scarcer in recent years due to the intensification of agricultural practices resulting in habitat loss. However, the Site is considered unlikely to represent a key resource at the Local level given the availability of other suitable habitats locally. As such, this species is **scoped out** of further assessment.

Birds

4.63 A total of 518 records of 46 different bird species were identified within the search area dating from 1980 to 2021.

4.64 A number of birds were noted using the Site during the Phase 1 Habitat survey including skylark *Alauda arvensis*, yellowhammer *Emberiza citrinella*, (BoCC Red-listed), dunnock *Prunella modularis*, kestrel *Falco tinnunculus*, song thrush *Turdus philomelos* and wren *Troglodytes troglodytes* (BoCC Amber-listed), chaffinch *Fringilla coelebs*, swallow *Hirundo rustica*, blackcap *Sylvia atricapilla*, buzzard *Buteo buteo*, blackbird *Turdus merula* and robin *Erithacus rubecula* (BoCC Green-listed). Additionally, a barn owl box is present on the veteran oak tree

just south of the Site, and a barn owl (Schedule 1 WCA 1981 species) was recorded on-Site within F2 in 2016 and during a bat survey in May 2022 flying south from H4 across F3.

4.65 The Site provides nesting, foraging and dispersal opportunities for a number of these species, with the dense hedgerows, scrub, orchard and woodland being potentially of particular importance. The arable fields were also identified as offering potential nesting habitat for ground-nesting birds such as skylark and meadow pipit *Anthus pratensis*.

Breeding Birds

4.66 Six breeding surveys were undertaken between March 2022 and July 2022. In total, 50 species were recorded, including 27 species of conservation significance. Birds recorded are typical of open farmland, woodland and garden habitats. A total of 42 breeding species have been recorded, whilst ten Birds of Conservation Concern (BoCC) Red-listed species, 14 Amber-list and three Green-listed birds of conservation significance were recorded. Eight S41 and two Schedule 1 birds were recorded.

4.67 The vast majority of bird activity was noted along the Site's tree lines and hedgerow boundaries, with fairly lower activity levels recorded within the arable fields, which was primarily restricted to skylark and meadow pipit registrations, as well as a hunting barn owl which was recorded on two occasions. Although the barn owl box is situated on the veteran tree just south of the Site, a stock dove *Columba oenas* flew out of this box during the fourth survey visit and was thought to have been nesting within this. However, it is still possible that barn owl may use this box for breeding at certain times of the year, and may also breed within local barns, such as one that was noted c. 700m further south of the Site.

4.68 Several farmland bird species were recorded during the surveys including barn owl, kestrel *Falco tinnunculus*, linnet *Linaria cannabina*, meadow pipit, rook *Corvus fragilegus*, skylark, stock dove, swallow and yellowhammer *Emberiza citrinella*. Many of these species have exhibited significant national declines in recent years due to changes in farming practices, such as the change from spring-sown to winter-sown cereals in relation to skylark and meadow pipit, as well as general agricultural intensification across the country. The crop at the time of survey was a spring-sown wheat, allowing nesting opportunities for these two species.

4.69 Other regular levels of activity was recorded in W1, whilst good numbers of birds were noted just south of the Site and Church Lane, with houses and their associated gardens providing habitat and resources for birds including starlings *Sturnus vulgaris*, house sparrows *Passer domesticus*, wrens and wood pigeons *Columba palumbus* which were seen frequenting these. With 42 breeding species recorded, the breeding bird assemblage is considered ecologically important at the **Local** level in accordance with Fuller (1980). Full survey results and methods can be

found in Appendix I along with the Breeding Bird Survey Plan (CSA/4426/103) which shows notable registrations made during the surveys as well as likely territories.

Wintering Birds

4.70 Two wintering bird surveys have been undertaken between January and February 2022, a further two surveys are scheduled between November and December 2022. To date, a total of 33 bird species have been recorded. Seventeen are birds of conservation significance including six Red-listed, ten Amber-listed and one Green-listed birds. Of these six are S41 species and two are Schedule 1 birds. Similarly, to the breeding bird survey results, birds using the Site over winter tended to utilise the Site's woodland, hedgerows and tree lines more frequently than other more open habitats, such as the arable fields. Notable flocks recorded include around 30 redwing *Turdus iliacus* which were recorded in the orchard, a further ten north of H4, whist a flock of 20 starling were noted on the edge of W1. A large mixed flock of c. 150-200 herring gull *Larus argentatus* and black-headed gull *Chroicocephalus ridibundus* were noted flying over the Site. Groups of skylark were also recorded within the arable fields, and a kestrel was seen hunting above the improved grassland of F2. Good numbers of birds were again recorded south of Church Lane, with a similar species composition to those recorded in the breeding bird surveys, plus the notable addition of greenfinch *Chloris chloris* (Red-listed).

4.71 Full survey results to date and methods can be found in Appendix J along with the Wintering Bird Survey Plan (CSA/4426/106) which shows notable registrations made during the surveys. In line with Fuller (1980) and depending upon results from the final two survey visits scheduled for late 2022, the wintering bird assemblage is not anticipated to be greater than of **Local** level importance.

Reptiles

4.72 A total of 79 reptile records from within the search area were provided by the SxBRC including records of slow worm *Anguis* fragilis, common lizard *Zootoca* vivipara, grass snake *Natrix natrix* (syn. *N. Helvetica*) and adder *Vipera berus*. The closest of these is from two male and a female grass snake in 1994; located c. 65m south of the Site in a nearby pond. This location is separated from the Site by only a small road and it is deemed likely that snakes could move between these locations. A number of more recent records come from c. 400m south east of the Site, these include a record of twenty-nine slow worm, one grass snake and seven common lizards, all dating from 2017. This habitat is connected directly to the Site through hedgerows and field margins.

4.73 The improved grassland margins, bracken as well as the improved grassland within F1 and F2 are considered likely to be inhabited by reptiles; providing probable cover, refuge, dispersal, foraging and

breeding opportunities for species such as grass snake, common lizard and slow worm.

4.74 A series of seven reptile surveys were undertaken between March and May 2022. The Site provides a good habitat for reptiles, with areas longer grass swards along Site margins, where 'low' populations of slow worm and grass snake have been recorded.

4.75 The majority of slow worms were recorded in areas A, B, E and G (see reptile survey plan CSA/4426/104 in Appendix K). Grass snakes were recorded in areas E, K and H.

4.76 All native British reptile species are listed within Schedule 5 of the Wildlife and Countryside Act 1981 and are afforded protection against killing and injury. In addition, all native British reptile species are Section 41 Species of Principle Importance in England.

4.77 Although common and widespread in southern England, slow worm and common lizard are each adopted as S41 Species of Principal Importance, and are afforded legal protection from killing and injury. Populations of reptile species using the Site are considered important to a **Local level**.

Great Crested Newt

4.78 The SxBRC provided 33 records of great crested newt from within the search area, with the closest of these being from Pond 2 (c. 60m north-east of the Site) which provided a positive test result for eDNA in 2016. Pond 3 also tested positive for this species in 2016 and is situated c. 185m north of the Site. These are also the most recent records within the data search.

4.79 OS mapping was used to search for any waterbodies or ponds within 500m of the Site, as this is what is regarded to be within a dispersible range of the species (English Nature, 2001). This search found a total of ten ponds within 500m of the Site (See Pond Location Plan in Appendix L).

4.80 Environmental DNA (eDNA) surveys were conducted on all accessible ponds within dispersible distance of the Site that were deemed to have suitability for GCN based on 2019 Habitat Suitability Index (HSI) assessment scores (summarised below). Full results are presented within Appendix L.

4.81 Whilst P1 is considered unlikely to provide aquatic habitat for great crested newt on-Site due to its low suitability, the Site's terrestrial habitats such as hedgerows, improved grassland field margins and seasonally wet ditches may provide suitable dispersal and hibernation opportunities for great crested newt during the terrestrial phase of their life cycle, should they still be breeding within ponds locally.

4.82 Ponds P2 and P3 both tested positive for great crested newt presence in 2016 and 2019, whilst P3 also tested positive in 2022 (no access was permitted for P2 in 2022), indicating that a population persists north of the Site.

4.83 Presence/likely absence surveys were undertaken in P3 and P4 between April and May 2022 in order to obtain a population estimate for great crested newts within these ponds. Great crested newts were found to be present within P3, however no great crested newts were recorded within P4, indicating their likely absence. Pond P1 had dried up and therefore was not surveyed. A peak count of five newts was recorded within P3 during the 2022 surveys, indicating a 'small' population within this pond (Great Crested Newt Mitigation Guidelines, 2001).

4.84 Ponds P2 and P3 are within 250m (c. 50m and c. 170m, respectively) from the Site and therefore it is considered likely that GCN may use terrestrial habitats on-Site, despite the barrier of the B2116, as this barrier is only c. 6m wide. Given the 'small' population recorded near to the Site, and availability of transversal and terrestrial habitats for this population, GCN are considered important at the **Local** level. Full results from the HSI, eDNA and presence absence surveys within these ponds can be found in Appendix L.

Invertebrates

4.85 The Site falls within the South Downs Important Invertebrate Area (IIA) and a total of 114 invertebrate records were returned from the data search. Those of potential relevance to the Site include stag beetle *Lucanus cervus*, small heath *Coenonympha pamphilus*, wall *Lasiommata megera*, brown hairstreak *Thecla betulae*, knot grass *Acronicta rumicis,* white ermine *Spilosoma lubricipeda* and Cinnabar *Tyria jacobaeae*, although none of these were recorded during either of the Phase 1 habitat surveys in 2019 or 2022.

4.86 The Site's hedgerows, treelines, orchard, woodland, pond, seasonally wet ditch, improved grassland fields and margins provide good habitat for a number of invertebrate species. During the Phase 1 habitat survey, an abundance of meadow brown *Maniola jurtina* butterflies were present within the improved grassland and margins.

4.87 Habitats present within the Site are considered to be common and widespread, and as such the potential for a notable invertebrate community to be present is considered low. Overall, the assemblage of invertebrate fauna is likely to be less than Local Level importance, and there therefore **scoped out** of further assessment.

Future Baseline

4.88 The Site is presently under active arable management, including the periodic cutting of field margins and hedgerows and the mowing of the

orchard. Notwithstanding the potential rotation of crop-type, these management interventions maintain the on-site conditions in a relatively stable state. There is no known intention to cease this management, other than to accommodate the proposed development should planning permission be granted. As such, the future baseline status of important ecological features is not anticipated to vary significantly from that at present."

Summary of Ecological Features

4.89 Table 2 below summarises all important ecological features identified within the respective zones of influence, together with the geographic context of their importance:

Table 2. Summary of important ecological features and their geographic context

Ecological Feature	Geographic Context of Importance and/or Protection Status
Wolstonbury Hill SSSI	National
Traditional orchard	S41 Priority Habitat; Local
Woodland	Local
Hedgerows	S41 Priority Habitat; Local
Bats (other)	Local **TBC on completion of surveys**
Badgers	Protected (Protection of Badgers Act, 1992)
Dormouse	Likely absent (Local – County if present; **TBC on completion of surveys)**
Breeding Birds	Local
Wintering Birds	Local **TBC on completion of surveys**
Reptiles	Local
Great Crested Newts	Local

5.0 ASSESSMENT OF EFFECTS

The Proposed Development

5.1 Outline planning permission is sought for residential development at the Site. The following impact assessment is based on the Site Sketch Layout prepared by Omega Architects (3117-C-1006-SK-L), with the Biodiversity Net Gain assessment calculations and EcIA also informed by the Site Sketch Layout (3117-C-1006-SK-L).

5.2 The construction phase of the proposed development will comprise the following:

- Cessation of arable cultivation
- Removal of a section of hedgerow from where H2 and H3 meet (c. 5m) for vehicular and pedestrian accesses
- Construction of up to c. 120 dwellings
- Construction of associated gardens, parking and access infrastructure
- The establishment of Public Open Space (POS) totalling c. 7.58ha, including open grassland, wildflower meadows as well as recreation routes around the periphery of residential areas and throughout areas of POS.
- Establishment of five attenuation basins, three of which will be set within areas of grassland planting in the north of F3, one will be within the centre of a development parcel forming part of the POS and one will be located in the southern field.
- Land set-aside for the extension of the local primary school to remain as modified grassland until any potential future school expansion comes forward in the future
- The creation of new areas of scrub and woodland planting in the south of the Site

5.3 The operational phase of the proposed development will comprise the following:

- Occupation of new residential dwellings
- Increase in human activity, including use of vehicles and presence of domestic pets
- Increased artificial lighting and anthropogenic noise

Assumptions

5.4 The following assumptions have been made during the assessment of potential effects of the proposed development on important ecological features. Although 'assumed' and therefore taken as part of the pre-mitigation scenario, these measures are referenced in the proceeding sections where integral to the mitigation strategy.

5.5 In accordance with BS42020:2013, it is assumed that a Construction Environmental Management Plan (CEMP) will be secured by planning condition and prepared at the detailed design stage for each phase of development. In addition to the construction phase impact avoidance and mitigation measures identified in the following sections, the CEMP will detail standard environmental control measures, including though not limited to the following:

- Implementation of strict protection measures for the root protection areas of retained trees and hedgerows, in accordance with BS5837:2012
- Standard best practice construction phase pollution prevention and control measures
- Sensitive working methods and timing to avoid direct impacts to nesting birds (generally vegetation removal, including grassland and crops outside nesting season of March through August)
- All working measures needed to comply with the terms of EPS derogation licencing specific to the development phase or works activity
- Updated ecological surveys, where necessary, to identify shifts in the baseline ecological condition (such as to support EPS derogation licence applications) in order that revised impact avoidance and mitigation measures can be adopted as required

5.6 In accordance with BS42020:2013, it is assumed that a Landscape and Ecology Management Plan (LEMP) will be secured by planning condition and prepared at the detailed design stage for each phase of development. The LEMP will set out measures for the establishment and long-term management of newly created and retained habitats to maximise benefits for biodiversity.

Potential Impacts and Ecological Effects

Wolstonbury Hill SSSI

5.7 Wolstonbury Hill SSSI lies c. 2.7km southeast from the Site, and although a series of public footpaths provide direct connectivity to the SSSI from the Site, it is considered to be a significant distance away and unlikely to receive significantly higher levels of footfall as a result of the development. In addition to this, the proposed development will include large areas of POS with associated footpaths and community greens, this is likely to attract regular use from occupants of the new dwellings and absorb pressure from recreational activities such as dog walking. Therefore, overall, no significant effect is anticipated and this designation is scoped out from any further assessment.

Traditional orchard

5.8 A small area of c. 0.1ha will be lost from the orchard to allow for vehicular and pedestrian access to the Site, however no orchard trees

will be lost as a result of this. Land use for this habitat is expected to change from private use to forming areas of POS as part of the new development, it is anticipated that the orchard will provide opportunities for community gathering and fruit provision. This will increase the amount of footfall in this habitat and potentially result in negative impacts at the Site level. Creation of c.0.04ha of traditional orchard immediately south of the existing orchard will expand this habitat and provide new opportunities for a range of species.

Broadleaved Woodland

5.9 The small parcel of semi-natural broadleaved woodland adjacent to the orchard will be retained. Given the small size of this woodland parcel, the lack of connectivity from this area to other areas of POS, and the difficulties in accessing this habitat it is unlikely to result in significant disturbance from recreational pressure. In addition, no plans to make this woodland publicly accessible are proposed. Overall, any negative impacts to semi-natural broadleaved woodland are considered to be limited to the Site level only, in the absence of any mitigation.

Hedgerows

5.10 As referenced under 'Assumptions', all retained hedgerows and trees will be protected with protective fencing, in accordance with BS 5837:2005, therefore avoiding direct impacts during the construction phase to these retained features, as recommended within the Arboricultural Impact Assessment (BHA_4991_AIA)

5.11 A total of c. 0.5m of hedgerow will be removed to facilitate vehicular/pedestrian access to the Site. Although this will reduce this habitat on-Site, it is considered to be significant at the Site level only given the availability of this habitat in the local vicinity.

Bats

5.12 All species of British bats are legally protected under part 3 (section 41) of the Conservation of Habitats and Species Regulations 2017 (as amended) and are adopted as S41 Species in respect of the NERC Act 2006.

5.13 The current assemblage of bats recorded at the Site consists primarily of the more common and widespread bat species, with common pipistrelle dominating the transect and static monitoring. Common pipistrelle accounted for 73.98% of recorded bat passes during the transect survey and 63.71% of passes across the static detector deployment period. Soprano pipistrelle accounted for 23.98% of passes during the static monitoring period and 33.32% of passes through the static detector monitoring period. Rarer species have also been recorded at the Site, including *Mytois* sp., noctule, Nathusius' pipistrelle, barbastelle and serotine, of which a low number of passes was recorded accounting for just 2.83% of all passes across both monitoring points. Bats

were generally recorded using the hedgerow habitats and tree lines at the Site, with particular concentrations noted along the western boundaries and the central hedgerow.

5.14 The majority of hedgerow habitat and any trees assessed to have bat roost potential will be retained in full as part of the proposed development and there will be no loss of broadleaved woodland, with the exception of the permanent removal of a c.5m section of hedgerow from H2 and H3 for new vehicular and pedestrian access.

5.15 During the operational phase, ambient light levels could be increased due to artificial street lighting, dependant on lighting design

5.16 With the exception of a small section of hedgerow along H2 and H3 (of c. 5m), all hedgerow habitats will be retained. No bat foraging or commuting activity was observed along these hedgerows, although it is anticipated that some minor use of these features by foraging and commuting bats may occur.

5.17 The effects of habitat loss / disturbance on bat populations utilizing the site as a result of the proposed development, are predicted to be somewhat limited, given the limited habitat loss / fragmentation which will occur and the extensive areas of new habitat creation to be provided. Considering patterns and levels of bat activity recorded to date, any negative effects are not considered to be significant at above the Site level. **[To be confirmed on completion of the further surveys].**

Badgers

5.18 Badgers and their setts are protected under the Protection of Badgers Act 1992. No badger setts were observed on-site, however evidence in the form of a badger ditch crossing and a badger print within W1 indicate their presence within the Site, likely as a foraging habitat.

5.19 Proposals could result in disturbance, loss of foraging habitat and fragmentation of commuting routes. Construction and operational activities have the potential to kill, injure or disturb badgers' habitats on-Site, which in the absence of mitigation could result in a breach of legislation.

5.20 These potential impacts are not considered to be significant as badgers are common and widespread and are not of conservation concern. However, given the protection badgers receive under the Protection of Badgers Act 1992, appropriate precautionary measures have been set out within the 'Additional Mitigation' section below.

Dormice

5.21 Dormice are legally protected as a European Protected Species under the Conservation of Habitats and species Regulations 2017 (as amended), as are the habitats they inhabit.

5.22 The dormouse surveys undertaken to date have not recorded any evidence of dormice, however given the presence of suitable habitat within the Site, there is the potential for them to be present. Under the proposed development scheme, the majority of the hedgerows within the Site would be retained and protected throughout the duration of construction, with the exception of the minor removal of c.5m from H2 and H3.

5.23 This loss of hedgerow is not considered to result in reduction in habitat availability and connectivity to further off and on-site habitats as the loss will come from a fragmented section of hedgerow on the other side of the entry gate. Therefore, the extent of habitat loss is not considered significant given the availability of other suitable habitat on-Site/locally.

5.24 In the absence of mitigation, removal of this section of hedgerow could still potentially result in the damage or destruction of nests and the killing or injury of individual dormice, should they be present, representing an offence under the Conservation of Habitats and Species Regulations.

5.25 The increase in domestic cats as a result of the proposed development, in addition to increased disturbance from human presence and increased lighting, could result in increased predation and disturbance of dormouse populations.

5.26 These impacts taken together, and with consideration of the conservation importance of dormice, could potentially result in an effect on the local population of dormice (if confirmed to be present), considered to be significant at up to the Local level.

Breeding and Wintering Birds

5.27 All wild birds, their active nests and eggs are protected under the Wildlife and Countryside Act 1981 (as amended). Habitats within the Site including hedgerows, trees and dense scrub provide suitable nesting opportunities for generally common and widespread bird species.

5.28 Urban development under the proposals as shown in the Site Sketch Layout (3117-C-1006-SK-L) indicate that the majority of hedgerows will be retained, and all tree lines will be retained. These habitats exhibited the highest levels of bird activity during the breeding and wintering bird surveys. Proposals will only result in a small loss of c. 5m of hedgerow along H2 and H3 to facilitate access, and the loss of c. 0.74ha of improved grassland, whilst the orchard will largely be retained (c. 0.01ha of grassland lost; all trees retained).

5.29 However, both arable fields (F3 and F4) will be lost to facilitate both predominantly urban development in the north, and open space in the south which will comprise of mostly other neutral grassland in 'Good' condition. This will result in a loss of suitable breeding habitat for skylark, a species which regularly nests in open arable fields that have spring-sown crops. Approximately six territories were recorded within the arable fields during the breeding bird surveys. This loss of habitat would likely displace these birds to other surrounding suitable habitat, accounting for displacement of c. 0.03-0.04% of the Sussex skylark population (Newham & Crabtree, 2012).

5.30 Whilst stock dove have been observed nesting in the barn owl box situated within the veteran oak tree just south of the Site on Church Lane, there is the potential for barn owl to nest there in the future, with this species being observed hunting during the final breeding bird survey and during a May bat survey. However, no other potential nest sites were observed on-Site. Barn owl are a Schedule 1 species (Wildlife and Countryside Act 1981) and are afforded extra protection against disturbance. However, given that construction work will occur within the northern parcel of the Site, c. 160m north of this box, and only landscaping works will occur in the southern half, it is not anticipated that disturbance to barn owl as a result of the development will occur.

5.31 During the operational phase of development, there is the potential for increased predation from cats, whilst artificial light levels are also likely to increase. This may disturb birds on-Site and potentially alter their breeding and territorial behaviour and could reduce overall breeding success rates.

5.32 In the absence of mitigation, significant negative effects on breeding and wintering birds are anticipated to occur at the Site level only, although the completion of wintering bird surveys in December 2022 will help confirm this.

Reptiles

5.33 Improved grassland, field margins and orchard habitats within the Site provide good habitat resources for reptiles, with 'low' populations of slow worm and grass snake being recorded. All native British reptile species are listed within Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded protection against killing and injury. In addition, all native British reptile species are Section 41 Species of Principle Importance in England.

5.34 Urban development as shown on the Site Sketch Layout (3117-C-1006-SK-L)would result in the loss of small areas of improved grassland, including c. 0.44ha of F2 and c. 0.3ha of marginal habitat located in the northern and southern boundaries of F3. This has the potential to directly impact low numbers of common reptiles during the development

phase. The killing and injury of individual reptiles is unlawful, and in the absence of mitigation there is the potential for such direct impact to low numbers of reptiles as a result of the proposed development. However, such impacts are considered unlikely to represent a significant negative effect on the viability of the local populations of reptiles as the majority of suitable reptile habitat is to be retained.

5.35 As with birds and dormice, it is expected that increased cat predation levels may result in the increased mortality and disturbance of individuals. However the creation of large areas of POS with grassland, scrub and woodland habitats will vastly increase available habitat for reptiles, resulting in anticipated significant benefits at the Local level as a result of the proposed development.

Great Crested Newts

5.36 It is considered likely that GCN may use the Site for shelter and dispersal, in particular hedgerows and field margins at the Site and within the local landscape. P1 (on-site) was dry at the time of survey. However, it may hold water at other times of year and could offer a resource to GCN despite being unlikely to be able to support successful breeding. No development is to occur within a 50m radius this pond, with existing woodland and orchard habitats adjacent being retained. The retention and enhancement of habitat (e.g. ditches, hedgerows and grassland margins) around the Site boundaries and through the creation of wildflower meadows, scrub and woodland within F4 will maintain habitat connectivity through the landscape for amphibians.

5.37 In the absence of mitigation, it is expected that significant negative effects on GCN may occur at the at the Site to Local level, as a result of the proposed development.

Mitigation by Design

5.38 It is an established principle (CIEEM, 2018) that, wherever possible, potential negative effects should be avoided through 'Mitigation by Design', as this gives greater certainty over deliverability, demonstrates a well-designed scheme and ensures the correct application of the 'Mitigation Hierarchy' (as advocated by BS42020:2013, Defra 2019 and CIEEM, CIRIA & IEMA 2016).

5.39 The proposed development seeks to provide up to 120 units with associated access, roads, gardens and public open space across c.11.54ha of land.

5.40 The proposed scheme stands to retain on-Site hedgerows and treelines as far as is possible, with the exception of minor removal of H2 and H3 (equating to just 0.15% of total hedgerow habitat) which is required to facilitate the new vehicular and pedestrian access. Green corridors along the boundaries of the Site will be retained to maintain connectivity

to further off-site habitats in line with Strategic Policy DP38 of the Mid Sussex District Plan 2014-2031.

5.41 The Site Sketch Layout (3117-C-1006-SK-L) demonstrates that proposals for POS within the southern part of the Site (F4) will include large areas of wildflower meadows (other neutral grassland), tree and scrub planting, which will provide new opportunities for a range of fauna.

5.42 Five attenuation basins would be provided as part of the drainage strategy and will be located within areas of open space. Attenuation basins situated within areas of grassland will also be seeded with native grassland mix (assumed to be 'other neutral grassland'), and it is understood that they will be dry the majority of the time.

5.43 These landscaping and habitat creation measures will result in a significant increase in the amount of semi-natural habitat, and a diversification of the habitat types at the Site. As such, is it considered that the scheme has the potential to deliver significant benefits for biodiversity, with new habitats of value to bats, birds, reptile and amphibians being provided. Further detail of the establishment and long-term management of these habitats, to maximise benefits for biodiversity, should be set out in a LEMP at the detailed design stage.

5.44 A sensitive external lighting scheme should be prepared at the detailed design stage to minimise any further impacts above the current baseline. The future lighting scheme should be developed to avoid light spill onto retained woodland, trees and hedgerows in particular. Ideally this would be demonstrated through lux modelling.

5.45 The above prescriptions may be secured through appropriately worded planning conditions.

<u>Hedgerows and Trees</u>

5.46 The proposed scheme intends to reduce the need for hedgerow removal as much as possible, with just c. 5m of hedgerow within the north-east of the Site to be removed to help facilitate vehicular and pedestrian access to the development. The remainder of hedgerows and trees on-Site will be retained and protected. Furthermore, a total of c. 2.08ha of woodland creation, tree planting and scrub will be planted across the Site, increasing the overall availability of these habitats, particularly in the south of the Site which is currently an arable field. Connectivity between habitats to the south and north will be improved through planting along the western boundary, whilst enhancement to H7 will occur to accentuate long-distance views to the South Downs scarp, which will also improve connectivity between the west and east.

5.47 With consideration of this embedded mitigation, significant beneficial effects on hedgerows and trees are considered to occur at the Site level.

Bats

5.48 The Proposed Development has sought to minimise effects on foraging and dispersing bat species through sensitive design, maintaining the green corridors currently present at the Site, allowing dispersal routes and foraging habitats to be maintained. New tree planting within areas of POS will deliver new foraging opportunities for bats on-Site through increases in invertebrate prey abundance, and enhancing existing connectivity across the Site, such as through the enhancement of existing hedgerows (H7 and H9).

5.49 The western boundary, where most bat activity was recorded, and the orchard where the barbastelle pass was recorded, are to be retained and protected, with new planting at the centre of the western boundary to create additional foraging and navigational habitat, and allowing for improved connectivity to the north.

5.50 The proposed drainage basin within the POS area and areas of wildflower planting across the development are further likely to encourage communities of invertebrates, which will in turn support foraging activity by bats.

Dormice

5.51 The Site Sketch Layout (3117-C-1006-SK-L) seeks to minimise boundary vegetation removal as far as possible, with hedgerows and trees retained on-Site being protected throughout the duration of construction work. However, some removal of H2 and H3 (c.5m) is required to facilitate new roads and footpath access within the development.

5.52 Strengthening of existing habitats through the enhancement of hedgerows H7 and H9, and the creation of new scrub and woodland habitat will increase foraging and nesting habitat availability for dormice on-Site. Additionally, this new planting will help improve connectivity to other hedgerows and woodland in the local vicinity, such as Shaves Wood to the south where a dormouse record was located from 2011, and another parcel of woodland to the west of the Site.

Breeding and Wintering Birds

5.53 Retention of the majority of the boundary habitat, in addition to improving these habitats and creation of new habitat through planting provision, will ensure suitable nesting and foraging habitat is retained. This will also serve to increase the availability of suitable nesting and foraging habitat for the majority of bird species and provide additional cover opportunities, enabling safer movement for species that prefer cover for dispersal.

5.54 Despite there being be a loss in suitable breeding habitat on-Site for ground-nesting farmland birds including skylark and meadow pipit, the provision of species-rich other neutral grassland within the southern POS will likely offer increased invertebrate prey diversity and abundance for these birds, particularly skylark which were recorded frequenting nearby fields. Other farmland birds and generalist species will also benefit from these habitats. Scrub and woodland planting will offer further opportunities.

5.55 Barn owl is a species that will also benefit from the creation of other neutral grassland in the south of the Site, which with appropriate management will form a tussocky structure which is their favoured foraging habitat.

Reptiles

5.56 Most suitable reptile habitat will be retained within the scheme, with just the removal of c. 0.74ha of improved grassland proposed to help facilitate development. The creation of the species-rich other neutral grassland and scrub will greatly increase the overall availability of suitable reptile habitat on-Site.

Great Crested Newts

5.57 The majority of suitable terrestrial habitat for great crested newts will be retained within the proposed development, with just c. 0.74ha of grassland and c. 5m of hedgerow due to be removed to facilitate development. The species is likely to benefit from the creation of species-rich other neutral grassland, woodland, hedgerows and scrub. Habitat creation along the northern and western boundary of the Site is likely to improve connectivity to habitats in the south of the Site, as well as the wider area.

Additional Mitigation

Badger

5.58 To safeguard any badgers that may attempt to make use of the Site whilst construction is underway, the following precautionary measures shall be implemented, which could be secured via a planning condition:

- Pre-construction badger survey and monitoring for signs of new sett digging.
- Should any badger setts be identified, detailed proposals that will be submitted at the Reserved Matters stage will seek to accommodate the retention of the sett through a 30m buffer from the outermost entrances to the sett.
- The buffer should be constructed with Heras fencing with suitable entrances for badgers to pass through/underneath and to ensure materials do not pass through into this buffer zone

- During construction any open excavations should be covered with wooden boards, or fitted with appropriate escape ramps, in order to prevent badgers falling into them and injuring themselves or becoming trapped.
- Monitoring of the Site for any new sett excavation during prolonged construction or landscaping works should be undertaken
- No artificial lighting will be positioned where it would fall on the main badger sett or paths leading directly from it.

5.59 With these precautionary mitigation measures in place, it is not anticipated that any legal contravention will occur.

Dormice

5.60 If dormice are confirmed as being present within hedgerows on-Site, then a European Protected Species (EPS) statutory derogation licence from Natural England will need to be obtained, with a Dormouse Mitigation Strategy devised to supplement this. The Mitigation Strategy would detail proposed working methods, timing of the works and proposed enhancement measures, which would be necessary in demonstrating that there will be no significant negative effect on the favourable conservation status of this species.

5.61 A two staged approach to suitable dormouse habitat would be carried out in winter (between November and March, inclusive) under the supervision of a Natural England licenced Ecologist who will conduct a finger-tip search for nests. This would persuade any dormice emerging from hibernation in the Spring to move into nearby retained vegetation. Clearance would be done by hand (using hand-held machinery) to minimise the likelihood of killing or injury. Full details on working methods would be provided in the Dormouse Mitigation Strategy at the Reserved Matters stage.

5.62 There is scope for the provision of nesting boxes post construction to provide safe breeding opportunities for the species and will likely be required as a condition of the EPS Licence. Homeowner information packs will be distributed to new residents to inform them of the presence of dormice and encourage them to use bell collars. These packs will also make them aware of the benefits of keeping cats indoors at night for wildlife.

5.63 The above mitigation measures will reduce the risk of significant effects on the local population and will be committed through the EPS derogation licence.

5.64 Based on the implementation of the mitigation measures outlined above if dormice are present, no significant negative effects on the local population of dormice are anticipated.

Birds

5.65 There is scope for the inclusion within the planting scheme of plant species of known wildlife value to birds to increase foraging and breeding opportunities, increasing species diversity and the number of birds the Site can support. It may also offer greater food availability locally for Red-listed species such as starling and house sparrow which frequent the houses south of Church Lane, swift and house martin which feed above the Site, as well as skylark.

5.66 Potential increased predation levels from domestic pets, such as cats will be minimised through the distribution of information packs to new homeowners, highlighting the importance of keeping cats indoors during the night/early morning, as well as the benefits of fitting bell collars to their pets.

5.67 With mitigation measures in place, it is expected that no significant negative effects to breeding or wintering birds will occur as a result of the proposed development.

Reptiles

5.68 To help minimise the risk of killing and or injury during the construction phase of development and works that will facilitate access, a reptile trapping and translocation exercise will be carried out during the reptile active period (March-October) in areas of suitable reptile habitat that will be lost (c. 0.74ha in total). This will include F2 and marginal grassland that will be lost to facilitate access in the north-east of the Site.

5.69 Given that 'Low' grass snake and slow worm populations have been recorded, it is anticipated that a translocation that continues for up to 30-60 days will be required. A reptile exclusion fence will need to be installed under ecological clerk of works (EcOW) to ensure that retained areas of suitable reptile habitat are protected from construction, and to prevent recolonisation of trapped areas by reptiles. Reptiles will be moved to suitable retained reptile habitat, such as within the orchard or retained margins. Log piles and hibernacula will be installed within the receptor area prior to the translocation to provide a suitable area to shelter immediately following being moved, as well as throughout the winter months. At least five days of no reptile captures will be required before trapping ceases. A Reptile Mitigation Strategy will be produced to provide details of this translocation and will be secured by an appropriately worded planning condition.

5.70 As with for dormice and birds, new homeowner information packs will provide information with regards to cats and their impact on wildlife, including reptiles.

5.71 Based on the implementation of the mitigation measures outlined above, it is considered that the local population of reptiles will be

safeguarded and significant Local beneficial effects from the proposed development will be maintained.

Great Crested Newts

5.72 Given that great crested newts have been recorded as present in ponds within a dispersible range of the Site (Ponds P2 and P3), the species is likely to make use of the Site terrestrially. As such, mitigation is required to ensure that the risk of killing or injury of individuals is minimised as much as possible, and so that the overall favourable conservation status of great crested newts is maintained.

5.73 To help facilitate this, an EPS license will be required, with a Great Crested Newt Mitigation Strategy produced alongside this; detailing working methods, timing of works and proposed enhancement measures. This will be required to demonstrate that there will be no significant negative effect on the favourable conservation status of great crested newts.

5.74 Mitigation measures agreed within the EPS license will likely include a great crested newt exclusion and translocation exercise, undertaken within suitable habitat and during the species' active period (mid March-October). As with for reptiles, exclusion fencing will be installed prior to the translocation to protect retained habitat and prevent recolonisation of the construction zone by newts. Following this exercise, clearance of vegetation within the construction zone will be able to be carried out. Individuals caught will be moved to a suitable receptor zone within suitable retained habitat on-Site. This could include the orchard or improved grassland margins, such as the wider area along the southern boundary of the Site. Log piles and hibernacula will be created within these areas to offer suitable refuge for this species once caught and moved, as well as during the winter months. Although the exact location of this will be determined within the Great Crested Newt Mitigation Strategy.

5.75 To minimise the risk of killing or injury of great crested newts, clearance of vegetation on Site will be undertaken following the great crested newt exclusion and translocation exercise under EPS licence.

5.76 With the mitigation measures outlined above, it is considered that no significant negative effects on great crested newts will occur because of the proposed development, and overall beneficial Site to Local level effects are anticipated.

Residual Effects

5.77 Table 3 below summarises the assessment of potential impacts on each important ecological feature, proposed mitigation and the assessed residual effects.

Table 3. Summary of effects

Important Ecological Feature	Potential Impacts and Effects	Avoidance & Mitigation Measures	Mechanism by which Measures are Secured	Residual Effects
Hedgerows and trees	Removal of a section of hedgerow for vehicular and pedestrian access	Strengthening of boundary vegetation, improvement of existing hedgerows, tree planting, woodland planting, orchard creation and management of POS for biodiversity gain	LEMP secured through Planning Condition	Significant beneficial effects at the Site level
Bats (TBC on completion of further surveys)	Potential development edge effects from artificial lighting causing disturbance of foraging and commuting bats	New habitat creation, management of POS for biodiversity gain, sensitive lighting strategy	LEMP and Lighting Strategy secured through Planning Condition	No significant effect
Badger	Potential killing and or injury/destruction of any new setts during the construction phase, constituting an offence under constitute an offence under the Protection of Badgers Act 1992	Precautionary badger survey; impact avoidance measures under CEMP	CEMP secured through Planning Condition	No contraventi on of relevant legislation
Dormouse (if confirmed to be present)	Minor loss of habitat; potential for disturbance during construction and operation and operation, increased predation rates	Habitat clearance cover by EPS licence and Dormouse Mitigation Strategy, sensitive lighting scheme, provision of nest boxes (if required)	Planning Condition - CEMP EPS licence	No significant effect

Important Ecological Feature	Potential Impacts and Effects	Avoidance & Mitigation Measures	Mechanism by which Measures are Secured	Residual Effects
Birds (TBC on completion of wintering bird surveys)	Minor loss of hedgerow habitat and loss of all arable farmland habitat Increased disturbance from noise, day to day activity, walking/dog walking, and from artificial lighting Significant negative effects at the Site level	New habitat creation, management of POS, and sensitive lighting strategy.	LEMP and Lighting Strategy secured through Planning Condition	No significant effect
Reptiles	Habitat loss / edge effects / killing & injury during the construction phase. Increased predation / disturbance during the operational Phase	Trapping and translocation, installation of log piles and hibernacula, new habitat creation, management of POS for biodiversity gain	Reptile Mitigation Strategy, Proposals and LEMP secured by planning condition	Significant beneficial effects at the Local level
Great Crested Newts	Significant negative effect at the Local level	Trapping and translocation covered by EPS License and Mitigation Strategy, installation of log piles and hibernacula, new habitat creation, management of POS for biodiversity gain	Planning Condition CEMP EPS licence	Significant beneficial effects at the Site to Local level

5.78 No other significant residual effects on any important ecological features are anticipated to result from the construction or operation of the proposed development.

Cumulative Effects

5.79 A search of planning applications within the locality was undertaken, which shows that an outline application for up to 41 dwellings, with associated access and highways works, drainage and attenuation, open space and demolition of an existing property at Kingsland Laines, Hassocks, c. 1.2km north of the Application Site, was received in February 2022 (Planning Ref: DM/22/0640) and is currently awaiting decision.

5.80 Full details of habitats within this Site are not known, however no arable or orchard habitats are present and therefore implementation of this development is not anticipated to have any negative residual effects on any identified important ecological features, subject to proposed habitat creation and protected species mitigation being implemented (i.e., in relation to bats, reptiles and breeding birds). As such, the combined delivery of these schemes is not considered to result in negative cumulative effects to any identified Important Ecological Features to be impacted by the proposed scheme.

Compensation

5.81 As illustrated in the Biodiversity Net Gain Assessment (CSA/4426/04/A), to accommodate the proposed development 19.65 Habitat Units will be gained, in addition to a gain of 1.01 Hedgerow Units.

5.82 As detailed above in 'Mitigation by Design' the proposed development will, however, provide an opportunity to secure the following elements of habitat creation. Although designs are at this stage illustrative, the Site Sketch Layout (3117-C-1006-SK-L) demonstrates that alongside development the Site can accommodate:

- Wildflower grassland (c. 3.05ha equating to 29.18 Habitat Units)
- Tree planting (c. 0.90ha equating to 2.84 Habitat Units)
- Scrub planting (c. 0.42ha equating 2.81 Habitat Units)
- Woodland planting (c. 0.68ha equating to 0.86 Habitat Units)
- Orchard planting (c.0.03ha equating to 0.12 Habitat Units)

5.83 These measures will provide an overall net-gain of 54.57% (19.65 habitat units), as well as offer a significant area of potential resources for a variety of species, as shown in the Biodiversity Net Gain Assessment (CSA/4426/104/A). This habitat creation may be secured by a Section 106 Agreement / planning obligation.

5.84 The species-rich wildflower grassland will be managed in such a way that promotes a tussocky sward and species diversity. Although c. 8.54ha of arable habitat will be lost on-Site, this new grassland will provide a diverse range of invertebrate prey and opportunities for a variety of species including skylark, house sparrow and starling, whilst also providing a far superior hunting habitat for barn owl.

5.85 Full details on the establishment and long-term management of these habitats will be set out in the LEMP at the detailed design stage. Such details will include a description of the proposed habitats, their target condition, timescales over which condition will be achieved, management prescriptions, implementation responsibilities and funding mechanisms.

Enhancement

5.86 The Concept Masterplan includes landscape planting enhancements which will make positive contributions to on-site biodiversity.

5.87 New habitat creation will provide opportunities for species confirmed to be present on-site at baseline, such as nesting birds. In addition to these enhancements which are embedded into development proposals, a range of additional ecological enhancement measures will be delivered as part of the proposed development, as identified below. Further details will be set out in a LEMP at the detailed design stage, however as an indicative guide:

- Inclusion of plant species of known wildlife value within the landscaping scheme, including night-scented varieties to benefit bats.
- Provision of new bat roosting opportunities: At least 15 no. bat boxes will be erected on mature trees or new builds. These will be a purpose-built, durable and long-lasting variety such as available from Schwegler or Habibat. Where possible, these will be incorporated into the fabric of new builds.
- Provision of new bird nesting opportunities: At least 20 no. bird nesting boxes will be provided within the scheme. This will include ten on suitable retained trees to benefit generalist bird species. Provision for house martin and swallow should also be provided in the form of five house martin/swallow cups (Schwegler or equivalent) on new dwellings, whilst five swift bricks/sparrow terraces will also be provided on new dwellings. Sparrow terraces should be installed away from house martin cups to avoid conflict and sparrows occupying these.
- Provision of a barn owl box: A barn owl box will be installed on a suitable retained mature tree, such as along the western boundary in accordance with guidance within the Barn Owl Conservation Handbook (Barn Owl Trust, 2012), or incorporated within a new dwelling to offer a new nesting opportunity for this species.
- Creation of log piles: Outsourced timber will be used to create at least three log piles for wildlife benefit. These will be sited within boundary vegetation and scrub planting where they will be least disturbed. New material can be added as required following any future management works.
- Provision of hedgehog gaps: Hedgehogs have been scoped out of detailed assessment and no specific mitigation is proposed, however

it is important that opportunities for hedgehogs to move through the landscape are preserved. Although not strictly an 'enhancement' measure, provision of hedgehog-friendly gravel boards or equivalent, providing a minimum 5 x 5 inch gap, will be used to maintain permeability for hedgehogs across the development and associated gardens. The number and location of hedgehog gaps will be determined at the detailed design stage and set out within the LEMP.

Monitoring

5.88 Post-development monitoring of great crested newts and reptiles will be necessary following the translocation work. Given the low population of slow worm and grass snake this will involve monitoring one year post-translocation of the receptor areas to assess the populations ensure that these habitats are being managed appropriately/inform any necessary amendments to management prescriptions. Details of monitoring surveys will be provided within the Reptile Mitigation Strategy.

5.89 Great crested newt monitoring will involve the surveying of Pond P3, where access is possible to determine whether the local conservation status of the species is being maintained. Timescales will be confirmed with Natural England in the EPS license, but this will likely be between years 1-4 post-development.

5.90 Should dormice be confirmed as present during the final surveys, post-development monitoring for this species will be required, with timescales and survey effort confirmed with Natural England within the EPS license.

5.91 No post-development monitoring of other important ecological features is proposed. However, there will be ongoing monitoring of newly established and enhanced habitats as part of POS. This commitment will be made, and further detail provided, within the LEMP to be prepared at the detailed design stage.

6.0 CONCLUSIONS

6.1 In the absence of any mitigation measures, the proposed development would have the potential to result in negative effects significant at up to the Local level. However, with the implementation of some straightforward mitigation and precautionary measures as proposed here, the development is not anticipated to result in any significant residual negative effects on important ecological features.

6.2 The Site Sketch Layout (3117-C-1006-SK-L) demonstrates the potential to deliver net benefits for wildlife in the form of additional habitats, with the opportunity to provide additional biodiversity enhancement measures alongside the new housing. A Biodiversity Impact Assessment Calculation has determined that the proposed development could

secured a net gain of 54.57% habitat units and 2.48% net gain for Linear/Hedgerow Units.

6.3 The measures set out herein can be secured through appropriate conditions attached to any planning consent, and the development may therefore be delivered without harm to nature conservation interests. Specifically, it is anticipated that planning conditions would be used to secure:

- Construction Environmental Management Plan (CEMP): In addition to wider environmental controls and best practice construction management, the CEMP will set out construction-phase impact avoidance measures with respect to nesting birds and badgers.
- Landscape and Ecology Management Plan (LEMP): The LEMP will detail the establishment and long-term management of retained and newly created habitats to maximise benefits for wildlife. It will include a graphical Ecological Enhancement Plan, setting out the number, type and position of enhancement features.
- Lighting Strategy: A sensitive lighting strategy will accompany the detailed layout, ensuring that dark corridors are maintained, and minimising light spill to retained and newly created habitats.
- Species-specific mitigation strategies: To be provided in relation to reptiles and amphibians (and dormice if confirmed to be present)

6.4 Measures to minimise impacts and avoid significant negative effects on bats and great crested newts are further assured through the applicable legislative framework, which triggers statutory derogation licencing administered by Natural England.

6.5 Based on the successful implementation of avoidance, mitigation and enhancement measures set out herein, the scheme is considered to accord with all relevant nature conservation legislation, as well as with the provisions of Strategic Policy DP38 of the Mid Sussex District Plan 2014-2031.

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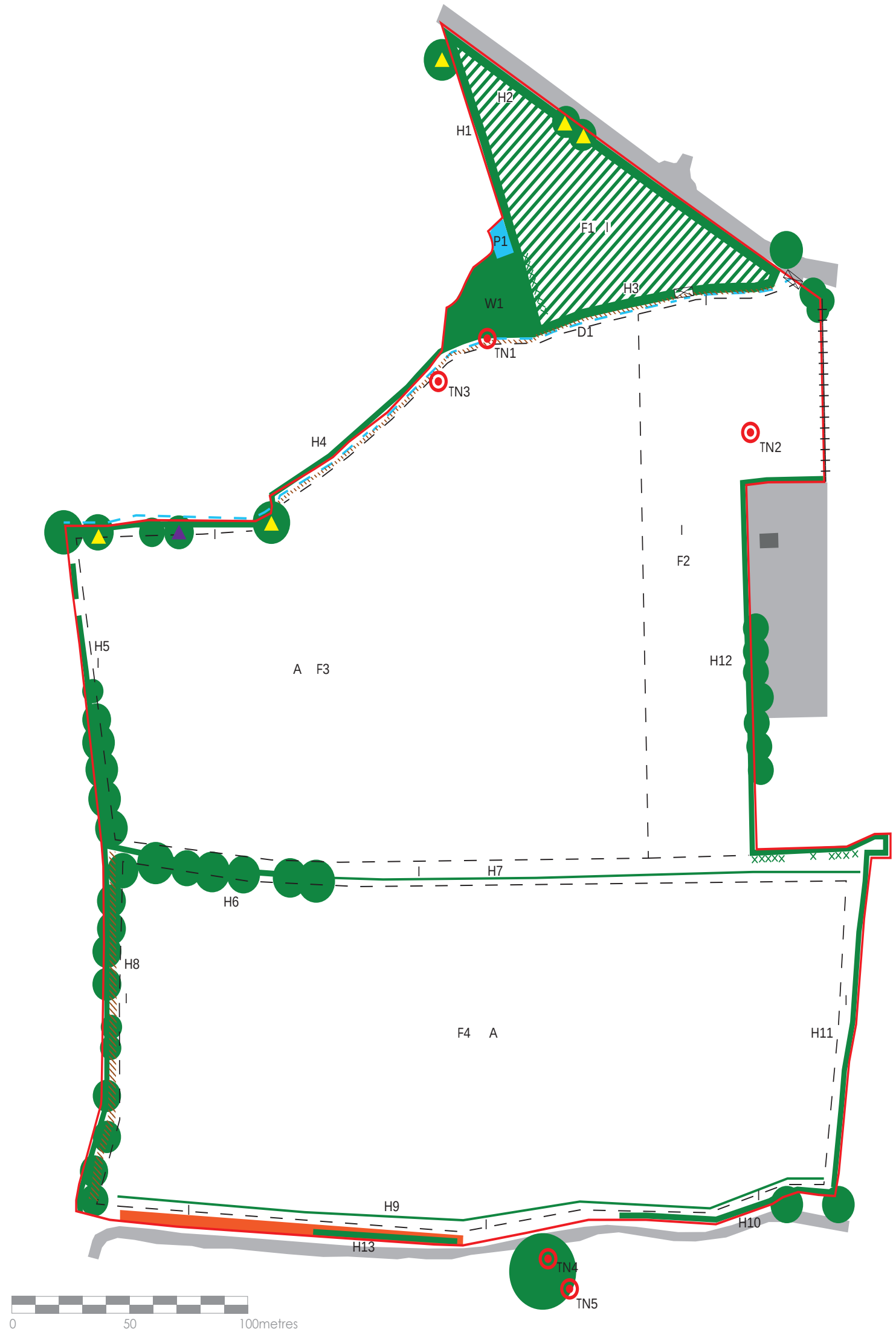
Appendix A

Habitats Plan & Photographs



Survey area

Pn — Pond and ID number

Continuous bracken

Tree with High bat roost potential

A — Arable

Hn — Hedgerow and ID number

Hardstanding

TN1 — Badger print

Improved grassland

Traditional orchard

Building

TN2 — Old hay bales in overgrown tall ruderal

Broadleaved woodland

Broadleaved tree

Fence

TN3 — Fox scat

Fn — Field ID number

Tall ruderal

Gate

TN4 — Large veteran oak tree

Dn — Seasonally wet ditch and ID number

Scattered scrub

Tree with Low bat roost potential

TN5 — Barn owl box

CSA environmental

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e brighton@csaenvironmental.co.uk
w csaenvironmental.co.uk

Project	Land south of Henfield Road, Albourne, West Sussex	Date	June 2022	Drawing No.	CSA/4426/100
Drawing Title	Habitats Plan	Scale	Refer to scale	Rev	C
Client	Croudace Homes Ltd	Drawn	NI	Checked	AW

Photograph 1. Apple trees in orchard (F1)

Photograph 2. H1 on the western boundary of F1 - Native Species Rich Hedgerow with trees

Photograph 3. Arable crops meeting improved field margins in F3

Photograph 4. F4 which consists of arable crop

Photograph 5. Long grass swards making up improved field margins

Photograph 6. The public footpath running between F3 and F4 through the middle of the Site

Photograph 7. The public footpath dividing the Site and leading directly to off-site arable fieldst

Photograph 8. Shorter grass swards adjacent to H9 and H13

Photograph 9. The southern edge of F4 and the large mature oak

Photograph 10. Newly planted hedgerow (H9) at the south of F4

Photograph 11. View of orchard (F1) from northern edge of F2, across H3.

Appendix B

Legislation and Planning Policy

1.1. The Conservation of Habitats and Species Regulations 2017 (as amended) make prescriptions for the designation and protection of Sites of Community Importance ('European sites', i.e. Special Areas of Conservation and Special Protection Areas) and European Protected Species (EPS). The latter include all native bats, great crested newts, dormice, otters and certain reptiles, listed under Annex II of the Regulations. Following the UK's departure from the European Union, the provisions of the Regulations have been retained through enactment of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which came into force on 31 December 2020.

1.2. The Wildlife and Countryside Act 1981 (as amended, principally by the Countryside and Rights of Way Act 2000) forms the basis for protection of statutory designated sites of national importance (e.g. Sites of Special Scientific Interest; SSSIs) and native species that are rare and vulnerable in a national context. Additionally, badgers are protected under the Protection of Badgers Act 1992.

1.3. Section 40(1) of the Natural Environment and Rural Communities (NERC) Act 2006 states that each public authority, "must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity." This legislation makes it clear that planning authorities should consider impacts to biodiversity when determining planning applications, with particular regard to the Section 41 (S41) lists of 56 habitats and 943 species of principal importance. The UK Biodiversity Action Plan (BAP) has been superseded by the Biodiversity 2020 Strategy, however Local BAPs continue to influence biodiversity management and conservation effort, including through the spatial planning system, at the local scale.

1.4. The National Planning Policy Framework (2021) (NPPF) sets out the government planning policies for England and how they should be applied. With regards to ecology and biodiversity, Chapter 15: Conserving and Enhancing the Natural Environment, paragraph 174, states that the planning system and planning policies should minimise impacts on and provide net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

1.5. Paragraph 180 sets out the principles that local planning authorities should apply when determining planning applications:

- If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts).
- Development on land within or outside a Site of Special Scientific Interest, and which is likely to have an negative effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the

development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest.

- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.
- Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

1.6. Accompanying the NPPF, central government guidance on the implementation of planning policies is set out within online Planning Policy Guidance (PPG). That relating to the protection and enhancement of the Natural Environment was most recently updated in August 2021. The Natural Environment PPG addresses principles across a broad spectrum of topics targeting biodiversity conservation, from individual site and species protection through to the supporting of ecosystem services, and the use of local ecological networks to support the national Nature Recovery Network. In particular the PPG promotes the delivery of measurable Biodiversity Net Gain through the creation and enhancement of habitats alongside development.

1.7. The Government Circular 06/2005, which is referred to within the NPPF, defines statutory nature conservation sites and protected species as a material consideration in the planning process.

1.8. Local planning policies of relevance to ecology, biodiversity and/or nature conservation have been set out in Table 1 below.

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

Policy	Summary
Mid Sussex District Plan (2014-2031)	
Policy DP37: Trees, Woodland and Hedgerows	*"The District Council will support the protection and enhancement of trees, woodland and hedgerows, and encourage new planting. In particular, ancient woodland and aged or veteran trees will be protected.* *Development that will damage or lead to the loss of trees, woodland or hedgerows that contribute, either individually or as part of a group, to the visual amenity value or character of an area, and/ or that have landscape, historic or wildlife importance, will not normally be permitted.* *Proposals for new trees, woodland and hedgerows should be of suitable species, usually native, and where required for visual, noise or light screening purposes, trees, woodland and*

Policy	Summary
	hedgerows should be of a size and species that will achieve this purpose. *Trees, woodland and hedgerows will be protected and enhanced by ensuring development:* • *incorporates existing important trees, woodland and hedgerows into the design of new development and its landscape scheme; and* • *prevents damage to root systems and takes account of expected future growth; and* • *where possible, incorporates retained trees, woodland and hedgerows within public open space rather than private space to safeguard their long-term management; and* • *has appropriate protection measures throughout the development process; and* • *takes opportunities to plant new trees, woodland and hedgerows within the new development to enhance on-site green infrastructure and increase resilience to the effects of climate change; and* • *does not sever ecological corridors created by these assets.* *Proposals for works to trees will be considered taking into account:* • *the condition and health of the trees; and* • *the contribution of the trees to the character and visual amenity of the local area; and* • *the amenity and nature conservation value of the trees; and* • *the extent and impact of the works; and* • *any replanting proposals"*

Policy	Summary
DP38 Biodiversity	*"Biodiversity will be protected and enhanced by ensuring development:* • *Contributes and takes opportunities to improve, enhance, manage and restore biodiversity and green infrastructure, so that there is a net gain in biodiversity, including through creating new designated sites and locally relevant habitats, and incorporating biodiversity features within developments; and* • *Protects existing biodiversity, so that there is no net loss of biodiversity. Appropriate measures should be taken to avoid and reduce disturbance to sensitive habitats and species. Unavoidable damage to biodiversity must be offset through ecological enhancements and mitigation measures (or compensation measures in exceptional circumstances); and* • *Minimises habitat and species fragmentation and maximises opportunities to enhance and restore ecological corridors to connect natural habitats and increase coherence and resilience; and* • *Promotes the restoration, management and expansion of priority habitats in the District; and* • *Avoids damage to, protects and enhances the special characteristics of internationally designated Special Protection Areas, Special Areas of Conservation; nationally designated Sites of Special Scientific Interest, Areas of Outstanding Natural Beauty; and locally designated Sites of Nature Conservation Importance, Local Nature Reserves and Ancient Woodland or to other areas identified as being of nature conservation or geological interest, including wildlife corridors, aged or veteran trees, Biodiversity Opportunity Areas, and Nature Improvement Areas.* *Designated sites will be given protection and appropriate weight according to their importance and the contribution they make to wider ecological networks.* *Valued soils will be protected and enhanced, including the best and most versatile agricultural land, and development should not contribute to unacceptable levels of soil pollution.* *Geodiversity will be protected by ensuring development prevents harm to geological conservation interests, and where possible, enhances such interests. Geological conservation interests include Regionally Important Geological and Geomorphological Sites".*

Appendix C

Desk Study Information

MAGiC

4426_10km Search Map

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Legend

- Ramsar Sites (England)
- Special Areas of Conservation (England)
- Possible Special Areas of Conservation (England)
- Special Protection Areas (England)
- Potential Special Protection Areas (England)

Projection = OSGB36
xmin = 498100
ymin = 103500
xmax = 559400
ymax = 133400

0 2.5 5
km

Map produced by MAGIC on 16 October, 2019.

Site Check Report Report generated on Thu Jul 18 2019
You selected the location: Centroid Grid Ref: TQ26161670
The following features have been found in your search area:

Ramsar Sites (England)
No Features found

Proposed Ramsar Sites (England)
No Features found

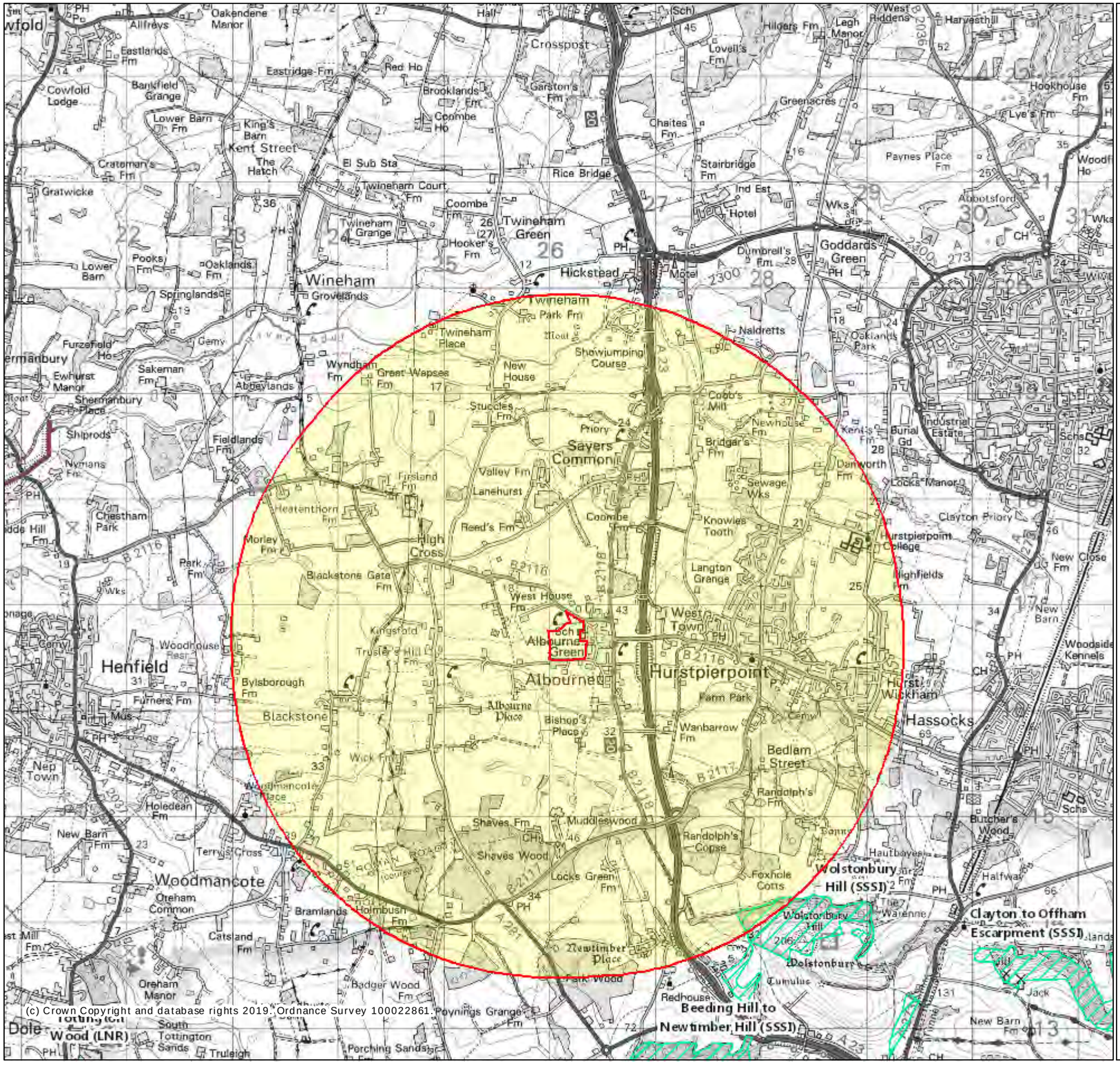
Special Areas of Conservation (England)
No Features found

Possible Special Areas of Conservation (England)
No Features found

Special Protection Areas (England)
No Features found

Potential Special Protection Areas (England)
No Features found

4426_3km Site Search Map



Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Sites of Special Scientific Interest (England)

Projection = OSGB36
xmin = 515900
ymin = 112700
xmax = 536200
ymax = 122700

0 0.8 1.6
km

Map produced by MAGIC on 18 July, 2019.
Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

Site Check Report Report generated on Thu Jul 18 2019
You selected the location: Centroid Grid Ref: TQ26161670
The following features have been found in your search area:

Sites of Special Scientific Interest (England)

Name	Wolstonbury Hill SSSI
Reference	1000253
Natural England Contact	Susan Simpson
Natural England Phone Number	0845 600 3078
Hectares	58.89
Citation	1001453
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001453

Local Nature Reserves (England)
No Features found

National Nature Reserves (England)
No Features found

Appendix D

Habitats and Flora Species List

Site Name	4426 Albourne				
Survey Date and Surveyor(s)	14/07/2021 AW & CC				
		Habitat Parcel Number/Habitat Type			
Scientific Name	Common Name	Modified grassland	Orchard	Hedgerows	Arable margins
Herb Species					
Achillea millefolium	Yarrow	✓			
Anagallis arvensis	Scarlet pimpernel	✓			✓
Bryonia dioica	White bryony			✓	
Calystegia sepium	Hedge bindweed	✓			
Cerastium sp.	Common mouse-ear	✓			
Cirsium arvense	Creeping thistle	✓			
Epilobium ciliatum	American willowherb				✓
Epilobium hirsutum	Great willowherb	✓			
Euphorbia helioscopia	Sun spurge				✓
Geranium dissectum	Cut-leaved crane's-bill	✓			
Geranium pusillum	Small-flowered crane's-bill	✓			
Helminthotheca echioides	Bristly oxtongue	✓			
Heracleum mantegazzianum	Giant hogweed				
Heracleum sphondylium	Hogweed	✓			
Hypericum perforatum	Perforate St John's-wort	✓			
Lamium purpureum	Red dead-nettle				✓
Lathyrus nissolia	Grass vetchling	✓			
Lathyrus pratensis	Meadow vetchling	✓			
Lotus corniculatus	Common bird's-foot-trefoil	✓			
Plantago media	Hoary plantain				✓
Polygonum sp.	Knotgrass				✓
Potentilla reptans	Creeping cinquefoil	✓			
Ranunculus acris	Meadow buttercup	✓			
Ranunculus repens	Creeping buttercup	✓			
Rumex acetosa	Common sorrel	✓			
Rumex sp.	Dock	✓			
Scrophularia nodosa	Common figwort				✓
Senecio jacobaea	Common ragwort	✓			
Stachys sylvatica	Hedge woundwort	✓			
Stellaria graminea	Lesser stitchwort	✓			
Trifolium repens	White clover	✓			
Matricaria chamomilla	Scented mayweed				✓
Tripleurospermum inodorum	Scentless mayweed	✓			
Urtica dioica	Common nettle	✓			
Veronica persica	Common field-speedwell				✓
Vicia sativa	Common vetch	✓			
Vicia sepium	Bush vetch	✓			
Vicia tetrasperma	Smooth tare	✓			✓
Sedges and Rushes					
Carex pendula	Pendulous sedge	✓			
Grasses					
Agrostis sp.	Bent grass	✓			
Alopecurus pratensis	Meadow foxtail	✓			
Anthoxanthum odoratum	Sweet vernal-grass	✓			
Arrhenatherum elatius	False oat-grass	✓			
Bromus hordeaceus	Soft-brome	✓			
Cynosurus cristatus	Crested dog's-tail	✓			
Dactylis glomerata	Cock's-foot	✓			
Elytrigia repens	Common couch	✓			
Holcus lanatus	Yorkshire-fog	✓			
Hordeum secalinum	Meadow barley	✓			
Lolium perenne	Perennial rye-grass	✓			
Phleum pratense	Timothy	✓			
Poa pratensis	Smooth meadow-grass	✓			
Schedonorus giganteus	Giant fescue	✓			
Woody Species					
Coniferous					
Pinus sylvestris	Scots pine			✓	
Taxus baccata	Yew			✓	
Broadleaved					
Acer campestre	Field maple			✓	
Acer pseudoplatanus	Sycamore			✓	
Betula sp.	Birch			✓	
Castanea sativa	Sweet chestnut			✓	
Cornus sp.	Dogwood			✓	
Corylus avellana	Hazel			✓	
Crataegus laevigata	Midland hawthorn			✓	
Crataegus monogyna	Hawthorn			✓	
Euonymus europaeus	Spindle			✓	
Fagus sylvatica	Beech			✓	
Fraxinus excelsior	Ash			✓	
Hedera helix	Ivy			✓	
Ilex aquifolium	Holly			✓	
Juglans regia	Walnut		✓		
Malus sp.	Apple		✓		
Populus sp.	Poplar sp.			✓	
Prunus sp.	Plum sp.		✓		
Prunus avium	Cherry			✓	
Prunus spinosa	Blackthorn			✓	
Quercus robur	Pedunculate oak			✓	
Rosa arvensis	Field-rose			✓	
Rosa canina sp.	Dog-rose			✓	
Rubus fruticosus agg.	Bramble	✓		✓	
Salix caprea	Goat willow			✓	
Salix cinerea	Grey willow			✓	
Salix fragilis	Crack willow			✓	
Salix sp.	Willow			✓	
Sambucus nigra	Elder			✓	
Viburnum opulus	Guelder-rose			✓	

Appendix E

Evaluation & Assessment Methods

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

Establishing Potentially Important Ecological Features

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

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

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

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

Establishing Likely Zone of Influence

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

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

- International statutory nature conservation designations up to 10km from the Site
- National and local statutory nature conservation designations up to 3km from the Site
- Non-statutory locally designated wildlife sites up to 1km from the Site

1.5. These arbitrary distances are considered sufficient for identifying the nature conservation designations which could be subject to significant effects. However, it is acknowledged that in certain circumstances effects beyond these distances are possible and should be considered as far as is reasonably practicable to do so.

1.6. For other ecological features, such as habitats and species, the appropriate zone of influence is described and justified as appropriate within the report, depending on their respective sensitivity to an environmental change.

1.7. The results of professionally accredited or published scientific studies have been used and referenced, where available, to establish the spatial and temporal limits of the biophysical changes likely to be caused by specific activities, and to justify decisions about the zone of influence.

Geographic Context and Significance Criteria

1.8. The importance of ecological features, as well as the significance of any likely impacts and their effects, are considered here within a defined geographic context:

- International
- National
- Regional
- County
- Local

1.9. The size, conservation status and the quality of features are all relevant in determining their importance and assigning this to the geographic scale. Where the importance of a feature is considered to fall below the Local scale, they are scoped out of detailed assessment.

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

Characterising Ecological Impacts and their Effects

1.11. Where likely significant ecological impacts and effects are identified in connection with the proposed project, these are considered and described with reference to the following characteristics (where this is helpful in accurately portraying the ecological effect and determining the scale of significance):

- Positive or negative (i.e. does the anticipated change accord with nature conservation policies and objectives?)
- Extent (i.e. the spatial area over which the impact or effect may occur)
- Magnitude (i.e. the quantified size, amount, intensity or volume)
- Duration (i.e. the timeframe over which the impact or effect may occur, in both human and ecological terms)
- Frequency and timing (i.e. the number of times an activity occurs, where this is likely to influence the effect)
- Reversibility (i.e. is spontaneous recovery possible or may the effect be counteracted by mitigation?)

Appendix F

Biodiversity Metric

4426 Albourne

Headline Results

Return to results menu

On-site baseline	*Habitat units*	36.00
	Hedgerow units	40.59
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	55.65
	Hedgerow units	41.60
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	54.57%
	Hedgerow units	2.48%
	River units	0.00%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	19.65
	Hedgerow units	1.01
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	54.57%
	Hedgerow units	2.48%
	River units	0.00%
Trading rules Satisfied?		Yes

DITCHES Condition Assessment Criteria		D1					
1	The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Pass					
2	A range of emergent, submerged and floating leaved plants are present. As a guide >10 species of emergent, floating or submerged plants in a 20 m ditch length.	Fail					
3	There is less than 10% cover of filamentous algae and/or duckweed (these are signs of eutrophication).	Pass					
4	A fringe of marginal vegetation is present along more than 75% of the ditch.	Pass					
5	Physical damage evident along less than 5% of the ditch, such as excessive poaching, damage from machinery use or storage, or any other damaging management activities.	Pass					
6	Sufficient water levels are maintained; as a guide a minimum summer depth of approximately 50 cm in minor ditches and 1 m in main drains.	Fail					
7	Less than 10% of the ditch is heavily shaded.	Fail					
8	There is an absence of non-native plant and animal species1.	Pass					
Condition Assessment Result	Condition Assessment Score						
Passes 8 of 8 criteria	Good (3)						
Passes 6 or 7 of 8 criteria	Moderate (2)						
Passes 0, 1, 2, 3, 4 or 5 of 8 criteria	Poor (1)	X					
Are any criteria non-negotiable? (Y/N) If Yes are they							
Suggested enhancement interventions to improve condition score							

Notes

Footnote 1 - Any species included on the Water Framework Directive UKTAG GB High Impact Species List should be absent.
Frequently occurring non-native plant species include water fern Azolla spp., Australian swamp stonecrop Crassula helmsii, parrot's feather Myriophyllum aquaticum, floating pennywort Hydrocotyle ranunculoides, Japanese knotweed Fallopia japonica and giant hogweed Heracleum mantegazzianum (on the bank).
Frequently occurring non-native animals include signal crayfish Pacifastacus leniusculus, zebra mussels Dreissena polymorpha, killer shrimp Dikerogammarus villosus, demon shrimp Dikerogammarus haemobaphes, carp Cyprinus carpio.

GRASSLAND (LOW DISTINCTIVENESS) Condition Assessment Criteria		F1: Orchard. Modified grassland	F2 N margin: Modified grassland	F3 N margin: Modified grassland	Margin separating F2/F3 from F4: Modified grassland	Margin along southern F4: Modified grassland	Margin along eastern F4: Modified grassland				
1	There must be 6-8 species per m2. Note - if a grassland has 9 or more species per m2 it should be classified as a moderate distinctiveness grassland habitat type. NB - this criterion is non-negotiable for achieving good condition.	Fail: 5	Fail: 6	Fail: 4	Fail: 3	Fail: 5	Fail				
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Pass	Fail: All >70cm	Fail: all tall	Pass	Fail: all tall	Pass				
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Pass	Pass	Pass	Pass	Pass	Pass				
4	Physical damage evident in less than 5% of total grassland area, suchas excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities.	Pass	Pass	Pass	Fail: track	Pass	Fail: track				
5	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Pass	Pass	Pass	Pass	Pass	Pass				
6	Cover of bracken less than 20%.	Pass	Pass	Pass	Pass	Pass	Pass				
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species1 make up less than 5% of ground cover.	Pass	Pass: <5%	Fail: >5% nettle	Pass	Pass	Pass				
Condition Assessment Result	Condition Assessment Score										
Passes 6 or 7 of 7 criteria including non-negotiable criterion 7	Good (3)										
Passes 4 or 5 of 7 criteria; OR Passes 6 of 7 criteria excluding non-negotiable criterion 7	Moderate (2)	X	X	X	X	X	X				
Passes 0, 1, 2 or 3 of 7 criteria	Poor (1)										
Are any criteria non-negotiable? (Y/N) If Yes are they passed?											
Suggested enhancement interventions to improve condition score											
Notes											
Footnote 1 - Species considered undesirable for this habitat type include: Creeping thistle*Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , greater plantain Plantago major, white clover*Trifolium repens* , cow parsley *Anthriscus sylvestris* .											

HEDGEROWS Condition Assessment Criteria

A series of ten attributes, representing key physical characteristics, are used for this assessment. The attributes, and the minimum criteria for achieving a favourable condition in each, are defined. The attributes use similar favourable condition criteria to the Hedgerow Survey Handbook and the handbook is the recommended source of reference for assessing individual hedgerow attributes.

Hedgerow favourable condition attributes																
Attributes and functional groupings (A, B, C, D & E)	Criteria (the minimum requirements for 'favourable condition'	Description		H1: Species rich hedgerow with trees	H2: Native sp. rich with trees	H3: Native sp. rich hedgerow with trees, associated with bank or ditch	H4: Native sp. rich hedgerow with trees, associated with bank or ditch	H5: Native sp. rich hedgerow with trees	H7: Native species rich hedgerow	H8: Native species rich hedgerow	H9: Native species rich hedgerow	H10: Native species rich hedgerow	H11: Native species rich hedgerow	H12: Native hedgerow with trees	H13: Native hedgerow - **ASSUMED**
Core groups - applicable to all hedgerow types																
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is > 1.5 m height).	Pass: 3-4m	Pass: 3m	Pass: 3-4m	Pass: 4-5m	Pass: c. 5m	Fail	Pass	Fail	Pass	Pass: 3m	Pass	Pass
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolatedtrees. Outgrowths (e.g. blackthorn suckers) are only included in the width estimate when they >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice4).	Pass: 4m	Pass: 3m	Pass: 3-4m	Pass: 3-4m	Pass: 3-4m	Fail	Pass	Fail	Pass	Pass: 3-4m	Pass	Pass
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	This is the vertical gappiness of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length and - No canopy gaps >5 m	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breakin the woody canopy (no matter how small). Access points and gates contribute to the overall gappiness, but are not subject to the >5 m criterion (as this is the typical size of a gate).	Pass	Pass	Pass	Pass	Pass	Fail: large 10m gap	Pass	Pass	Pass	Fail: big gap with nettle	Pass	Pass
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: measured from outer edge of hedgerow, and is present on one side of the hedge (at least)	This is the horizontal gappiness of the woody component of the hedgerow. Gaps are complete breaksin the woody canopy (no matter how small). Access points and gates contribute to the overall gappiness, but are not subject to the >5 m criterion (as this is the typical size of a gate).	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
C2.	Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	The indicator species used are nettles (Urtica spp.), cleavers (Galium apaine) and docks (Rumex spp.). Their presence, either singly or together, should not exceed the 20% cover threshold.	Pass: nettle c. 15%	Pass	Pass	Pass	Fail c. 50%	Pass	Fail: nettle and dock >20%	Pass	Fail: nettle and dock >20%	Fail: nettle and dock >20%	Fail	Fail
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Neophytes are plants that have naturalised in the UK since AD 1500. For information on neophytes see the JNCC website and for information on invasive non-native species see the GB Non-Native Secretariat website.	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (e.g. excessive hedge cutting).	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Additional group - applicable to hedgerows with trees only																
E1.	Tree age	At least one mature tree per 30m stretch of hedgerow. A mature tree is one that is at least 2/3 expected fully mature height for the species.	This criterion addresses if there are sufficient mature trees (within the scope of planning timescales) which are of higher value to biodiversity.	Pass	Fail	Fail	Pass	Pass							
E2.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	Pass	Pass	Pass	Pass	Pass							

Each attribute is assigned to one of five functional groups (A – E), and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria according to the approach set out in the table below.

Condition categories for hedgerows without trees														
Category	Maximum number of attributes that can fail to meet 'favourable condition' criteria	Metric Score												
Good	No more than 2 failures in total; AND No more than 1 in any functional group.	3							X		X	X	X	X
Moderate	No more than 4 failures in total; AND Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).	2						X		X				
Poor	Fails a total of more than 4 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	1												
Condition categories for hedgerows with trees														
Category	Maximum number of attributes that can fail to meet 'favourable condition' criteria	Metric score												
Good	No more than 2 failures in total; AND No more than 1 failure in any functional group.	3	X	X	X	x	X							
Moderate	No more than 5 failures in total; AND Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition).	2												
Poor	Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	1												
Suggested enhancement interventions to improve condition score														

LINE OF TREES Condition Assessment Criteria		H6: Line of trees					
1	More than 70% of trees are native species.	Pass					
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Pass					
3	Includes one or more mature1 or veteran2 tree.	Pass					
4	There is an undisturbed naturally vegetated strip of at least 6 m on both sides toprotect the line of trees from farming and other anthropogenic operations.	Fail					
5	At least 95% of the trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	Pass					
Condition Assessment Result	Condition Assessment Score						
Passes 5 of 5 criteria	Good (3)						
Passes 3 or 4 of 5 criteria	Moderate (2)	X					
Passes 0, 1 or 2 of 5 criteria	Poor (1)						
Suggested enhancement interventions to improve condition score							
Notes							
Footnote 1 - A mature tree in this context is one that is at least 2/3 expected fully mature height for the species. Footnote 2 - All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value. Veteran trees can be classified if they have four out of the five following features: 1. Rot sites associated with wounds which are decaying >400 cm2; 2. Holes and water pockets in the trunk and mature crown >5 cm diameter; 3. Dead branches or stems >15 cm diameter; 4. Any hollowing in the trunk or major limbs; 5. Fruit bodies of fungi known to cause wood decay.							

Table 4.2. Habitat Condition Assessment: Orchard

ORCHARDS Condition Assessment Criteria		
1	Presence of ancient1 and / or veteran2 trees. **NB - this criterion is non-negotiable for achieving good condition.**	Fail: None present
2	Less than 5% of fruit trees are smothered by scrub. Small patches of dense scrub and/or scattered scrub growing between trees can be beneficial to biodiversity, however these should occupy less than 10% of ground cover.	Pass
3	There is evidence of formative and/or restorative pruning to maintain longevity of trees.	Pass
4	Presence of standing and/or fallen dead wood: all mature trees have standing or fallen branches, stems and stumps greater than 10 cm diameter associated with them.	Fail – None present indicating regular clearance
5	At least 95% of the trees are free from damage caused by humans or animals e.g.browsing, bark stripping or rubbing on non-adjusted ties.	Pass
6	Sward height is varied (between 5 cm and 30 cm) and small patches of bare ground are present creating structural diversity. Up to 10% cover of patches of tall herb vegetation may be present.	Pass
7	Species richness of the grassland is equivalent to a medium, high, or very high distinctiveness grassland.	Fail – Modified grassland
8	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and undesirable species3 make up less than 10% of ground cover.	
Condition Assessment Result	Condition Assessment Score	
Passes 6, 7 or 8 of 8 criteria, including non-negotiable criterion 1	Good (3)	
Passes 4 or 5 of 8 criteria; OR Passes 6 or 7 of 8 criteria, excluding non-negotiable criterion 1	Moderate (2)	Moderate
Passes 0, 1, 2 or 3 of 8 criteria	Poor (1)	

Footnote 1 - Ancient trees are exceptionally valuable. Attributes can include: its great age in comparison with other trees of the same species; size, especially very wide trunk; condition; biodiversity value as a result of significant wood decay and the habitat created from the ageing process; and cultural and heritage value. Veryfew trees of any species become ancient. Ancient trees can be classified using the following girth guide at 1.5 m from the ground:

- >2.5m for field maple, rowan, yew, birch, holly and other smaller tree species;
- >4m for oaks, ash, Scot's pine, alder;
- >4.5m for sycamore, lime, horse chestnut, sweet chestnut, elm species, poplar species, beech, willows, other pines and exotics.

Footnote 2 - All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value. Veteran trees can be classified if they have four out of the five following features:

1. Rot sites associated with wounds which are decaying >400 cm2;
2. Holes and water pockets in the trunk and mature crown >5 cm diameter;
3. Dead branches or stems >15 cm diameter;
4. Any hollowing in the trunk or major limbs;
5. Fruit bodies of fungi known to cause wood decay.

Footnote 3 - Species considered undesirable for this habitat type include: creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica.*

PONDS Condition Assessment Criteria						
CORE CRITERIA		P1				
1	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	N/A - Dry				
2	There is semi-natural habitat (i.e. moderate distinctiveness or above) forat least 10 m from the pond edge.	Pass				
3	Less than 10% of the pond is covered with duckweed or filamentous algae.	N/A - Dry				
4	The pond is not artificially connected to other waterbodies, either via streams, ditches or artificial pipework.	Fail				
5	Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps or pipework.	Pass				
6	There is an absence of non-native plant and animal species2.	Pass				
7	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Pass				
ADDITIONAL CRITERIA - only applicable to non-woodland ponds:						
8	In non-woodland ponds, plants, be they emergent, submerged or floating (excluding duckweeds)3, should cover at least 50% of the pond area that is less than 3 m deep.	N/A				
9	The surface of non-woodland ponds is no more than 50% shaded by woody bankside species.	N/A				
Condition Assessment Result	Condition Assessment Score					
If 8 criteria assessed (woodland ponds):						
Passes 7 of 7 criteria	Good (3)					
Passes 5 or 6 of 7 criteria	Moderate (2)					
Passes 0, 1, 2, 3 or 4 of 7 criteria	Poor (1)	X				
If 10 criteria assessed (non-woodland ponds):						
Passes 9 of 9 criteria	Good (3)					
Passes 6, 7 or 8 of 9	Moderate (2)					
Passes 0, 1, 2, 3, 4 or 5 of 9 criteria	Poor (1)					
Suggested enhancement interventions to improve condition score						

Notes

Footnote 1 - A woodland pond will be surrounded on all sides by woodland habitat.
Footnote 2 - Any species included on the Water Framework Directive UKTAG GB High Impact Species List should be absent.
Frequently occurring non-native plant species include water fern Azolla spp., Australian swamp stonecrop Crassula helmsii, parrot's feather Myriophyllum aquaticum, floating pennywort Hydrocotyle ranunculoides andJapanese knotweed Fallopia japonica, giant hogweed Heracleum mantegazzianum (on the bank).
Frequently occurring non-native animals include signal crayfish Pacifastacus leniusculus, zebra mussels Dreissena polymorpha, killer shrimp Dikerogammarus villosus, demon shrimp Dikerogammarus haemobaphes,carp Cyprinus carpio.
Footnote 3 - If the pond is seasonal (i.e. dries out in most summers) then emergent species alone are likely to be found.

WOODLAND Condition Assessment Criteria					W1					
Indicator		Good (3 points)	Moderate (2 points)	Poor (1 point)						
1	Age distribution of trees1	Three age classes present	Two age classes present	One age class present	3					
2	Wild, domestic and feral herbivore damage	No significant browsing damage evident in woodland2	Evidence of significant browsing pressure is present in 40% or less of whole woodland	Evidence of significant browsing pressure is present in 40% or more of whole woodland	3					
3	Invasive plant species3	No invasive species present in woodland	Rhododendron or laurel not present, other invasive species < 10% cover	Rhododendron or laurel present, or other invasive species > 10% cover	3					
4	Number of native tree species	Five or more native tree or shrub species found across woodland parcel	Three to four native tree or shrub species found across woodland parcel	None to two native tree or shrub species across woodland parcel	3					
5	Cover of native tree and shrub species	> 80% of canopy trees and >80% of understory shrubs are native	50-80% of canopy trees and 50-80% of understory shrubs are native	< 50% of canopy trees and <50% of understory shrubs are native	3					
6	Open space within woodland4	10 – 20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply	21- 40% of woodland has areas of temporary open space	More than 40% of woodland has areas of temporary open space	2					
7	Woodland regeneration5	All three classes present in woodland; trees 4-7cm dbh, saplings and seedlings or advanced coppice regrowth	One or two classes only present in woodland	No classes or coppice regrowth present in woodland	3					
8	Tree health	Tree mortality less than 10%, no pests or diseases and no crown dieback	11% to 25% mortality and/or crown dieback or low risk pest or disease present	Greater than 25% tree mortality and or any high risk pest or disease present	3					
9	Vegetation and ground flora	Ancient woodland flora indicators present	Recognisable NVC plant community present	No recognisable NVC community	3					
10	Woodland vertical structure6	Three or more storeys across all survey plots or a complex woodland	Two storeys across all survey plots	One or less storey across all survey plots	2: Canopy and shrub layer					
11	Veteran trees7	Two or more veteran trees per hectare	One veteran tree per hectare	No veteran trees present in woodland	3: Two veteran oaks					
12	Amount of deadwood	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps	3: Staghorns and dead branches					
13	Woodland disturbance8	No nutrient enrichment or damaged ground evident	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground	3: No significant patches of nettle or cleavers					
Total score (out of a possible 39)					37					
Condition Assessment Result		Condition Assessment Score								
Total score >32 (33 to 39)		Good (3)			X					
Total score 26 to 32		Moderate (2)								
Total score <26 (13 to 25)		Poor (1)								
Suggested enhancement interventions to improve condition score										

Footnote 1 - See EWBG method INDICATOR 1 for more information. If tree species is not a birch, cherry or Sorbus: 0 – 20 years (Young); 21 - 150 years (Intermediate); and >150 years (Old). A recognisable age class should be a consistent recognisable layer across the woodland or stand being assessed. Presence of a few saplings would not indicate that the woodland has an 'age class' of young trees.
Footnote 2 - See EWBG method INDICATOR 2 for more information. Browsing pressure is considered to be significant where >20% of vegetation visible within each survey plot shows damage from any type of browsing pressure listed.
Footnote 3 - See EWBG method INDICATOR 3 for more information. Check for presence of the following invasive non-native species: American skunk cabbage Lysichiton americanus; Himalayan balsam Impatiens glandulifera; Japanese knotweed Fallopia japonica; Cherry Laurel Prunus laurocerasus; Shallon Gaultheria shallon; Snowberry Symphoricarpos albus; Variegated yellow archangel Lamiastrum galeobdolon subsp. argentatum; and Rhododendron Rhododendron ponticum.
Footnote 4 - See EWBG method INDICATOR 6 for more information. Open space within woodland in this context is temporary open space in which trees can be expected to regenerate (e.g. glades, rides, footpaths, areas of clear-fell). This differs from permanent open space where tree regeneration is not possible or desirable (e.g. tarmac, buildings, rivers). Area is at least 10m wide with less than 20% covered by shrubs or trees.
Footnote 5 - See EWBG method INDICATOR 8 for more information. This indicator measures regeneration potential of the woodland by considering three classes: seedlings; saplings; and young trees of 4-7 cm DBH. All three classes would fall in the 'young' category of the 'age distribution of trees' indicator, the regeneration indicator is gathers additional information by considering regeneration potential i.e. if seedlings, saplings and young trees are all present that means natural regeneration processes are happening.
Footnote 6 - This indicator is looking at structural diversity and is useful to understand in conjunction with the age of trees in a woodland. Vertical structure is defined as the number of canopy storeys present. Possible storey values are: 1) Upper; 2) Complex: recorded when the stand is composed of multiple tree heights that cannot easily be stratified into broad height bands (such as upper, middle or lower); 3) Middle; 4) Lower; and 5) Shrub layer.
Footnote 7- See EWBG method INDICATOR 12 for more information. All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value. Veteran trees can be classified if they have four out of the five following features:
1. Rot sites associated with wounds which are decaying >400 cm2;
2. Holes and water pockets in the trunk and mature crown >5 cm diameter;
3. Dead branches or stems >15 cm diameter;
4. Any hollowing in the trunk or major limbs;
5. Fruit bodies of fungi known to cause wood decay.
Footnote 8 - See EWBG method INDICATOR 15 for more information. Examples of disturbance are: significant nutrient enrichment; soil compaction from trampling, machinery or animal poaching; litter.

Appendix G

Bat Survey Report

1.0 Introduction

1.1 This report sets out the methods and results of bat monitoring surveys undertaken at Land South of Henfield Road, Albourne (hereafter referred to as 'the Site').

2.0 Legislation

2.1 All British bat species are legally protected under Regulation 43 of the Conservation of Habitats and Species Regulations 2017 (as amended). These Regulations make it an offence to:

- Deliberately capture, injure, or kill a bat
- Deliberately disturb bats, impairing their ability to survive, breed, reproduce or rear/nurture their young, or which significantly affects the local distribution or abundance of the species
- Damage or destroy a breeding site or resting place used by bats

2.2 All bats and their roosts in the UK were previously fully protected under the Wildlife & Countryside Act 1981 (as amended). Amendments to the Act have removed most provisions as they relate to bats, however it remains an offence to:

- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection

2.3 It is important to note that bat roosts are protected throughout the year, regardless of whether or not bats are present at the time. Under the Regulations, the offence of damaging or destroying a breeding site or resting place is subject to 'strict liability', i.e. an offence is commented irrespective of whether the causal act was deliberate or otherwise.

2.4 Where development is proposed that would result in an offence under the Regulations, a European Protected Species (EPS) statutory derogation licence (often termed 'EPS Mitigation Licence') will need to be secured from Natural England to permit an act that would otherwise be unlawful. Such a licence can only be granted following receipt of planning permission with all relevant conditions discharged, and where it has been demonstrated that specific statutory derogation tests have been met.

3.0 Methods

3.1 The following survey methods, design, data analysis and interpretation have been undertaken with due consideration of the Bat Conservation Trust (BCT) guidelines 3rd Edition (Collins, 2016).

Tree assessment

Assessing 'Potential' of Trees to Support Roosting Bats

3.2 Six trees with bat roost potential were noted (in line with criteria set out within Collins, 2016) during the Phase 1 habitat survey (TN3) conducted in July 2019. These include five trees with 'Low' bat roost potential (two pedunculate oaks *Quercus robur* and one ash *Fraxinus excelsior* in F1, and a pedunculate oak and crack willow *Salix fragilis* along H4). The crack willow has since fallen due to the wind, although its features remain. Another pedunculate oak with 'High' bat roost potential is located within the western edge of H4. This tree was seen to have a large rot-hole on its south-facing branch which appeared to have high suitability for roosting bats.

3.3 The aim of this inspection was to record direct (i.e. actual roosting bats) or indirect evidence of roosting bats (e.g. droppings), as well as the nature and number of features with 'potential' to support roosting bats. This includes consideration of trees to support bats whilst in hibernation

3.4 All trees were assigned to one of four categories in respect of their 'potential' to support roosting bats, or the confirmation of any bat roosts identified. 'Potential' in this context is taken to be the broad suitability of features to support roosting bats, based upon the nature, condition or structure of such features, in the absence of confirmed evidence of roosting.

3.5 Assigning the following categories is intended to determine the effort of any further targeted survey or inspections which are necessary to prove presence or likely absence of roosting bats, rather than to assign importance to such features.

3.6 The following categories are assigned to structures and/or trees herein, Either:

- ***Confirmed Roost*** – where one or more bat roosts are identified during PRA inspections, either through direct sightings of bats, and/or indirect evidence such as bat droppings. Or;
- ***High*** – A structure or 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.
- ***Moderate*** – A structure or 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, assessments at this stage are made irrespective of species conservation status).

- ***Low*** – A structure or tree with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).
- ***Negligible*** – Negligible habitat features on site likely to be used by roosting bats.

3.7 The potential of a tree or structure to support roosting bats is often influenced by its age and construction, thermal stability, lighting and levels of human activity. Furthermore, the proximity to foraging habitat - particularly woodland, parkland and wetland- as well as the presence of navigational routes (e.g. hedgerows, treelines and watercourses) influence both the potential for bats to roost, as well as the species which may roost. Professional judgement is therefore applied, based upon known factors which effect the potential of features to support roosting bats, insofar as determining the need or scope of further surveys or inspections.

3.8 No trees with bat roost potential will be directly impacted by the development, and therefore a full ground level tree assessment (PGLRA) was not conducted. However, if development plans were to change then a full PGLRA would be required.

Activity Surveys

Transect Surveys

3.9 Transect surveys were undertaken in May and June 2022. A further survey is scheduled to be undertaken in August 2022. On each occasion a single transect route aimed to cover all accessible areas, features and habitats at the Site. Each transect route was repeated at least once during each survey to minimise temporal bias.

3.10 Each transect was walked at a moderate and consistent speed with qualitative observations of bat behaviour made by the surveyor. Surveys commenced at sunset (British Summer Time), continuing for the following two hours.

3.11 Bat calls were recorded using Elekon Batlogger M detectors. This detector automatically records ultrasonic signals with a one second delay between recordings. Recordings of bat contacts were subsequently analysed using BatExplorer software, with sonograms reviewed to confirm bat identification to genera, or where possible, species level.

3.12 Each of the recorded files, which contain a variable number of call 'pulses', was designated a 'bat contact'. At the point of contact, each sound file is assigned a GPS location.

3.13 Transect surveys are intended to gather data on the spatial distribution of bat activity across the Site, identifying areas of relative importance for bats, including key flight lines. In addition, direct observation of bats allows for qualitative assessments of how bats use the Site to be made complementing quantitative data collected through remote monitoring.

Remote Monitoring

3.14 Two Wildlife Acoustics Songmeters (SM4) detector was deployed during May and June 2022, with an additional static monitoring period scheduled for August 2022 to provide three data-sets. The location of both Monitoring Locations (ML) are shown on Figure 1 below.

Figure 1. The locations of each Monitoring Location (ML) surveyed during remote monitoring surveys in May and June 2022.

3.15 The detectors were set up to automatically record ultrasonic signals for the period from half an hour before sunset to half an hour after sunrise each night, with each monitoring period spanning at least five consecutive nights.

3.16 Weather conditions were obtained for each night surveyed using historic weather data from the World Weather Online website, with weather observations taken from the nearest weather station in Shoreham Airport. The five nights showing the most optimal weather conditions (in terms of temperature, precipitation and wind speed, see Table 1) were taken forward for analysis.

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

3.18 Recorded bat calls were analysed using the specialist software AnalookW to identify the species present. Quantitative analysis of bat activity was then undertaken by calculating the average bat contacts per hour on each night monitored, for each species.

3.19 Bat activity can show considerable inter-night variability and is dependent on a number of variables, including temperature, wind, and seasonality, amongst others. To account for this variability the median values for the average hourly bat contacts per night are reported, rather than a mean value which would misrepresent the average activity.

Limitations

3.20 It should be noted that the findings described herein for remote monitoring surveys are based on the bat activity recorded at the location immediate to each detector, and therefore only describe localised activity at the Site.

3.21 In addition, comparisons drawn on the number of detector activations by different species/genera can only give an indication of relative species abundance at the Site, as detectability varies between species.

3.22 It is acknowledged that the quantum of bat contacts recorded during a survey may not give a true reflection of the abundance of bats using the Site. For example, a single bat foraging close to a detector may trigger several hundred activations in the course of one night. However, this activity level does provide a proxy for the level of use by bats, and therefore its relative importance.

4.0 Results

Activity Surveys

Transect Surveys

4.1 The weather conditions experienced during the transect surveys are provided in Table 1 below.

Table 1. Bat transect survey timings and weather conditions

Survey Date	Sunset Time	Start Time	End Time	Temp. (°C)		Cloud Cover (oktas)		Wind (Beaufort Scale)		Precipitation
				Start	End	Start	End	Start	End	
12/05/22	20:34	20:34	22:34	18	13	7	7	3	3	No rain
06/06/22	21:12	21:12	23:12	15	15	8	8	4	5	No rain

4.2 At least four species of bat were recorded at the Site during the transect surveys, comprising common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, and Myotis sp. Most contacts were recorded along the western Site boundaries, along hedgerows H1, H5, H6 and H8 which have strong connectivity to off-Site hedgerows and woodland.

4.3 The number of bat contacts recorded for each species are summarised in Table 2 below. The locations of each bat contact and the overall distribution of activity across the Site are illustrated in Figures 2 and 3.

Table 2. Summary of bat contacts recorded during transect surveys

Month	Common pipistrelle	Soprano pipistrelle	Myotis species	Noctule
May	75	42	0	0
June	107	17	1	4
Total	182	59	1	4
Percentage of Total (%)	73.98	23.98	0.4	1.62

Figure 2. Locations of bat contacts recorded across all transect surveys

4.4 Figure 3 below provides an indicative illustration of 'hotspots' in bat activity recorded across all transect surveys undertaken at the Site. Hedgerows H5 and H8 provide key commuting corridors to location north and south of the Site, whilst also offering important foraging habitat along with H6 for species including common and soprano pipistrelle, and *Myotis* sp.. Other key areas include the orchard in the north of the Site, where bats including noctule were recorded foraging in addition to commuting and making use of H1. Lower levels of bat activity were also recorded at the south of the Site, with pipistrelle commuting past and foraging around the mature oak. However, no foraging activity was observed along the Site's eastern boundary. During the dusk breeding bird survey multiple individuals of an unknown bat species were sighted flying east to west, flying past this tree (see TN4 on habitats plan CSA/4426/100/C).

Figure 3. Indicative 'Utilisation Distribution' (UD) of all bat species/genera at the Site estimated from all transect data combined. The UD illustrates the relative probability of a bat in flight being present at a given point at the Site, with higher/central contours having a greater probability, and lower/peripheral contours having less probability.

Remote monitoring

4.5 The weather conditions experienced during the five nights from each month where data was analysed are provided in Table 3 below.

Table 3. Overnight weather conditions during remote monitoring

Survey Month	Dates Sampled (2022)	Temp. (°C)		Cloud Cover (%)		Wind (km/h)		Precipitation
		Min	Max	Min	Max	Min	Max	
May	12/05	10	11	4	24	20	25	None
May	13/05	10	11	8	29	8	21	None
May	14/05	12	13	9	100	10	23	Light rain between 3:00 and 6:00
May	15/05	13	14	67	94	15	25	Light rain between 9:00 and 00:00

May	16/05	12	13	8	42	5	13	None
June	01/06	9	14	2	5	1	14	None
June	02/06	9	15	7	18	10	19	None
June	03/06	9	17	32	86	27	39	None
June	04/06	13	18	11	100	13	29	Light rain between 21:00 and 09:00
June	05/06	11	15	48	88	18	21	Light rain between 21:00 and 00:00

4.6 The total number of bat contacts recorded across all monitoring locations and monitoring periods for each bat species/genera are provided in Figure 4 below.

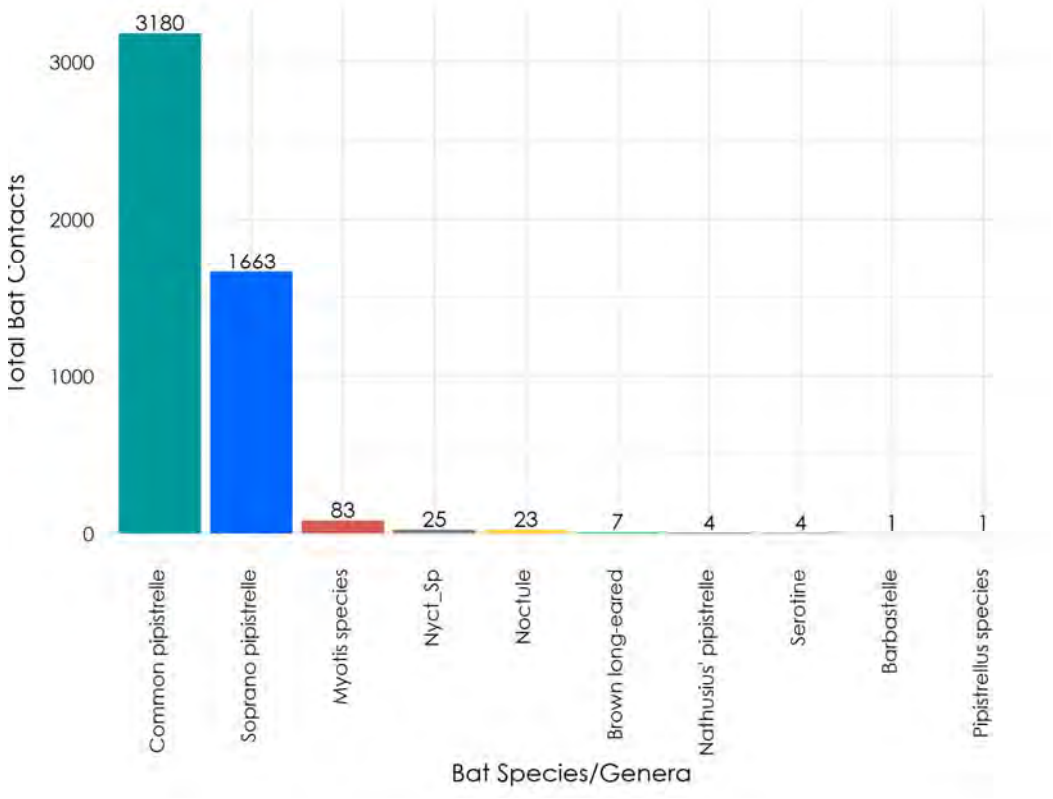


Figure 4. Total bat contacts by species/genera recorded across all remote monitoring periods and monitoring locations

4.7 Markedly higher numbers of both common pipistrelle and soprano pipistrelle were recorded in relation to other bat species. Common pipistrelle formed 60.08% of all contacts, whilst 33.32% ofbat contacts were from soprano pipistrelle. Very low numbers of noctule, barbastelle *Barbastella barbastellus*, serotine *Eptesicus serotinus*, brown long-eared *Plecotus auritus*, Nathusius' pipistrelle *Pipistrellus nathusii* and Myotis sp. were recorded.

4.8 Bats within the Myotis genera are not reliably distinguished from one another by their echolocation calls. Average recorded activity for this genus was low, and not considered to be significant.

4.9 Figure 5 below shows the variance in nightly activity levels for each of these bat species recorded on-site. More detailed data describing Figure 5 are provided in Table 4. The activity data in Figure 5 is presented as boxplots for each bat species, which show the inter-night variability in bat activity across the 10 nights monitored. The median value (middle line of the boxplot) is taken as the typical level of activity for that species on-site at the point monitored. The length of each coloured boxplot is the interquartile range which shows the variance in nightly activity around the median value. The ends of each whisker line define the minimum and maximum nightly activity values recorded at the monitoring location. Outlying values are nightly activity levels that are greatly different when compared to the distribution of the remaining nightly activity levels. Outliers are illustrated as black points away from the boxplot. While important to note, these outliers do not represent the bat activity more commonly found at the Site for the species in question.

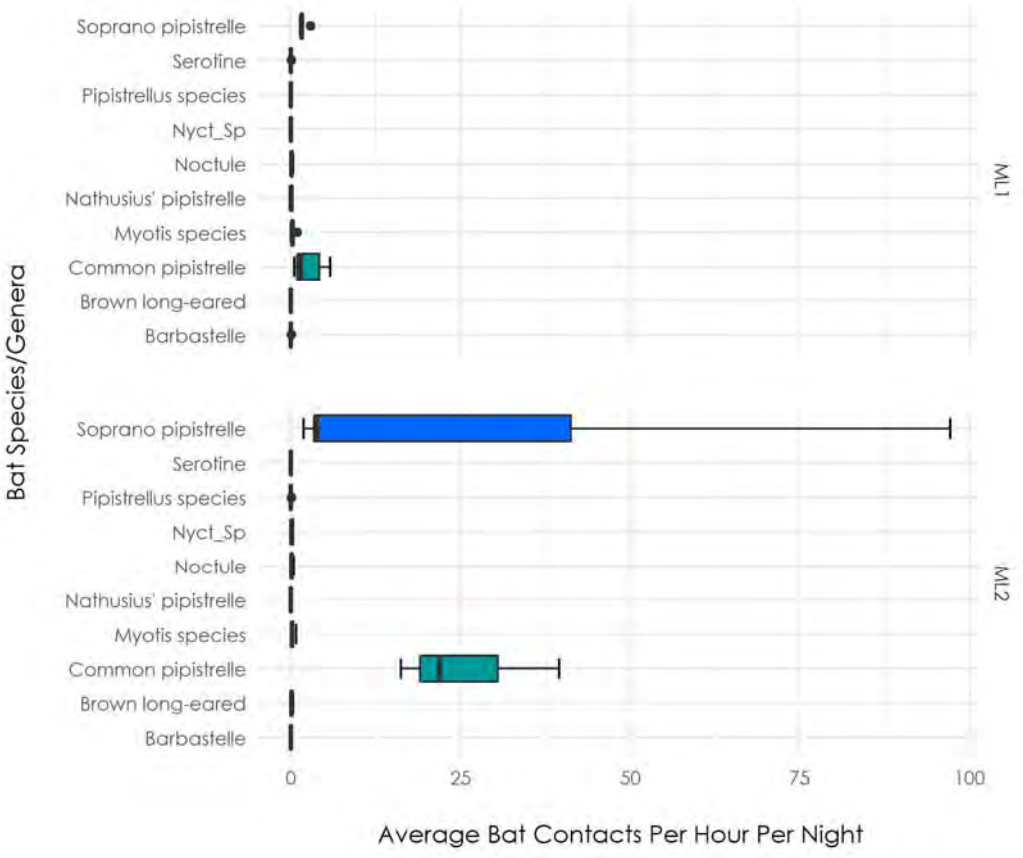


Figure 5. Average bat contacts per hour per night for each bat species/genera recorded across all remote monitoring

4.10 Bat activity was significantly higher at ML2 which was placed along a key commuting and foraging route in H5. Activity here was dominated

by soprano and common pipistrelle, similarly to the transect surveys. Monitoring point ML1 recorded low levels of activity across all species, with slightly higher levels of common and soprano pipistrelle.

Table 4. Average bat contacts per hour per night recorded during remote monitoring surveys

ML	Species	Average bat contacts per hour per night				Total bat contacts	Number of nights monitored
		Minimum	Maximum	Median	IQ range		
ML1	Barbastelle	0.000	0.105	0.000	0.000	1	10
ML1	Brown long-eared	0.000	0.000	0.000	0.000	0	10
ML1	Common pipistrelle	0.524	5.839	1.481	3.266	123	10
ML1	Myotis species	0.000	0.936	0.209	0.104	14	10
ML1	Nathusius' pipistrelle	0.000	0.212	0.000	0.210	4	10
ML1	Noctule	0.000	0.315	0.106	0.108	7	10
ML1	Nyct_Sp	0.000	0.000	0.000	0.000	0	10
ML1	Pipistrellus species	0.000	0.000	0.000	0.000	0	10
ML1	Serotine	0.000	0.105	0.000	0.000	1	10
ML1	Soprano pipistrelle	1.376	2.866	1.576	0.220	85	10
ML2	Barbastelle	0.000	0.000	0.000	0.000	0	0.000
ML2	Brown long-eared	0.000	0.318	0.104	0.209	6	0.000
ML2	Common pipistrelle	16.230	39.501	21.905	11.460	1211	16.230
ML2	Myotis species	0.000	0.733	0.208	0.317	12	0.000
ML2	Nathusius' pipistrelle	0.000	0.000	0.000	0.000	0	0.000
ML2	Noctule	0.000	0.420	0.106	0.212	7	0.000
ML2	Nyct_Sp	0.000	0.315	0.106	0.312	7	0.000
ML2	Pipistrellus species	0.000	0.106	0.000	0.000	1	0.000
ML2	Serotine	0.000	0.106	0.000	0.105	2	0.000
ML2	Soprano pipistrelle	1.891	97.193	3.810	37.860	1415	1.891

5.0 Summary

5.1 Transect and static monitoring surveys found a relatively common assemblage of bat species recorded across the Site, with common pipistrelle accounting for the majority of passes, followed by soprano pipistrelle and *Myotis* sp. being the third most recorded species. Low numbers of passes by rarer species such as Nathusius' pipistrelle, brown long-eared bats, noctule, serotine, *Nyctalus* sp. and barbastelle were recorded.

5.2 Most of the bat activity was associated with the western boundary hedgerows, with particular hotspots noted along hedgerows H1, H5, H6 and H8. This is considered to be a key commuting corridor and important foraging habitat. Another commuting and foraging corridor was located on a section of H9 where many bats were observed flying from east to west, passing the ancient oak, whilst the orchard and H1 also exhibited some levels of commuting and foraging activity. Overall, activity was restricted along the Site's boundaries and hedgerows, with moderate levels of foraging activity and commuting behaviour being observed along the western boundary. Relatively low levels of activity were recorded elsewhere and no activity was recorded in the central arable fields or along the eastern boundary of the Site, with the exception of the eastern orchard during the static monitoring survey.

Appendix H

Dormouse Survey Report

1.0 Introduction

1.1 This report sets out the methods and results of dormouse *Muscardinus avellanarius* presence/likely absence surveys undertaken at Land South of Henfield Road, Albourne (hereafter referred to as 'the Site').

2.0 Legislation

2.1 The dormouse is legally protected through inclusion under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded further protection as a European Protected Species (EPS) under Regulation 43 of the Conservation of Habitats and species Regulations 2017 (as amended).

2.2 Collectively and in summary, this legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture dormice
- Intentionally, deliberately or recklessly disturb dormice in such a way as to be likely to significantly affect the ability of any significant group of dormice to survive, breed, or rear or nurture their young or the local distribution of or abundance of the species
- Intentionally or recklessly damage, destroy or obstruct access to places used by dormice for shelter or protection (whether occupied or not) or intentionally or recklessly disturb a dormouse whilst it is occupying such a place
- Damage or destroy a breeding site or resting place of a dormouse.

2.3 Where development is proposed that would result in an offence under the Regulations, an EPS statutory derogation licence (often termed 'EPS Mitigation Licence') will need to be secured from Natural England to permit an act that would otherwise be unlawful. Such a licence can only be granted following receipt of planning permission with all relevant conditions discharged, and where it has been demonstrated that specific statutory derogation tests have been met.

3.0 Methods

3.1 Dormouse nest tubes were installed at the site on 09 March 2022 by Lydia Galbraith and Nancy Inman. The intention of these surveys is to determine the presence or likely absence of dormice within suitable habitat within all areas that will be impacted. A total of 53 dormouse nest tubes were distributed across the Site, along boundary vegetation, including hedgerows, tree lines and woodland. The location of these nest tubes is shown in the Dormouse Survey Plan (CSA/4426/105).

3.2 Nest tubes are made from stiff, double-walled black plastic sheets or similar material, 25cm long with a 5cm x 5cm cross-section. A thin plywood tray is inserted into the tube with a short projection at one end and an end block at the other which seals the tube. The tubes are then tied in a suitable location along a horizontal branch in vegetation.

Dormice are known to readily use these tubes to build their nests (Bright *et al*., 2006).

3.3 Monthly checks were carried out between April and July 2022, with a further three surveys scheduled for between July and September 2022, in accordance with the Dormouse Conservation Handbook 2nd Ed. (Bright *et al*., 2006) and intended to demonstrate a minimum combined 'search effort' score of 20, as based upon the indices of probability within Table 1 below. A search effort score of 20 is taken to be the minimum to adequately determine presence or likely absence of dormice within a survey area (Bright *et al*., 2006).

Table 1. Index of probability of finding dormice present in nest tubes in any one month (Bright et al., 2006)

Month	Index of probability	Cumulative search effort score
April	1	1
May	4	5
June	2	7
July	2	9
August	5	14
September	7	21
October	2	23
November	2	25

3.4 Checks were undertaken by Jessica Raynor ACIEEM under the licence of Clare Caudwell MCIEEM (Natural England Class Survey Licence WML-CL10a – Registration number: 2018-34385-CLS-CLS) acting as an accredited agent. Bird droppings and other material such as wood mouse *Apodemus sylvaticus* nests were cleaned out if found, to maintain the potential of each tube to be used by dormice.

Limitations

3.5 No specific limitations to the survey were identified.

4.0 Results

4.1 No dormice or evidence of dormice such as nests were found during the surveys undertaken between April and July 2022. One tube contained dry leaves indicative of an *Apodemus* sp. nest however no *Apodemus* sp. were recorded. No food caches were recorded in any surveys. Full results are provided in Table 2 below.

Table 2. Summary of results of surveys undertaken between April and June 2022

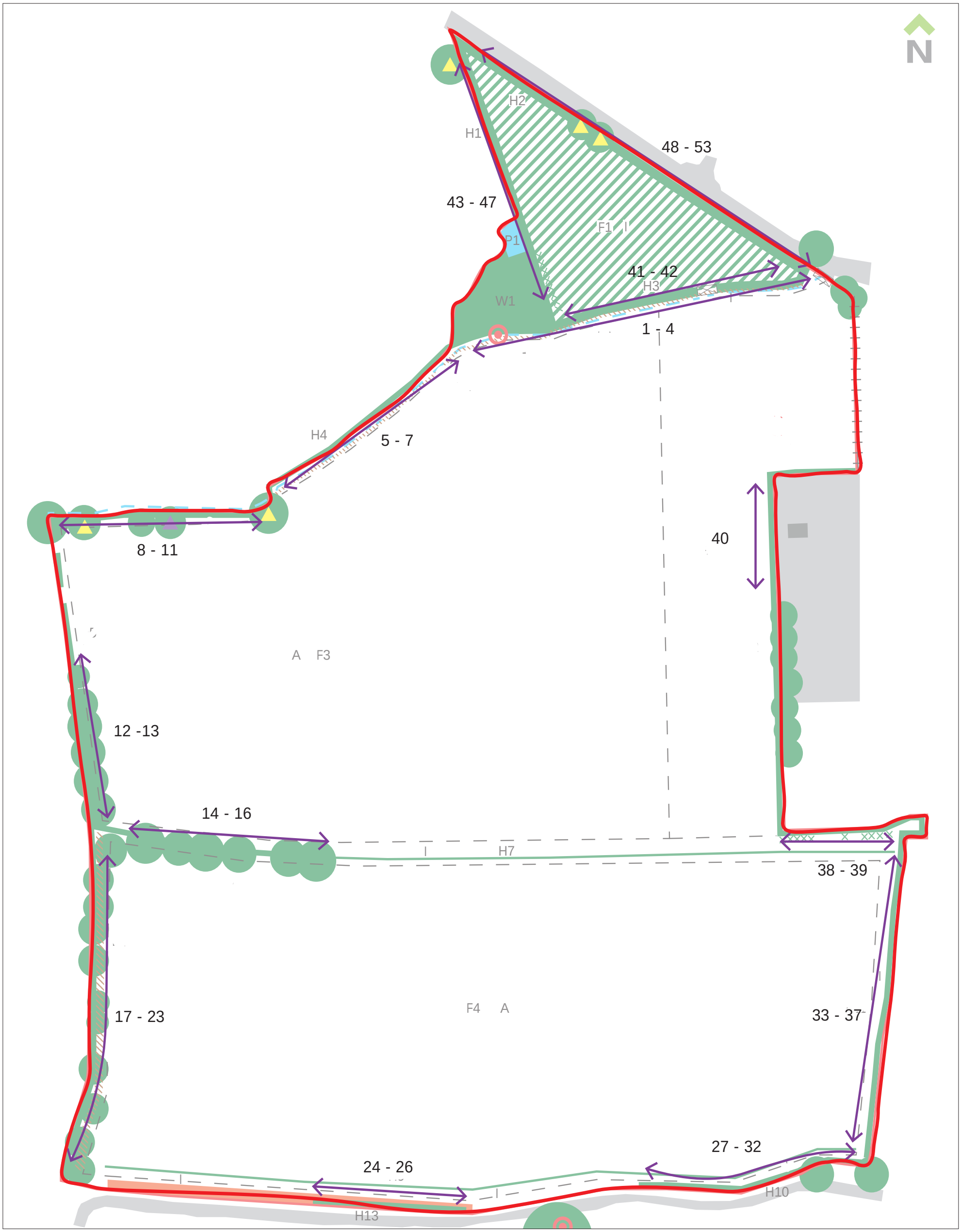
Tube no.	Survey Date			
	21/04/22	05/05/22	01/06/22	05/07/22
1	Empty	Empty	Empty	Empty
2	Empty	Empty	Empty	Empty
3	Empty	Empty	Empty	Empty

Tube no.	Survey Date			
	21/04/22	05/05/22	01/06/22	Empty
4	Empty	Empty	Empty	Empty
5	Empty	Empty	Empty	Empty
6	Empty	Empty	Empty	Empty
7	Empty	Empty	Empty	Empty
8	Empty	Empty	Empty	Empty
9	Empty	Empty	Empty	Empty
10	Empty	Empty	Empty	Empty
11	Empty	Empty	Empty	Empty
12	Empty	Empty	Empty	Empty
13	Empty	Empty	Empty	Empty
14	Empty	Empty	Empty	Empty
15	Birds nest with eggs	Not checked	Not checked	Empty
16	Empty	Empty	Empty	Empty
17	Empty	Empty	Empty	Empty
18	Empty	Empty	Empty	Empty
19	Empty	Empty	Empty	Empty
20	Empty	Empty	Empty	Empty
21	Empty	Empty	Empty	Empty
22	Empty	Empty	Empty	Empty
23	Empty	Empty	Empty	Empty
24	Empty	Empty	Empty	Empty
25	Empty	Empty	Empty	Empty
26	Empty	Empty	Empty	Empty
27	Empty	Empty	Few brown leaves	Empty
28	Empty	Empty	Empty	Empty
29	Empty	Empty	Empty	Empty
30	Empty	Empty	Empty	Empty
31	Empty	Empty	Empty	Empty
32	Empty	Empty	Empty	Empty
33	Empty	Empty	Empty	Empty
34	Empty	Empty	Empty	Empty
35	Empty	Empty	Empty	Empty
36	Empty	Empty	Empty	Empty

Tube no.	Survey Date			
	21/04/22	05/05/22	21/04/22	Empty
37	Empty	Empty	Empty	Empty
38	Empty	Empty	Empty	Empty
39	Empty	Empty	Empty	Empty
40	Treddle broken	Treddle replaced	Empty	Empty
41	Empty	Empty	Empty	Empty
42	Empty	Empty	Empty	Empty
43	Empty	Empty	Empty	Empty
44	Empty	Empty	Empty	Empty
45	Empty	Empty	Empty	Empty
46	Empty	Empty	Empty	Empty
47	Empty	Empty	Empty	Empty
48	Empty	Empty	Not found	Empty
49	Empty	Empty	Empty	Empty
50	Empty	Empty	Empty	Empty
51	Empty	Empty	Empty	Empty
52	Empty	Empty	Empty	Empty
53	Empty	Empty	Empty	Empty

5.0 Summary

5.1 The first four of six dormouse surveys have been undertaken at the Site to-date with no dormice or evidence or dormice, such as nests, found. However, given the suitability of the on-Site habitats, it is considered likely that dormice may be present. As such, proposed mitigation measures to avoid direct impacts to dormice during construction and operation are detailed within the EcIA.



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Project	Land south of Henfield Road, Albourne, West Sussex	Date	June 2022	Drawing No.	CSA/4426/105
Drawing Title	Dormouse Survey Plan	Scale	Refer to scale	Rev	-
Client	Croudace Homes Ltd	Drawn	NI	Checked	AW

Appendix I

Breeding Bird Survey Report

1.0 Introduction

1.1 This report lays out methods and results of breeding bird surveys undertaken at Land South of Henfield Road, Albourne (hereafter referred to as 'the Site' between March and July 2022.

2.0 Legislation

2.1 All wild birds, their nests and eggs are protected under subsection 1(1) of the Wildlife and Countryside Act 1981. It is an offence to kill or injure any wild bird, to take or destroy their eggs, or to take, damage or destroy their nests while in use or being built.

2.2 In addition, certain species of wild bird, listed within Schedule 1 of the Wildlife and Countryside Act, receive additional protection under subsection 1(5) of the Act. This makes it an offence to disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young. It is also an offence to disturb the dependent young of such a bird.

2.3 Consideration is also taken of Birds of Conservation Concern ('BoCC 5') (Stanbury *et al*, 2021) which assigns bird species to a Red, Amber or Green list depending on factors such as their rarity, importance in an international context and severity of declines in population or range. Species on the Red list are of greatest conservation concern whilst those on the Green list do not fulfil any of the BoCC assessment criteria and are not currently of conservation interest. Full details can be found in Stanbury *et al* (2021).

3.0 Methods

Breeding Birds

3.1 Breeding bird surveys were carried out by Aaron White ACIEEM over four visits between 09 March and 04 July 2022 to gain an understanding of the breeding bird assemblage at the site. Surveys were conducted with the following aims:

- To determine the potential for breeding species of birds across the survey area;
- To review the rarity and conservation status of each species found;
- To review the likely breeding potential within the habitats present;

3.2 The survey area included all accessible areas of the Site and immediately adjacent land visible from the Site. On each survey the surveyor walked a slow route across the whole site which ensured that both species of open and boundary habitats would be detected. Alternative versions of the route were taken on each visit so that different parts of the site would be surveyed at different parts of the morning, thus avoiding temporal bias associated with bird activity.

3.3 Each survey commenced shortly before or after dawn, when birds are most active, and continued for approximately one and a half hours during suitable weather conditions. The fifth survey (a dusk visit) began shortly before sunset until approximately an hour after sunset, to help account for more nocturnally active species, such as nightingale *Luscinia megarhynchos* and owl species. Birds were detected by sound or sight, using a pair of 10 x 42 Vortex Viper binoculars.

3.4 The survey methodology used considers the recommended mapping conventions given within the Bird Survey Guidelines published by the Bird Steering and Assessment Group (2022). All birds detected at the site were recorded using standardised codes to map their distribution and behaviour, and to differentiate between individuals for the purposes of territory mapping (adapted from the standard Common Birds Census method). A full map of all species is created for each survey visit, with a consolidated map of priority species created for all survey visits combined.

3.5 Priority species are classified using the following hierarchy:

1) Species listed under Schedule 1 of the Wildlife and Countryside Act 1981(as amended);
2) Species listed under Section 41 of the Natural Environment and Rural Communities Act 2006;
3) Red & Amber listed by the 5th Birds of Conservation Concern Review (Stanbury *et al*, 2021).
4) Localised or highly specialised species regardless of inclusion above (e.g. crossbill in coniferous woodland);
5) Nationally- or locally-declining species regardless of inclusion above
6) Colonial nests or roost sites containing more than one individual of any species; or,
7) Exceptional counts or aggregations of any species.

3.6 On each survey visit the following objectives were met:

- Identification of potential breeding species within the habitats present;
- Identification of all birds seen and heard;
- Breeding status of each bird seen and heard;
- Total numbers of birds, including juveniles recorded.

3.7 The criteria used during the 'Bird Atlas' surveys of 2007-2011 were used to ascertain the breeding status of birds at the Site (as given in Table 1 below).

Table 1. Categories of Breeding Bird Evidence

Breeding Status Categories	Evidence Criteria

Confirmed breeding:	• Distraction display or injury feigning • Used nests or eggshells found (occupied or laid within the survey period) • Recently fledged young or downy young • Adults entering or leaving a nest site in circumstances indicating occupied • Nest or an adult sitting on nest • Adults carrying food for young or faecal sacs • Nest containing eggs • Nest with young seen or heard
Probable breeding:	• Pairs observed in suitable nesting habitat in breeding season • Permanent territory presumed through registration or territorial behaviour (song etc.) on at least two different days, a week apart, at the same place • Display and courtship • Visiting probable nest site • Agitated behaviour or anxiety calls from adults • Building nest or excavating nest hole
Possible breeding:	• Species observed in breeding season in possible nesting habitat • Singing male(s) present or breeding calls heard in breeding season

Limitations

3.8 Only a proportion of individuals of each species will be detected on each visit, and some particularly secretive or low-density species, can be elusive and require several visits to detect. Furthermore, the importance of a site for birds can change depending on factors such as food availability, presence of roosting/nesting features and weather conditions.

3.9 On survey two, there was a heavy fog during the survey, which may have impaired the detectability of some bird species. However, this is not anticipated to significantly alter the final conclusions of this report.

Evaluation

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

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

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

4.0 Results

Breeding Birds

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

Table 3. Weather conditions for breeding bird surveys

Date	Start time	End time	Temp (°C)		Cloud (Oktas)		Wind (Beaufort scale)		Precipitation
			Start	End	Start	End	Start	End	
09/03/22	06:37	08:01	9	11	2	5	3-4	4	Dry
28/03/22	06:48	08:18	5	8	8	6	0	0	Dry but foggy
13/04/22	06:40	08:04	14	15	8	7	1	1	Dry
23/05/22	05:09	06:28	12	12	8	8	1	1	Light rain becoming moderate-heavy throughout
20/06/22	20:49	22:15	14	12	0	0	2	1	Dry
04/07/22	04:50	06:30	11	13	0	2	1	1	

4.2 A total of 50 species were recorded on or adjacent to the survey area during the surveys. The full results of the breeding bird survey are presented at the end of this report in Table 5. The Breeding Bird Survey Plan CSA/4426/103 shows a consolidated map from the five survey visits, highlighting suspected approximate territories for priority species and other notable sightings.

4.3 Of these, 42 species were recorded to have a breeding status of either 'confirmed', 'probable' or 'possible' and are thus considered as breeding species. The remaining ten species were either recorded flying over the Site only, or there is no suitable breeding habitat to support these species. Fieldfare *Turdus pilaris* and redwing *Turdus iliacus* are not considered breeding species as only small numbers breed in the uplands of the UK. These birds were likely wintering birds recorded just prior to their migration northwards.

4.4 A total of 27 priority species were recorded during the surveys including ten Red-list, 14 Amber-list and three Green-list species. Eight of these species are also S41 species of principal importance for conservation, and three are afforded additional legal protection whilst nesting under the Wildlife and Countryside Act, 1981 (as amended). Of the 27 priority species, 21 are considered breeding species, as summarised in Table 4 below.

4.5 Other than fieldfare and redwing, other species that are considered non-breeding species that were recorded during the surveys include cormorant *Phalacrocorax carbo*, greylag goose *Anser anser,* herring gull *Larus argentatus*, lesser black-backed gull *Larus fuscus* and shelduck *Tadorna tadorna*.

4.6 Although no suitable breeding habitat is present for house martin *Delichon urbicum*, swift *Apus apus* and swallow *Hirundo rustica*, multiple birds were recorded feeding above the Site and it may form

an important resource for populations breeding off-Site within nearby buildings.

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

Species	BoCC 2021 Red/Amber	Section 41	Sch1	Other Reason	Breeding Status
Barn owl	Green		●		Possible
Chaffinch	Green			Species shown significant regional declines in the south-east in recent years (BTO, 2021)	Probable
Dunnock	Amber	●			Probable
Garden warbler	Green			Species shown significant regional declines in the south-east in recent years (BTO, 2021)	Possible
Greenfinch	Red				Probable
House martin	Red				Possible
House sparrow	Red	●			Probable
Kestrel	Amber				Possible
Linnet	Red	●			Possible
Meadow pipit	Amber				Possible
Mistle thrush	Red				Possible
Rook	Amber				Possible
Skylark	Red	●			Probable
Song thrush	Amber	●			Possible
Starling	Red	●			Confirmed
Stock dove	Amber				Confirmed
Swift	Red				Possible
Wood pigeon	Amber	●			Confirmed
Whitethroat	Amber				Possible
Wren	Amber				Probable
Yellowhammer	Red	●			Probable

Abbreviations:
BOCC Red List: Red List of Birds of Conservation Concern 4
Section 41: Listed as a priority species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006
Sch1: Schedule 1 (Part 1) of the Wildlife and Countryside Act 1981

4.7 The vast majority of bird activity was recorded along the Site's hedgerow boundaries and tree lines, with generally lower activity levels registered within the arable fields which was largely restricted to skylark *Alauda arvenis* and meadow pipit *Anthus pratensis*. Regular activity was recorded within W1, whilst good numbers of birds noted just south of the Site and the houses on Church Lane, with starlings *Sturnus vulgaris*, house sparrows *Passer domesticus*, wrens *Troglodytes*

troglodytes and wood pigeons *Columba palumbus* regularly frequenting these buildings and their associated gardens.

4.8 Several farmland birds were recorded during the surveys including barn owl *Tyto alba*, kestrel *Falco tinnunculus*, linnet *Linaria cannabina*, meadow pipit, rook *Corvus fragilegus*, skylark, stock dove *Columba oenas*, swallow and yellowhammer *Emberiza citrinella*. Many of these species have exhibited significant national declines in recent years due to changes in farming practices, such as the change from spring-sown to winter-sown cereals in relation to skylark and meadow pipit, as well as general agricultural intensification across the country. The crop at the time of survey was a spring-sown wheat, allowing nesting opportunities for these two species.

4.9 In accordance with Fuller (1980), the breeding bird assemblage is considered to be of ecological importance at the Local level.

5.0 Summary

5.1 In summary, breeding was confirmed on-Site for six species. A further 21 species are probably breeding and 15 are possibly breeding (see Table 5 below). This gives a total of 42 breeding species which, in accordance with Fuller (1980), is considered to be of ecological importance at the Local Level. A total of 27 species of conservation significance were recorded including ten BoCC Red-list, 14 Amber-list and three Green-list species, eight of these are S41 species and three are Schedule 1. In total, 21 of these species are breeding species.

Table 5. Breeding bird survey results

Common name	Latin name	Conservation Status	Breeding Status	Survey Date						Notes
				09/03/2022	28/03/2022	13/04/2022	23/05/2022	20/06/2022	04/07/2022	
Barn owl	*Tyto alba*	Green, Sch 1	Possible	-	-	-	-	x	-	One seen flying on bat survey on 12/05/22 from H4 near corner of H5 south-east over Arable field. A barn owl box is present on mature oak tree just south of the site, although this was occupied by stock doves. Nonetheless it could be used by barn owl for nesting at other times of the year.
Blackbird	*Turdus merula*	Green	Confirmed	x	x	x	x	x	x	Numerous and widespread across hedgerows and woodland. Registrations include territorial disputes, a pair mobbing a kestrel as well as

										several singing males on most visits, calling birds and food carrying behaviour.
Blackcap	*Sylvia atricapilla*	Green	Probable	-	-	x	x	x	x	Singing males recorded in a number of the Site's hedgerows and boundaries.
Blue tit	*Cyanistes caeruleus*	Green	Probable	x	x	x	x	-	x	Pairs, calling and singing birds noted. Abundant in hedgerows, tree lines and woodland habitats.
Carrion crow	*Corvus corone corone*	Green	Probable	x	x	x	x	-	x	Pairs and calling birds recorded in tree lines and boundaries. Also noted flying over the site.
Chaffinch	*Fringilla coelebs*	Green (significant regional declines in SE England)	Probable	x	x	x	-	-	-	A singing male was recorded singing close to the Site entrance in the north on two occasions, and was likely the same bird. Another was

										recorded just north of the school on survey one.
Chiffchaff	*Phylloscopus collybita*	Green	Probable	-	x	x	x	-	x	Numerous singing males across the site's hedgerows, treelines and woodland.
Coal tit	*Periparus ater*	Green	Probable	-	-	x	-	-	x	Singing males recorded along H11 and south of H13.
Collared dove	*Streptopelia decaocto*	Green	Probable	-	x	-	x	-	-	A pair was noted on a telephone wire just by the Site entrance on survey four, whilst another bird was heard calling east of H11. A singing male was also noted south of the Site.
Cormorant	*Phalacrocorax carbo*	Green	Not breeding on-Site.	-	-	-	-	-	-	One was seen flying over during a reptile survey.
Dunnock	*Prunella modularis*	Amber, S41	Probable	-	x	x	-	x	x	Fairly abundant across the Site's boundaries with

										registrations including singing males in H12, northern and central H11 and by the Site entrance. An individual was noted just south of the Site, one was recorded in H1 whilst another was recorded calling within H5.
Fieldfare	*Turdus pilaris*	Red, Sch 1	Not breeding on-Site. Wintering	x	-	-	-	-	-	Two recorded in H1 before flying off, another two noted in H4 which are likely to have been the same birds. These individuals were likely recorded just before flying northwards on migration to their breeding grounds.
Goldcrest	*Regulus regulus*	Green	Probable	x	-	-	x	-	x	A pair was noted in conifers just east of H11, with an individual spotted there

										during the fourth survey visit.
Garden warbler	*Sylvia borin*	Green	Possible	-	-	-	-	-	x	One heard singing just south of H10.
Goldfinch	*Carduelis carduelis*	Green	Probable	x	x	x	-	-	x	Singing males recorded in tree lines and boundaries, whilst small groups including a bird with nesting material were also noted in the orchard flying northwards, as well as eastwards.
Great spotted woodpecker	*Dendrocopos major*	Green	Possible	x	-	x	-	-	x	Noted in tree lines and boundaries including calling and drumming birds.
Great tit	*Parus major*	Green	Confirmed	x	x	x	x	x	x	Numerous and abundant across the Site. Registrations include family groups, pairs,

										and singing and calling birds.
Green woodpecker	*Picus viridis*	Green	Probable	x	-	x	x	-	x	Recorded singing from surrounding adjacent fields and gardens, whilst one bird was seen fly into H5.
Greenfinch	*Chloris chloris*	Red	Probable	x	x	x	x	-	x	An estimated four to five territories recorded. Registrations include a territorial dispute along the edge of H11, singing males and birds flying over. A group of three were also recorded just north of F2.
Greylag goose	*Anser anser*	Amber	Not breeding on-Site. Wintering	x	-	-	-	-	-	One flew over the site during the first survey, whilst a large flock was noted feeding/roosting in a field c. 1km south of the site.

Grey heron	*Ardea cinerea*	Green	Not breeding on-Site.	-	-	-	-	-	-	One bird flew over during the first reptile survey.
Herring gull	*Larus argentatus*	Red, S41	Not breeding on-Site	x	-	x	-	-	x	Up to six seen flying over the Site.
House martin	*Delichon urbica*	Red	Possible	-	-	-	-	-	-	Eight recorded during a reptile survey feeding above the site's arable fields and moving southwards.
House sparrow	*Passer domesticus*	Red, S41	Probable	x	x	x	x	-	x	An estimated four to five colonies recorded during surveys, with up to three in and around the houses and associated gardens just south of the Site. Individual birds from these colonies were seen to make sure of H13, whilst another two slightly smaller colonies of 2+ birds was recorded just north of the school. Two

										birds were also noted in H3 with one also seen on the eastern edge of F3. Two sets of two birds were also observed flying across F2 towards the orchard and beyond.
Jackdaw	*Corvus monedula*	Green	Possible	x	x	x	-	-	x	Noted calling west of the Site, with birds seeing flying over also.
Jay	*Garrulus glandarius*	Green	Possible	-	-	x	-	-	x	One seen flying west along H4 and one was heard calling south of the Site.
Kestrel	*Falco tinnunculus*	Amber	Possible	-	-	-	-	-	-	A bird was seen being mobbed by blackbirds on a reptile survey just south of the site, by the track running southwards.
Lesser Black-backed Gull	*Larus fuscus*	Amber	Not breeding on-Site	x	-	-	-	-	x	One seen flying over with herring gulls.

Lesser whitethroat	*Sylvia curruca*	Green	Possible	-	-	-	-	-	-	One noted singing within H1 during a reptile survey
Linnet	*Linaria cannabina*	Red, S41	Possible	-	-	x	-	-	-	Two were recorded flying over the south of the site - possibly a pair.
Long-tailed tit	*Aegithalos caudatus*	Green	Probable	-	x	x	-	-	-	Registrations include a pair noted within H5 on survey two, and a calling bird in W1 on survey three.
Magpie	*Pica pica*	Green	Probable	x	x	x	x	-	x	Fairly abundant and widespread in boundaries. Includes pairs and calling birds
Meadow pipit	*Anthus pratensis*	Amber	Possible	-	x	-	-	-	-	One flew up from northern F3 up towards the orchard
Mistle thrush	*Turdus viscivorus*	Red	Possible	-	x	-	-	-	-	One noted in hedgerow off site west of H5
Nuthatch	*Sitta europea*	Green	Confirmed	-	-	x	-	-	x	Registrations include a family group along H5 as well as a juvenile in H8, which may have been from

										the same group. Another noted singing in the south-east.
Pheasant	*Phasianus colchicus*	-	Probable	-	-	x	x	-	x	A male was seen within the arable field of F4, with another bird within H5. One bird was heard calling south of the Site.
Redwing	*Tuurdus iliacus*	Amber, Sch 1	Not breeding on-Site. Wintering	x	-	-	-	-	-	A total of 27-37 were recorded including two which flew into H1, 25 in H1 too which flew west. 10 others noted in H4 shortly after which may have been some of the same flock earlier recorded in H1.
Robin	*Erithacus rubecula*	Green	Probable	x	x	x	x	x	x	A number of singing males and calling birds recorded in woodland, hedgerows and boundaries across the Site. Abundant and widespread.

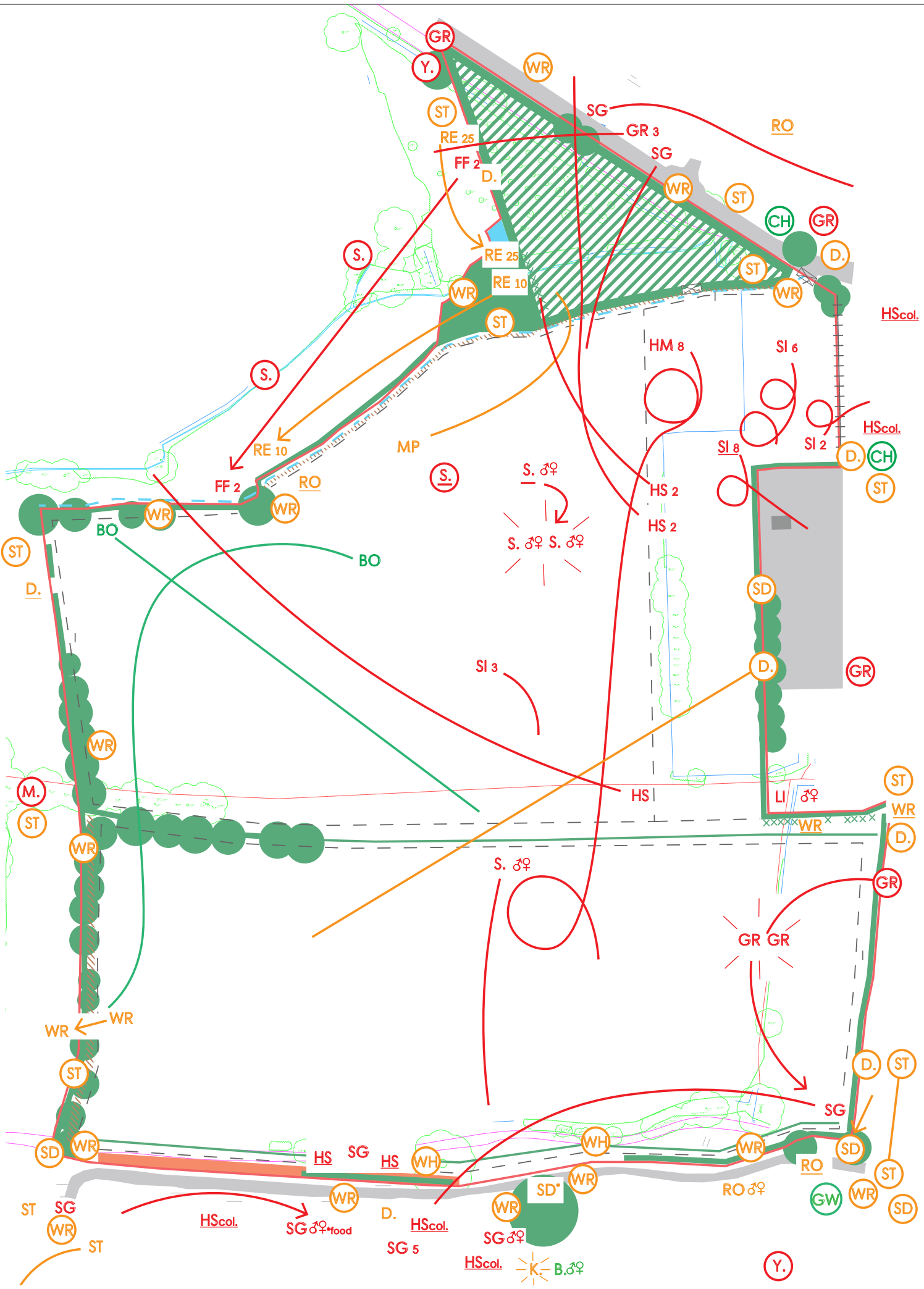
Rook	*Corvus frugilegus*	Amber	Possible	x	x	x	x	-	x	A possible pair noted fly from just south of the site northwards. Other calling birds recorded calling from H10, in H4 and just north of H4. Also recorded flying over the Site.
Shelduck	*Tadorna tadorna*	Amber	Not breeding on-Site	-	x	-	-	-	-	One flew over the Site.
Skylark	*Alauda arvensis*	Red, S41	Probable	x	x	x	x	-	x	Skylark were heard singing and performing territorial displays fairly regularly within both the arable fields of F3 and F4, and showed a pattern of frequenting the eastern halves of these fields, as opposed to the west. Pairs of birds as well as territorial disputes were recorded, and birds were also noted singing within the off-Site field north

										of F3. At the time of survey, F3 and F4 had been seeded with a spring-sown crop; likely providing a good crop density for nesting
Song thrush	*Turdus philomelos*	Amber, S41	Probable	x	x	x	x	x	x	Numerous singing males recorded around the Site's boundaries, with 9-10 territories estimated on and immediately adjacent to the Site. Other registrations include two birds feeding in a pastoral field to the south-west of the Site.
Starling	*Sturnus vulgaris*	Red, S41	Confirmed	x	x	x	x	-	x	Birds recorded regularly on and around the houses and gardens south of the Site and Church Lane. Registrations

										include a pair flying to a nest within a house with food, pairs and individual birds. Two birds were also recorded north of H2.
Stock dove	*Columba oenas*	Amber	Confirmed	-	x	x	x	-	x	A nest was recorded within the barn owl box on the mature oak just south of the Site, and was heard singing from there on a later date. Other registrations include singing males in the south-eastern corner and along H12.
Swallow	*Hirundo rustica*	Green	Possible	-	-	-	-	-	-	One was seen flying across northern F1 eastwards and foraging during a reptile survey. Later three flew across F2 southwards

Swift	*Apus apus*	Red	Possible	-	-	-	-	x	x	Six were seen foraging and feeding on invertebrates above northern F2 on survey five, whilst eight were noted in the same area on survey six, followed by a pair.
Woodpigeon	*Columba palumbus*	Amber	Confirmed	x	x	x	x	x	x	Very abundant and widespread in hedgerows, woodland, tree lines and around the houses and gardens to the south. Mating was observed just north of the Site, whilst display flights, singing males and pairs were observed regularly.
Whitethroat	*Sylvia communis*	Amber	Possible	-	-	-	-	-	x	One noted singing in western H10 during a transect survey.

Wren	*Troglodytes troglodytes*	Amber	Probable	x	x	x	x	x	x	An estimated 18 territories recorded, with singing males and calling birds regularly encountered around the Site's boundaries.
Yellowhammer	*Emberiza citrinella*	Red, S41	Probable	-	-	-	x	x	x	A singing male was recorded within a mature tree in H1 within its northern end during a reptile survey. What was likely the same bird was recorded there singing again on survey four and six. Another bird was recorded singing in a hedgerow south of H10 just off-Site.



Notable Species List

Red list
FF - Fieldfare (non-breeding)***
GR - Greenfinch
HM - House martin
HS - House sparrow
LI- Linnet
M - Mistle thrush
S. - Skylark
SI - Swift
Y. - Yellowhammer

Amber list
D. - Dunnock
K.- Kestrel
MP- Meadow pippit
RE - Redwing (non-breeding)***
RO - Rook
ST - Song thrush
SD - Stock dove
WP - Woodpigeon*
WH - Whitethroat
WR- Wren

Green list
B. - Blackbird****
BO - Barn owl***
CH - Chaffinch **
GW- Garden warbler**

† Birds of Conservation Concern 5 (Stanbury et al, 2021)

*Only notable observations/species included

** British species not currently Red or Amber-listed that have undergone significant national declines

*** Schedule 1 species (Wildlife & Countryside Act, 1981)

**** Aggressive interaction with another species

Additional Non-Breeding Notable Species and max. seen on single visit
CA - Cormorant (1)
GS - Greylag goose (1)
HG - Herring gull (6)
LB - Lesser black-backed gull (6)
SU - Shelduck (1)

Site boundary

Singing bird indicating suspected territory

X — Calling bird

Xn — Number of individuals (more than one)

Perched bird flying away before landing elsewhere

Confirmed pair

Xfood — Bird carrying food

Bird and flight path observed

X* — Confirmed nest

Bird in flight landing

Xcol — Bird colony

Aggressive intra/inter-species interaction

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Project	Land south of Henfield Road, Albourne, East Sussex	Date	July 2022	Drawing No.	CSA/4426/103
Drawing Title	Breeding Bird Survey Plan	Scale	Not to scale	Rev	-
Client	Croudace Homes Ltd	Drawn	NI	Checked	AW

Appendix J

Wintering Bird Survey Report

1.0 Introduction

1.1 This report lays out methods and results of wintering bird surveys undertaken at Land off Henfield Road, Albourne (hereafter referred to as 'the Site' between January and February 2022. Two further surveys are scheduled for November and December 2022, with final results being provided thereafter.

2.0 Legislation

2.1 All wild birds, their nests and eggs are protected under subsection 1(1) of the Wildlife and Countryside Act 1981. It is an offence to kill or injure any wild bird, to take or destroy their eggs, or to take, damage or destroy their nests while in use or being built.

2.2 In addition, certain species of wild bird, listed within Schedule 1 of the Wildlife and Countryside Act, receive additional protection under subsection 1(5) of the Act. This makes it an offence to disturb any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young. It is also an offence to disturb the dependent young of such a bird.

2.3 Consideration is also taken of Birds of Conservation Concern ('BoCC 5') (Stanbury *et al*, 2021) which assigns bird species to a Red, Amber or Green list depending on factors such as their rarity, importance in an international context and severity of declines in population or range. Species on the Red list are of greatest conservation concern whilst those on the Green list do not fulfil any of the BoCC assessment criteria and are not currently of conservation interest. Full details can be found in Stanbury *et al* (2021).

3.0 Methods

Wintering Birds

3.1 Two wintering bird survey visits were carried out at the Site between January and February 2022 to provide an assessment of the Site's importance for birds during the winter. During this time there is reduced territoriality and the formation of wide-ranging, mixed-species flocks that can cause significant variation in species diversity and bird numbers on a daily basis. In addition, weather factors, such as snow cover, can also result in the movement of birds to or from an area.

3.2 The surveys were completed by Aaron White ACIEEM and the conduct of the fieldwork was commensurate with good ornithological practice. The purpose of the survey was to assess the composition of the wintering bird community within the Site, the population size of each species present and the species distribution within the survey areas.

3.3 Survey work also focused on determining the presence/likely absence of any protected or notable species of National, Regional or Local conservation importance, and to determine whether any populations of such species are significant at a local or wider level. Data provided on the distribution of species within the survey area indicates the importance of parts of the site to each bird species and to birds in general.

3.4 The survey methodology adopted follows the standard Common Birds Census (CBC) method and comprised:

- Identification of all birds seen and heard with locations of Red and Amber Listed species mapped on a largescale plan; and
- Records of the total numbers of birds seen

3.5 On each survey the surveyor walked a slow route across the whole Site which ensured that both species of open and boundary habitats would be detected. Alternative versions of the route were taken on each visit so that different parts of the Site would be surveyed at different times of the morning, thus avoiding temporal bias associated with bird activity or other factors such as increasing traffic noise. Surveys commenced in early-mid morning and continued for approximately 1.5 hours. Birds were detected by sound or sight, using a pair of 10 x 42 Vortex Viper binoculars.

3.6 All birds detected at the Site were recorded using standardised codes to map their distribution and behaviour, and to differentiate between individuals for the purposes of mapping. Records were made of any bird species observed on land adjacent to the survey area or flying over the Site. However, these fly-over species were not included when assessing the importance of the survey area.

3.7 Particular consideration is given to priority species which are established using the following hierarchy:

1) Species listed under Schedule 1 of the Wildlife and Countryside Act 1981(as amended);
2) Species listed under Section 41 of the Natural Environment and Rural Communities Act 2006;
3) Red & Amber listed by the Birds of Conservation Concern (Stabury *et al*, 2021).
4) Localised or highly specialised species regardless of inclusion above (e.g. crossbill in coniferous woodland);
5) Nationally- or locally-declining species regardless of inclusion above
6) Colonial roost sites containing more than one individual of any species; or,
7) Exceptional counts or aggregations of any species.

Limitations

3.8 Only a proportion of individuals of each species will be detected on each visit, and some particularly secretive or low-density species, can be elusive and require several visits to detect. Furthermore, the importance of a site for birds can change depending on factors such as food availability, presence of roosting/nesting features and weather conditions.

Evaluation

3.9 The importance of the wintering bird assemblage on the site was assessed using the criteria suggested by Fuller (1980) (see Table 1 below).

Table 1. Assessment criteria for the wintering bird assemblage at the site

Importance	Number of Wintering Bird Species
Local	25-54
County	55-84
Regional	85-114
National	115+

4.0 Results

Wintering Birds

4.1 The full results of the wintering bird survey are presented at the end of this report in Table 4 with a summary of survey conditions in Table 2 below. The Wintering Bird Survey Plan (CSA/4426/106) shows the location of notable sightings and activity observed.

Table 2. Weather conditions for wintering bird surveys

Date	Start time	End time	Temp (°C)		Cloud (Oktas)	Rain (mm)	Wind (Beaufort scale)	Visibility
			Start	End				
26/01/22	08:00	09:36	4	5	8/8	0	1	Good
17/02/22	07:58	09:30	8	9	4-5/8	0	1 - 2	Good

4.2 A total of 33 species were recorded on or adjacent to the survey area during the surveys.

4.3 Eighteen priority species were recorded including two species listed on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) as summarised in Table 3.

Table 3. Priority bird species recorded at the Site during the wintering bird surveys

Species	BoCC Red List	BoCC Amber List	Section 41	Sch 1	Species shown significant regional declines in the south-east in recent years (BTO, 2019)
Black-headed gull	●				
Chaffinch					●
Dunnock		●	●		
Fieldfare	●			●	
Greenfinch	●				
Herring gull	●		●		
House sparrow	●		●		
Kestrel		●			
Meadow pipit		●			
Redwing		●		●	
Rook		●			
Skylark	●		●		
Song thrush		●	●		
Starling	●		●		
Stock dove		●			
Wood pigeon		●			
Wren		●			

Abbreviations:
BOCC Red List: Red List of Birds of Conservation Concern 4
Section 41: Listed as a priority species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006
Sch1: Schedule 1 (Part 1) of the Wildlife and Countryside Act 1981

4.4 The orchard provides a key foraging habitat for many notable species, including redwing *Turdus iliacus*, fieldfare *Turdus pilaris,* and wood pigeon *Columba palumbus*. Fieldfare were recorded in low numbers on both surveys, this species typically aggregate in high numbers during the winter although thus far no exceptional numbers of this species were observed. A flock of 25-30 redwing were flushed whilst feeding within the orchard along with a small group of wood pigeons. The orchard is likely to offer important foraging resources over winter for these species, with fallen fruit likely providing such opportunities.

4.5 The network of hedgerows and treelines also supported species such as dunnock *Prunella modularis*, greenfinch *Chloris chloris*, song thrush *Turdus philomelos* and wren *Troglodytes troglodytes.* Dunnock were recorded singing across all Site boundaries, with up to five singing males, hedgerow habitats provide good breeding and foraging opportunities for this species. Greenfinch were recorded across the south and east of the Site. A peak count of three wrens were singing from hedgerow boundaries, whilst two song thrushes were noted on each survey also in hedgerow boundaries.

4.6 Few birds were recorded within the open field habitats, with just skylark *Alauda arvensis* and kestrel *Falco tinnunculus* appearing to utilise this habitat. Multiple pairs of skylark and a total of eleven individuals were recorded in the arable fields where territorial disputes were observed, with individuals likely establishing territories prior to the breeding season. A single kestrel was recorded hunting over the grassland in F2 which includes tussocks and a litter layer. This habitat probably is inhabited by voles and other mammal prey which kestrels can feed upon.

4.7 Three house sparrow *Passer domesticus* colonies were recorded, two of which were in the residential area to the south of the Site and one was near the school to the east (see Wintering Bird Survey Plan CSA/4426/106). Starlings *Sturnus vulgaris,* were another species recorded utilising off-site buildings, with up to eight individuals being recorded to the south. No large groups of starlings were recorded. This species roosts together in large numbers during winter months, particularly in woodlands, reedbeds, cliffs, buildings and industrial structures. The majority of the Site consists of arable cropland which is not suitable for roosting starlings and none were noted in the Site's tree lines. Given the low number of starlings recorded and the lack of suitable roosting opportunities, the Site is unlikely to be a key resource for overwintering starlings.

4.8 The Amber-listed Black headed gull *Chroicocephalus ridibundus* and Red-listed herring gull *Larus argentatus,* were recorded flying over the Site, with a mixed group of over 200 individuals being recorded. These species are likely to use the Site on an opportunistic basis, for foraging and resting, as part of a wider area.

4.9 Rooks *Corvus frugilegus*, were observed calling from and flying into hedgerows on-Site. Hedgerow boundary vegetation and stubble within the arable field may provide roosting and foraging opportunities however no large groups or rookeries were noted on or adjacent to the Site.

4.10 In accordance with Fuller (1980), the wintering bird assemblage is currently considered to be of ecological importance at the Local level, however further surveys will need to be undertaken to confirm this.

5.0 Summary

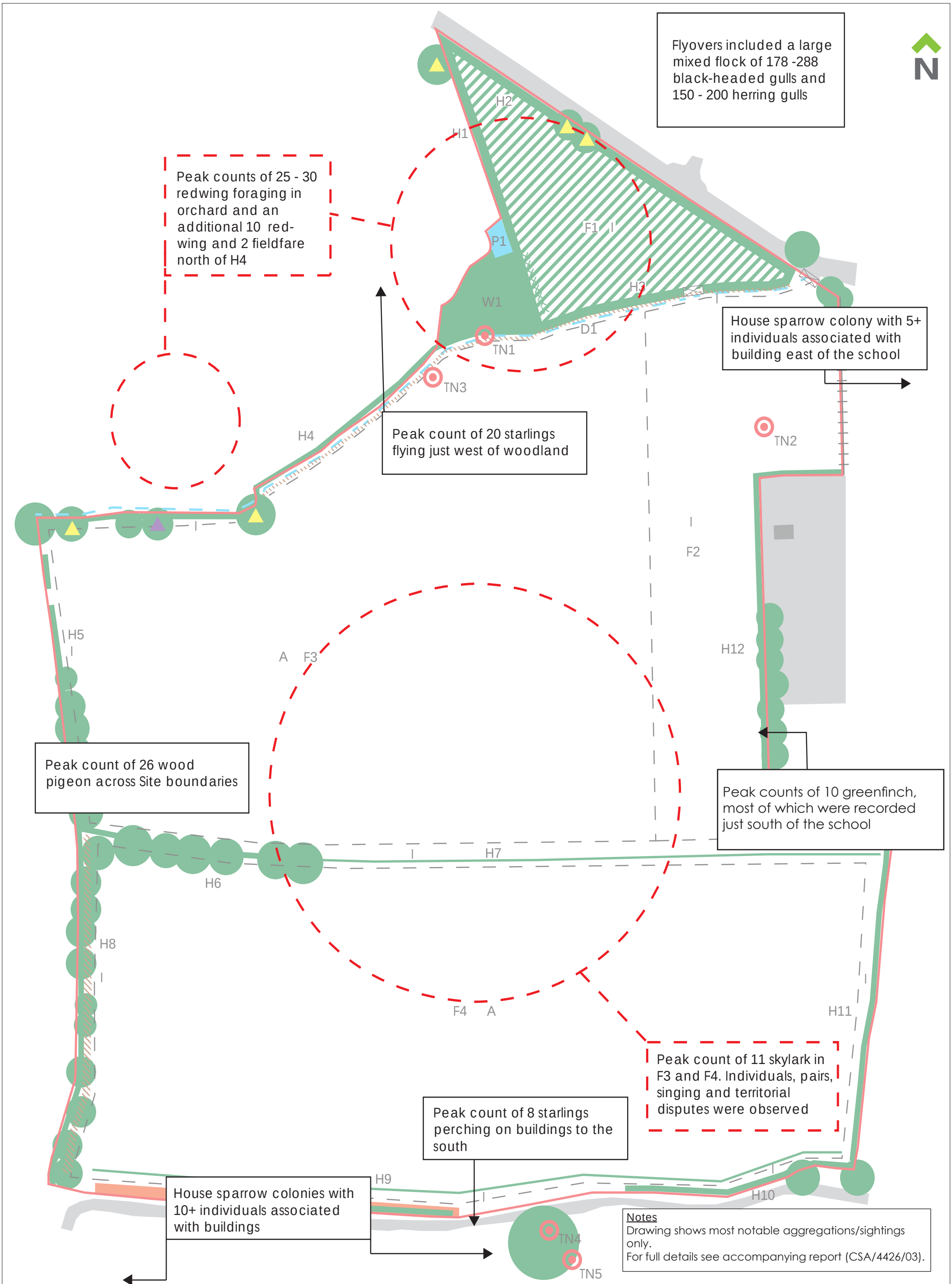
5.1 A total of 33 bird species were recorded on-Site during the wintering bird surveys including eighteen species of conservation significance. Species recorded are fairly typical of the farmland, hedgerow, woodland and bordering garden habitats that are present. The wintering bird assemblage at the Site is assessed to be of importance at the Local level, however a further two surveys are scheduled to be undertaken in November and December 2022.

Table 4. Wintering bird survey results

Species	Conservation status (BoCC 4)	Quantity (peak count)	Activity Notes
Blackbird	Green-listed	7	Singing and calling birds from hedgerow boundaries
Black-headed gull	Amber-listed	178-228	Large mixed flock of black-headed gull and herring gull flying over the Site
Blue tit	Green-listed	17	Abundant in hedgerows/boundaries – likely forming pairs and groups
Buzzard	Green-listed	1	One heard calling off-site towards the south east
Canada goose	N/A	Flock (unknown size)	Heard flying west over the Site
Carrion crow	Green-listed	5	Flying over the Site and in boundary vegetation
Collared dove	Green-listed	1	One singing to the east of the Site
Chaffinch	Green-listed	1	One recorded flying over the Site
Dunnock	Amber-listed, S41	5	Up to five singing males, recorded singing across boundary vegetation in majority of hedgerows
Fieldfare	Green-listed	2	Two noted within orchard during the first breeding bird survey
Goldfinch	Green-listed	10	Records include up to four singing males, including a pair, and multiple fly overs
Great spotted woodpecker	Green-listed	2	Two heard calling in both surveys
Great tit	Green-listed	8	Distributed across the Site, singing males and small groups
Greenfinch	Red-listed	5	Potential pairs and singing males, particularly in south east of the Site

Species	Conservation status (BoCC 4)	Quantity (peak count)	Activity Notes
Green woodpecker	Green-listed	2	Two birds calling just off-site to the north and the south
Herring gull	Red-listed, S41	150 - 200	Large mixed flock of herring gull and black-headed gull flying over Site
House sparrow	Red-listed, S41	c. 20	Three colonies noted towards the south and east of the Site near buildings. 5+ individuals in each colony and a few individuals along boundary vegetation
Jackdaw	Green-listed	2	Two calling from hedgerows and two flying overhead
Kestrel	Amber-listed	1	One individual hovering and hunting over open fields
Long-tailed tit	Green-listed	6	Noted in groups up to four individuals calling across south and south east
Magpie	Green-listed	2+	Recorded across boundaries and orchard
Meadow pipit	Amber-listed	1	One seen flying from south to north
Nuthatch	Green-listed	1	One noted singing and calling in the south east
Raven	Green-listed	1	One flying over site
Redwing	Amber-listed, Sch 1	35 – 40	Flocks of up to 30 individuals foraging in the orchard and the northern hedgerow
Robin	Green-listed	5	Singing across Site boundaries
Rook	Amber-listed	2	Flying and calling across boundaries

Species	Conservation status (BoCC 4)	Quantity (peak count)	Activity Notes
Skylark	Red-listed, S41	11	Recorded in arable fields and singing to the north of the Site. Consists of singing birds, probable pairs and territorial disputes
Song thrush	Amber-listed, S41	2	Recorded singing across Site boundaries
Starling	Red-listed, S41	8	Singing in the south and on and around houses south of the site
Stock dove	Amber-listed	1	One flew across site, landing in SE and then flying west
Wood pigeon	Amber-listed	26	Recorded in orchard feeding, also in boundaries/trees and total of three flyovers
Wren	Amber-listed	4	Singing and calling across the Site



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Project	Land south of Henfield Road, Albourne, East Sussex	Date	June 2022	Drawing No.	CSA/4426/106
Drawing Title	Wintering Bird Survey Plan	Scale	Not to scale	Rev	-
Client	Croudace Homes Ltd	Drawn	NI	Checked	AW

Appendix K

Reptile Survey Report

1.0 Introduction

1.1 This report sets out the methods and results of reptile presence / absence surveys undertaken at Land South of Henfield Road, Albourne (hereafter referred to as 'the Site').

2.0 Legislation

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

3.0 Methods

3.1 A total of 136 reptile refugia, comprising rectangles of roofing felt measuring 1.0 x 0.5m, were installed across areas of suitable habitat present at the Site on 09 March 2022 by Nancy Inman and Lydia Galbraith (see Reptile Survey Plan CSA/4426/104).

3.2 Following an initial 2-week 'bedding-in' period for refugia, surveys were carried out on seven occasions during favourable weather conditions (e.g. intermittent or hazy sunshine, not too windy, sunny spells following wet or cloudy weather) between 23 March 2022 and 22 May 2022. Each survey visit comprised a slow walk of the Site to visually and physically check refugia for the presence of reptiles. On each occasion a visual search was also carried out within areas of suitable habitat whilst walking between refugia locations.

3.3 The primary aim of the reptile survey was to establish the presence or likely absence of widespread reptile species within the survey area, rather than to estimate abundance or population size. To this end, seven survey checks, an effort generally considered 'reasonable effort' in establishing the presence or likely absence of reptiles at a Site, were carried out.

3.4 Given the inherent problems in detecting reptiles, greater survey effort and/or identification or marking of individuals would be required to establish the actual or relative abundance of reptile populations. However, as reptiles are confirmed to be present and mitigation action is required, an approximation of population size is useful in guiding reptile mitigation strategies and has therefore been reported below.

3.5 There are several published methods for broadly 'categorising' reptile population sizes in the UK, with the most commonly employed by ecological consultants being HGBI (1998), Froglife (1999) and/or Natural England (2011 [now rescinded]). These three approaches vary in their

application, assumptions and limitations, and therefore outputs have been reported for all three methods for comparison below.

Limitations

3.6 The three metrics referenced below, HGBI (1998), Froglife (1999) and/or Natural England (2011; now rescinded), rely on varying proxies to calculate/estimate reptile populations. The HGBI categories are based on adult population densities, as opposed to peak counts. Moreover, the categorisation by HGBI is intended to inform capture effort for translocation exercises and, therefore, is not directly applicable to providing a population size class estimate, though it is widely applied within the industry for this purpose.

3.7 The Froglife method is based on peak adult counts where surveys have used refugia densities of 10 per hectare. Surveys carried out by CSA used densities of c. 35 per ha of suitable reptile habitat to maximise site coverage and opportunities to confirm the presence or likely absence of reptiles. Therefore, to enable comparison with the Froglife categories, peak counts have been divided by a factor of 3.5 so that they are proportionate to the Froglife survey effort of 10 refugia per ha.

3.8 Finally, the Natural England methods provide population class size estimates based upon a refugia density of 100 per ha and, in addition, goes on to consider habitat suitability. As with the Froglife method, survey results have been scaled to be proportionate to a survey effort of 100 refugia per ha. The consideration of peak counts and habitat suitability may be the most ecologically sound, or holistic, of the three indices. However, in light of the guidance having been rescinded, this metric cannot be exclusively relied upon.

4.0 Results

4.1 Reptile surveys undertaken between March and May 2022 recorded two reptile species making use of the Site's improved grassland field margins; slow worm *Anguis fragilis*, and grass snake *Natrix natrix* (syn. *N. Helvetica*).

4.2 Grass snakes were recorded along the northern boundary of F3 and the northern and southern boundaries of F4 in longer swards of improved grassland in areas E, K and H (see reptile survey plan CSA/4426/104).

4.3 Slow worms were distributed across all areas of the Site, with the exception of area C in the north eastern corner of F3. Though slow worms were distributed across all field boundaries, the majority of records come from areas B and E. Area B is within F2 which is a field of improved grassland, habitats here are more suitable than the majority of the Site which consists of arable crops. Area E makes up the southern field margin of F4, grassland swards here are notably longer than other improved grassland margins and a strip of bracken forms part of this

boundary. A summary of results of these surveys are provided in Table 1 below, whilst full results are provided in Table 3 at the end of this report.

Table 1: Numbers of adult reptiles observed during each reptile survey visit

Date	Species	
	Slow worm	Grass snake
23/03/22	0	0
14/04/22	8	0
22/04/22	12	1
25/04/22	5	0
05/05/22	9	0
13/05/22	10	2
19/05/22	4	2
Peak count	12	2

4.4 It should be noted that although the Site is c. 11.39ha, suitable reptile habitat, comprising grassland, scrub and field margins, account for c. 3.9ha within the Site. Within this area 136 artificial refugia were used to provide a survey refugia density of 35 refugia per ha.

Table 2. Reptile population size category estimates

Method	Species	
	Slow worm	Grass snake
Peak count between March and May (2022)	12	2
HGBI (1998)	Low	Low
Froglife (1999)	Low	Low
Natural England (2011)*	Medium	Medium

*Rescinded

4.5 A 'Low' population of slow worm were recorded; as well as a 'Low' population of grass snake.

4.6 It is acknowledged that the above metrics have their limitations. However, in consideration of this information, balanced against an ecological understanding of the Site and survey findings, it is estimated that the Site supports 'Low' populations of slow worm and grass snake.

5.0 Summary

5.1 Low populations of slow worm and grass snake were recorded around the peripheries of the Site during the surveys. Slow worms were recorded within all survey areas with the exception of the north east corner of F2. They were most abundant within the semi-improved grassland of F2 and the long grass swards/bracken strip that form the southern field boundary of F4. Grass snakes were also recorded within the long grass

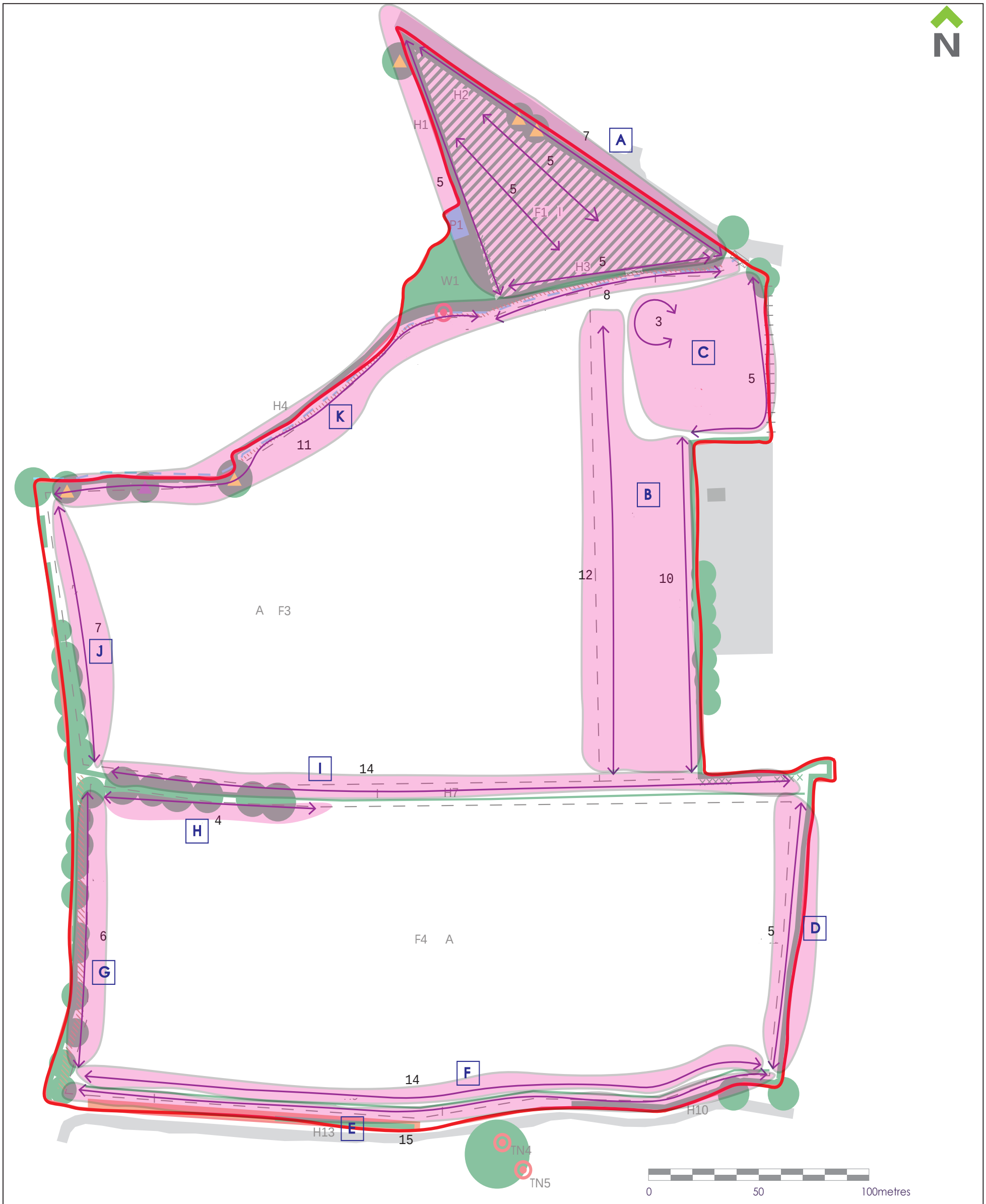
swards at the south of F4 as well as the improved grassland margins to the north of F4 and the north of F3. As such, mitigation measures will be required to minimise impacts on reptiles present, which have been detailed within the EcIA.

Table 3. Full Reptile Survey Results

Job Name & No.	4426							Beaufort Scale: 0. Calm. Vertical smoke. 1. Light air. Smoke drifts. 2. Light breeze. Leaves rustle. 3. Gentle breeze. Small twigs constantly move. 4. Moderate breeze. Small branches begin to move. 5. Fresh breeze. Small trees in leaf begin to sway.
Set-up Surveyor / Project Manager	LG + NI set up AW- PM							Precipitations: select from (type) No Rain / Light / Moderate / Heavy & (duration) Intermittent / Continuous
Set-Up Date	09/03/2022	Total number of refugia	120					

			Weather					Slow worm ***Anguis fragilis***					Common lizard ***Zootoca vivipara***					Grass snake ***Natrix natrix***					
Date	Time	Surveyor	Temp (°C)	Cloud Cover (Oktas: n/8)	Wind (Beaufort Scale)	Rain (type & duration)	Area / Field No	Adult Male (>230mm)	Adult Female (>230mm)	Unidentified adult	Sub-Adult	Newborn	Male	Female	unidentified adult	Sub-Adult	Newborn	Male	Female	Unidentified adult	Sub-Adult	Newborn	Other notes
Survey 1																							
							A																
							B																
							C																
							D																
							E																
							F																
							G																
							H																
							I																
							J																
							K																
							L																
							M																
							N																
23.03.22	08:50:00	AW/JT		0	1-2	Dry	O																
Survey 2																							
							A	1															
							B	1															
							C																
							D	1															
							E	1															
							F																
							G																
							H	1	1														
							I	1	1														
							J																
							K																
							L																
							M																
							N																
14.04.22	11:15:00	LG	15	3	1	Dry	O																
Survey 3																							
							A	2															
							B	2	2	1													
							C																
							D																
							E	2	2														
							F																
							G		1														
							H														1		
							I																
							J																
							K																
							L																
							M																
							N																
22.04.22	10:15:00	JMT / JP	14	6	2	Dry	O																
Survey 4																							
							A	1															
							B		1														
							C																
							D																
							E		2														
							F																
							G		1														
							H																
							I																
							J																
							K																
							L																
							M																
							N																
25.04.22	11:45:00	AW	13	2	2	Dry	O																
Survey 5																							
							A																
							B	1															
							C																
							D																
							E	1	2														
							F																
							G	1	1														
							H																
							I	1	1														
							J		1														
							K																
							L																
							M																
							N																
05.05.22	10:15:00	JT	15	4	3	Dry	O																
Survey 6																							
							A	1			1												
							B		1	1													
							C																
							D																
							E	3	2		1												
							F	1															
							G	1															
							H																
							I																
							J																
							K					1									2		
							L																
							M																
							N																
13.05.22	10:00:00	AM	16	5	3	Dry	O																
Survey 7																							
							A	1															
							B																
							C																
							D																
							E													1			
							F		1														
							G																
							H																
							I																
							J																
							K		2											1			
							L																
							M																
							N																
19/05/2022	12:30:00	NI/LG	18	3	3	Dry	O																

Total Adult	Total Juvenile	Total Adult	Total Juvenile	Total Adult	Total Juvenile
48	3	0	0	2	3



Site boundary

Survey areas

n Number of refugia

A Survey area

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Project	Land south of Henfield Road, Albourne, West Sussex	Date	June 2022	Drawing No.	CSA/4426/104
Drawing Title	Reptile Survey Plan	Scale	Refer to scale	Rev	-
Client	Croudace Homes Ltd	Drawn	NI	Checked	AW

Appendix L

Great Crested Newt Survey Report

1.0 Introduction

1.1 This report sets out the methods and results of a habitat suitability index and great crested newt presence/likely absence surveys undertaken at Land South of Henfield Road, Albourne, (hereafter referred to as 'the Site').

2.0 Legislation

2.1 Great crested newts *Triturus cristatus* are legally protected as European Protected Species (EPS) under Regulation 43 of the Conservation of Habitats and Species Regulations 2017. These Regulations make it an offence to:

- Deliberately capture, injure, kill or capture a great crested newt
- Deliberately disturb great crested newts, impairing their ability to survive, breed, reproduce or rear/nurture their young
- Damage or destroy a breeding site or resting place used by a great crested newt

2.2 Great crested newts are also fully protected under the Wildlife & Countryside Act 1981 (as amended), making it an offence to:

- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place of shelter or protection
- Intentionally or recklessly obstruct access to any structure or place of shelter or protection

2.3 Disturbance of great crested newts is covered by both the 2017 Regulations and the 1981 Act. Disturbance that impairs survival or successful reproduction would be covered by the Regulations, while less significant acts of disturbance may only be covered by the Act.

2.4 It is important to note that great crested newts and their habitats (such as breeding ponds) are protected throughout the year, regardless of whether or not newts are present at the time.

2.5 Great crested newts are also listed as a species of principal importance for the conservation of biodiversity in England, under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006. The S41 species list is used to guide decision-makers, including planning authorities, in implementing their duty under Section 40 of the NERC Act to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

<u>Licensing</u>

2.6 Where development is proposed that would result in an offence under the Habitats and Species Regulations, a statutory derogation licence may be granted by Natural England to permit an act that would

otherwise be unlawful. To obtain an EPS licence for development, it must be demonstrated that the purpose of the act to be licensed is for:

- "preserving public health or public safety or other imperative reasons of overriding public interest including those of social or economic nature and beneficial consequences of primary importance for the environment" (Regulation 55(2)(e))

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

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

3.0 Methods

Desktop Study

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

Habitat Suitability Index (HSI) Assessment

3.2 Where ponds were situated within a 500m radius and connected to the Site by traversable terrestrial habitats, access permission was requested to undertake a Habitat Suitability Index (HSI) assessment, using the standard approach set out by Oldham et al (2000). These assessments were undertaken by Aaron White ACIEEM (Class Survey Licence CL08 – Registration number: 2016-26357-CLS-CLS) and Clare Caudwell CEcol MCIEEM (Class Survey Licence CL08 – Registration number: 2015-16920-CLS-CLS) on 21 June 2019.

Environmental DNA (eDNA) Sampling

3.3 Environmental DNA (eDNA) sampling was used to determine the presence/ likely absence of great crested newts from pond P2 and P3. This method has been shown to be a highly effective in detecting the presence of great crested newts (Biggs *et al*, 2014).

3.4 Water samples were collected from pond P2 and P3 on 27 June 2019 by Aaron White ACIEEM (licence number: 2016-26357-CLS-CLS) and Caleb Fry ACIEEM following the recommended procedure. Appropriate biosecurity measures were taken to avoid cross-

contamination of great crested newt eDNA. Subsequently the samples were sent to ADAS for DNA analysis.

Presence/Likely Absence Surveys

3.5 Following the HSI assessment, ponds P2 and P4 were subject to specific presence/likely absence surveys in suitable weather conditions between 22 March 2022 and 19 May 2022, using the following survey methods: torch surveying, bottle-trapping and egg searching, in accordance with the 'Great Crested Newt Mitigation Guidelines'. The surveys were led by Aaron White ACIEEM (Class Survey Licence CL08 – Registration number: 2016-26357-CLS-CLS) with assistance from Jeff Turton ACIEEM (Class Survey Licence CL08 – Registration number: 2018-36205-CLS-CLS), Jessica Raynor ACIEEM (Class Survey Licence CL08 – Registration number: 2016-26999-CLS-CLS), Lydia Galbraith (Class Survey Licence CL08 – Registration number: 2022-10384-CL08-GCN, Nancy Inman (Class Survey Licence CL08 – Registration number: 2019-41981-CLS-CLS) and Robin Bassett.

3.6 On each of the survey visits bottle traps were set out during the evening, just before dusk. These traps were then checked early the following morning for the presence of great crested newts and the traps were subsequently removed. Bottle traps were set out at regular intervals along accessible stretches of bank. During each survey, night time air temperatures were recorded, in line with current guidelines.

3.7 Torchlight searches were carried out after dark on each survey visit with one million candlepower Clulite™ torches. Any amphibians seen were recorded. On each survey visit the vegetation was searched for the presence of great crested newt eggs.

3.8 Suitable weather conditions are those nights when the night-time air temperature is 5°C or warmer, with little or no wind. All surveys were conducted during such conditions, as shown below.

Limitations

3.9 There were no specific limitations to the surveys, which were conducted in fair weather at appropriate times of year. However, access was denied to ponds P

4.0 Results

Desktop Study

4.1 The desk-based search for ponds and subsequent site visits identified ten water bodies occurring within 500m of the Site. These ponds are all identified on the Pond Location Plan (CSA/4426/101/A). Pond P1 is located within the area of woodland in the northwest of the Site, and was dry at the time of survey.

4.2 Ponds that were separated from the Site by the B2118 (P6 and P7) were ruled out of additional surveys due to the road being a significant barrier to dispersal. An HSI assessment was still conducted on P7 as it could be viewed from adjacent habitats, and P6 was dry at the time of survey. Some ponds (P5, P9 and P10) which were identified based on OS mapping were unable to be accessed for surveys and therefore are not included in the results. Ponds P2 and P8 were granted access for HSI assessments however no access was given for further surveys.

Habitat Suitability Index (HSI) Assessment

4.3 Full results of the HSI survey completed in 2019 are shown at the end of this report in Table 2.

4.4 The results show that P3 is considered to provide 'excellent' suitability for GCN populations, whilst P2, P7 and P8 are considered to provide 'good' suitability, P4 'average' suitability, and P1 'below average' suitability. Pond P1 dried up following the HSI assessment and Pond 6 was too dry to survey.

Environmental DNA (eDNA) Sampling

4.5 Following the HSI surveys in 2019, some ponds were either scoped out of the survey or were no longer accessible for further surveys. Environmental DNA (eDNA) Sampling

4.6 Results for the eDNA surveys came back as positive for great crested newt DNA in Pond P2 and P3 in 2019. The laboratory results from ADAS are included at the end of this report.

4.7 After Pond P2 was sampled for eDNA, access could not be obtained for presence/likely absence surveys in 2022.

Presence/Likely Absence Surveys

4.8 Following the eDNA surveys, Ponds P3 and P4 were surveyed for presence/likely absence. Pond P4 had not been subject to an eDNA survey as it was previously inaccessible.

4.9 Great crested newts were found within Pond P3 during five out of six surveys, with a peak count of two individuals found during torching surveys, and five individuals found during bottle trap surveys. Great crested newt eggs were additionally identified at this pond during egg searches. In accordance with the Great Crested Newt Mitigation Guidelines (2001), this accounts as a 'small' population.

4.10 No great crested newts were recorded at Pond P4, but smooth newt *Lissotriton vulgaris* and palmate newt *Lissotriton helvetica* were identified during bottle trap surveys.

4.11 Full results of the surveys are included at the end of this report.

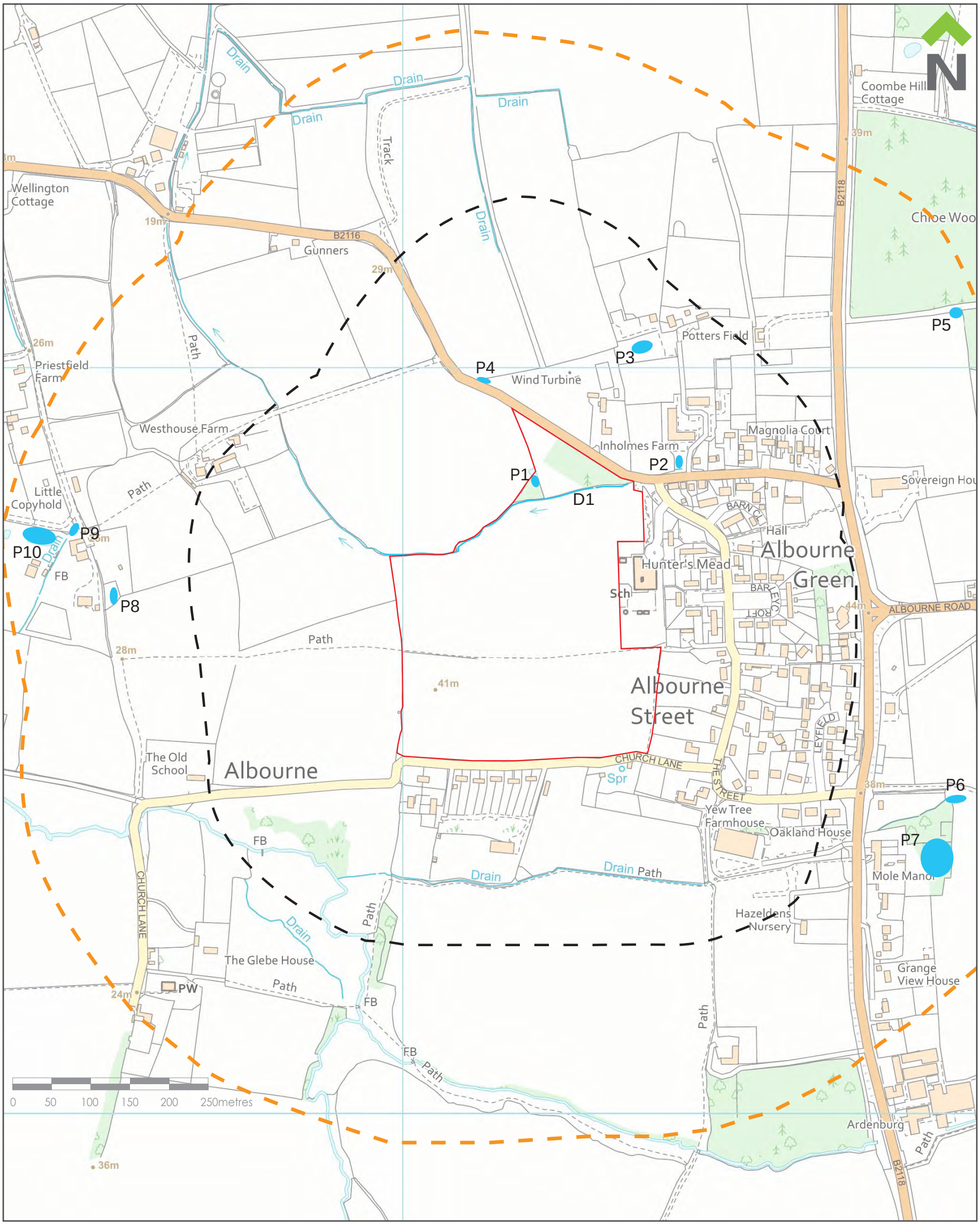
5.0 Summary

5.1 Great crested newt are confirmed as present within Pond P3 with a peak count of five individuals identified during presence/absence surveys; accounting as a 'small' population (Great Crested Newt Mitigation Guidelines, 2001).

5.2 Pond P2 was confirmed to have great crested newt during the eDNA survey in 2019, but was not granted access for further survey work. Pond P1 was dry at the time of survey whilst other ponds including P5 and P8-P10 were not given access, and Ponds P6 and P7 were scoped out of further survey due to the B2118 acting as a significant dispersal barrier.

Table 1. Habitat Suitability Index (HSI) Assessment

Habitat Suitability Factors	Pond Number					
	P1	P2	P3	P4	P7	P8
Map location *A (optimal), B (marginal) or C (unsuitable)*	A	A	A	A	A	A
Pond area in m²	150m²	150m²	500 - 700m²	200m²	500 - 700m	120m²
Permanence/Desiccation *(never/rarely/ sometimes/annually)*	Dried Annually	Rarely Dries	Rarely Dries	Sometimes Dries	Never Dries	Sometimes Dried
Water quality *(bad/poor moderate/good)*	Moderate	Moderate	Good	Moderate	Moderate	Moderate
Percentage perimeter shade to at least 1m from shore	86-90%	0-60%	0-60%	86-90%	0-60%	0-60%
Waterfowl impact (excluding moorhen) *(major/minor/absent)*	Absent	Minor	Minor	Absent	Minor	Minor
Fish presence *(major/possible/minor/ absent)*	Absent	Possible	Possible	Possible	Possible	Possible
Number of ponds within 1km not separated by barriers	>12	8	>12	>12	>12	>12
Terrestrial habitat *(none/poor/moderate /good)*	Good	Good	Good	Good	Good	Good
Percentage of pond surface occupied by aquatic vegetation *(March – May)*	1-5%	16 – 20%	36 – 40%	6 – 10%	1 – 5%	46 – 50%
HSI Score	Below average	Good	Excellent	Average	Good	Good



Site boundary

Pn Pond and ID number

Dn Ditch and ditch ID number

C. 500m buffer from Site

C. 250m buffer from Site

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Project	Land South of Henfield Road, Albourne, West Sussex	Date	June 2022	Drawing No.	CSA/4426/101
Drawing Title	Pond Location Plan	Scale	Refer to scale	Rev	A
Client	Croudace Homes Ltd	Drawn	AW	Checked	CC

Client: Kate Wolstenholme,
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Tel: 01159 516747
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Sample ID: 2019-1730	Condition on Receipt: Low Sediment	Volume: Passed
Client Identifier: Pond 2	Description: pond water samples in preservative	
Date of Receipt: 02/07/2019	Material Tested: eDNA from pond water samples	

Determinant	**Result**	**Method**	**Date of Analysis**
Inhibition Control[†]	2 of 2	Real Time PCR	15/07/2019
Degradation Control[§]	Within Limits	Real Time PCR	15/07/2019
Great Crested Newt*	12 of 12 (GCN positive)	Real Time PCR	18/07/2019
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10^{-4} ng/µL)[#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:		Signed:	
Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	22/07/2019	Date of issue:	22/07/2019

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

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

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved, the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#]Additional positive controls (10^{-1}, 10^{-2}, 10^{-3} ng/µL) are also routinely run, results not shown here.

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Sample ID: 2019-1731	Condition on Receipt: Good	Volume: Passed
Client Identifier: Pond 3	Description: pond water samples in preservative	
Date of Receipt: 02/07/2019	Material Tested: eDNA from pond water samples	

Determinant	**Result**	**Method**	**Date of Analysis**
Inhibition Control[†]	2 of 2	Real Time PCR	15/07/2019
Degradation Control[§]	Within Limits	Real Time PCR	15/07/2019
Great Crested Newt*	7 of 12 (GCN positive)	Real Time PCR	18/07/2019
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10^{-4} ng/µL)[#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:		Signed:	
Position:	Director: Biotechnology	Position:	MD: Biotechnology
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[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#]Additional positive controls (10^{-1}, 10^{-2}, 10^{-3} ng/µL) are also routinely run, results not shown here.

Appendix 1: Interpretation of results

Sample Condition

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

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

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

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

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

What do my results mean?

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

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

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

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

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

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