reside.

The Old Brickworks, Reeds Lane
Sayers Common

ECOLOGICAL ASSESSMENT

PROTECTED SPECIES

This report contains sensitive information
relating to protected species.
The information contained herein
should not be disseminated without the
prior consent of Ecology Solutions.

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1. INTRODUCTION

1.1. Background & Proposals

1.1.1. Ecology Solutions was commissioned by Reside Developments Ltd. to undertake an Ecological Assessment of land at The Old Brickworks Reeds Lane Sayers Common (see Plan ECO1), hereafter referred to as the Application Site.

1.1.2. Outline planning permission is being sought to provide up to 27 one, two, three and four-bedroom dwellings and two self/custom build plots (Use Class C3) and a GP surgery (Use Class D1) with associated infrastructure, landscaping and access.

1.2. Application Site Characteristics

1.2.1. The Application Site is located off Reeds Lane, Sayers Common. To the immediate south lies existing commercial/light industrial development with Reeds Lane beyond. To the southeast lies existing residential development. To the north lies a woodland block (Furze Field woodland) and an area containing open water, wet woodland, short grassland and wetland vegetation. To the east and west lie fields comprising grazed pasture.

1.2.2. The Application Site itself is dominated by a matrix of scrub with taller semi-improved grassland (limited), dense stands of ruderal vegetation, short (mown) grassland, stock piled (e.g. garden) debris and an existing residential property with associated formal gardens. The wider survey area extends to include the area of wet woodland, grassland, wetland vegetation and open water located immediately north of the Application Site.

1.2.3. The area to the north, described above, will form a key component of the ecological mitigation and enhancement strategy associated with the Development Proposals.

1.3. Ecological Assessment

1.3.1. This document assesses the ecological interest of the Application Site as a whole. The importance of the habitats present is evaluated with regard to current guidance published by the Chartered Institute of Ecology and Environmental Management (CIEEM)[1].

1.3.2. The report also sets out the existing baseline conditions for the Application Site, setting these in the correct planning policy and legal framework and assessing any potential impacts which may occur from the proposed development. Appropriate mitigation where necessary is identified such that it will offset any negative impacts and where possible provide for an ecological

[1] CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

enhancement of the Application Site, in accordance with relevant planning policy.

2. SURVEY METHODOLOGY

2.1. The methodology utilised for the survey work can be split into three areas, namely desk study, habitat survey and faunal survey. These are discussed in more detail below.

2.2. Desk Study

2.2.1. In order to compile background information on the Application Site and its immediate surroundings, Ecology Solutions contacted the Sussex Biological Records Centre (SxBRC).

2.2.2. Information has been provided by SxBRC. This information is referenced wherever appropriate. Information regarding designated sites is also shown where appropriate on Plan ECO1.

2.2.3. Further information on designated sites from a wider search area was also obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC)[2] database. This information is reproduced at Appendix 1 and where appropriate on Plan ECO1.

2.3. Habitat Survey Methodology

2.3.1. Habitat surveys were carried out in May 2016 to ascertain the general ecological value of the land contained within the boundaries of the Application Site and wider survey area. The main habitats and associated plant species were identified, with notes on fauna utilising the Application Site. Updated phase 1 survey work was undertaken in September and October 2017.

2.3.2. Surveys were based around extended Phase 1 survey methodology[3], as recommended by Natural England, whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail.

2.3.3. Using the above method, the Application Site and wider survey area were classified into areas of similar botanical community types, with a representative species list compiled for each habitat identified. Results are shown graphically at Plan ECO2.

2.3.4. All of the species that occur in each habitat would not necessarily be detected during survey work carried out at any given time of the year, since different species are apparent at different seasons. However survey work was undertaken during the optimal period for

[2] http://magic.defra.gov.uk
[3] Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

Phase 1 surveys, and given the habitats present it is considered that an accurate and robust assessment has been made.

2.4. Faunal Survey

2.4.1. General faunal activity observed during the course of the survey was recorded, whether visually or by call. Specific attention was paid to the potential presence of any protected, rare, notable or Priority species. In addition, specific surveys were undertaken for bats, Badgers *Meles meles*, reptiles and Dormouse.

2.4.2. **Bats**. Initial bat habitat suitability surveys were undertaken in May 2016, with an update survey in September 2017. Detailed Bat activity surveys were undertaken in September and October 2017. The work was overseen by an experienced bat worker and aimed to establish the likelihood of presence / absence of bats.

2.4.3. Field surveys were undertaken with regard to best practice guidelines issued by Natural England (2004[4]), the Joint Nature Conservation Committee (2004[5]) and the Bat Conservation Trust (2016[6]).

2.4.4. Buildings to be impacted by the Development Proposals were the subject of detailed internal and external inspections in October 2017. The buildings were assessed for their potential to support roosting bats, with searches made for any features which could be used by bats for roosting purposes and any obvious roost access points. Searches were also made for any evidence of roosting bats, such as droppings, staining and individuals (either alive or dead).

2.4.5. All trees at the Application Site were assessed for their potential to support roosting bats. For a tree to be classed as having some potential for roosting bats it must usually have one or more of the following characteristics:

- obvious holes, e.g. rot holes and old woodpecker holes;
- dark staining on the tree below a hole;
- tiny scratch marks around a hole from bats' claws;
- cavities, splits and/or loose bark from broken or fallen branches, lightning strikes etc.; and
- very dense covering of mature Ivy *Hedera helix* over trunk.

2.4.6. From a review of habitat quality, it was considered that the Application Site was likely to be of some value to bats, with interest most likely to be focused on woodland edge habitat. On this basis, evening bat activity surveys were undertaken to inform the assessment. Two activity surveys were undertaken on 19st September 2016 and 6th October 2017.

[4] Mitchell-Jones, A. J. (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.
[5] Mitchell-Jones, A.J. & McLeish, A.P. (Eds.) (2004). *Bat Workers' Manual*. 3rd edition. Joint Nature Conservation Committee, Peterborough.
[6] Collins, J. (Eds.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd Edition). Bat Conservation Trust, London.

2.4.7. The evening activity bat surveys were conducted from 15 minutes before sunset to approximately 2 hours after sunset. Surveyors again utilised EchoMeter 3 (EM3) bat detectors to aid identification of bats and record data. Surveyors walked transects in order to encompass all features of potential value to foraging and commuting bats, including hedgerows, tree and scrub, with all bat activity which was seen noted. All bat data recorded was subsequently analysed using Analook bat sound analysis software.

2.4.8. Detectors were also deployed overnight following the activity surveys in strategic locations, to ascertain longer term data regarding the use of the site by foraging and commuting bats. These surveys ran over several nights, with data downloaded and analysed using Analook bat sound analysis software.

2.4.9. **Hazel Dormice.** Specific surveys to ascertain the presence or absence of Hazel Dormice were commenced in September 2017. September is recognised as a key month for undertaking such surveys. To date surveys have been undertaken in September and October 2017. A further survey will be undertaken in November 2017, in order to fit with best practice guidelines.

2.4.10. The survey technique involves the erection of nest tubes within all scrub, hedgerow and woodland edge habitat considered to be of potential value to Dormice. A total of 100 nest tubes were put up in scrub habitat within the Application Site and accessible woodland edge / hedgerow habitat to the north and west of the Application Site.

2.4.11. Nest tubes were placed in accordance with the guidance provided by the Mammal Society and Natural England[7] and as recommended in the Dormouse Conservation Handbook[8]. Tubes were placed at less than 10 metre intervals. The nest tubes were attached with wire ties underneath suitably sturdy horizontal branches and positioned on average at approximately 1.5 metres above ground level.

2.4.12. Surveys are scored for effort according to the method developed from the South West Dormouse Project (Chanin and Woods 2003). The system used provides an overall score that reflects the chances of Dormice being discovered if present, and thus provides an indicator of 'thoroughness' of a survey. This score is calculated based on the number of tubes used and the number of months the tubes were in place. The standard minimum number of tubes is set at 50 tubes. Where the number of tubes is doubled 'the monthly score' (see below) is also doubled.

2.4.13. The months of the year are weighted according to the likelihood of recording dormice as set out below.

[7] Chanin P. & Woods M. (2003). Research Report 524, *'Surveying Dormice Using Nest Tubes – Results & Experiences from the South West Dormouse Project'*. English Nature, Peterborough.
[8] Bright, P, Morris, P. & Mitchell-Jones, T. (2006). *The Dormouse Conservation Handbook*. Second Edition. English Nature, Peterborough.

2.4.14. **Badgers.** Surveys were undertaken to search for evidence of Badgers initially in May 2016. An update survey which encompassed a wider survey area, including off-site woodland habitat to the north, was undertaken in early October 2017. For any setts encountered each sett entrance would be recorded and plotted, even if the entrance appeared disused. The following information was recorded if appropriate:

i) The number and location of well used or very active entrances; these are clear of any debris or vegetation and are obviously in regular use and may, or may not, have been excavated recently.

ii) The number and location of inactive entrances; these are not in regular use and have debris such as leaves and twigs in the entrance or have plants growing in or around the edge of the entrance.

iii) The number of disused entrances; these have not been in use for some time, are partly or completely blocked and cannot be used without considerable clearance. If the entrance has been disused for some time all that may be visible is a depression in the ground where the hole used to be and the remains of the spoil heap.

2.4.15. Badger activity such as well-worn paths and run-throughs, snagged hair, footprints, latrines and foraging signs were also searched for in order to build up a picture of the use of the Application Site by Badgers.

2.4.16. **Reptiles.** Specific surveys to identify the presence or absence of reptiles within the Application Site were undertaken between mid-September 2016 and mid October 2016.

2.4.17. Following an initial assessment to identify the most suitable areas of reptile habitat within the Application Site, refugia surveys were undertaken. 104 ‘tins’ (0.5 x 0.5 metre squares of heavy roofing felt which are often used as refuges by reptiles) were distributed throughout suitable reptile habitat within the Application Site.

2.4.18. These tins were left in place for around two weeks to ‘bed in’ and subsequently surveyed for reptiles beneath or upon the tins during suitable weather conditions.

2.4.19. All surveys were carried out in suitable weather conditions. (widely accepted as including air temperature is between 10°C and 20°C). Heavy rain and windy conditions were avoided.

2.4.20. The tins provide shelter and heat up quicker than the surroundings in the morning and can remain warmer than the surroundings in the late afternoon. Being ectothermic (cold blooded), reptiles use them to bask and raise their body temperature which allows them to forage earlier and later in the day.

Month	Weighting
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

Table 1: Monthly Score Weighting (Chanin & Woods 2003)

2.4.21. A score of 20 (or above) is deemed a thorough survey, and a score of 15 to 19 may be regarded as adequate where circumstances do not permit more time or more tubes (particularly if other survey methods have also proved negative).

2.4.22. A survey with 100 nest tubes checked between September and November provides a score of 22. For September and October (as reported at this stage) a score of 18 is obtained. It should be noted that Dormouse nest tube surveys are based around 'presence / absence'. Thus, once presence is detected (as in this case) additional survey work adds comparatively little to the evaluation.

2.4.23. **Great Crested Newts**. There are no water bodies present within the Application Site itself, however several ponds and a wet ditch are present in close proximity to the Application Site. These include a matrix of ponds located in land to the immediate north of the Application Site and an on-line pond associated with a ditch to the west. These water bodies are shown graphically at Plan ECO3.

2.4.24. All of these waterbodies were subject to Great Crested Newt surveys, using standard methodologies (bottle trapping, torching and egg / refuge searches in spring 2016. Such surveys were undertaken on 12th May, 18th May, 8th June and 13th June. Noting the slightly late commencement of the work and not knowing at that time whether a total of six surveys would be required, eDNA assessment work was also undertaken.

2.4.25. For the eDNA survey, samples were taken from the online pond and ditch to the west, the large pond and two smaller associated ponds north of the Application Site and the large shallow, heavily scrubbed pond to the north east of the Application Site. Samples were collected on 6th June 2016, in line with the accepted survey period for such work. Laboratory testing / analysis was undertaken by SureScreen Scientifics, with the test report dated 13th June 2016.

3. ECOLOGICAL FEATURES

3.1. The Application Site and wider survey area were subject to ecological surveys in May 2016, with additional work undertaken during September and October 2017. The vegetation present enabled the habitat types to be satisfactorily identified and an accurate assessment of the ecological interest of the habitats to be undertaken.

3.2. The following main habitat / vegetation types were identified within the Application Site itself:

- Semi-improved grassland;
- Tall ruderal;
- Scrub / trees; and
- Amenity garden;
- Buildings.

3.3. In addition, the survey area extended to include land to the north of the Application Site which comprises a matrix of open water, wet woodland / scrub, grassland and ruderal vegetation.

3.4. The location of these habitats is shown on Plan ECO2.

3.5. Each habitat present is described below with an account of their representative plant species.

<u>Semi-improved grassland</u>

3.5.1. Grassland is present in the south east and south west of the Application Site.

3.5.2. In the south west lies an area of short grassland which may have been the subject of grazing in the past (noting the presence of stockpiled manure) but more recently is likely to be maintained short through mowing.

3.5.3. Grassland managed as amenity lawn is present in the south east of the Application Site. These areas are subject to regular mowing.

3.5.4. Short grassland is also present to the immediate north of the Application Site, as part of the matrix of habitats which form part of the mitigation / enhancement package. It is possible that this area in particular is maintained as having a short sward height through grazing by rabbits, evidence for which was recorded during the course survey work.

3.5.5. Species recorded within the grassland habitats include: Perennial Rye Grass *Lolium perenne*, Yorkshire Fog *Holcus lanatus*, Cock's Foot *Dactylis glomerata*, White Clover *Trifolium repens*, Broad-leaved Dock *Rumex obtusifolius*, Creeping Buttercup *Ranunculus repens*, Birds-Foot Trefoil *Lotus corniculatus*, Ground Ivy *Glechoma hederacea*, Creeping Cinquefoil *Potentilla reptans*, Common Ragwort *Senecio jacobaea*, Spotted Medick *Medicago arabica*, Smooth Sow Thistle *Sonchus oleraceus*, Selfheal *Prunella*

vulgaris, Perforate St John's Wort *Hypericum perforatum*, Common Daisy *Bellis perennis* and Scarlet Pimpernel *Anagallis arvensis*.

3.5.6. Grassland north of the Application Site also contained Moss sp. indicating damper conditions.

Tall ruderal

3.5.7. Stands of (e.g. tall) ruderal vegetation are common place throughout the Application Site and wider survey area (see plan ECO2).

3.5.8. Species recorded in these areas include; Broad-leaved Dock, Comfrey *Symphytum officinale*, Common Fleabane *Pulicaria dysenterica*, Common Nettle *Urtica dioica*, Spear Thistle *Cirsium vulgare*, Hedge Bindweed *Calystegia sepium*, Common Mouse-ear *Cerastium fontanum*, Germander Speedwell *Veronica chamaedrys*, Yarrow *Achillea millefolium*, Teasel *Dipsacus fullonum*, Creeping Thistle, Broad-leaved Willowherb *Epilobium montanum*, Birds-Foot Trefoil, Soft Rush *Juncus effusus*, Burdock sp, White Dead-nettle *Lamium album*, Hogweed *Heracleum sphondylium* and Evening Primrose *Oenothera biennis*. Occasional Pendulous Sedge *Carex pendula* and Bracken *Pteridium aquilinum* was also recorded.

3.5.9. In addition, a small stand of Japanese Knotweed *Fallopia japonica* was recorded in one location in the south of the Application Site (see Plan ECO2).

Scrub / trees

3.5.10. Scattered and dense scrub is present throughout the Application Site and wider survey area. This is dominated by Willow sp. especially in the north and east where damp conditions prevail. Other species recorded include, Ash *Fraxinus excelsior*, Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Dogwood *Cornus sanguinea*, Pedunculate Oak *Quercus robur,* Silver Birch *Betula pendula* and Butterfly Bush *Buddleja* sp. Hazel *Corylus avellana* was recorded in the wider survey area at the banks of the ponds to the north.

3.5.11. Occasional standard trees are present, most notably along the northern boundary of the Application Site. Trees recorded include Pedunculate Oak, Ash and a Larch *Larix decidua*.

Ponds

3.5.12. There are no ponds present within the Application Site itself. Ponds are however present to the north of the Application Site, within the area proposed for ecological enhancement. A series of small waterbodies exist which have clearly been the subject of some management in the recent past with bankside scrub removed.

3.5.13. Aquatic vegetation is relatively limited, although stands of Reedmace *Typha* sp., are present in the far north, Lesser Duckweed *Lemna minor* is common place and sedges *Carex* sp.

are present at the bank sides and in shallow margins. Bankside vegetation is relatively diverse comprising Stinking Hellebore *Helleborus foetidus*, Brome *Brachypodium* sp., Pendulous Sedge *Carex pendula*, Burnet Saxifrage *Pimpinella saxifraga*, Greater Chickweed *Stellaria neglecta*, Wood Avens *Geum urbanum*, Sedge *Carex*, sp., Hairy Bittercress *Cardamine hirsuta*, Greater Bird's-foot Trefoil *Lotus pedunculatus*, Marsh Bedstraw *Galium palustre*, Soft Rush, Meadowsweet *Filipendula ulmaria*, Creeping Thistle, Creeping Buttercup, Violet *Viola* sp., Ground Ivy, Wild Strawberry *Fragaria vesca*, Betony *Stachys officinalis*, Holly *Illex aquifolium*, Ivy *Hedera helix* and Cow Slip *Primula veris*.

Buildings and hardstanding

3.5.14. A residential property (at the roadside frontage of the plot) with associated annex (to the rear of the plot) is present in the far south of the Application Site. These buildings will be lost to the proposed main access route.

3.5.15. Each building is a dormer bungalow, with a small roof space used for storage and each has a flat roofed extension and hanging tiles at the gable ends. The main house also has a small (fairly recent) extension to the western elevation with an apex roof. Roof spaces were for the main part boarded (sarking) and in good, clean condition.

3.5.16. Both buildings have been maintained in a good state of repair, with no obvious damage such as slipped or missing tiles, cracks or damage to barge boards at the eaves. Hanging tiles were also in good condition, with no missing or slipped tiles, or obvious gaps considered to offer roosting access to bats. It was noted that a couple of very small gaps are present where roof tiles associated with the apex roofed extension meet the wall of the main house, which is clad in hanging tiles. It was also noted that lead flashing had lifted slightly at the southern aspect of the chimney stack associated with the main house.

3.5.17. In addition to the buildings described above, a green house, several wooden sheds and a metal (Anderson style) shelter are present within the Application Site.

3.5.18. Hardstanding dominates the driveway and frontage associated with the residential property.

3.6. **Background Information**

3.6.1. The desk study undertaken with SxBRC returned a number of plant records from the local area, with no records returned from within the Application Site boundary. The closest record was of Bloody Crane's-bill *Geranium sanguineum* from a location approximately 0.1km north of the Application Site (within Furze Field woodland), from 2008. Other relevant records are from locations well removed from the Application Site.

4. WILDLIFE USE OF THE APPLICATION SITE

4.1. During the surveys that have been undertaken within the Application Site, general observations have been made of any faunal use, with specific attention paid to the potential presence of protected or notable species. Specific surveys were also undertaken for bats, Badgers, reptiles and Dormouse within the Application Site.

4.2. **Bats**

Tree Assessment

4.2.1. A survey confirmed that no trees present within or immediately adjacent to the Application Site offer any obvious potential opportunities for roosting bats, with trees, being largely immature and lacking features such as holes, splits, flaking bark and cracks.

Building Assessment

4.2.2. Detailed assessments and inspections undertaken in relation to the residential property (main house and annex). Loft voids in both buildings were accessed and external features were examined. The survey did not record any evidence for bat use of the buildings (e.g. droppings, areas of staining or individuals themselves).

4.2.3. A couple of very small gaps were noted at the point where roof tiles associated with an extension to the main house meet the hanging tile clad wall of the main house. It is expected that these gaps offer nothing more than superficial opportunities for roosting bats. The slight damage to the flashing at the chimney stack (described previously) is not considered to offer opportunities for roosting bats, since access under tiles does not result, the lifted flashing does not provide a sheltered void.

4.2.4. Two small gaps were noted on the chimney stack of the main house, understood to be where damaged mortar had fallen away. No evidence in the form of bat droppings was noted around these features and there is no evidence to suggest that these features are used by bats.

4.2.5. It is considered that roosting bats do not represent a constraint to development at the Application Site.

Bat Activity Surveys

4.2.1. Two bat activity, transect surveys were undertaken focussing on the Application Site and contiguous habitat where access was possible (land to the north and west). Table 1 below outlines the weather conditions during each survey visit.

Date	Weather Conditions
19.09.2017	14C, 100% cloud cover, fresh breeze, dry
06.10.2017	12C, 100% cloud cover, light breeze, dry

Table 1: Weather conditions during bat activity surveys

4.2.2. The activity survey on September 19th recorded mostly Soprano Pipistrelle *Pipistrellus pygmaeus* (54 registrations) and Common Pipistrelle *Pipistrellus pipistrellus* (43 registrations). Many of Soprano Pipistrelle registrations included social calls. Other species recorded include Serotine *Eptesicus serotinus* (17 registrations) and at least one Long-eared species (three registrations). Activity was spread throughout the survey area, with highest activity levels in the north and east, at woodland edge habitat within the Application Site and beyond, within the proposed ecological enhancement area to the north.

4.2.3. The activity survey on October 6th recorded mostly Soprano Pipistrelle (129 registrations) and Common pipistrelle (46 registrations). Similar to the previous activity survey, many of the Soprano Pipistrelle registrations included social calls. At least one unidentified Myotis species was also recorded (eight registrations). Activity was relatively evenly divided between the Application Site and surrounding land included in the transect, with all recorded species present both on and off-site in similar numbers.

Static Monitoring Surveys

4.2.4. Two static detectors were deployed within the Application Site after each activity survey. They were deployed for six nights following the September 19th survey and seven nights following the October 6th survey.

<u>September Static Monitoring Survey</u>

19/09/17

Detector 1 – Western Corner

4.2.5. A total of 37 registrations were recorded over the active period. Soprano Pipistrelle was recorded 21 times from 21:44 to 06:21.Common Pipistrelle was recorded 14 times from 19:25 to 20:41. A single Long-eared species *Plecotus sp.* was recorded at 03:58. A single Serotine was recorded at 19:50.

Detector 2 – Central Location

4.2.6. A total of 12 registrations were recorded over the active period. Common Pipistrelle was recorded seven times from 19:23 to 21:18. Soprano pipistrelle was recorded four times from 19:29 to 05:53. A single Long-eared species was recorded at 05:27.

20/09/17

Detector 1 – Western Corner

4.2.7. A total of 44 registrations were recorded over the active period. Common Pipistrelle was recorded 35 times from 19:19 to 06:13. Soprano Pipistrelle was recorded seven times from 19:23 to 01:15. A single unidentified Myotis species was recorded at 01:29. A single Serotine was recorded at 00:52.

Detector 2 – Central Location

4.2.8. A total of 42 registrations were recorded over the active period. Soprano Pipistrelle were recorded 33 times from 19:06 to 06:10. Common Pipistrelle were recorded eight times from 19:31 to 05:32. A single Serotine was recorded at 21:22

21/09/17

Detector 1 – Western Corner

4.2.9. A total of 32 registrations were recorded over the active period. Common Pipistrelle was recorded 29 times from 19:25 to 22:19. Soprano Pipistrelle was recorded three times from 19:19 to 21:36.

Detector 2 – Central Location

4.2.10. A total of 29 registrations were recorded over the active period. Soprano Pipistrelle was recorded 14 times from 19:12 to 22:46. Common Pipistrelle was recorded nine times from 19:20 to 21:21. Noctule *Nyctalus noctula* was recorded twice at 19:13 and 19:53. Serotine was recorded twice, at 21:04 and 21:11. A single Long-eared species was recorded at 21:36. A single unidentified Myotis species was recorded at 19:51.

22/09/17

Detector 1 – Western Corner

4.2.11. A total of 47 registrations were recorded over the active period. Soprano Pipistrelle was recorded 30 times from 19:06 to 22:17. Common Pipistrelle was recorded 14 times from 19:17 to 06:12. At least one unidentified Myotis species was recorded three times from 23:39 to 04:47.

Detector 2 – Central Location

4.2.12. A total of 18 registrations were recorded over the active period. Soprano Pipistrelle was recorded 11 times from 19:04 to 06:33. Common Pipistrelle was recorded three times from 19:26 to 21:16. Noctule *Nyctalus noctula* was recorded twice at 20:49. Serotine was recorded twice, at 21:29 and 02:41.

23/09/17

Detector 1 – Western Corner

4.2.13. A total of 26 registrations were recorded over the active period. Soprano Pipistrelle was recorded 13 times from 19:09 to 21:55. Common Pipistrelle was recorded 12 times from 19:08 to 04:06. A single Long-eared species was recorded at 22:16

Detector 2 – Central Location

4.2.14. A total of 23 registrations were recorded over the active period. Soprano Pipistrelle was recorded nine times from 19:06 to 06:09. Common Pipistrelle was recorded eight times from 19:25 to 06:20. Noctule was recorded three times from 19:16 to 20:08. Serotine was recorded twice, at 20:43 and 00:11. A single unidentified Myotis species was recorded at 20:19.

24/09/17

Detector 1 – Western Corner

4.2.15. A total of 32 registrations were recorded over the active period. Soprano Pipistrelle was recorded 13 times from 20:34 to 00:00. Common Pipistrelle was recorded 12 times from 19:01 to 06:09. Noctule was recorded four times from 22:22 and 06:07. A Long-eared species was recorded twice, at 00:04 and 02:08. A single unidentified Myotis species was recorded at 19:24.

Detector 2 – Central Location

4.2.16. A total of 41 registrations were recorded over the active period. Soprano Pipistrelle was recorded 20 times from 18:53 to 22:26. Common Pipistrelle was recorded eight times from 19:25 to 05:58. Noctule was recorded seven times from 02:07 to 03:03. At least one Long-eared species was recorded four times from 21:26 to 02:41. Serotine was recorded twice, at 21:41 and 23:42.

<u>October 6th Static Monitoring Survey</u>

06/10/17

Detector 1 – Central Location

4.2.17. A total of 45 registrations were recorded over the active period. Common Pipistrelle was recorded 28 times from 18:46 to 06:47. Soprano Pipistrelle was recorded six times from 19:10 to 06:51. At least one Long-eared species was recorded five times from 18:58 to 04:50. At least one unidentified Myotis species was recorded six times from 19:06 and 05:54.

Detector 2 – Southern Boundary

4.2.18. A total of 49 registrations were recorded over the active period. Soprano Pipistrelle was recorded 39 times from 18:45 to 06:50. Common Pipistrelle was recorded eight times from 18:43 to 06:48. At least one unidentified Myotis species was recorded twice, at 21:40 and 06:04.

07/10/17

Detector 1 – Central Location

4.2.19. A total of 131 registrations were recorded over the active period. Common Pipistrelle was recorded 51 times from 18:49 to 04:48. Soprano Pipistrelle was recorded 45 times from 18:44 to 06:44. At least one unidentified Myotis species was recorded 27 times from 18:51 to 04:42. At least one Long-eared species was recorded eight times from 19:01 to 02:52.

Detector 2 – Southern Boundary

4.2.20. A total of 141 registrations were recorded over the active period. Soprano Pipistrelle was recorded 116 times from 18:43 to 06:43. Common Pipistrelle was recorded 15 times from 18:49 to 04:47. At least one unidentified Myotis species was recorded eight times from 18:57 to 04:33. A single Long-eared species was recorded at 23:33. A single Nathusius' Pipistrelle *Pipistrellus nathusii* was recorded at 23:50.

08/10/17

Detector 1 – Central Location

4.2.21. A total of 24 registrations were recorded over the active period. Soprano Pipistrelle was recorded nine times from 18:45 to 20:57. Common Pipistrelle was recorded six times from 18:36 to 05:39. At least one unidentified Myotis species was recorded five times from 19:11 to 23:31. At least one Long-eared species was recorded four times from 18:58 to 02:54.

Detector 2 – Southern Boundary

4.2.22. A total of 20 registrations were recorded over the active period. Common Pipistrelle was recorded 13 times from 18:43 to 06:12. Soprano Pipistrelle was recorded six times from 19:45 to 20:27. A single unidentified Myotis species was recorded at 19:25.

09/10/17

Detector 1 – Central Location

4.2.23. A total of 142 registrations were recorded over the active period. Common Pipistrelle was recorded 74 times from 18:42 to 05:09. Soprano Pipistrelle was recorded 43 times from 19:10 to 06:25. At least one unidentified Myotis species was recorded 18 times from

18:48 to 04:15. At least one Long-eared species was recorded five times from 19:30 to 01:56. Serotine was recorded twice, at 19:03 and 23:47.

Detector 2 – Southern Boundary

4.2.24. A total of 72 registrations were recorded over the active period. Soprano Pipistrelle was recorded 48 times from 18:45 to 06:29. Common Pipistrelle was recorded 14 times from 18:42 to 22:15. At least one unidentified Myotis species was recorded ten times from 19:28 to 05:17.

10/10/17

Detector 1 – Central Location

4.2.25. A total of 75 registrations were recorded over the active period. Common Pipistrelle was recorded 35 times from 18:36 to 06:32. Soprano Pipistrelle was recorded 34 times from 18:42 to 06:42. At least one unidentified Myotis species was recorded three times from 22:44 to 05:24. Serotine was recorded twice, at 18:51 and 19:12. A single Long-eared species was recorded at 19:10.

Detector 2 – Southern Boundary

4.2.26. A total of 175 registrations were recorded over the active period. Soprano Pipistrelle was recorded 143 times from 18:45 to 06:43. Common Pipistrelle was recorded 28 times from 18:43 to 06:49. At least one unidentified Myotis species was recorded three times from 18:59 to 05:25. A single Serotine was recorded at 18:52.

11/10/17

Detector 1 – Central Location

4.2.27. A total of 92 registrations were recorded over the active period. Common Pipistrelle was recorded 68 times from 18:51 to 02:39. Soprano Pipistrelle was recorded 11 times from 22:09 to 06:22. At least one unidentified Myotis species was recorded eight times from 22:26 to 04:20. A single Long-eared species was recorded five times from 21:20 to 05:47.

Detector 2 – Southern Boundary

4.2.28. A total of 281 registrations were recorded over the active period. Soprano Pipistrelle was recorded 217 times from 18:31 to 02:45. At least one unidentified Myotis species was recorded 45 times from 19:15 to 01:52. Common Pipistrelle was recorded 19 times from 18:51 to 01:01.

12/10/17

Detector 1 – Central Location

4.2.29. A total of 117 registrations were recorded over the active period. Common Pipistrelle was recorded 67 times from 18:44 to 05:22. Soprano Pipistrelle was recorded 28 times from 18:40 to 06:34. At least one unidentified Myotis species was recorded 20 times from 18:52 to 03:40. At least one Long-eared species was recorded twice, at 20:57 and 21:29.

Detector 2 – Southern Boundary

4.2.30. A total of 96 registrations were recorded over the active period. Soprano Pipistrelle was recorded 61 times from 18:46 to 06:55. Common Pipistrelle was recorded 28 times from 18:37 to 06:45. At least one unidentified Myotis species was recorded six times from 18:52 to 04:31. A single Noctule was recorded at 01:35.

4.2.31. **Background Information.** The desk study undertaken with SxBRC returned a small number of recent bat records from the local area. The closest record was of Common Pipistrelle from a location approximately 0.1km north of the Application Site boundary (within Furze Field woodland). The record is associated with a bat box check undertaken in 2015. A record of a Common Pipistrelle maternity roost was also returned from a location approximately 0.4km north-east of the Application Site from 2008.

4.3. Badgers

4.3.1. No evidence of Badgers, in the form of setts, foraging pits, latrines or footprints, was recorded within the Application Site itself. Evidence of Rabbit activity was noted in several locations.

4.3.2. A main Badger sett was recorded within Furze Field woodland to the north of the Application Site. This sett comprises 14 entrances, of which three showed signs of recent use. This sett is located approximately 30m from the Application Site boundary. The sett location is shown on Plan ECO2.

4.3.3. **Background Information.** No badger records were returned as part of the desk study with SxBRC.

4.4. Reptiles

4.4.1. The Application Site and wider survey area contains suitable habitat for reptile species in the form of a matrix of tall ruderal, grassland and scrub with occasional log piles (stacked timber), a stockpile of manure. In order to ascertain whether the Application Site supports this group, refugia surveys were undertaken in the autumn of 2017, in line with the methodology outlined in Section 2 above.

4.4.2. The results of the survey are summarised in Table 2 below.

Date	Survey Number	Weather Conditions	Reptiles Recorded
26.09.17	1	50% cloud cover, no rain 17°C	None
29.09.17	2	100% cloud cover, no rain 18°C	Slow-worm ♀
3.10.17	3	30% cloud cover, no rain 15°C	None
6.10.17	4	20% cloud cover, no rain 15°C	Common Lizard ♂
13.10.17	5	100% cloud cover, no rain 18°C	None
16.10.17	6	30% cloud cover, no rain 15°C	2 x Slow-worm (1 Juv)
18.10.17	7	100% cloud cover, light rain in part 15°C	Common Lizard ♀ and Slow-worm

Table 1: 2017 Reptile Survey Results (Summary)

4.4.3. The surveys recorded low numbers of Common Lizard *Zootoca vivipara* and Slow-worm *Anguis fragilis* within the Application Site.

4.4.4. In light of the survey results, it is considered that the Application Site is utilised by small populations of both species. Noting the presence of waterbodies, to the north of the Application Site, in addition to other suitable habitat, it is considered that Grass Snake *Natrix natrix* may also be present within the Application Site and wider area.

4.4.5. **Background Information.** The desk study undertaken with SxBRC returned a small number of reptile records from the local area, with many records pre-dating the year 2006. As such, any records predating 2006 have not been considered within the desk study. The closest record was of Grass Snake returned from a location approximately 0.3km south-east of the Application Site from 2009.

4.5. Dormice

4.5.1. Woodland edge, scrub and off-site hedgerow habitats were the subject of a Dormouse nest tube survey. Nest tube surveys were undertaken of all suitable habitats within the Application Site in line with the methodology outlined in Section 2 above. Surveys have been completed for September and October 2017, with no evidence for the presence of Dormouse recorded.

4.5.2. It is considered that Dormice are absent from the Application Site and suitable Dormouse habitat which is contiguous with it. In line with current guidance, one further survey is required to be completed in November 2017, in order to substantiate the conclusion that Dormice are not present within the Application Site or associated boundary habitat. The results of the final survey will be submitted to the Local Planning Authority (LPA) as soon as they are available. Any relevant mitigation has been put forward within

this assessment on a precautionary basis, such that should Dormice be recorded during the final survey, the authority has all the necessary information available to it in informing the likely residual impact of the scheme on Dormice.

4.5.3. **Background Information.** No Dormouse records were returned as part of the desk study undertaken with SxBRC.

4.6. Amphibians (Great Crested Newts)

4.6.1. There are no waterbodies present within the Application Site itself, however several are present in close proximity which could provide suitable opportunities for breeding amphibians (including Great Crested Newts *Triturus cristatus*). The locations of these water bodies (e.g. ponds) are shown on Plans ECO2 and ECO3.

4.6.2. Relevant waterbodies were the subject of detailed Great Crested Newt surveys during May and June 2016. These included the ponds north of the Application Site, along with a length of ditch with an online pond to the west of the Application Site.

4.6.3. In addition to standard survey techniques, eDNA surveys were undertaken.

4.6.4. No evidence for the presence of this species was recorded during the standard surveys and the results of the eDNA testing was negative showing that Great Crested Newts do not breed within the water bodies located close to the Application Site. A copy of the eDNA test report is included at Appendix 2.

4.6.5. **Background Information.** The desk study undertaken with SxBRC returned a number of amphibian records from the local area. However, the vast majority of these records predate the year 2006 and as such have not been considered within the desk study. The closest record was of Great Crested Newt, returned from a location approximately 0.2km west of the Application Site from 2006. A record of Great Crested Newt was also returned from a location approximately 0.4km north of the Application Site at its closest point from 2013.

4.6.6. The grid references provided for the records described above do not match any pond locations shown on Ordnance Survey (OS) mapping or aerial photography. It is considered highly likely that the record location to the west of the Application Site in fact relates to a field boundary pond / section of ditch located slightly closer to the Application Site. This pond and ditch were the subject of survey work in 2016 and negative results were recorded, indicating that Great Created Newts no longer use this habitat.

4.6.7. It is considered that the record location, north of the Application Site either relates to a pond which has been lost, or perhaps more likely, should be attributed to one of two ponds located slightly further north, at distances of around 450m and 505m respectively. At these distances, it is very unlikely that Great Crested Newts

would migrate from the breeding pond and access the Application Site.

4.6.8. Overall, on the basis of all evidence available, it is considered that GCN would not be present within the Application Site. As such, no further consideration has been given to this species within this Ecological Assessment.

4.7. Birds

4.7.1. The Application Site offers opportunities for nesting birds in terms of the scrub, hedgerow and trees.

4.7.2. Bird species recorded at the Application Site during surveys include Great Tit *Parus major*, Blue Tit *Cyanistes caeruleus*, Long-tailed Tit *Aegithalos caudatus*, Blackbird *Turdus merula*, House Sparrow *Passer domesticus* (UKBAP species), Dunnock *Prunella modularis* (UKBAP species), Robin *Erithacus rubecula*, Wren *Troglodytes troglodytes*, Whitethoat *Sylvia communis*, and Magpie *Pica pica*. A Buzzard *Buteo buteo*, Carrion Crows *Corvus corone* and Jackdaws *Coloeus monedula* were noted flying overhead.

4.7.3. **Background Information.** The desk study undertaken with SxBRC returned a large number of notable bird records from the local area. However, many of these records have been returned with low resolution grid references. A small number of records were returned from the 1km grid square which contains the Application Site, including Stock Dove *Columba oenas*, Barn Owl *Tyto alba*, Red Kite *Milvus milvus* and Cuckoo *Cuculus canorus* from between 2007 and 2013.

4.8. Invertebrates

4.8.1. The Application Site is expected to support a limited range of common invertebrate species, but there is no evidence to suggest that any protected or notable species are likely to be present, given the habitats present.

4.8.2. **Background Information.** The desk study undertaken with SxBRC returned numerous invertebrate records from the local area, however no notable invertebrate species records were returned from within the Application Site. The closest record was of Knot Grass Moth *Acronicta rumicis* (a migratory species) returned from a location approximately 0.3km north-east of the Application Site, from 2007.

5. ECOLOGICAL EVALUATION

5.1. The Principles of Site Evaluation

5.1.1. The latest guidelines for ecological evaluation produced by CIEEM propose an approach that involves professional judgement, but makes use of available guidance and information, such as the distribution and status of the species or features within the locality of the project.

5.1.2. The methods and standards for site evaluation within the British Isles have remained those defined by Ratcliffe[9]. These are broadly used across the United Kingdom to rank sites, so priorities for nature conservation can be attained. For example, current Site of Special Scientific Interest (SSSI) designation maintains a system of data analysis that is roughly tested against Ratcliffe's criteria.

5.1.3. In general terms, these criteria are size, diversity, naturalness, rarity and fragility, while additional secondary criteria of typicalness, potential value, intrinsic appeal, recorded history and the position within the ecological / geographical units are also incorporated into the ranking procedure.

5.1.4. Any assessment should not judge sites in isolation from others, since several habitats may combine to make it worthy of importance to nature conservation.

5.1.5. Further, relying on the national criteria would undoubtedly distort the local variation in assessment and therefore additional factors need to be taken into account, e.g. a woodland type with comparatively poor species diversity, common in the south of England may be of importance at its northern limits, say in the border country.

5.1.6. In addition, habitats of local importance are often highlighted within a local Biodiversity Action Plan (BAP). The Sussex BAP highlights a number of habitats and species. This is referred to below where relevant.

5.1.7. Levels of importance can be determined within a defined geographical context from the immediate site or locality through to the International level.

5.1.8. The legislative and planning policy context are also important considerations and have been given due regard throughout this assessment.

[9] Ratcliffe, D A (1977). *A Nature Conservation Review: the Selection of sites of Biological National Importance to Nature Conservation in Britain*. Two Volumes. Cambridge University Press, Cambridge.

5.2. Habitat Evaluation

Designated sites

5.2.1. **Statutory sites.** There are no statutory designated sites of nature conservation interest located within or immediately adjacent to the Application Site. The nearest statutory designated site is Wolstonbury Hill Site of Special Scientific Interest (SSSI), which is located approximately 4.3km to the south-east of the Application Site boundary at its nearest point (see Plan ECO1). This SSSI is designated on account of its chalk downland and woodland habitats. The next nearest statutory designated site is Bedelands Farm Local Nature Reserve (LNR). The next nearest SSSI is Ditchling Common, located approximately 6.6km to the east of the Application Site.

5.2.2. The Application Site is significantly separated from all statutory designated sites in the locality, and as such no likely significant effects on any such designated site is considered to arise.

5.2.3. For completeness, there are no European or internationally designated sites of nature conservation interest (including Special Protection Areas, Special Areas of Conservation and Ramsar sites) within 15km of the Application Site boundary. The closest such site is Castle Hill SAC, located just over 15km to the south-east.

5.2.4. **Non-statutory sites.** There are no non-statutory designated sites located within or immediately adjacent to the Application Site boundary. The nearest non-statutory designated site is a notable road verge located approximately 1.6km to the north east of the Application Site. The next nearest is a National Park located south of Hurstpierpoint, approximately 2.3km south of the Application Site. No other records for non-statutory designated sites were returned for the 5km x 5km search area used as part of the desk study exercise.

5.2.5. Given the distances involved, no significant effects are considered to arise in relation to any non-statutory designated site.

5.2.6. There are several sites classified as supporting ancient woodland within the local area. The closest area of ancient woodland is Sayers Common Wood, located approximately 0.2km east of the Application Site. The next closest is located approximately 0.3km west of the Application Site. Both of these woodlands are classified as being ancient and semi-natural woodlands. Neither are directly linked to the Application Site by public rights of way. No direct or indirect adverse impacts are considered likely to arise.

Habitats within the Application Site

5.2.7. The Application Site is considered to hold no significant ecological value being dominated by stands of ruderal vegetation and scrub, areas of short (e.g. mown), relatively species poor grassland and several standard trees.

5.2.8. The Development proposals will result in losses to areas of existing (relatively) species poor grassland, ruderal and scrub vegetation, debris, log piles, amenity garden planting and an existing residential property.

5.2.9. Notwithstanding any use of relevant habitats by protected faunal species (discussed further below), in habitat quality terms, it is considered that impacts to these habitats would be of little ecological significance. Those habitats of greater quality in the context of the Application Site are to be retained and enhanced.

5.2.10. Wet woodland / scrub, bankside wetland vegetation and open water habitats (not present within the Application Site itself) are of greatest value in the context of the survey area taken as a whole. These habitats lie within the area of land adjacent to the Application Site, to the north.

5.2.11. The Application Site extends into an area of short grassland and scrub in the north, where an attenuation basin and swale are proposed. These minor losses of habitat to facilitate drainage features are not considered significant in ecological terms.

Mitigation / enhancements

5.2.12. Existing trees are to be retained wherever possible, with losses limited, in the main, to immature specimens associated with developing scrub.

5.2.13. New tree planting is proposed throughout the Application Site and it is recommended that a significant proportion be of native origin and, or, of known value to wildlife. Suggested tree species suitable for inclusion within the planting schedule include:

- Pedunculate Oak Quercus robur,
- Silver Birch *Betula pendula*,
- Alder *Alnus glutinosa,*
- Hazel *Corylus avellana*,
- Hawthorn *Crataegus monogyna,*
- Blackthorn *Prunus spinose, and*
- Crab Apple *Malus sylvestris.*

5.2.14. The Development Proposals provide the opportunity to increase both the ecological value of grassland habitat within the Application Site (and wider survey area).

5.2.15. Within the Application Site itself, an area of open space is to be delivered in the east of the site. This area will comprise new species rich meadow grassland. Through the use of a native wildflower seed mixture, and the implementation of an appropriate (low intensity) management regime, it is considered that biodiversity benefits will arise compared to the existing situation at the site.

5.2.16. As part of the Development Proposals, in addition to the measures described above, it is proposed that the land to the north, comprising open water, wet woodland / scrub and wetland vegetation will be enhanced and furthermore, gifted to the Parish Council for the benefit of biodiversity in the local area. A standalone iterative management and enhancement plan has been produced and this is included at Appendix 3 of this report. Broadly, the measures can be summarised as follows:

- Reduction in tree cover / thinning of scrub;
- Localised dredging of ponds to maintain standing water habitat;
- Control (e.g. thinning) of any dense stands of emergent vegetation such as *Typha* sp.,
- New native aquatic planting; and
- Appropriate cutting regime for grassland and pond banks.

5.2.17. It is considered that delivering the suite of measures described above will mitigate for any losses to onsite habitats, and overall result in a net gain in biodiversity value compared to the existing situation. Furthermore, through the use of a range of native tree and shrub species as part of the planting scheme, and the instigation of management for biodiversity, it is considered that opportunities for species such as nesting birds, foraging and commuting bats, invertebrates and mammals would be maintained and enhanced.

5.3. **Faunal Evaluation**

Bats

5.3.1. **Legislation.** All bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 ("the Habitats Regulations"), as amended. These include provisions making it an offence:

- Deliberately to kill, injure or take (capture) bats;
- Deliberately to disturb bats in such a way as to:-
  - (i) be likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or to hibernate or migrate; or
  - (ii) affect significantly the local distribution or abundance of the species to which they belong;
- To damage or destroy any breeding or resting place used by bats;
- Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection.

5.3.2. While the legislation is deemed to apply even when bats are not in residence, Natural England guidance suggests that certain activities such as re-roofing can be completed outside sensitive periods when bats are not in residence provided these do not damage or destroy the roost.

5.3.3. The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.

5.3.4. The offence of damaging or destroying a breeding site or resting place (which can be interpreted as making it worse for the bat) is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.

5.3.5. European Protected Species licences are available from Natural England in certain circumstances, and permit activities that would otherwise be considered an offence.

5.3.6. Licences can usually only be granted if the development is in receipt of full planning permission and it is considered that:

(i) The activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
(ii) There is no satisfactory alternative; and
(ii) 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.

5.3.7. **Application Site Evaluation.** Surveys undertaken at the Application Site in the autumn period of 2017 identified use of the site by a small number of common bat species for foraging and commuting. The majority of recorded activity was attributed to Soprano and Common Pipistrelle bats, with very occasional use by Serotine, Noctule, Long-eared and *Myotis* sp. bats. Even for Soprano and Common Pipistrelle bats, the levels of recorded activity were not significant and can be attributed to a small number of individuals.

5.3.8. The Application Site is considered to be of some (low) value for foraging and commuting bats. Woodland edge habitat within the Application Site and the sheltered habitats to the north (open water, wet woodland, short grassland and herbs) are of greatest value in the context of the Application Site and wider survey area.

5.3.9. The existing residential property to be lost to the proposals has some, very limited potential to support roosting bats. However, no evidence of roosting bats was recorded during detailed internal and external inspections and overall, the buildings are in a good state of repair with regular building maintenance clearly undertaken.

5.3.10. **Mitigation and Enhancements.** Overall, it is considered that the site is of relatively limited value for foraging / commuting bat species. No trees with obvious potential to support bats roosts have been identified within the Application Site and the residential property is not considered to support roosting bats.

5.3.11. The retention of woodland edge habitat and trees in general coupled with the provision of new tree planting, wetland features (SuDS), and new species rich grassland within the Application Site will maintain foraging and commuting resources for bats post development.

5.3.12. A suite of ecological enhancements will be delivered in respect of land to the immediate north of the Application Site. These measures will ensure provision of a diverse habitat matrix with a sheltered microclimate and thus optimal bat foraging habitat.

5.3.13. In order to provide new roosting opportunities for bats, a number of bat boxes (e.g. 6) are to be installed on suitable retained trees within the Application Site (such as those on the northern boundary) and wider survey area. Roosting opportunities are also to be provided on new residential properties, with four bat tiles and four bat boxes / bricks to be provided. Examples of suitable bat boxes are provided at Appendix 4.

5.3.14. New roosting features will be located such that they will not be subject to any adverse effects from artificial lighting and unobstructed access to foraging habitat or potential flight lines is available. Those properties at the development boundaries would be most suited to such provisions.

5.3.15. It is recommended that the lighting scheme for the development is designed to avoid potential impacts from artificial lighting to retained and newly provided habitats, in particular woodland edge habitat. It is recommended that dark corridors are provided where possible, through the use of hoods and cowls to reduce light spill and to direct lighting away from these features. It is understood that lighting can be kept to a minimum and this will ensure that opportunities for foraging and commuting bats will be present post-development.

5.3.16. As a precautionary measure, it is also recommended that the residential property to be lost to the proposals (“Lyndon”) is subject to a soft demolition protocol. The roof should be demolished under an ecological watching brief, with tiles striped by hand. In the unlikely event that a roosting bat is discovered, works will cease and Natural England contacted in relation to any licensing requirements. It should be noted that the mitigation and enhancement measures described above, would be sufficient for inclusion within any licence application were one to be required (not likely).

Badgers

5.3.17. **Legislation & Licensing**. The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status.

5.3.18. As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of a

Badger sett an offence. A sett is defined as “any structure or place, which displays signs indicating current use, by a Badger”. ‘Current use’ is defined by Natural England as any use within the preceding 12 months.

5.3.19. In addition, the intentional elimination of sufficient foraging area to support a known social group of Badgers may, in certain circumstances, be construed as an offence by constituting ‘cruel ill treatment’ of a Badger.

5.3.20. Local Authorities are therefore obliged to consult Natural England over any application that is likely to adversely affect Badgers.

5.3.21. Any work that disturbs Badgers is illegal without a licence granted by Natural England. Unlike the general conservation legislation, the Badgers Act 1992 makes specific provision for the granting of licences for development purposes, including for the destruction of setts.

5.3.22. Previous guidance issued by Natural England in 2002 outlines the types of activity that it considers should be licensed within certain distances of sett entrances. For example using heavy machinery within 30 metres of any entrance to an active sett, and lighter machinery within 20 metres, or light work such as hand digging within 10 metres, all may require a license.

5.3.23. More recent guidance issued by Natural England specifically states “it is not illegal, and therefore a licence is not required, to carry out disturbing activities in the vicinity of a sett if no badger is disturbed and the sett is not damaged or obstructed.”

5.3.24. The guidance goes on to state, “Where interference with a sett showing signs of use cannot be avoided during the development, a licence should be sought from Natural England.”

5.3.25. This guidance no longer makes reference to any 30m/20m/10m radius as a threshold for whether a licence would be required. Nonetheless, it is stated that tunnels may extend for 20m so care needs to be taken when implementing excavating operations within the vicinity of a sett and to take appropriate precautions with vibrations and noise, etc. Fires / chemicals within 20m of a sett should specifically be avoided.

5.3.26. The guidance allows greater professional judgement as to whether an offence is likely to be committed by a particular development activity and therefore whether a licence is required or not. For example, if a sett clearly orientates southwards into an embankment it may be somewhat redundant to have a 30m-exclusion zone to the north.

5.3.27. It should be noted that a licence couldn’t be issued until the site is in receipt of a full and valid planning permission and that generally licences are not granted between December and June inclusive to avoid disruption to the Badger breeding cycle.

5.3.28. **Application Site Evaluation.** No Badger setts are present within the Application Site however a main sett is known from a location within woodland to the north. That sett is located approximately 30m from the Application Site boundary. At this distance, no direct or indirect impacts on the sett are likely.

5.3.29. **Mitigation and Enhancements.** It is recommended that staff and contractors associated with site clearance and construction operations remain vigilant for any expansion of the existing sett (towards the development footprint) and any Badger digging on site during such works. Any Badger excavations which do not constitute sett construction (incomplete tunnels / blind entrances) should be filled in immediately and the advice of a suitably experienced ecologist should be sought where any doubt exists as to whether the structure constitutes an active sett.

5.3.30. Given that Badgers may forage or explore within the development site, it is recommended that any deep excavations should have a means of escape provided for Badgers (either an earth ramp or roughened wooden board placed at an angle). This will prevent a Badger becoming trapped and, or attempting to construct a new sett within the excavation.

5.3.31. New meadow grassland creation, tree and shrub planting will provide enhanced foraging opportunities for Badgers within the Application Site.

Dormouse

5.3.32. **Legislation.** The Hazel or Common Dormouse has the same protection and licensing requirements as for bats, with a significant group being a mother and dependent young. The Common Dormouse is a scarce UK species that is protected under European and UK law by virtue of its inclusion on:

- Appendix 3 of the Bonn Convention;
- Annex IVa of the EC Habitats Directive;
- Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended); and
- Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

5.3.33. The legislation prohibits the intentional killing, injuring, taking, the possession of, and the trade in Dormice. In addition, places used for shelter and protection are safeguarded against intentional damage, destruction and obstruction and must not be intentionally disturbed whilst Dormice are in occupation, unless by a Natural England Licence holder for the species.

5.3.34. Regulation 53 is concerned with the granting of licenses for certain activities relating to animals and plants. Such licences are relevant to species afforded statutory protection under the legislation described above.

5.3.35. In accordance with the Habitats Regulations, the licensing authority (e.g. Natural England) must apply the three derogation tests as part of the process of considering a licence application. These tests are that:

1. The activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety (Regulation 53(2)(e));

2. There must be no satisfactory alternative (Regulation 53(9)(a)); and

3. The favourable conservation status of the species concerned must be maintained (Regulation 53(9)(b)).

5.3.36. Where proposals which could affect a European Species are being considered, the decision taker "must exercise their functions under the enactments relating to nature conservation so as to secure compliance with the requirements of the Habitats Directive" (Regulation 9).

5.3.37. Regulation 9(5) refers to the "Competent Authority", or in other words the decision taker. In this case the competent authority is Tunbridge Wells Borough Council and it is their legal duty to consider the development proposals with regard to European Species.

5.3.38. The Supreme Court decision in the case of Vivienne Morge v Hampshire County Council handed down on the 19th January 2011 makes plain the way in which the decision taker (in that case the LPA) should discharge their legal duty under Regulation 9(5) when exercising their functions.

5.3.39. Insofar as European protected species (e.g. Dormouse) are concerned, the proper understanding of the Competent Authorities role, as a matter of law, when reporting upon and making the decision on this Application is that the case law has established that permission should be granted unless it is concluded that the works envisaged would be "unlikely to be licensed" by Natural England: see Prideaux [2013] EWHC 1054 (Admin) at paragraph 96, and Cheshire East [2014] EWHC 3536 (Admin) at paragraphs 61, 63, 64 – both of which apply the Supreme Court's decision in Morge (2011).

5.3.40. It is understood that the decision taker has a responsibility to first assess whether a proposal would breach Article 12(1) of the Habitats Directive. If Article 12(1) would be breached, then the decision taker would need to consider whether it is likely that Natural England would not grant a European Protected Species (EPS) licence in relation to the proposals being considered.

5.3.41. The decision taker is required to consider the three derogation tests as provided for within the Regulations. These can be considered in broad terms as; Regulation 53(2)(e) - The Need Test, Regulation 53(9)(a) - The No Satisfactory Alternative Test

and Regulation 53(9)(b) – Maintain the species at a Favourable Conservation Status Test.

5.3.42. Conservation Status for species is defined in Article 1(i) of the Habitats Directive as "the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations…", and is taken as Favourable when:

- "Population dynamics data on the species concerned indicate that it is maintaining itself on a long term basis as a viable component of its natural habitat;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis"

5.3.43. Consideration of potential effects and the mitigation and enhancement measures associated with Dormouse (European Protected Species) arising from the development proposals are considered in the light of this legislation in this ecological assessment. Specific regard is had to the derogation tests at Regulation 53 of the Habitats Regulations are discussed further below.

5.3.44. It is also noted that hedgerows can be defined as important under the Hedgerow Regulations 1997 if the presence of a Schedule 5 species of the Wildlife and Countryside Act (such as Dormouse) are recorded.

5.3.45. **Site Evaluation.** Habitats within the Application Site, notably areas of dense scrub provide potential habitat for Dormouse. In isolation these habitats can be considered sub-optimal however, connectivity exists with suitable habitat in the wider area, which includes woodland and hedgerows. It was on this basis that detailed surveys were undertaken across the Application site and accessible connected habitat, such as off-site hedgerows to the west and woodland edge habitat to the north.

5.3.46. No evidence for the presence of Dormice was recorded during surveys undertaken in September and October 2017. On current evidence it is considered that Dormice are not present either within the Application Site, or in connected habitat. A final survey is however to be completed in November 2017 to ensure that the survey effort is fully in accordance with the relevant guidelines. It should be noted however, that September is the best month in which to determine presence as numbers are bolstered by the dispersing young from that years breeding season. It is considered that if Dormice were indeed present, they would have been detected in the autumn surveys already undertaken.

5.3.47. **Mitigation and Enhancements.** Specific mitigation is not considered necessary given the results of the surveys undertaken. However, consideration is given here to a suitable mitigation strategy, such that the planning authority can be comforted that

mitigation can be delivered should Dormouse presence be detected during the final November survey.

5.3.48. In the unlikely event that Dormouse are recorded as present, it will be a legal requirement to implement a suitable mitigation strategy. Where habitat losses will impact Dormice, a licence granted by Natural England would be required prior to any site clearance works.

5.3.49. The Development Proposals will result in a loss of scrub, including bramble scrub and such losses could result in a reduction of Dormouse habitat. Losses of isolated, standard trees, grassland or other features associated with the Application Site, would not be likely to impact Dormice.

5.3.50. Any detailed mitigation strategy, such as that required in support of a Natural England licence, would include a strategy based around the phased clearance of suitable Dormouse habitat, forcing them into retained habitat. In this instance, such habitat is limited in extent. Where necessary, areas of suitable habitat could easily be cleared by hand over several days outside of the breeding season (typically June to mid-September) forcing any Dormice into suitable habitat outside of the development footprint. Winter clearance of vegetation would also be an option where the disturbance of any root balls or other features which could support hibernating Dormice can be avoided. Under that scenario, any potential hibernation features would be removed once Dormice are active again (e.g. in late May).

5.3.51. As part of any mitigation strategy (and licence application) it would also be necessary to demonstrate that habitat losses can be mitigated. In this instance, the proposals deliver new tree and shrub planting and there is sufficient scope within the proposals to tailor such planting to suite Dormice and provide a net gain for Dormice overall.

Reptiles

5.3.52. **Legislation**. Rare, endangered or declining species receive 'full protection' under the Wildlife and Countryside Act 1981 as well as protection under The Conservation of Habitats and Species Regulations 2010, which transposed into UK law the European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, more commonly known as the Habitats Directive. Species that are fully protected include Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis*. These receive the following protection from:

- killing, injuring, taking;
- possession or control (of live or dead animals, their parts or derivatives);
- damage to, destruction of, obstruction of access to any structure or place used for shelter or protection;

- disturbance of any animal occupying such a structure or place; and
- selling, offering for sale, possession or transport for purposes of sale (live or dead animal, part or derivative).

5.3.53. These species are not relevant to the Application Site given their specific habitat requirements.

5.3.54. Due to their abundance in Britain, Common Lizard, Slow-worm, Grass Snake *Natrix natrix* and Adder *Vipera berus* are only 'partially protected' under the Wildlife and Countryside Act 1981 (as amended) and as such only receive protection from:

- deliberate killing and injuring;
- being sold or other forms of trading.

5.3.55. **Application Site Evaluation**. Low numbers of Common Lizard and Slow-worm were identified to be utilising the Application Site during the specific surveys undertaken. No other reptile species were recorded within the Application Site.

5.3.56. The proposals would have the potential to directly impact upon reptiles during site clearance and construction operations.

5.3.57. **Mitigation / Enhancements.** On the basis that the development footprint includes habitat which supports reptiles, it will be necessary to implement a mitigation scheme which safely removes reptiles from this area.

5.3.58. It is proposed that a simple translocation exercise is implemented, over a minimum of 30 suitable trapping days during suitable weather conditions, in the active period for reptiles (typically April to October – weather dependent).

5.3.59. The development footprint will be securely fenced with herpetofauna fencing to prevent inward migration of reptiles and thereafter reptiles will be captured by hand and relocated to a suitable receptor area.

5.3.60. It is proposed that reptiles will be relocated to suitable retained habitat on site. Such habitat will be present within the open space delivered in the east of the Application Site and in the habitat matrix to the north, which it is proposed, will deliver ecological enhancements.

5.3.61. Those areas which are to function as reptile mitigation habitat will be subject to enhancement through the removal of scrub and dense ruderal vegetation (through cutting) to allow the further development of grassland. In the east of the Application Site and around the attenuation basin proposed in the north east, meadow grassland planting will be undertaken forming a contiguous block of suitable reptile habitat extending along the eastern boundary into the northern ecological enhancement area. Three new bespoke hibernacula are proposed in these areas for the benefit of reptiles.

5.3.62. Where appropriate, initial holding areas will be fenced off to facilitate habitat clearance and enhancement without risk of offence. Such area will comprise suitable habitat at an appropriate quantum to support any captured reptiles.

5.3.63. It is considered that by implementing the above measures an offence will be avoided and further, that the delivery of new species rich meadow grassland and appropriate future management of proposed ecological mitigation habitats will deliver a net benefit for reptiles.

Birds

5.3.64. **Legislation.** Section 1 of the Wildlife and Countryside Act is concerned with the protection of wild birds, whilst Schedule 1 lists species which are protected by special penalties.

5.3.65. **Application Site Evaluation.** The scrub and trees within the Application Site are considered to be of potential value to nesting bird species. Losses to scrub will occur and mitigation will be required to prevent an offence being committed.

5.3.66. **Mitigation and Enhancements.** As all species of birds receive general protection whilst nesting, to avoid a possible offence it is recommended that any clearance of trees or scrub is undertaken outside the breeding season (between March and the end of July), or alternatively that checks be made for nesting birds by an ecologist immediately prior to any vegetation removal. In the event that a nest is discovered, a buffer of 5m (radius) will be maintained around the nest site until the young are confirmed to have fledged.

5.3.67. The Development Proposals will provide new tree and shrub planting of benefit to nesting birds. Planting will include a range of species which will offer additional food sources (e.g. berries and seeds) and a suitable management regime adopted in relation to the Application Site and the ecological enhancement land to the north will provide a net benefit to bird species.

5.3.68. In addition, a range of nest boxes (varying designs suited to different species) will be erected as part of the development proposals to increase nesting opportunities for birds within the Application Site. All nest boxes should be situated out of direct sunlight and out of the reach of predators, particularly cats. Examples of suitable nesting boxes are provided at Appendix 5.

6. PLANNING POLICY CONTEXT

6.1. The planning policy framework that relates to nature conservation in Sayers Common is issued at two main administrative levels: nationally through the National Planning Policy Framework (NPPF); and locally through the Mid Sussex Local Plan, adopted in May 2004. The proposed development will be judged in relation to the policies contained within these documents. The Hurstpierpoint and Sayers Common Neighbourhood Plan was formally 'made' in March 2015 and is also considered.

6.2. It is worth noting the Council has proposed the Mid Sussex District Plan and this will become its main planning document within the development plan when adopted. Adoption is currently timetabled for Spring 2018.

6.3. National Policy

National Planning Policy Framework

6.3.1. The National Planning Policy Framework (NPPF) sets out the Government's requirements for the planning system and was adopted on 27th March 2012. It replaces previous national planning policy, including Planning Policy Statement 9 (Biodiversity and Geological Conservation) [PPS9] which was published in 2005.

6.3.2. The key element of the NPPF is that there should be '*a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking*' (paragraph 14). It is important to note that this presumption '*does not apply where development requiring Appropriate Assessment under the Birds or Habitats Directives is being considered, planned or determined'* (paragraph 119).

6.3.3. The NPPF also considers the strategic approach which Local Authorities should adopt with regard to the protection, enhancement and management of green infrastructure, priority habitats and ecological networks, and the recovery of priority species.

6.3.4. Paragraph 118 of the NPPF comprises a number of principles which Local Authorities should apply, including encouraging opportunities to incorporate biodiversity in and around developments; provision for refusal of planning applications if significant harm cannot be avoided, mitigated or compensated for; applying the protection given to European sites to potential SPAs, possible SACs, listed or proposed Ramsar sites and sites identified (or required) as compensatory measures for adverse effects on European sites; and the provision for the refusal for developments resulting in the loss or deterioration of 'irreplaceable' habitats unless the need for, and benefits of, the development in that location clearly outweigh the loss.

6.3.5. National policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design,

development and conservation of the natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

6.4. **Local Policy**

Mid Sussex Local Plan

6.4.1. The Local Plan, adopted May 2004, sets out the policies and proposals for land use and development in the Mid Sussex district. Several policies within the Local Plan are relevant to nature conservation issues.

6.4.2. Policy C5 concerns the protection of statutory and non-statutory designated sites, as well as other areas and features considered important for nature conservation such as ancient woodland, unimproved meadows and wildlife corridors. The policy cites the fact that the weight attached to nature conservation interests reflects the relative significance of the relevant designations. It encourages habitat creation wherever possible.

6.4.3. Policy C6 cites that development resulting in the loss of important woodlands, hedgerows, trees and other important wildlife habitat will be resisted. This includes instances when these habitats are important in the landscape, as natural habitats or historically. The protection of these areas is re-affirmed in policy H3.

6.4.4. Policy B1 is concerned with development standards for buildings. It encourages protection and enhancement of existing wildlife habitats, including green corridors and river courses.

6.4.5. Policy CS16 states development impacting on the nature conservation value of rivers or other water features would not be permitted.

Mid Sussex Local District Plan (under consideration)

6.4.6. The Mid Sussex Local District Plan was submitted to the Secretary of State in August 2016. It is currently under examination by the Planning Inspectorate. The 'Submission Version' of the District Plan, dated August 2016, contains several policies relevant to nature conservation.

6.4.7. Principally, these include policies concerned with protection of trees, woodland and hedgerows (DP36), protection of biodiversity in general (DP37) and green infrastructure (DP38).

The Hurstpierpoint and Sayers Common Neighbourhood Plan

6.4.8. The Hurstpierpoint and Sayers Common Neighbourhood Plan applies to the whole Parish area for the period from 2014 to 2031. It also referred to as Parish 2031. The Neighbourhood Plan was adopted in March 2015. It again contains several policies relevant to nature conservation issues.

6.4.9. Policy HurstC2 requires development within the South Downs National Park to conserve and enhance the wildlife value of the National Park. Policy HurstC6 concerns the protection of woodland at Little Park and Tilleys Copse.

6.4.10. Policy HurstA1 concerns the provision of a new area of public open space – 'Hurst Meadows' – that includes areas specifically managed for biodiversity. Hurst Meadows is located in close proximity to Hurstpierpoint.

6.4.11. Policy HurstH6 requires new housing developments to conduct an ecological survey and put in place appropriate mitigation and enhancement measures. The policy also states that significant landscape features within sites and along site boundaries should be retained and protected.

6.5. Discussion

6.5.1. Based on the results of specific surveys and assessments undertaken, the presence and potential presence of protected species has been given due regard and any impacts on habitats of ecological value (including designated sites) have been described. Recommendations have been put forward in this report that would fully safeguard the existing ecological interest of the Application Site. Furthermore, wherever appropriate, measures to enhance ecological and biodiversity value have been set out, delivering net gains for biodiversity including local and national priority (BAP) species.

6.5.2. In conclusion, implementation of the measures set out in this report enable the proposals to fully accord with planning policy for ecology and nature conservation at all administrative levels.

7. SUMMARY AND CONCLUSIONS

7.1. Ecology Solutions was commissioned by Reside Developments Ltd to undertake an Ecological Assessment of Land at the Old Brickworks, Reeds lane, Sayers Common.

7.2. The Development Proposals are for 27 one, two, three and four-bedroom dwellings and two self/custom build plots (Use Class C3) and a GP surgery (Use Class D1) with associated infrastructure, landscaping and access. Full planning permission is sought.

7.3. There are no statutory or non-statutory sites designated sites of nature conservation interest situated within or adjacent to the Application Site and no potential adverse impacts on such sites have been identified.

7.4. The habitats present within the Application Site hold relatively limited intrinsic ecological value. The Development proposals include the retention of existing more mature trees and the provision of new tree and shrub planting, along with new wildflower meadow grassland and wetland habitat (SuDS feature) creation within the Application Site. In addition, it is proposed that an area located to the north of the Application Site, which comprises a mosaic of open water, wet woodland grassland and ruderal vegetation, will be enhanced and managed for the benefit of wildlife. This area is likely to be gifted to the Parish Council and such a proposal represents a significant benefit of the Development Proposal. Overall, it is considered that any losses o habitats will be fully mitigated and that an overall enhancement in the quality of the habitats present will be delivered post-development.

7.5. A suite of protected species surveys and assessments have been undertaken. No bat roosts are considered to be present within the Application Site, and no evidence of the presence of Dormice has been recorded during surveys undertaken. The likely presence of Great Crested Newts has also been ruled out, on the basis of detailed survey and assessments.

7.6. The scrub and trees offer nesting and foraging opportunities for birds, and also offer some foraging and navigational resources for bats, although they are not considered to be of significant importance for any local bat populations. Small populations of Common Lizard and Slow-worm have been recorded in suitable habitat at the Application Site. Regarding Badgers, a sett (considered to be the main sett for a social group) is located within woodland which lies to the north of the Application Site, approximately 30m from the Application Site boundary.

7.7. Relevant mitigation and enhancement measures have been proposed, including measures to safeguard bats, Badgers, nesting birds and reptiles. Consideration has also been given to the ability of the proposals to deliver appropriate mitigation for Dormice, should the final survey detect presence. Subject to the implementation of mitigation measures as outlined above in respect of these species, opportunities will be retained and moreover enhanced post-development.

7.8. In conclusion, on the evidence of the ecological surveys undertaken, the Application Site is not considered to be of high intrinsic value from an

ecology and nature conservation perspective. The design of the proposed development and the implementation of mitigation measures as recommended in this report will ensure that there are no adverse effects on any designated sites, protected species or important habitats as a result of development at the Application Site.

7.9. Moreover it is considered that the proposals offer the potential to deliver enhancements for biodiversity over the existing situation. The proposals are therefore considered to fully accord with current legislation and policy pertinent to ecology and nature conservation.

PLANS & APPENDICES

PLANS

PLAN ECO1

Application Site Location and Ecological Designations

KEY:

APPLICATION SITE LOCATION

ANCIENT AND SEMI-NATURAL WOODLAND

Surrounding statutory and non-staturotry designated sites are well removed from the application site. Further information is included in appendices.

N

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7092: LAND AT SAYERS COMMON

PLAN ECO1:
APPLICATION SITE LOCATION &
ECOLOGICAL DESIGNATIONS

PLAN ECO2

Ecological Features

KEY:

- SITE BOUNDARY
- WIDER SURVEY AREA
- TALL RUDERAL
- GRASSLAND
- DENSE SCRUB
- SCATTERED SCRUB
- WETLAND VEGETATION
- JAPANESE KNOTWEED
- POND
- POND COVERED WITH SCRUB
- STOCKPILE OF GARDEN WASTE
- LOGPILE
- DISTURBED GROUND
- HARDSTANDING
- AMENITY PLANTING
- BUILDING

N

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7092: LAND AT SAYERS COMMON

PLAN ECO2: ECOLOGICAL FEATURES

PLAN ECO3

Pond Location Plan

KEY:

POND SURVEYED

N

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7092: LAND AT SAYERS COMMON

PLAN ECO3:
LOCATION OF
SURVEYED PONDS

APPENDICES

APPENDIX 1

Information obtained from MAGIC

Magic Map

Legend

- Local Nature Reserves (England)
- National Nature Reserves (England)
- Ramsar Sites (England)
- Sites of Special Scientific Interest (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)

Ancient Woodland (England)

- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland
- Woodpasture and Parkland BAP Priority Habitat (England)

Projection = OSGB36
xmin = 520900
ymin = 116100
xmax = 531000
ymax = 121100

0 0.35 0.7
km

Map produced by MAGIC on 26 October, 2017.

APPENDIX 2

GCN eDNA results report

SureScreen Scientifics

Technical Report
Confidential

Folio No	**D1855**
Report No:	**1**
Client:	**Ecology Solutions**
Order No:	
Attn:	**Tom Smith**
Date:	**13th June 2016**

TECHNICAL REPORT

EXAMINATION OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS

T.Wood

Methodology

When Great Crested Newts (GCN) inhabit a pond, they deposit traces of their DNA in the water as evidence of their presence. By sampling the water we can analyse these small environmental traces to detect GCN inhabitation.

The laboratory testing is conducted in two phases. The sample first goes through an extraction process where all 6 tubes are pooled together to acquire as much eDNA as possible. The pooled sample is then tested via real time PCR (or q-PCR). This process amplifies select part of DNA allowing it to be detected and measured.

qPCR combines PCR amplification and detection into a single step. This eliminates the need to detect products using gel electrophoresis. With qPCR, fluorescent dyes specific to the target sequence are used to label PCR products during thermal cycling. The accumulation of fluorescent signal during the exponential phase of the reaction is measured for fast and objective data analysis.

The primers used in this process are specific to a part of mitochondrial DNA only found in GCN ensuring no other DNA is amplified.

Samples are tested in a clean room and the different phases of testing are kept separate to reduce any risk of cross contamination.

Each pooled sample is replicated 12 times to ensure results are accurate. If one of the twelve replicates tests positive the sample is declared positive. The sample is only declared negative if no replicates show amplification.

Inhibition and degradation checks are also carried out on each sample using a known DNA marker. Results of these quality control tests are recorded with each sample.

Results

Lab Ref	Sample	Co-Ordinates	Inhibition Check	Sample integrity	Result
eDNA22616	Sayers Common P1	-	Acceptable	Acceptable	**Negative**
eDNA22617	Sayers Common P2	-	Acceptable	Acceptable	**Negative**
eDNA22618	Sayers Common D1	-	Acceptable	Acceptable	**Negative**

Advice

Negative results may not indicate the absence of GCN just the presence of eDNA below the detection limits of the method. However this method is extremely sensitive. It is still advised to survey a pond using traditional methods within 2km of a positive result or a known habitat for GCN.

Positive results may be true positives but also may be due to contamination of samples from another pond or improper sampling technique. Please ensure traditional surveys are performed on positive ponds and care is taken to avoid spreading GCN DNA.

Samples undergo integrity scores to check for degradation post sampling. Samples which are not acceptable should be re-sampled. Sample integrity scores are based on the amount of degradation of an artificial DNA marker placed in the kits and analysed by qPCR.

PCR inhibitors can cause false results. Every effort is made to clean the sample pre-analysis however some inhibitors cannot be extracted. An unacceptable inhibition check will cause an indeterminate sample and must be sampled again.

Analysed and reported By: **Thomas Wood**

Checked and approved: **Andy Penny**

A·P·Penny

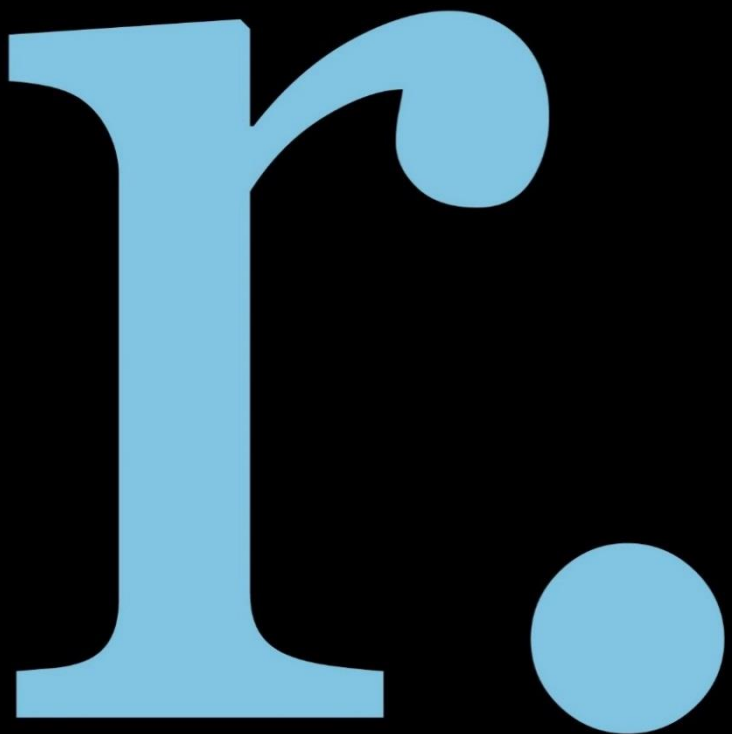
APPENDIX 3

Iterative Management Plan for off-site habitats

reside.

The Old Brickworks, Reeds Lane
Sayers Common

ITERATIVE MANAGEMENT PROPOSALS FOR LAND TO THE EAST OF FURZE FIELD WOODLAND



CONTENTS

1. INTRODUCTION

1.1 This Iterative Ecological Management Plan (IEMP) has been prepared by Ecology Solutions Ltd on behalf of Reside Development Ltd in respect of a parcel of land located to the immediate east of Furze Field Woodland, in Sayers Common.

1.2 It is proposed that this area is to be managed for the benefit of wildlife, with the land gifted to Hurstpierpoint & Sayers Common Parish Council.

1.3 In light of the proposed development at the Application Site known as 'The Old Brickworks Reeds Lane Sayers Common' and the proposed ecological enhancements which flow from the proposals, this IEMP has been produced to guide the future management of the land in question.

1.4 This Outline IEMP has been written with reference to published guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) and in accordance with relevant (e.g. Natural England) guidelines for protected species.

1.5 The Outline IEMP is set out as follows:

- Summary ecological baseline;
- Objectives of the IEMP; and
- Management prescriptions including any monitoring requirements.

1.6 The ecological value of the land on which this report is focussed, together with that of the wider Application Site are set out within the report titled "The Old Brickworks, Reeds Lane, Sayers Common' - Ecological Assessment (October 2017) produced by Ecology Solutions. For the purpose of this IEMP, the term Study Area refers to the land which falls outside of the Application Site (as defined within the various documents supporting the planning application), but within the Blue Line ownership land located to the immediate east of Furze Field Woodland.

2. ECOLOGICAL BASELINE AND EVALUATION

2.1 Ecology Solutions has undertaken a series of ecological surveys and assessments within the Study Area (and a wider survey area) during 2016 and 2017.

2.2 Habitat surveys were based upon an extended Phase 1 survey technique. The habitats and dominant plant species were recorded, together with conspicuous faunal activity and evidence of the presence, or potential presence, of protected species. Results from the habitat survey were then plotted onto a base map of the Study Area (see Plan ECO2 within the Ecological Assessment).

2.3 In addition to general observations of faunal activity, Ecology Solutions undertook specific surveys for Badgers, Bats, Dormice, Great Crested Newts and reptiles.

2.4 For details of the survey methodologies used and full results, please see the report titled 'The Old Brickworks, Reeds Lane, Sayers Common' - Ecological Assessment (2017).

Summary Results

Habitats

2.5 The assessment found that there are no statutory or non-statutory nature conservation designations within the Study Area or immediately adjacent to it.

2.6 Habitat features identified within the Study Area include:

- Short neutral grassland;
- Scrub / carr woodland;
- Open Water; and
- Wetland vegetation.

2.7 An area of short neutral grassland, subject to grazing by Rabbits, is present in the south of the Study Area. Moss sp., were common place indicating damper conditions than elsewhere within the wider survey area. However, many of the grass and herb species recorded in the Study Area were common to grassland recorded elsewhere within the wider survey area. For a description of the recorded species composition, please refer to the Ecological Assessment (2017).

2.8 Dense scrub is present throughout the Study Area. This is dominated by Goat Willow *Salix caprea* with other recorded species including, Ash *Fraxinus excelsior*, Sycamore *Acer pseudoplatanus*, Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, Pedunculate Oak *Quercus robur,* Silver Birch *Betula pendula*, and Hazel *Corylus avellana*.

2.9 A series of open waterbodies are present, some of which have clearly been the subject of some management in the recent past with bankside scrub removed.

2.10 In addition to a larger pond, there are two far smaller ponds, all of which have been subject to bankside clearance in the recent past. The increase in light penetration has allowed the development of a varied wetland plant assemblage (see below). There is however, in addition, a further pond located among (and heavily shaded by) dense scrub in the south east of the Study Area.

2.11 True, aquatic vegetation within the ponds is relatively limited, although stands of Reedmace *Typha* sp., are present in the far north, Lesser Duckweed *Lemna minor* is commonplace and sedges *Carex* sp. are frequent at the banks and in shallow margins. Bankside vegetation is relatively diverse comprising Stinking Hellebore *Helleborus foetidus*, Brome *Brachypodium* sp., Pendulous Sedge *Carex pendula*, Burnet Saxifrage *Pimpinella saxifraga*, Greater Chickweed *Stellaria neglecta*, Wood Avens *Geum urbanum*, Sedge *Carex*, sp., Hairy Bittercress *Cardamine hirsuta*, Greater Bird's-foot Trefoil *Lotus pedunculatus*, Marsh Bedstraw *Galium palustre*, Soft Rush, Meadowsweet *Filipendula ulmaria*, Creeping Thistle, Creeping Buttercup, Violet *Viola* sp., Ground Ivy, Wild Strawberry *Fragaria vesca*, Betony *Stachys officinalis*, Holly *Illex aquifolium*, Ivy *Hedera helix* and Cow Slip *Primula veris*.

Faunal Species

2.12 Protected species, or evidence of use by protected species, noted within the Study Area include:

- Foraging bats;
- Nesting Birds; and
- Common reptiles (Common Lizard and Slow-worm).

2.13 A main Badger sett is known from a location to the immediate west, within Furze Field Woodland. Whilst not recorded during survey work, it is considered likely that Grass Snake could use the Study Area.

2.14 It is expected that the Study Area will be utilised by a range of common invertebrate species, though there is no evidence to suggest that any specially protected or more notable species would be present.

2.15 The full results for the surveys undertaken are set out within the Ecological Assessment (2017).

3. MANAGEMENT OBJECTIVES

3.1 The aims and objectives of the IEMP are to maintain and enhance features of ecological interest retained within the Study Area, in addition to conserving populations of protected species, whilst also providing for biodiversity enhancements.

3.2 The following objectives have been identified:

- Objective 1: Maintain and enhance retained and newly created habitats within the Study Area;
- Objective 2: Maintain and enhance populations of protected species identified within the Study Area; and
- Objective 3: Increase biodiversity by maximising opportunities for flora and fauna.

Relevant Legislation

3.3 In undertaking management prescriptions aimed at increasing the biodiversity value of the land, it remains a necessity to adhere to prescribed methodologies, including timing of work, in order to avoid an offence being committed. A brief summary in relation to relevant legislative provisions (as identified through the survey work undertaken to date) is provided below.

Bats

3.4 Bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of The Conservation of Habitats and Species Regulations 2010 (as amended) ("Habitats Regulations"). These include provisions making it an offence to:

- Intentionally kill, injure or take (capture) bats;
- Possess or control any live or dead specimen or anything derived from a bat (unless it can be shown to have been legally acquired);
- Intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for that purpose;
- Intentionally or recklessly damage, destroy or obstruct any structure or place used for shelter or protection by a bat.

Badgers

3.5 The Protection of Badgers Act 1992 consolidates the previous Badgers Acts of 1973 and 1991. The legislation aims to protect the species from persecution, rather than being a response to an unfavourable conservation status, as the species is in fact common over most of Britain, with particularly high populations in the southwest.

3.6 As well as protecting the animal itself, the 1992 Act also makes the intentional or reckless destruction, damage or obstruction of a Badger sett an offence. A sett is defined as "any structure or place which displays signs indicating current use by a Badger". "Current use" of a

Badger sett is defined by Natural England as "how long it takes the signs to disappear", or more precisely, to appear so old as to not indicate "current use".

Birds

3.7 All birds, their nests and eggs are protected by law under Part 1 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to damage or destroy the nest or egg of a wild bird. Special protection is afforded to certain birds featured on Schedule 1 of the Act. For these species it is also an offence to disturb a bird whilst nesting.

Reptiles

3.8 All six British reptile species receive a degree of legislative protection that varies depending on their conservation importance. Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis* are highly localised in their distribution and receive full protection under the Wildlife and Countryside Act 1981 (as amended) and the Habitats Regulations.

3.9 Common Lizard, Slow Worm, Grass Snake and Adder *Vipera berus* are much more common and widespread and are only partially protected under the Wildlife and Countryside Act 1981 (as amended) from:

- Intentional or reckless killing or injury; and
- Sale or other forms of trading.

3.10 The habitat of common reptiles receives no legal protection.

4. MANAGEMENT AND MONITORING REQUIREMENTS

4.1 Management prescriptions and monitoring requirements have been described below in relation to each of the objectives set out in section 3.

Objective 1: Maintain and Enhance Retained and Created Habitats

Grassland

4.2 Existing semi-improved grassland will be retained and enhanced within the Study Area.

4.3 The encroachment of scrub into this grassland will be monitored on at least a biennial basis with removal as necessary, by mechanical means in preference. A glyphosate based herbicide approved by Natural England and the Environment Agency would be acceptable for use if deemed appropriate.

4.4 Mowing / strimming annually in early spring (e.g. April) or late summer (late August / early September) will help control scrub encroachment and the proliferation of dominant (e.g. ruderal) species, resulting in greater species diversity.

4.5 Areas of longer grassland should be maintained close to areas of retained scrub for the benefit of reptiles and invertebrates (as a shelter and foraging resource).

4.6 Management of grassland as described

Timing of Works

- The growth of scrub will be monitored on at least a biennial basis and remedial action taken as deemed appropriate to prevent encroachment over the longer term; and
- Mowing / strimming once annually in either April or late August / early September.

Dense scrub

4.7 Scrub is to be managed to retain its value to faunal species / groups, such as bats, birds, reptiles and invertebrates, whilst preventing encroachment and over shading of waterbodies, wetland vegetation and grassland.

4.8 Following site wide inspections, recommendations for appropriate arboricultural management will be made and implemented.

4.9 In the first instance it is proposed that the pond in the south east is cleared of scrub, with stumps subject to herbicide treatment (glyphosate or other acceptable for use near aquatic ecosystems). A significant proportion (around 60%) of the dense scrub at the banks should be removed, creating open areas where light penetration will allow a diverse ground flora to establish.

4.10 Future arboricultural management works will include the thinning out of weak or etiolated specimens and where appropriate, formative pruning to produce specimens of strong and long-term structure.

4.11 A small number of (e.g. Willow sp.) trees (i.e. 10) will be coppiced each year within the Study Area. With such coppicing to be undertaken on a 5 year cycle (each stool coppiced on no less than a ten year cycle).

4.12 As a precautionary measure, if works are proposed and it is considered that there are or there are likely to be any protected species present within the tree (e.g. nesting birds, hibernating reptiles or roosting bats) an Ecologist will be consulted prior to any works commencing. Modification of works to avoid risk to bats, reptiles and breeding birds, or indeed further specific surveys, may be required for works to continue. Any works to trees proposed for the period March to July inclusive, must be preceded by a survey to check for nesting birds. Works to trees which have developed splits, cracks, hollows or dense coverings of Ivy will be subject to a specific check for bats by an appropriately experienced / qualified Ecologist.

4.13 Outside of areas where the ground is saturated, scrub removal should be undertaken with due regard had to the potential presence of hibernating reptiles. For these drier areas, any removal should either be timed to take place in late September / October, or trees cut to leave a stump no shorter than 15cm, with a layer of brash applied. Brash should be removed in early March as the weather warms, with care taken to avoid disturbing any nesting birds. Any required herbicide application can be undertaken at this time.

4.14 All management involving tree removal and remedial arboricultural works to trees will be carried out to the current version of BS3998:2010 by experienced contractors.

4.15 The cut timber or arisings in excess of 150mm diameter from any necessary tree works will be stacked in piles within the Study Area, principally for the benefit of saproxilic invertebrates, but also common reptile species.

Timing of Works

- The growth of scrub will be monitored on at least a biennial basis and remedial action taken as deemed appropriate to prevent encroachment into other habitats over the longer term;
- Scrub to be cut during the dormant winter season, but with due regard to the potential disturbance of hibernating reptiles; and
- Any required herbicide applications to be undertaken during the growing season (e.g. March to early September)

<u>Wetland vegetation</u>

4.16 Open areas around the ponds will be cut on a rotational basis (using brush cutters) creating a mosaic of more mature taller vegetation and

shorter areas. Such management will increase species diversity over time, preventing more vigorous species from dominating.

4.17 One third of the grass / herbaceous bankside vegetation should be cut each year, on a three year rotation. Such management will also help control the spread of woody scrub. Cutting should ideally be undertaken during late summer (e.g. late August / September) to allow plants to set seed.

4.18 In the event that non-native species such as Himalayan Balsam occur within the Study Area (not recorded to date) control will be required due to its invasive nature. The control should be based upon 'hand pulling' and applications of a glyphosate herbicide, during the growing season and before seed is set. Himalayan Balsam seed is easily and widely spread through contact with the ripe seed pods which 'explode' on contact expelling seed over large distances. Hence the importance of control early in the plants life-cycle.

4.19 Himalayan balsam flowers from June to October and seeds are set from August to October. On this basis, Himalayan Balsam should be systematically removed by hand (pulled) during the period May – June once clearly visible. During July any additional / remaining plants should be sprayed with an appropriate herbicide, with care taken to avoid contact with other non-target plants. It is likely that control measures will take at least two / three to have a significant effect. Annual monitoring will be required for the 'management plan period' to ascertain the level at which future measures may be necessary beyond the first year of control.

Timing of Works

- Rotational cutting in late August / September;
- Himalayan balsam control by hand pulling in May – June, followed by herbicide application in July.

<u>Ponds</u>

4.20 The areas of standing water are potentially of value to species / groups such as bats, reptiles (grass snake), amphibians and aquatic invertebrates.

4.21 As an initial enhancement measure, the two large waterbodies (including that currently choked by scrub) will be subject to de-silting, creating deeper areas with a depth in excess of 1m. This should ensure that standing water is present throughout the year.

4.22 Routine maintenance checks will be undertaken on an annual basis. Any management requirements (e.g. removal of accumulated debris or de-silting) should be highlighted and programmed for implementation in the following winter period (to avoid impacts on aquatic fauna during the main active periods and breeding cycles.

4.23 Emergent vegetation and bankside vegetation should be cut to a height of no lower than 15cm and no more than once a year, in late summer

(e.g. September). This management regime should be relaxed, with cutting undertaken every other year.

4.24 Thinning of any dense stands of emergent vegetation should be undertaken where deemed necessary. Such work should be undertaken over the winter period.

4.25 No more than two thirds of the area of the bank should be allowed to develop a thick shrub layer within 5m of the top of the bank. Where necessary scrub should be removed to ground level using hand tools only. In reality the cutting regimes described elsewhere should prevent the development of dense scrub on the banks, but additional measures may prove necessary and the encroachment of bankside scrub should be monitored for the management plan period.

Timing of Works

- Initial deepening of ponds following scrub clearance, during winter period;
- Cutting of emergent / bankside vegetation on the banks (as required) in late summer (e.g. late August / September);
- Control of any invasive non-native species such as Himalayan Balsam (see above);
- Annual monitoring of scrub;
- Removal of scrub as required;
- Removal of debris and de-silting as required.

4.26 Any use of herbicides must be strictly controlled. Only herbicides appropriate for use in close proximity to watercourses (as recommended by the Environment Agency) will be used. No herbicides will be stored within 10m of a watercourse during the course of any application and spraying will be undertaken in a systematic manner, treating individual plants during appropriate weather conditions (dry and still).

Objective 2: Maintain and enhance Populations of Protected Species

4.27 Within the Study Area, habitat creation / retention and the introduction of a sympathetic management regime, will provide for a net enhancement in the quality of those habitats present. This will be of benefit to key species / groups, such as bats, Badgers, reptiles, birds and invertebrates.

Bats

4.28 Retention and management of existing features currently used by bats or with potential to be used by bats (trees, woodland edge features, etc), and creation of enhanced wetland habitat, will enhance existing feeding and commuting opportunities for bats.

4.29 Bat boxes, erected as part of the enhancements package delivered through the Development proposals associated with the Application Site, will be maintained on more mature trees within the Study Area,

fixed in a south-westerly and south-easterly facing direction. This measure will provide additional roosting habitat.

4.30 The Schwegler bat box type 1FF is designed to be attached to trees and requires no maintenance once installed. This bat box is designed to be used by both Pipistrelle (the most prevalent species recorded on site) and Noctule bat species. It is proposed that this design should be installed and maintained on site.

4.31 Where bat boxes are located on trees to be removed or subject to arboricultural works, these should be removed (during the winter months), and relocated to another suitable tree.

Timing of Works

- For any more mature trees to be felled or subject to arboricultural works, checks for features offering roosting opportunities should be undertaken ahead of works. Should such features exist, work should be postponed until appropriate advice has been obtained from a suitably experienced ecologist;
- Bat boxes will be erected as soon as possible following the grant of consent;
- Damaged bat boxes should be repaired or replaced ahead of the next active season (i.e. before mid March); and
- Any required relocation of bat boxes should be undertaken during the winter period.

Badgers

4.32 Badgers which use the Study Area and wider local area will benefit from the protection afforded to the Study Area and the management prescribed within this management plan. Opportunities for sett building will be maintained and foraging opportunities will be enhanced as the result of the proposed grassland and scrub management / enhancement. The enhanced wetland area will continue to provide a readily available and easily accessible source of fresh water.

4.33 There are no specific management considerations for this species, with prescriptions discussed elsewhere providing for the protection and enhancement of this species within the Study Area.

Reptiles

4.34 Areas of suitable reptile habitat will be maintained within the Study Area. Areas of longer grassland will be provided, in order to provide suitable foraging habitat. The proposed thinning / coppicing and soft vegetation management prescribed above will ensure that suitably open (warm and sunny) areas are maintained for this group.

4.35 In addition, log piles will be created as a result of the future management in order to provide suitable hibernacula for reptiles.

Timing of Works

- Grassland is generally to be left to develop a tall and tussocky structure. Where cutting is required, this is to be undertaken during warm weather in late summer /autumn when reptiles will still be active; and
- Log piles to be created as applicable following any tree works.

Birds

4.36 Birds will benefit from the proposed habitat management, as this will provide enhanced nesting/roosting habitat in additional to an enhanced foraging resource.

4.37 Management of habitats will be undertaken with due consideration for potential use by birds. Any necessary management of vegetation, particularly new and existing trees which will provide important nesting habitats, will be undertaken outside of the main bird breeding season (March – July inclusive) wherever possible.

4.38 Nesting boxes (delivered through the Development proposals associated with the Application Site) will be maintained on trees retained within the Study Area. Bird boxes will be of varying types are available to encourage a variety of species. Bird boxes will be cleaned once a year (by persons to be agreed) and any damaged boxes will be repaired or replaced as and when necessary.

4.39 Where nest boxes are located on trees to be removed or subject to arboricultural works, these should be removed (outside of the nesting season or once the lack of an active nest has been confirmed), and relocated to another suitable tree.

Timing of Works

- Bird boxes will be erected as soon as possible following the grant of consent;
- Bird boxes to be cleaned out and checked for defects annually, during the winter period when birds will not be nesting;
- Any damaged bird boxes are to be repaired or replaced ahead of the next breeding season (i.e. before the end of February); and
- Any required relocation of bird boxes should be undertaken during the winter period.

Objective 3: Increase Biodiversity by Maximising Opportunities for Flora and Fauna

4.40 Scrub and grassland management will focus on maintaining viable and diverse habitats of ecological value over the long term. Benefits will arise in relation to bats, Badgers, common reptile species, birds and invertebrates.

4.41 Log piles will be created (following scrub management) to provide suitable hibernacula for reptiles and foraging / shelter for a range of invertebrate fauna.

4.42 Wetland habitat will be maintained and enhanced, which will benefit a range of faunal species such as Bats, common reptiles (Grass Snake) amphibians, birds and aquatic invertebrates.

4.43 Bat roosting boxes and bird nesting boxes will be maintained.

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APPENDIX 4

Example Bat boxes

Bat Boxes

Schwegler bat boxes are made from ‘woodcrete’ and have the highest rates of occupation of all types of box.
The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.
Boxes can be hung from a branch near the tree trunk or fixed using ‘tree-friendly’ aluminum nails.

1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width: 27cm
Height: 43cm
Weight: 8.3kg

2FN Bat Box

A large bat box featuring a wide access slit at the base as well as an access hole on the underside. Particularly successful in attracting Noctule and Bechstein’s bats.

Woodcrete construction, 16cm diameter, height 36cm.

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APPENDIX 5

Example Bird boxes

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box.
They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting.
Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts.

2H Bird Box

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and **black redstarts**.

Best sited on the walls of buildings with the entrance on one side.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

2M Bird Box

A free-hanging box offering greater protection from predators.

Supplied complete with hanger which loops and fastens around a branch.

With standard general-purpose 32mm diameter entrance hole.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

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