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Report prepared for: EDIT Residential

For the Site of: September Hill, Wickden Road, Arkesden, Essex, CB11 4EY.

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Cherryfield Ecology has prepared this report for the named clients use only.

Ecological reports are limited in shelf life, Natural England usually expect reports for licences to be no more than 12 months old and therefore should the project not proceed within 12 months of this report an updated survey should be undertaken in order to check for changes that may have occurred on site. Information is believed to be accurate at the time of survey; recommendations are made without bias based on good practice guidelines within the industry. However, species presence and ecological parameters can change over time.

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Ecological Appraisal (EA)

0.0 Non-Technical Summary

0.1 Background

This report follows national guidelines JNCC (2010) allowing for a day-time inspection and recommends for further surveys, if considered necessary. If a deviation from the guidelines has been made, this will be detailed in the Method Section.

The following report details the findings and recommendations for the site of **September Hill, Wickden Road, Arkesden, Essex, CB11 4EY.**

The client commissioned Cherryfield Ecology to undertake an EA as the proposals include for the construction of a single detached dwelling with associated landscaping. Plan have been provided (Appendix 1).

0.2 Results and Findings

- The site consists of amenity grassland, young broad-leaved woodland, native species-rich hedgerow and some bare ground.
- No protected species were found on site at the time of the survey.

- Evidence of breeding birds was found on site with two disused nests in trees.

- The site provides **low** potential for GCN and reptile to be present.
- The site provides **negligible** potential for roosting bats with no potential roosting features in the trees on site; however, the site provides suitable foraging and commuting habitat for bats.

0.3 Impact Assessment and Recommendations

Bats - No further surveys are necessary; if bats are found throughout works, all works must stop, and advice sought.

Breeding Birds - No further surveys are recommended; however, the development should take place outside the nesting season (March to August). If this is not possible, it is recommended that a qualified ecologist is on site to ensure any trees or hedgerow are not occupied by breeding birds, prior to clearance. Should an occupied nest be found, a buffer zone would need to be created until the nest is no longer in use.

GCN - No further survey is necessary; however, a qualified ecologist will need to supervise the clearance of any woodland or hedgerow habitat on site via a destructive search.

Reptiles - No further survey is necessary; however, a qualified ecologist will need to supervise the clearance of any woodland or hedgerow habitat on site via a destructive search.

The findings outlined in this report are valid for one year, after which updated surveys will be required.

Enhancements and mitigation are recommended (Please see Section 4.4).

1.0 Introduction

1.1 Aim

The aim of this report is to inform of ecological constraints that may affect the development proposals and recommend to the client if further surveys are required for protected species. An impact assessment is undertaken at this stage; however, if further surveys are required, additional and unexpected impacts may result.

1.2 Background Information

The client, EDIT Residential, has commissioned Cherryfield Ecology to undertake an EA for the site of **September Hill, Wickden Road, Arkesden, Essex, CB11 4EY**. Planning permission is being sought to construct a single detached dwelling with associated landscaping.

This survey has checked all habitats, buildings, trees (from ground level only) or structures due to be affected by the proposals on site; it includes checking for protected species, signs of protected species or habitat value e.g. crevices, badger setts, ponds etc. as well as mapping the habitats on site.

The inspection was conducted on the 23/03/2021.

The survey can only ever provide a 'snapshot' of the site at the time of the survey and circumstances may change following this report. Health and Safety restrictions or obstructions may limit the ability to find evidence.

Biological records have been requested to give the report context and allow a study of the surrounds. The information is often sensitive and therefore a synopsis is provided.

The survey can be conducted year-round with the optimal period between mid-March and mid-October (south)/1st April and 30th September (north). However, it can be limited due to bad weather and in the winter, when some species are not as active, thus evidence and species are often not found. During these periods, habitat value (likely presence) becomes more important to the assessment of the site.

Summary of legislation and National Planning Policy that protects wildlife in England:

- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.
- Wildlife and Countryside Act 1981 as amended.
- Countrywide and Rights of Way Act 2000.
- Natural Environment and Rural Communities Act 2006.
- National Planning Policy Framework (“NPPF”).
- Circular 06/05.

This legislation makes it illegal to:

- Intentionally or deliberately kill, injure or capture a protected species.
- Deliberately disturb a protected species, whether at rest or not.
- Damage, destroy or obstruct access to a resting place.
- Possess or transport a protected species or any part of that species, unless acquired legally.
- Sell, barter or exchange a protected species, or any part of a species.

1.3 Species Specific Information

All UK protected species have the same protection and the detail under Bats also applies to GCN, Dormouse, Otters and the two UK protected reptiles.

1.3.1 Breeding Birds

All nesting birds are protected under the Wildlife and Countryside Act (as amended) 1981, which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. Furthermore, a number of birds enjoy further protection under that Act and are listed on Schedule 1 of the Act. These further protected birds are also protected from disturbance and it may be necessary to operate a “no-go” buffer zone around such nests - typically out to 5m.

1.3.2 Bats

All 18 species of bat common in the UK (17 known to be breeding) are fully protected under the Wildlife and Countryside Act (as amended) 1981 through inclusion in Schedule V of the Act. All bat species in the UK are also included in Schedule II of The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which transpose Annex II of the Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (“Habitats Directive”) which defines United Kingdom protected species of animals.

Bats species are afforded further protection by the Countryside and Rights of Way Act 2000; and the Natural Environment and Rural Communities Act 2006.

This combined legislation makes it an offence to:

- Intentionally or deliberately kill, injure or capture bats.
- Deliberately disturb bats, whether at roost or not.
- Damage, destroy or obstruct access to bat roosts.
- Possess or transport bats, unless acquired legally.
- Sell, barter or exchange bats.

1.3.3 Reptiles

There are six species of reptiles in Great Britain (Edgar *et al.* 2010) and four of these are commonly found; the Grass Snake *Natrix natrix* and/or the Barred Grass Snake *Natrix helvetica*), Adder *Vipera berus*, Common Lizard *Zootoca vivipara* and Slow Worm *Anguis fragilis*.

All native British species of reptiles are legally protected through their inclusion in Schedule V of the Wildlife and Countryside Act 1981. As such, all species are protected from deliberate killing or injury. Therefore, where development is permitted, and there will be a significant change in land use, a reasonable effort must be undertaken to avoid committing an offence. The same act makes the trading of native reptile species a criminal offence without appropriate licensing.

Two species of reptile; the Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis* are further protected under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, which defines UK protected species of animals (“rare reptiles”).

1.3.4 Badgers

Badger *Meles meles* and its habitat are protected under The Protection of Badgers Act 1992, Schedule V of the Wildlife and Countryside Act 1981, and Appendix III of the Bern Convention 1979.

This legislation makes it an offence to:

- Kill, injure, take or possess a badger.
- Interfere with, damage or destroy a badger sett including e.g. obstruct access to a badger sett.
- Cruelly treat or harm a badger.
- Disturb a badger in a sett.

1.3.5 Great Crested Newts

Great Crested Newts (GCN) *Triturus cristatus* are listed in both The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and in Schedule V of the Wildlife and Countryside Act 1981.

GCN are afforded further protection by the Countryside and Rights of Way Act 2000; and the Natural Environment and Rural Communities Act 2006.

2.0 Methods

The survey follows the national guidelines JNCC (2010) and the following equipment is available for the inspection:

- Torches (e.g. LED Lensar type).
- Ladders (Standard 4m telescopic surveying ladder).
- Endoscope where holes, cracks and crevices are accessible.
- Mirrors (extendable and movable mirror face).
- Binoculars (Pentax close focus).
- Thermometer/hygrometer.
- Camera.
- Sample bags for collecting dropping and feeding evidence.

Target notes are made when appropriate to highlight, for example, protected species or an ‘other feature(s)’ of ecological note.

If a deviation from the guidelines has been made the reason and justification will be explained below:

No deviation from the standard guidelines has been made for this survey.

2.1 Limitations

This survey provides a snapshot of the site at the time of the survey only. Species are highly mobile and can turn up from time to time unexpectedly. All care has been taken to ensure the results and recommendations are suitable to the context of the development and the information gathered on surveys.

Table 1: Habitat value (likelihood) of protected species presence assessed against Collins (2016), Edgar *et al* (2010) and Natural England (2007) etc.

Likelihood of species presence (Habitat Value)	Features that species can use, regardless of evidence being present.
Confirmed Presence	<p>Species are found to be present during the survey.</p> <p>Evidence of species is found to be present during the survey.</p>
Higher likelihood of presence	<p>Buildings, trees or other structures with features of particular significance for use by protected species e.g. nesting habitat, roosting opportunities, and ponds.</p> <p>Habitat of high quality for foraging e.g. broadleaved woodland, tree-lined watercourses and grazed parkland.</p> <p>Site is connected with the wider landscape by strong linear features that would be used by commuting species e.g. river and or stream valleys and hedgerows.</p> <p>Site is close to known locations of records for protected species.</p>
Moderate and Lower likelihood of species presence	<p>Several potential habitat opportunities in buildings, trees or other habitats.</p> <p>Habitat could be used for foraging e.g. trees, shrub, grassland or water.</p> <p>Site is connected with the wider landscape by linear features that could be used by commuting species e.g. lines of trees and scrub or linked back gardens.</p> <p>A small number of less significant habitat opportunities.</p> <p>Isolated habitat for foraging e.g. a lone tree or patch of scrub.</p> <p>An isolated site not connected by prominent linear landscape features.</p>
Negligible likelihood of species presence	<p>No features suitable for roosting, minor foraging or commuting.</p>

3.0 Results

The following section details the results of the desk study, inspection and survey; it includes MAGIC information, biological records data and map/aerial photo information. The results detail the building, structure or tree (numbered for reference) description of any evidence found and habitat value if no evidence has been located.

3.1 Desk Study

The desk study is centred on Grid Reference - TL486342 and Postcode - CB11 4EY.

Table 2: Weather Records

Temperature	10°C
Cloud cover	30%
Precipitation	None
Wind	2/12

3.2 MAGIC

The following statutory sites and Natural England Protected Species (NEPS) have been located within the 2km search area (Figure 1).

- There are no statutory sites located within the search area.
- There are no NEPS licences granted for bats and GCN within the search area.

MAGiC

September Hill Arkesden CB11 4EY

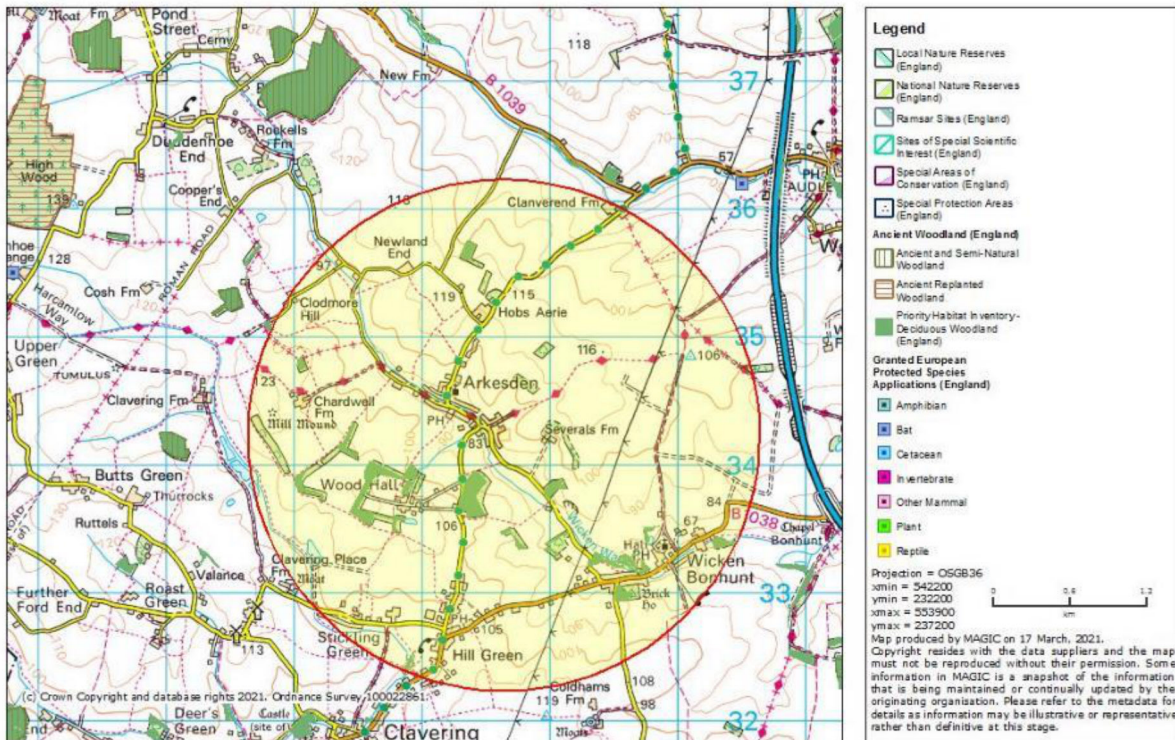


Figure 1: Magic Map Search

3.3 Biological Records Data

A standard 1km data search of existing records for protected species and nature reserves has been commissioned, below details the results and site context.

Biological records were obtained from Essex Wildlife Trust Biological Records Centre (2021), with a total of 56 biological records provided.

Table 3: Biological Records

Species	Number of Records	Closest Record (accuracy)	Most Recent Record (year)
Bats			
Barbastelle <i>Barbastella barbastellus</i>	4	650m (1m)	2006
Brown Long-Eared <i>Plecotus auritus</i>	2	550m (100m)	2011
Common Pipistrelle <i>Pipistrellus pipistrellus</i>	33	400m (100m)	2013

Serotine <i>Eptesicus serotinus</i>	4	550m (10m)	2011
Unidentified Long-Eared <i>Plecotus sp.</i>	2	550m (10m)	2015
Unidentified Pipistrelle <i>Pipistrellus sp.</i>	8	500m (1m)	2015
Other			
Barn Owl <i>Tyto alba</i>	2	780m (100m)	2012
Birds, Invertebrates, Plants etc.	1	780m (100m)	2012
Non-Statutory Sites			
Name	Reference No.	Type	Description/designated for
Green Man Meadows	Ufd38	Local Wildlife Site (LWS)	Two meadows supporting a diversity of flora.
Arkesden Chalk Pit	Ufd50	LWS	Diverse chalk grassland flora.

3.4 Site Location and Surrounds

The site is located in Arkesden, Essex and is surrounded by low-density housing in the immediate local. Table 4 details the commuting, feeding and habitat features in a 1km radius of the site.

Table 4: Habitat features suitable for use by protected species.

Feature	Description
Water course	A stream, Wickden Water, is located approx. 130m southwest of the site.
Water bodies	Two ponds are located approx. 420m east of the site and two ponds are located approx. 625m northwest of the site. There is also a small pond 60m southwest of the site and a covered pool adjacent to the northwestern boundary of the site.
Woodland	Woodland is located at Home Grove approx. 360m southwest of the site, and there is also woodland approx. 735m southwest of the site.
Linear e.g. hedgerows	Hedgerows border some of the arable fields in the surrounding landscape providing connectivity to suitable habitat.
Pasture/arable/grassland	Arable fields dominate the wider landscape with arable fields adjacent to the northern boundary of the site as well as arable fields approx. 30m east, 150m south and 190m west of the site. There is a field of rough grassland adjacent to the eastern boundary.
Other	n/a

3.5 Habitat, Building, Tree or Other Structure

This section details the structures/habitat reference and descriptions (see Figure 8 for Site Plan).

3.5.1 Habitats

3.5.2 Amenity Grassland

Amenity grassland is found centrally throughout the site with species dominated by Perennial Ryegrass *Lolium perenne* and forb species including Daisy *Bellis perennis*, Dandelion *Taraxacum officinale* and Groundsel *Senecio vulgaris*.



Figure 2: Example of amenity grassland

3.5.3 Native Hedgerow

A native hedgerow with trees runs along the northwestern boundary of the site with species including Blackthorn *Prunus spinosa*, Bramble *Rubus fruticosus*, Elder *Sambucus nigra*, Field Maple *Acer campestre*, Hawthorn *Crataegus monogyna* and Holly *Ilex aquifolium*. The hedgerow ground flora includes species like Ground Ivy *Glechoma hederacea*, Ivy *Hedera helix* and Lords-and-Ladies *Arum maculatum*.



Figure 3: Example of hedgerow

3.5.4 Broadleaved Woodland

Young broadleaved woodland is found in the northern part of the site and along the southeastern boundary. It consists of, predominantly, young trees with occasional semi-mature trees, particularly on the southeastern boundary. Tree species are dominated by Elder with abundant Hornbeam *Carpinus betulus* and Whitebeam *Sorbus aria* agg. Ground flora includes Lords-and-Ladies and tussocks of False Oatgrass *Arrhenatherum elatius*.



Figure 4: Example of woodland

3.5.5 Scattered Trees

Scattered trees on site include a group of Hornbeam and Whitebeam with the occasional Ash *Fraxinus excelsior*.



Figure 5: Example of scattered trees

3.5.6 Bare Ground

Bare ground is found to the south of the woodland area with evidence of recent clearance. The ground flora establishing itself include Bristly Ox-Tongue *Picris echioides*, Nettle *Urtica dioica* and Spear Thistle *Cirsium vulgare*.



Figure 6: Example of bare ground

Table 5: Target Notes

Target Note	Description
T1	Disused bird nests found in trees on the northwestern boundary and the southeastern boundary.

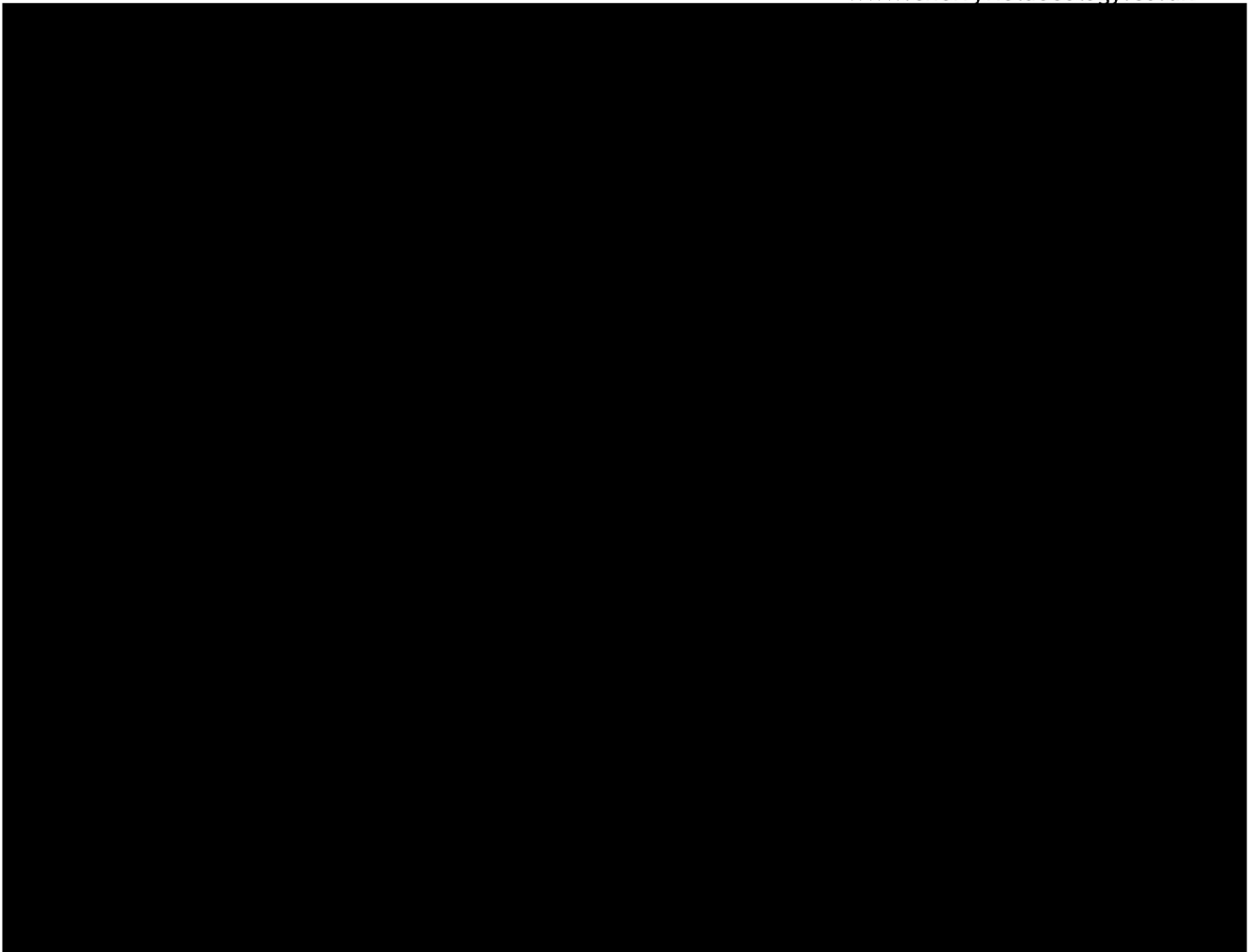


Figure 7: Example of disused bird nest

3.6 Species List

Ash	<i>Fraxinus excelsior</i>
Blackthorn	<i>Prunus spinosa</i>
Bramble	<i>Rubus fruticosus</i>
Bristly Oxtongue	<i>Picris echioides</i>
Caper Spurge	<i>Euphorbia lathyris</i>
Clary	<i>Salvia verbenaca</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot	<i>Dactylis glomerata</i>
Cowslip	<i>Primula veris</i>
Creeping Bent	<i>Agrostis stolonifera</i>
Common Field Speedwell	<i>Veronica persica</i>
Common Mouse Ear	<i>Cerastium fontanum</i>
Cow Parsley	<i>Anthriscus sylvestris</i>
Crane's-bill	<i>Geranium sp.</i>
Creeping Buttercup	<i>Ranunculus repens</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i>
Dock	<i>Rumex sp.</i>
Dog's Mercury	<i>Mercurialis perennis</i>
Elder	<i>Sambucus nigra</i>
Elm	<i>Ulmus sp.</i>

False Oat-Grass	<i>Arrhenatherum elatius</i>
Field Maple	<i>Acer campestre</i>
Green Alkanet	<i>Pentaglottis sempervirens</i>
Ground-Ivy	<i>Glechoma hederacea</i>
Groundsel	<i>Senecio vulgaris</i>
Hawthorn	<i>Crataegus monogyna</i>
Herb-Robert	<i>Geranium robertianum</i>
Holly	<i>Ilex aquifolium</i>
Hornbeam	<i>Carpinus betulus</i>
Ivy	<i>Hedera helix</i>
Lemon Balm	<i>Melissa officinalis</i>
Lesser Periwinkle	<i>Vinca minor</i>
Lords-and-Ladies	<i>Arum maculatum</i>
Nettle	<i>Urtica dioica</i>
Perennial Rye-Grass	<i>Lolium perenne</i>
Prickly Sow-Thistle	<i>Sonchus asper</i>
Ragwort	<i>Senecio jacobaea</i>
Red Dead-Nettle	<i>Lamium purpureum</i>
Ribwort Plantain	<i>Plantago lanceolata</i>
Rose	<i>Rosa</i> sp.
Rosebay Willowherb	<i>Chamerion angustifolium</i>
Smooth Sow-Thistle	<i>Sonchus oleraceus</i>
Spear Thistle	<i>Cirsium vulgare</i>
Sweet Violet	<i>Viola odorata</i>
Traveller's-Joy	<i>Clematis vitalba</i>
Tree-of-Heaven	<i>Ailanthus altissima</i>
Whitebeam	<i>Sorbus aria</i> agg.
White Clover	<i>Trifolium repens</i>
White Dead-Nettle	<i>Lamium album</i>
Yarrow	<i>Achillea millefolium</i>
Yorkshire Fog	<i>Holcus lanatus</i>



3.7 Evidence or Likelihood of Species Presence

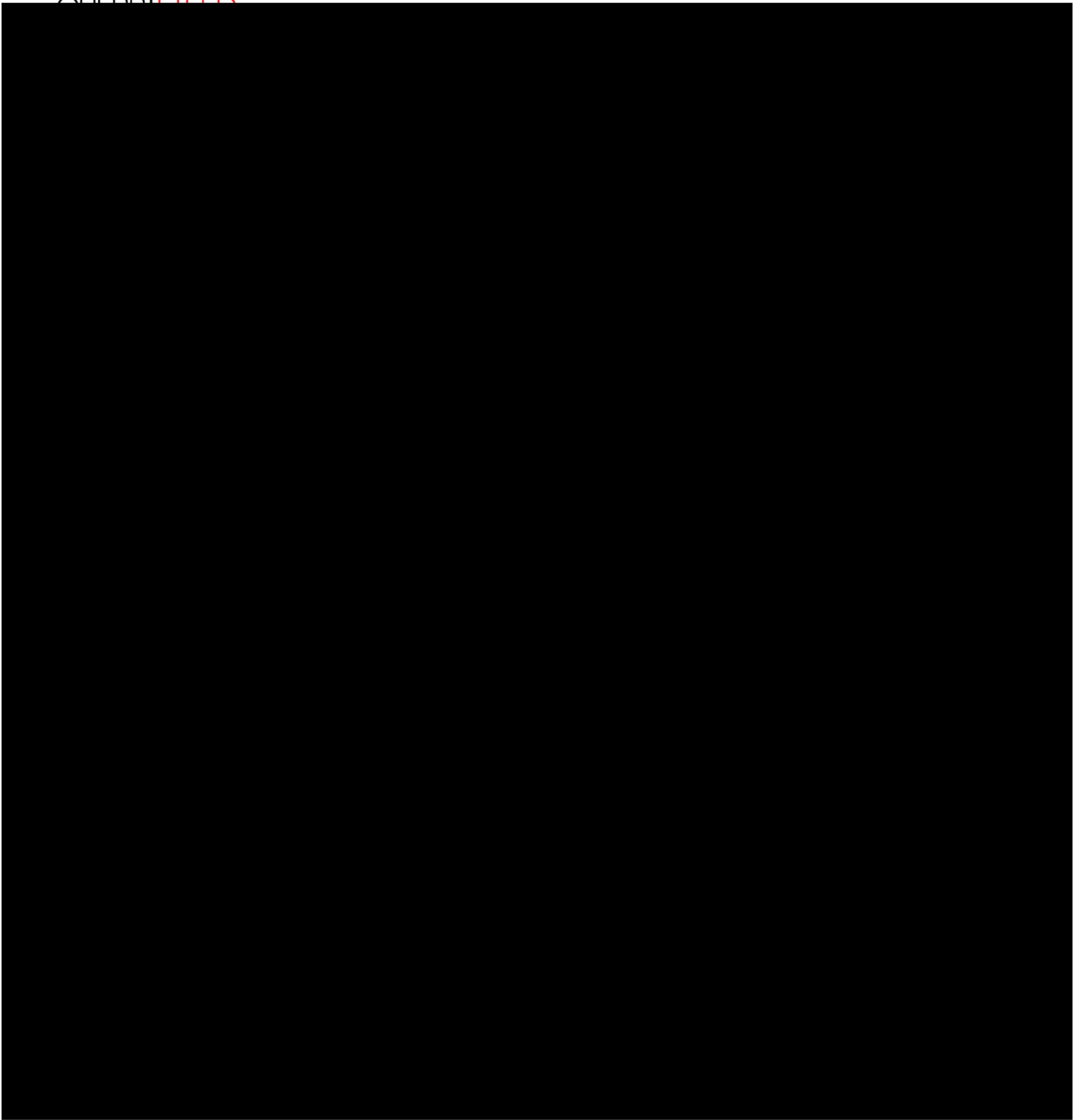
This section details the evidence located and likelihood of species presence.

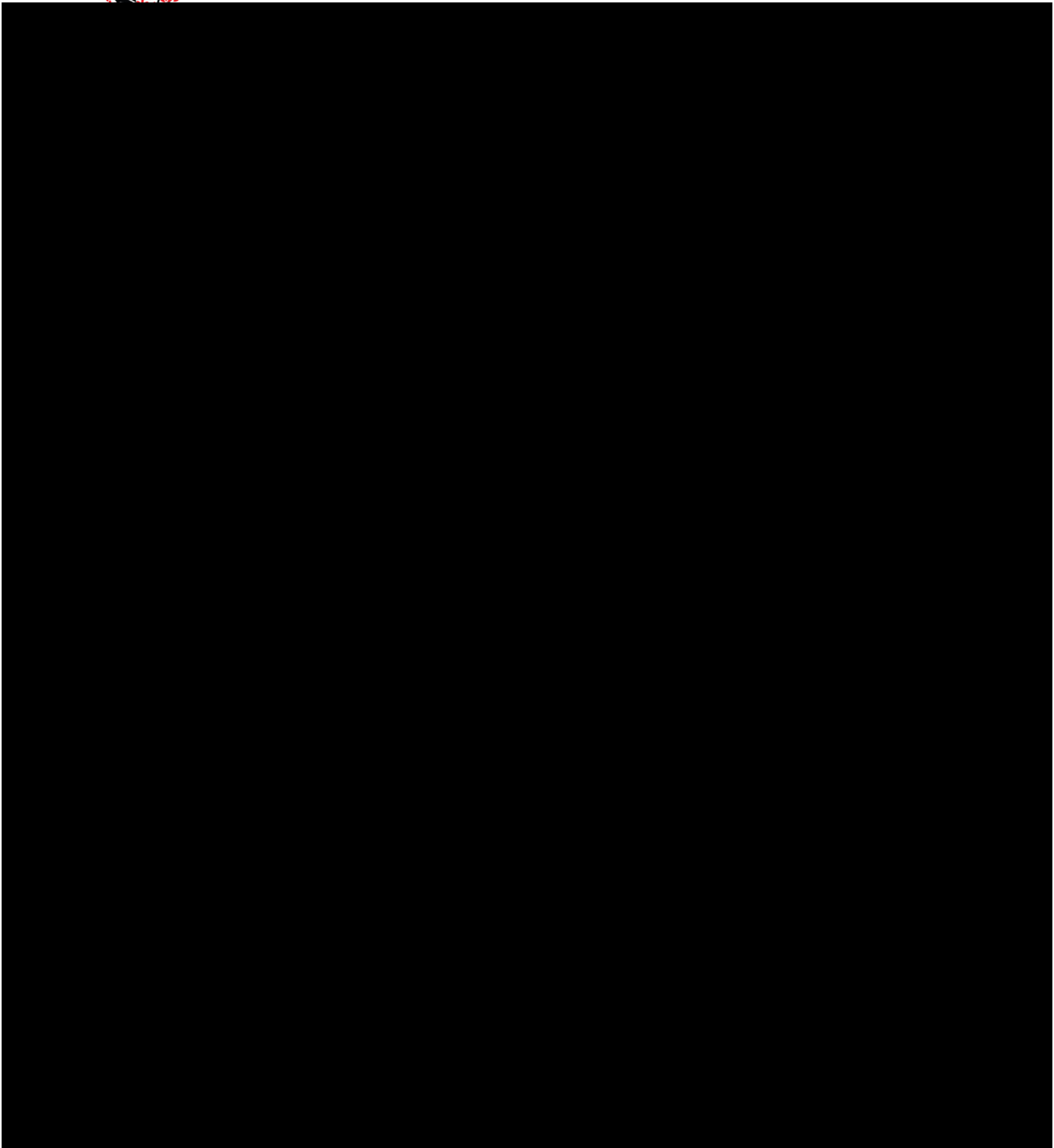
3.7.1 Bats

Table 6: Bats, evidence or the potential for the species.

Bats found	No bats were found at the time of the survey.
Evidence of bat use	No evidence of bats was found at the time of the survey.
Potential for bat use	Level of likelihood of presence - Negligible All trees were checked for potential roosting features (PRFs) with no PRFs throughout the site, thus providing negligible potential for roosting bats; however, the woodland and hedgerow habitats provide suitable foraging and commuting habitat for bats.







3.7.3 Breeding Birds

Table 8: Breeding birds, evidence or potential for the species

Breeding birds found	No breeding birds were found at the time of the survey.
Evidence of breeding bird use	Two disused bird nests were found in the trees on the northwestern and southeastern boundaries (See Table 5).
Potential for breeding bird use	Level of likelihood of presence - High

	The woodland and hedgerow provide high potential for breeding birds to be present.
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3.7.4 Amphibian

Table 9: Amphibians, evidence or potential for species use.

Amphibians found	No Great Crested Newt (GCN) were found at the time of the survey.
Evidence of amphibian use	No evidence of GCN was found at the time of the survey.
Potential for amphibian use	Level of likelihood of presence - Low The woodland and hedgerow habitats provide suitable terrestrial habitat for hibernating and migrating GCN. There are only three ponds within 1km of the site, with the nearest a garden pond 60m southwest of the site. With approx. 7m of hedgerow to be cleared, and 5 young trees to be felled, GCN are unlikely to be affected.

3.7.5 Reptile

Table 10: Reptiles, evidence or potential for species use.

Reptiles found	No reptiles were found at the time of the survey.
Evidence of reptile use	No evidence of reptiles was found at the time of the survey.
Potential for reptile use	Level of likelihood of presence - Low The habitats on site provide relatively unsuitable habitat for reptiles. However, the adjacent grassland provides suitable reptile habitat suggesting that, if reptiles are present within the grassland off-site, reptiles may be using the southeastern boundary. It is understood that the boundaries are not to be affected in the development and, thus, reptiles are unlikely to be affected.

3.7.6 Other Species e.g. Hazel Dormouse

Table 11: Other protected species, evidence or potential for species use.

Species found	No other protected species were found at the time of the survey.
Evidence of species use	No evidence of other protected species was found at the time of the survey.
Potential for species use	Level of likelihood of presence - Negligible The habitats on site provide negligible potential for any other protected species to be present on site.

3.7.7 Invasive Non-Native

No invasive non-native species were found at the time of the survey.

4.0 Conclusions, Discussion, Impacts and Recommendations

The following section details the conclusions, discussion, impacts and recommendations in the context of the proposed works.

4.1 Conclusion and Discussion

The proposals include for the construction of a single detached dwelling with associated landscaping in the rear garden of the existing residential dwelling.

The site consists of amenity grassland, young broad-leaved woodland, native species-rich hedgerow and some bare ground.

No protected species were found on site at the time of the survey.

The site provides **low** potential for GCN and reptile to be present.

The site provides **negligible** potential for roosting bats with no potential roosting features in the trees on site; however, the site provides suitable foraging and commuting habitat for bats.

4.2 Potential Impacts

Impact assessments must be proportionate to the scale of the development (CIEEM, 2018) and Table 12 details a proportionate impact assessment based on current information.

Table 12: Impact Assessment

	Reptiles - Loss of habitat.
Characterisation of unmitigated impact on the feature	<p>[REDACTED]</p> <p>Breeding Birds - A low-level loss/impact at a local level.</p> <p>GCN - A low-level loss/impact at a local level.</p> <p>Reptiles - A low-level loss/impact at a local level.</p>
Effect without mitigation	[REDACTED]
Mitigation and/or potential enhancement	See Table 13 and Table 14
Significance of effects of residual impacts (after mitigation)	<p>[REDACTED]</p> <p>Breeding Birds - If lost habitat is replaced by bird boxes and mitigation is followed, the effects would be negligible.</p> <p>GCN - If mitigation is followed, the effects would be negligible.</p> <p>Reptiles - If mitigation is followed, the effects would be negligible.</p>

4.3 Recommendations



Bats - No further surveys are necessary; if bats are found throughout works, all works must stop, and advice sought.

Breeding Birds - No further surveys are recommended; however, the development should take place outside the nesting season (March to August). If this is not possible, it is recommended that a qualified ecologist is on site to ensure any trees or hedgerow are not occupied by breeding birds, prior to clearance. Should an occupied nest be found, a buffer zone would need to be created until the nest is no longer in use.

GCN - No further survey is necessary; however, a qualified ecologist will need to supervise the clearance of any woodland or hedgerow habitat on site via a destructive search.

Reptiles - No further survey is necessary; however, a qualified ecologist will need to supervise the clearance of any woodland or hedgerow habitat on site via a destructive search.

The findings outlined in this report are valid for one year, after which updated surveys will be required.

Enhancements and mitigation are recommended (Please see Section 4.4).

4.4 Recommended Enhancements and Mitigation

Table 13: Recommended Mitigation

Work	Specification
Lighting	<p>Any lighting near or shining onto any trees should be designed to minimize the impact it has on potential bat roosting and commuting.</p> <p>Lighting should be in line with the BCT lighting guidelines (Bats and Lighting in the UK (Bat Conservation Trust, 2018))</p> <p>https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/</p> <p>This lighting should be of low level, be on downward deflectors and ideally be on PIR sensors. Using LED directional lighting can also be a way of minimizing the light spill affecting the habitat. No up-lighting should be used.</p> <p>This will ensure that the roosting and commuting resources that the bats are likely to be using is maintained.</p>

Table 14: The local authority has a duty to enhance biodiversity in its day-to-day duties, the following are suggested enhancements that are easily installed into a development and can be cost effective whilst ensuring a gain for local wildlife.


Work	Specification
<p>Bat, bird and insect box enhancement.</p>	<p>Bat tubes can be installed into the new dwellings.</p> <p>A minimum of two Schweglar 2FR boxes (Figure 13) could be installed into the gable ends of the new dwellings.</p> <div data-bbox="834 638 1019 1041" data-label="Image">  </div> <p data-bbox="727 1062 1138 1094">Figure 13: Schweglar 2FR bat tube</p> <p>Bird boxes for a variety of different species can also be installed.</p> <p>A selection of open fronted boxes and songbird boxes can be installed (Figure 14 and Figure 15); it is recommended that a minimum of two of each of the boxes are installed.</p>



Figure 14: Robin box



Figure 15: Songbird box

A variety of insect boxes can be installed in the area; a minimum of one box is recommended (Figure 16 and Figure 17).



Figure 16: Urban bee nesting box, used for solitary bees and wasps



Figure 17: Bug biome, ideal for ladybirds, lacewings and bees

Hedgehog highways and small mammal connectivity.

In order to allow hedgehogs and other small mammals a continuous corridor across the site, thus linking the garden and green spaces.

- A 13cm by 13cm is sufficient for any hedgehog to pass through. This will be too small for nearly all pets (Figure 18).
- Remove a brick from the bottom of the wall, creating a 13cm-by-13cm hole.
- Cut a small hole in your fence if there are no gaps.
- Dig a channel underneath your wall, fence or gate.
- Ideally, rather than walls or fences, a hedge will provide foraging, shelter and a route along as well as through the site.



Figure 18: Hedgehog Highway, Source - Wildlife Trust - <http://7474fab53f1b6ee92458->

	<p style="text-align: center;"><i>8f3ac932bad207a00c83e77eae8d15c.r12.cf1.rackcdn.com/Hedgehog%20Highway.jpg</i></p>
<p>Swifts <i>Apus apus</i></p>	<p>Swift nest boxes are recommended due to the increased lack of nesting opportunities swifts are finding in modern built dwelling homes.</p> <p>Information is adapted from the RSPB https://www.rspb.org.uk/our-work/rspb-news/news/stories/swift-advice-for-ecologists/ and http://actionforswifts.blogspot.com</p> <p>The following will be undertaken:</p> <ul style="list-style-type: none"> • Wherever possible, swift bricks will be installed into new or restored buildings to increase the overall availability of nest sites for swifts and other species. Birds such as house sparrow can use swift bricks, but swifts cannot use house sparrow nest bricks. • Integral swift bricks are the preferred option on new housing developments. These should be fitted in clusters of 2 to 4 on gable ends and near the roofline where swifts would naturally look for a potential nest site. • Try to ensure swift bricks have a minimum of 5m clearance beneath and in front. Always avoid locating them above doors and windows to help prevent a disturbance issue to both the birds and human owners. • Alternatively, swift boxes can be placed on the external walls of a building when a restoration or opportunities don't exist to build in the boxes.



Figure 19: Example of swift bricks, that can be built into a dwelling, Source: <https://www.birdbrickhouses.co.uk/brick-nesting-boxes/>

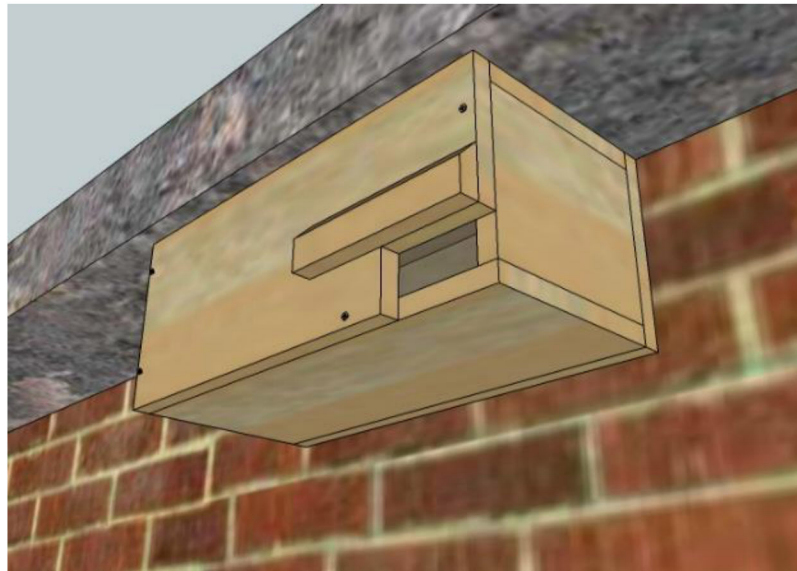


Figure 20: Swift box, source: <http://actionforswifts.blogspot.com/p/diy-swift-box-designs.html>

<p>Hedgerows</p>	<p>Hedgerows provide excellent corridors for wildlife and are extremely important to many species of wildlife. A hedgerow could be included in development plans to assist a range of species (Figure 21).</p>
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	<p>Hedgerow management cycle</p> <p>Hedgerows are a dynamic system - it isn't possible to keep them at exactly the same point indefinitely. Managing them on a cycle ensures their health and long term survival.</p> <p>Tall and overgrown Manage as a line of trees - a necessary intermediate step to coppicing. Coppice, retaining a few trees and plant up gaps. Coppice, retaining a few trees, and plant up gaps. Coppice, retaining a few trees, and plant up gaps.</p> <p>Rejuvenated recently layed, coppiced, or planted Lay Frequent trimming in (2-3-5-10 years) "Set up" for laying with coppicing.</p> <p>Over-trimmed If trimmed to the same level repeatedly the structure will start to deteriorate. Coppice, retain a few trees, plant up gaps. Coppice, retain a few trees, plant up gaps.</p> <p>Dense and well-managed Over hedge into non-intervention period. Allow hedgerow height and width to change naturally. Trim on a fixed or variable rotation.</p> <p>Legend: - Good condition hedge (green) - Fair condition hedge (yellow) - Poor condition hedge (red) - Management choices for healthy hedge cycle (purple) - Neglect or poor management (blue) - Management actions (pink)</p> <p>people's trust for endemiofauna species</p>
<p>Reptiles Habitat Enhancement</p>	<p>Log and brush piles can enhance the existing habitat by providing cover for reptiles, as well as enhancing prey availability. Also, including reptile hibernacula and basking banks into development plans will enhance the habitat for reptiles. (Edgar et al., 2010).</p>

Figure 21: Hedgerow management cycle (<https://hedgerowsurvey.ptes.org/>)

5.0 References

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Appendix I

Proposed Site Plan by SADA Architecture (2021)

