



Elite Ecology

Passionate about Ecology

**48 Middle Watch,
Swavesey**



Preliminary Ecological Appraisal

June 2020

 01782 308418

 enquiries@eliteecology.co.uk

www.eliteecology.co.uk
www.facebook.com/eliteecology
www.twitter.com/eliteecology



Wellesley House, Wellesley Street,
Stoke-on-Trent, Staffordshire, ST1 4NF



Document Control			
Document Properties			
Organisation	Elite Ecology		
Prepared For	Mr. James Garnett (Proprietor)		
Author	Mr. Connor Wild		
Approved (1st Checker)	Mr. Marek Fraczek		
Approved (2nd Checker)	Mr. Richard Millington		
Title	48 Middle Watch, Swavesey Preliminary Ecological Appraisal		
Version History			
Date	Version	Status	Description/Changes
02/06/2020	V1	Draft	First Draft
07/06/2020	V1	Final Report	Proof Read

0. Executive Summary

This report has been prepared at the request of Mr. James Garner (Proprietor). Elite Ecology were commissioned to undertake a Preliminary Ecological Appraisal of 48 Middle Watch, Swavesey, Cambridge, Cambridgeshire, CB24 4RN (Central OS Grid Reference: TL 36277 68297). This survey effort involved both a desktop study and field survey being undertaken.

Under the current proposals, a residential dwelling will be constructed on the survey site.

Cambridge & Peterborough Environmental Records Centre (CPERC) were commissioned to carry out an ecological data search of all protected species and sites recorded within a 2km radius of the site. No species were recorded on the proposed development site itself.

The preliminary ecological appraisal survey revealed numerous habitats on site and in the surrounding area. The phase 1 habitat map, habitat codes and target notes for the site are located within **Appendix C**. The following habitats were recorded on site (in habitat code order):

- A3.3 – Scattered Trees
- J1.2 – Amenity Grassland
- J4 – Bare Ground
- J3.6 – Buildings

No designated sites that were revealed by CPERC fell on the proposed re-development site itself. Therefore, the proposed re-development will have no impact upon any local designated sites as the works are due to remain within the site boundary.

No habitats of conservation concern were located on the site itself. Therefore, the proposed scheme of works will not impact upon any rare or valuable habitats.

Bats: Due to the potential impacts on foraging and commuting bats, it is recommended that a sensitive lighting scheme is included around the site. This lighting scheme is to ensure that the proposed works will not deter bats from utilising the suitable habitats around the site. Any security lighting around the storage area must be calibrated so that they are only triggered by large bodies. This is to ensure smaller objects such as moths do not set them off thus creating light spill into surrounding habitats during the night. All light is to point downwards, thus reducing the light spill and potential impacts. Please see Appendix G: Artificial Lighting and Bats for more information on how lighting impacts these species and current guidelines.

Hedgehogs: As a purely precautionary measure, it is recommended that provisions are incorporated during the construction phase. This will be to create provisions for hedgehogs to escape in the form of creating slopes or the inclusion of ramps at the end of each working day from all trenches dug into the ground. Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations.

Biodiversity Net Gain

Biodiversity Net Gain needs to be ensured within the scheme of works. The inclusion of some of the above measures may help achieve this. Once the scheme has been finalised, a calculation using a relevant metric system will be necessary. Measures can be found within section 6.

Contents

0. Executive Summary	2
1 Introduction	4
1.1 Report rationale	4
1.2 Site description and works	4
2 Survey Methodology	6
2.1 Desktop Survey	6
2.2 Field Survey	6
3 Desktop Survey Results	7
3.1 Statutory Sites	7
3.2 Non-Statutory Sites	7
3.3 Ancient woodland	7
3.4 Regionally Important Geological Sites (RIGS)	7
3.5 Species Records	7
4 Field Survey	10
4.1 Habitats	10
4.2 Species	10
4.3 Potential impacts of the works	11
5 Recommendations	13
5.1 Designated Sites	13
5.2 Habitats	13
5.3 Species	13
6 Biodiversity Net Gain	15
6.1 Existing Habitats	15
6.2 Habitat creation	15
6.3 Species Specific Enhancements	17
7 References	19
8 Appendices	20
Appendix A: Site Plans	1
Appendix B: The Ecological Data Search	1
Appendix C: Phase 1 Habitat Map	8
Appendix D: Site Photographs	1
Appendix E: Biodiversity Legislation and Policy	2
Appendix F: Bats and Artificial Light	8
8 Notice to Readers: Conditions of this Report	9

1 Introduction

1.1 Report rationale

This report has been prepared at the request of Mr. James Garner (Proprietor). Elite Ecology were commissioned to undertake a Preliminary Ecological Appraisal of 48 Middle Watch, Swavesey, Cambridge, Cambridgeshire, CB24 4RN (Central OS Grid Reference: TL 36277 68297). This survey effort involved both a desktop study and field survey being undertaken.

The main purpose of this assessment was to identify the broad habitats (as stated in the JNCC Phase 1 Handbook) and the flora species present within the survey area, with any further evidence of protected species usage and/or features of potential ecological interest also included. The field survey was carried out on the 2nd May 2020 by Mr. Adam Levesley (MRes, Ecologist).

1.2 Site description and works

The site is situated in a semi-rural setting, approximately 334m to the south-west of the center of Swavesey, a village in Cambridgeshire. Swavesey had a population of 2,463 in the 2011 Census.

The site consists of hard standing amenity grassland and scattered trees. The trees are to remain post development. Small outbuildings are found around the border of the site, with these buildings also due to remain on site post-development. The hard standing ground already contains the foundations for the proposed building.

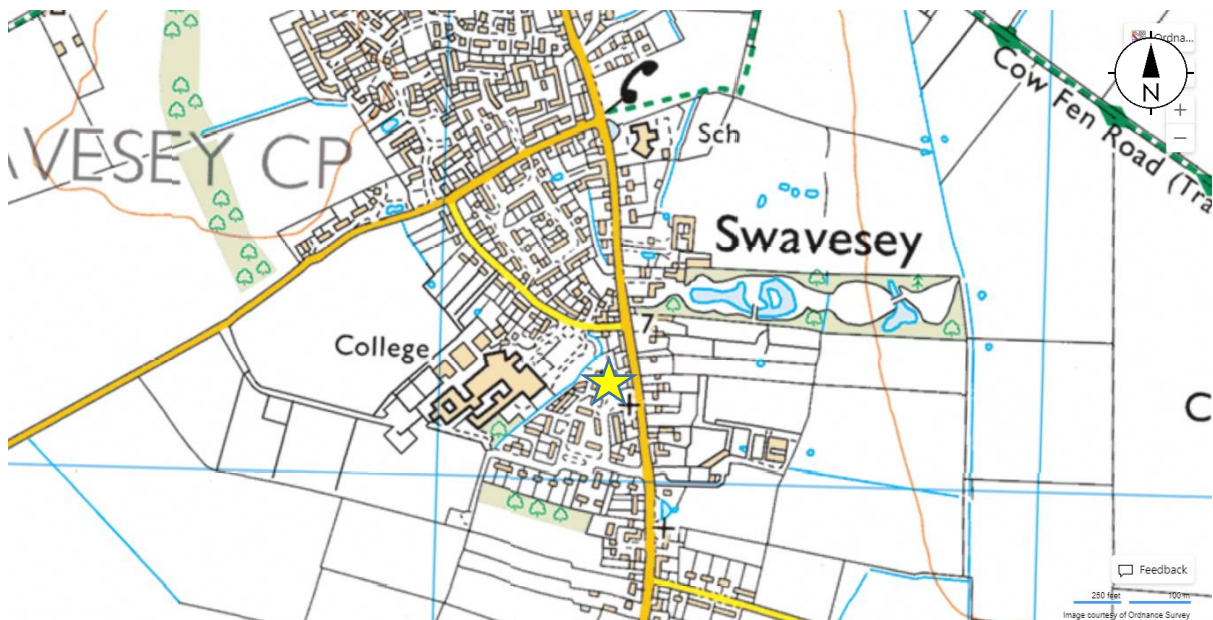
Within the wider landscape, further habitats are present. These come in the form of agricultural land, woodland, residential structures (and their associated land/gardens), hedgerows, standing and running water bodies. The habitats that surround the site also have the potential to be utilized by a variety of protected species.

Under the current proposals, a residential dwelling will be constructed on the survey site. Some of the present habitats will be affected by the new development.

Figure 1: An aerial map showing the location of the land proposed for re-development at the site at 48 Middle Watch, Swavesey (yellow star) in relation to some of the local landscape.



Figure 2: An OS map obtained from Bing Maps showing the site at 48 Middle Watch, Swavesey (yellow star) and the surrounding area.



2 Survey Methodology

2.1 Desktop Survey

A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalengland.org.uk, www.ordnancesurvey.co.uk, Google Maps, Google Earth and Bing Maps. A search of other relevant nature conservation information was made through the use of the Multi-Agency Geographic Information for the Countryside (MAGIC) database.

The local records centre was contacted to provide data on all protected species and designated sites within 2km of the proposed development site. Cambridge & Peterborough Environmental Records Centre (CPERC) was the relevant local record centre for this project.

2.2 Field Survey

A Preliminary Ecological Appraisal (previously referred to as an Extended Phase 1 Habitat Survey) was carried out using the method outlined in the JNCC Handbook for *Phase 1 Habitat Survey: a technique for environmental audit (2010)*. This method aims to map and describe the broad habitat types and notable features present on the surveyed site.

As part of the field survey, the floral species will be identified and noted down. This will consider the dominant, abundant, frequent, occasional and rare (DAFOR) species within each habitat on the survey site. The impacts of the proposed development scheme will be assessed by this report.

Each habitat will be assessed for the presence and/or the potential presence of protected species. The impacts of the proposed scheme of works on all potential protected species on site will be assessed. From this, either remedial action or recommended phase 2 presence/absence surveys will be devised.

Some of the classification codes and colours listed within the JNCC handbook may have been slightly modified for this project.

Habitat Surveys can be carried out at any time of the year, with the optimal time period falling between the months of April through until September. This survey was carried out in May 2020, which is inside of the optimal time period for flora surveys. Elite Ecology feels confident that the majority of the floral species located on the site were competently identified during the survey effort. In addition to this, Elite Ecology feels confident that this report reflects an accurate representation of the site's suitability for protected species to be present.

All sites surveyed by Elite Ecology will be run against the relevant Local Wildlife Site Criteria to assess whether or not they meet the required standards.

3 Desktop Survey Results

3.1 Statutory Sites

The ecological data received from CPERC confirmed the presence of one statutory protected site (e.g. LNR, SSSI, SPA, SAC or Ramsar) within the 2km search radius from the site. This comes in the form of a Local Nature Reserve (LNR) and is shown within the table below.

Site name	Grid reference	Designation
Mare Fen	TL 365 699	LNR

3.2 Non-Statutory Sites

The ecological data received from CPERC confirmed the presence of six sites within the 2km search radius. These are all County Wildlife Sites and are shown in the table below.

Site name	Grid reference	Designation
Fen Drayton Gravel Pits	TL3469	County Wildlife Site
Mare Fen	TL3670	County Wildlife Site
Middle Fen	TL3570	County Wildlife Site
Over Railway Cutting	TL385686	County Wildlife Site
River Great Ouse	TL37	County Wildlife Site
Swavesey Meadows	TL359693	County Wildlife Site

3.3 Ancient woodland

The ecological data received from CPERC confirmed that no Ancient Semi-natural Woodlands (ASNW) are present within the 2km search radius.

3.4 Regionally Important Geological Sites (RIGS)

The ecological data received from CPERC confirmed that no RIGS are present within the 2km search radius.

3.5 Species Records

3.5.1 Amphibians (including Great Crested Newt)

Within the ecological data search provided by CPERC, three records of amphibian species were detected. These were common frog (*Rana temporaria*), common toad (*Bufo bufo*) and Great Crested Newt (*Triturus cristatus*).

The most recent of these records is of great crested newt (*Triturus cristatus*) occurring 1km to the south of the site in 2019. The closest records are also of great crested newt and occur approximately 396m to the south of the site.

3.5.2 Birds

Within the ecological data search provided by CPERC, records of 97 bird species were detected. A table with the collated bird species recorded can be found within **Appendix B**.

3.5.3 Crustacean

Within the ecological data search provided by CPERC, no records of crustacean species were detected.

3.5.4 Invertebrate

Within the ecological data search provided by CPERC, twenty-three records of invertebrate species were detected. A table with the collated invertebrate species recorded can be found within **Appendix B**.

The closest records occurring were approximately 320m to the north of the site and are of belladonna flea beetle, (*Epitrix atropae*) in 2006, bright four-spined legionnaire (*Chorisops nagatomii*) in 2012, lesser earwig (*Labia minor*) in 2004 and Platyderus Depressus (*Platyderus depressus*) in 2001.

3.5.5 Fish

Within the ecological data search provided by CPERC, no records of fish species were detected.

3.5.6 Flora

Within the ecological data search provided by CPERC, 33 records of flora were identified. A table with the collated flora species recorded can be found within **Appendix B**.

The vast majority of records occur within designated sites, predominantly Fen Drayton Gravel Pits CWS located to the north-west of the survey site. The most recent record is of Crosswort (*Cruciata laevipes*) located approximately 1.3km to the west of site.

3.5.7 Mammals

Within the ecological data search provided by CPERC, records of 12 mammal species were detected.

Bats

Records of nine bat species were found within the search radius. These were of brown long-eared (*Plecotus auritus*), common pipistrelle (*Pipistrellus pipistrellus*), Natterer's (*Myotis nattereri*), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats. In addition to this, unidentified bat (*Chiroptera* sp.), unidentified long-eared (*Plecotus* sp.) and unidentified pipistrelle (*Pipistrellus* sp.) specimens were revealed.

The most recent and closest record were of common pipistrelle (*Pipistrellus pipistrellus*) bats located approximately 40m to the north of the site.

Brown Hare

Four records of Brown Hare (*Lepus europaeus*) were detected and all four records are historic, with the most recent occurring in 1996, 1.98km to the north-east of the site.

Eurasian Badger

Nineteen records of Eurasian badger (*Meles meles*) were detected, the closest and most recent occurring approximately 660m to the south of the survey site. In addition to this, four setts being identified. The locations of these setts will not be made public due to the sensitive records.

European Otter

Three records of European otter (*Lutra lutra*) were detected, the closest occurring approximately 1.5km to the north-west of the survey site, with the most recent record occurring approximately 1.5km to the north of the site.

European Water Vole

Eleven records of European water vole (*Arvicola amphibious*) were detected. The most recent record being found in Middle Fen CWS and the closest record occurring approximately 871m to the north of the site.

Polecat

Two records of polecat (*Mustela putorius*) were detected, the closest occurring approximately 1.7km to the south of the survey site, with the most recent occurring approximately 2km to the south of the site.

West European Hedgehog

One record of west European hedgehog (*Erinaceus europaeus*) was detected, occurring approximately 1.9km to the south-east of the site.

3.5.8 Reptiles

Within the ecological data search provided by CPERC, two records of reptile species were identified. These were common lizard (*Zootoca vivipara*) and grass snake (*Natrix helvetica*). The closest record was of common lizard (*Zootoca vivipara*) occurring approximately 1km to the north of the site.

4 Field Survey

4.1 Habitats

The preliminary ecological appraisal survey revealed multiple habitats on site and within its immediate vicinity. The phase 1 habitat map, habitat codes and target notes for the site are located within **Appendix C**. The following habitats were recorded (in habitat code order):

4.1.1 A3.1 Scattered Trees

Scattered trees can be found on site. Species include Lombardy poplar (*Populus nigra*), Scots pine (*Pinus sylvestris*) and walnut species (*Juglans regia*). Under the current plans these trees are to remain on site and although they may contain protected species, impacts will be minimal.

4.1.2 J1.2 – Amenity Grassland

The amenity grassland is kept as a short sward height due to the frequent mowing regime. It contains typical grass species, with occurrences of cleavers (*Galium aparine*), and wood-hyacinth (*Hyacinthoides hispanica*) are also present.

4.1.3 J3.6 – Building

The site contains a small number of outbuildings around the border of the site. These outbuildings are primarily used as storage with one being used as a chicken coop. These are to remain under the current proposal and are also of no value to protected species.

4.1.4 J4 – Bare Ground (Hard Standing)

The hard standing ground consists of an entrance road, car park and the foundations of a new property. Some self planted flora can be found such as Virgin Mary (*Calendula stellata*).

4.2 Species

4.2.1 Amphibians (including Great Crested Newt)

No evidence of amphibians was found on site. Also, no waterbodies or suitable terrestrial habitat was found on site. Waterbodies are present within 250m. However, these are separated from the site by an impassable anthropogenic barrier (Bucking Way Road). Therefore, no further action is required.

4.2.2 Badgers

The field survey uncovered no evidence of badger (*Meles meles*) presence located on the proposed re-development site or within the sphere of influence of the works.

4.2.3 Bats

No suitable roosting habitat was found on site. The trees on site are to remain under the current proposals. Impacts from artificial lighting is all that will occur (please see section 5.3).

4.2.4 Birds

The trees and buildings on site contain the potential to support nesting birds, although no evidence of any nests was found during the site survey. As these are due to remain, no further action is required.

4.2.5 Flora

No rare floral species were recorded on the survey site and thus no further action is required.

4.2.6 Hedgehogs

The proposed scheme of works will not affect any suitable nesting features for hedgehogs. However, hedgehogs are likely to commute through the site and as such, precautionary measures are required (please see **section 5.3**).

4.2.7 Invertebrates

Only common species of invertebrate was found on site and the site has limited habitat. In addition, the proposed works will not affect any potential invertebrates and thusly, no further surveys are required.

4.2.8 Reptiles

No evidence of reptiles were recorded on site. The site is not suitable for reptiles due to lack of cover and too much anthropogenic disturbance. Therefore, no further action is required.

4.3 Potential impacts of the works

Based upon the results from the desktop survey, field survey and using a degree of academic supposition, the uncompensated development impacts have been summarised as follows:

➤ **Amphibians – Negligible**

As there is no evidence of great crested newts (*Triturus cristatus*) found in association with the site and all nearby water features occurring opposite an impassable barrier, no impacts are likely to occur.

➤ **Badgers – Negligible**

No signs of badger activity were uncovered on the survey site.

➤ **Bats – Low**

No suitable roosting habitat was found on site and the trees are to remain under the current proposal. However, small increases in artificial lighting may occur.

➤ **Birds – Negligible**

The suitable habitats will not be removed under the current proposals and works will not impact on these.

➤ **Flora – Negligible**

No protected or rare floral species were identified on the survey site.

➤ **Hedgehogs – Moderate**

Hedgehogs are likely to commute through the survey site. As such, the proposed re-development works may impact negatively on hedgehogs without any compensation and mitigation.

➤ **Invertebrates – Low**

The habitats on site are generally common and do not provide much potential for rare invertebrate species, although they are expected to support a number of more common species.

➤ **Reptiles – Negligible**

The habitats on site are of no value to reptiles due to the frequent anthropogenic disturbance and lack of suitable cover.

5 Recommendations

5.1 Designated Sites

No designated sites that were revealed by the ecological data search provided by CPERC fell on the proposed re-development site itself. Therefore, the proposed re-development will have no impact upon any local designated sites as the works are due to remain within the site boundary.

5.2 Habitats

No habitats of conservation concern were located on the site itself. Therefore, any proposed scheme of works will not impact upon any rare or valuable habitats.

5.3 Species

The following are recommendations that are likely to be a minimum requirement for any future development of the site.

5.3.1 Bats

Due to the potential impacts on foraging and commuting bats, it is recommended that a sensitive lighting scheme is included around the site. This lighting scheme is to ensure that the proposed works will not deter bats from utilising the suitable habitats around the site. Any security lighting around the storage area must be calibrated so that they are only triggered by large bodies. This is to ensure smaller objects such as moths do not set them off thus creating light spill into surrounding habitats during the night. All light is to point downwards, thus reducing the light spill and potential impacts. Please see Appendix G: Artificial Lighting and Bats for more information on how lighting impacts these species and current guidelines.

5.3.2 Hedgehogs

As a purely precautionary measure, it is recommended that provisions are incorporated during the construction phase. This will be to create provisions for hedgehogs to escape in the form of creating slopes or the inclusion of ramps at the end of each working day from all trenches dug into the ground. Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations.

Post development, 2 [Eco Hedgehog Nest Boxes](#) should be included into the site within appropriate locations. It is also recommended that small gaps are left within any boundary fencing to enable the specimens to continue to commute through the area (an example can be found within figure 3). This will ensure that the local hedgehog populations do not become fragmented within the local landscape. Additionally, wildlife corridors should be included around the site to ensure populations don't become fragmented or isolated.

Figure 3: An image illustrating a gap within a hedgerow to enable hedgehogs to continue to commute through an area and not fragment the populations (Image courtesy of the RSPB).



6 Biodiversity Net Gain

6.1 Existing Habitats

The current habitats on site are:

- A3.1 – Scattered trees
- J1.2 – Amenities Grassland
- J3.6 – building
- J4 – Bare ground

These are of low distinctiveness, low strategic significance, and low ecological connectivity (unconnected habitats). With the current proposal the majority of the site's habitats will be undisturbed, as the trees and outbuildings are to remain. The site can still benefit from having some enhancements

For the proposed development works, the following site enhancement measures could be incorporated into the site post-development. These measures are optional but are bespoke to the site surveyed for the enhancement of biodiversity.

6.2 Habitat creation

At present the site is of low ecological value, the new development presents a great opportunity to create some new habitats within the area.

6.2.1 Flora

At present, the site is not considered to have a diverse range of flora. Therefore, it is recommended that a small section of the site is converted into a 'wild meadow' that uses native wildflower seed mixes. A variety of these can be found on the [Meadowmania](#) or [Wildflower Turf](#) webpages.

Additionally, further recommendations can be made to help the biodiversity net gain for the property.

6.2.2 Hedgerows

Instead of using fencing to mark the property boundary the plantation of a hedgerow will provide a key habitat on site.

It is recommended that this hedgerow be made up of at least 5 different native species. A typical mix of shrubs to create a traditional hedgerow is: 50% hawthorn, 25% blackthorn, 15% field maple, 2% holly, 2% wild privet, 2% guelder rose, 2% dog rose and 2% buckthorn.

The plantation of trees along the hedge will also greatly enhance this feature. If trees are to be planted, they should be at five to ten metre intervals and should be of native species such as; ash, field maple, hornbeam and oak.

This will provide beneficial habitat to a number of invertebrate species as well as nesting habitat for local birds and foraging for both birds and bat species.

Further recommendations on the hedge include the way it should be managed:

1st year

- Weed around the base of the shrub to prevent competition.
- In late summer any shrubs that have died should be replaced in the autumn.
- In the shrub's first spring cut the hedge down to 45-60cm off the ground to promote a thicker hedge.

Long-term

Once the hedge is at a good height it can be improved further. Leaving a wild undisturbed margin adjacent to the hedge, ideally 2m, this will encourage growth around the base of the hedge providing cover for small mammals and nesting sites for birds.

6.2.3 Green roofs

Any flat roof is an opportunity to provide additional habitat for birds and invertebrate, these green roofs should consist of native grass and wild flower species. Green roofs also have additional benefits, economic and societal as well as ecological. These benefits include:

- Providing a rainwater buffer – absorption of rainwater, which helps to stabilize the groundwater level, reduces the peak load on the sewage system and reduces the risk of flooding.
- Reduction in ambient temperature – plants on green roofs will absorb 50% of sunlight and reflect a further 30% this will create a cooler climate indoors resulting in any form of air conditioning to be reduced, which in turn means energy savings.
- Extended roof life span – due to the construction of a green roof, roofing material are protected and can extend the roofs life span by up to sixty years.
- Added value to the building - The natural and sustainable appearance, combined with a reduction in energy costs and extension of the life span of your roof, will intern increase the monetary value of the properties.

For more details on how to build a green roof this link provides a step by step tutorial on their creation and needed materials: <https://www.instructables.com/id/Build-a-Living-Roof-Green-Roof/>

6.2.4 Rain gardens

Rain gardens can be planted in areas where water collects. They are an excellent way to manage water run offs, as well as creating multiple small habitats for invertebrates. Like green roofs, rain gardens provide multiple benefits:

- Low maintenance garden – no watering once plants have established.
- Can absorb up to 30% more water than a lawn.
- Offers opportunities to plant a wide range of perennials.
- Reduces erosion by slowing heavy rainfall.
- Increased planting attracts insects and birds.
- Avoids the need to sink a soakaway.

6.2.5 Wildflower verges

Planting wildflowers along the pathways will provide extra habitats for invertebrate species.

6.2.6 Connectivity and safe passage between the gardens

Wildlife permeable boundaries will provide entryways for wildlife to move between the garden of the site and adjacent green. Planting shrubs and wildflowers along the garden boundaries will provide cover from predation.

6.3 Species Specific Enhancements

6.3.1 Bats

It is an option to install [Eco Bat Boxes](#), [Integrated Eco Bat Boxes](#) or [Bat Access Tiles](#) on the new structures. **Please be aware** that all bat features need to avoid artificial lighting and no modern breathable felt should be used in any structures that could provide suitable bat roosts.

The site can be enhanced by introducing a bat friendly planting scheme in the soft landscaping plan. The table below outlines species recommended by the Bat Conservation Trust, all of which could be incorporated into the site post development.

Flowers for borders	Trees, shrubs & climbers
Aubretia	Bramble
Candytuft	Buddleia
Cherry pie	Common alder
Corncockle	Dogrose
Corn marigold	Elder
Corn poppy	English oak
Echniacea	Gorse
English bluebell	Guelder rose
Evening primrose	Hawthorn
Field poppies	Hazel
Honesty	Honeysuckle (native)
Ice plant 'pink lady'	Hornbeam
Knapweed	Ivy
Mallow	Jasmine
Mexican aster	Pussy willow
Michaelmas daisy	Rowan
Night-scented stock	Silver birch
Ox-eye daisy	Herbs
Phacelia	Angelica
Poached egg plant	Bergamot
Primrose	Borage
Red campion	Coriander
Red valerian	English marigolds
Scabious	Fennel
St. John's Wort	Feverfew
Sweet William	Hyssop
Tobacco plant	Lavenders
Verbena	Lemon balm
Wallflowers	Marjoram
Wood forget-me-not	Rosemary
Yarrow	Sweet Cicely
	Thyme

6.3.2 **Birds**

The site could be enhanced for birds by installing a variety of bird boxes on site, such as an [Apex Bird Box](#) and an [Apex Robin Box](#).

6.3.3 **Invertebrates**

At present, the site is not considered to be of any importance to local invertebrate populations. In conjunction with the wildflower planting, it is recommended that one [Bumblebee Box](#) are incorporated into the scheme, along with one [Bug Hotel](#). This will enhance the site for the local invertebrate populations, which will thus attract species further up in the trophic level.

6.3.4 **Hedgehogs**

The site could be enhanced for the local hedgehog population by installing two [Eco Hedgehog Nest Boxes](#). This will create more opportunities for hedgehogs within the local landscape.

7 References

- Bat Conservation Trust (2016). *Bat Surveys – Good Practice Guidelines*. 3rd Edition. Bat Conservation Trust: London.
- Berthinussen, A. & Altringham, J.D. (2012). The effect of a major road on bat activity and diversity. *Journal of Applied Ecology* 49: p.p. 82–89.
- Bickmore, C. J. (2002). *Hedgerow Survey Handbook*. London: DEFRA
- Biodiversity 2020: A strategy for England's wildlife and ecosystem services (2011).
- Circular 06/05 Biodiversity and Geological Conservation – Statutory Obligations and Their Impact System (2005).
- The Conservation of Habitats and Species Regulations 2017 (Amendment). SI 2017/1012.
- The Conservation (Natural Habitats, etc.) (Amendment) Regulations 2007. SI 2007/1843, London: HMSO.
- Countryside and Rights of Way Act 2000 (c.37). London: HMSO.
- Defra (2007a) *Securing a Healthy Natural Environment: an action plan for embedding an ecosystems approach*. PB12853. Defra London.
- Defra (2007b) *An Introductory Guide to Valuing Ecosystems Services*. PB12852. Defra London.
- Dietz, C., von Helversen, O. & Nill, D. (2009) *Bats of Britain, Europe and Northwest Africa*. London: A. C. Black.
- Hutson, A.M., Spitzenberger, F., Aulagnier, S., Coroiu, I., Karataş, A., Juste, J., Paunovic, M., Palmeirim, J. & Benda, P. (2008) *Pipistrellus pipistrellus*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.1.
- Institute of Ecology and Environmental Management, Professional Guidance Series.
- Institute of Ecology and Environmental Management (2006), *Guidelines for Ecological Impact Assessment in the United Kingdom*.
- Institute of Environmental Assessment (1995). *Guidance for Baseline Ecological Assessment*.
- Joint Nature Conservation Committee (2005). *The Marine Habitat Classification for Britain and Ireland, Version 04*.
- Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey – a technique for environmental audit*.
- Millennium Ecosystem Assessment (2005).
- National Planning Policy Framework (2018).
- The natural choice: securing the value of nature (2011) (Natural Environment White Paper).
- Natural Environment and Rural Communities (NERC) Act 2006.
- RSPB (2002). *The Population Status of Birds in the UK*.
- RSBP (2009). *Birds of Conservation Concern 3*.
- Rydell J & Racey, P A (1993) *Street lamps and the feeding ecology of insectivorous bats*. Recent Advances in Bat Biology, Zool Soc Lond Symposium abstracts.
- UK Biodiversity Action Plan (2007). *UK List of Priority Species*. Joint Nature Conservation Committee.
- Wildlife and Countryside Act 1981 (and amendments) (c.69). London: HMSO.

8 Appendices

Appendix A: Site Plans

Appendix B: The Ecological Data Tables

Appendix C: Phase 1 Habitat Map

Appendix D: Site Photographs

Appendix E: Biodiversity Legislation and Policy

Appendix A: Site Plans

No site plans have been provided at the production of this report.

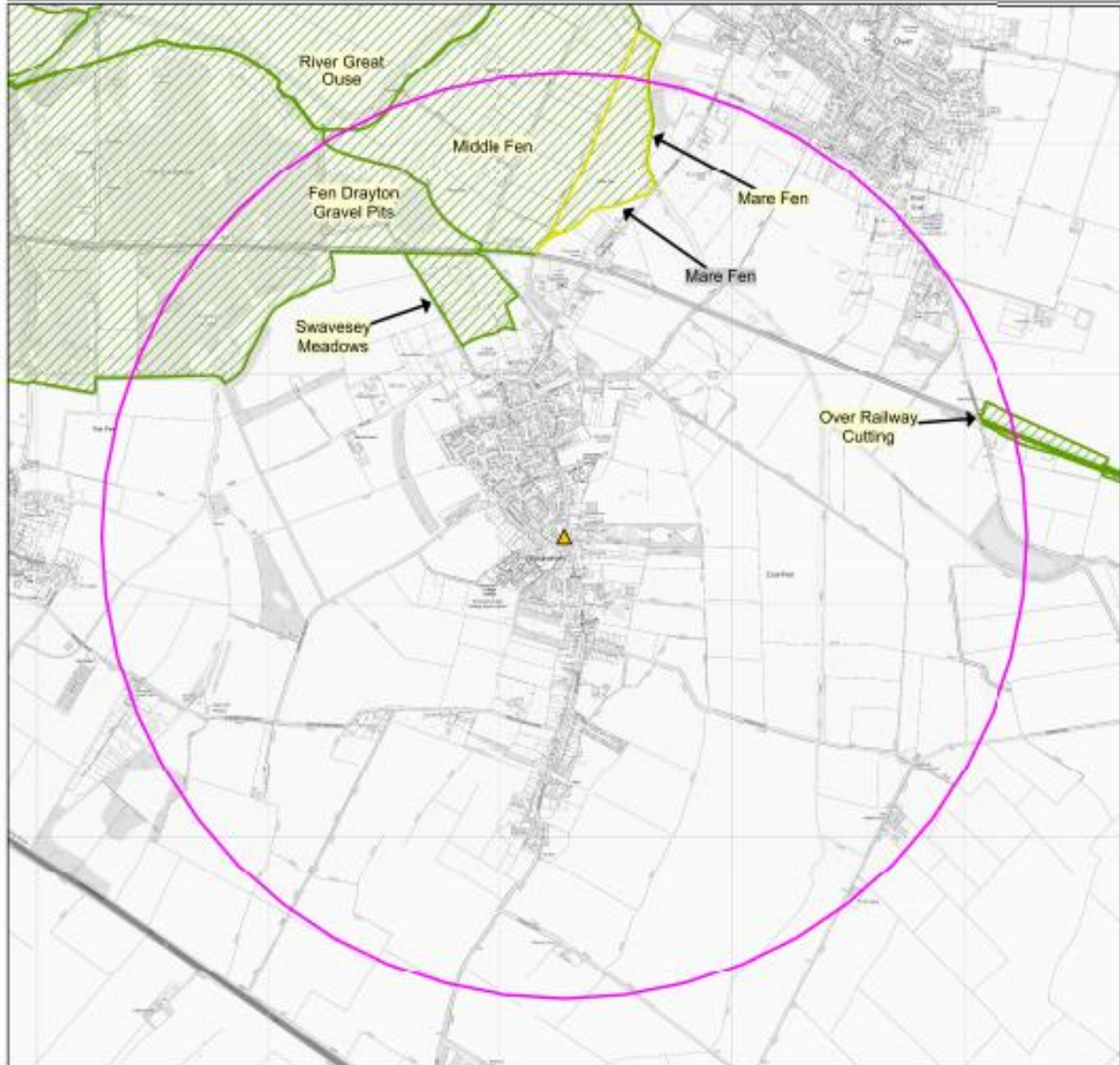
Appendix B: The Ecological Data Search

Appendix B1: species map

No species map was provided by CPERC

Appendix B2: Designated sites map

<p>Designated Sites Map for Elite Ecology Swavesey 19/05/2020 1:25,000</p>	<p>CPERC The Manor House Broad Street Cambourne Cambridgeshire CB23 6DH</p>	
---	---	--



	Search Area
	Supplied Grid Reference

	SSSI
	LNR
	County Wildlife Site
	City Wildlife Site (Cambridge City)

This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.
Cambridgeshire County Council 100023205 (2020)

Appendix B3: Ecological data species list

Amphibians	
Common Name	Latin Name
Common Frog	<i>Rana temporaria</i>
Common Toad	<i>Bufo bufo</i>
Great Crested Newt	<i>Triturus cristatus</i>
Birds	
Common Name	Latin Name
Arctic Tern	<i>Sterna paradisaea</i>
Avocet	<i>Recurvirostra avosetta</i>
Barn Owl	<i>Tyto alba</i>
Barnacle Goose	<i>Branta leucopsis</i>
Bar-tailed Godwit	<i>Limosa lapponica</i>
Bearded Tit	<i>Panurus biarmicus</i>
Bewick's Swan	<i>Cygnus columbianus</i>
Bittern	<i>Botaurus stellaris</i>
Black Kite	<i>Milvus migrans</i>
Black Redstart	<i>Phoenicurus ochruros</i>
Black Tern	<i>Chlidonias niger</i>
Black-necked Grebe	<i>Podiceps nigricollis</i>
Black-tailed Godwit	<i>Limosa limosa</i>
Brambling	<i>Fringilla montifringilla</i>
Brent Goose	<i>Branta bernicla</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Cetti's Warbler	<i>Cettia cetti</i>
Common Crossbill	<i>Loxia curvirostra</i>
Common Scoter	<i>Melanitta nigra</i>
Common Tern	<i>Sterna hirundo</i>
Corn Bunting	<i>Emberiza calandra</i>
Crane	<i>Grus grus</i>
Cuckoo	<i>Cuculus canorus</i>
Curlew	<i>Numenius arquata</i>
Dotterel	<i>Charadrius morinellus</i>
Duncock	<i>Prunella modularis</i>
Ferruginous Duck	<i>Aythya nyroca</i>
Fieldfare	<i>Turdus pilaris</i>
Firecrest	<i>Regulus ignicapilla</i>
Garganey	<i>Anas querquedula</i>
Glossy Ibis	<i>Plegadis falcinellus</i>
Golden Oriole	<i>Oriolus oriolus</i>

Preliminary Ecological Appraisal

Golden Plover	<i>Pluvialis apricaria</i>
Goldeneye	<i>Bucephala clangula</i>
Goshawk	<i>Accipiter gentilis</i>
Grasshopper Warbler	<i>Locustella naevia</i>
Great Northern Diver	<i>Gavia immer</i>
Green Sandpiper	<i>Tringa ochropus</i>
Greenshank	<i>Tringa nebularia</i>
Grey Partridge	<i>Perdix perdix</i>
Greylag Goose	<i>Anser anser</i>
Hen Harrier	<i>Circus cyaneus</i>
Hobby	<i>Falco subbuteo</i>
Honey-buzzard	<i>Pernis apivorus</i>
House Sparrow	<i>Passer domesticus</i>
Kingfisher	<i>Alcedo atthis</i>
Lapland Bunting	<i>Calcarius lapponicus</i>
Lapwing	<i>Vanellus vanellus</i>
Lesser Redpoll	<i>Acanthis cabaret</i>
Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>
<i>Limosa limosa</i> subsp. <i>islandica</i>	<i>Limosa limosa</i> subsp. <i>islandica</i>
Linnet	<i>Linaria cannabina</i>
Little Egret	<i>Egretta garzetta</i>
Little Gull	<i>Hydrocoloeus minutus</i>
Little Ringed Plover	<i>Charadrius dubius</i>
Little Tern	<i>Sternula albifrons</i>
Long-tailed Duck	<i>Clangula hyemalis</i>
Marsh Harrier	<i>Circus aeruginosus</i>
Marsh Tit	<i>Poecile palustris</i>
Mediterranean Gull	<i>Larus melanocephalus</i>
Merlin	<i>Falco columbarius</i>
Night-heron	<i>Nycticorax nycticorax</i>
Osprey	<i>Pandion haliaetus</i>
Peregrine	<i>Falco peregrinus</i>
Pintail	<i>Anas acuta</i>
Purple Heron	<i>Ardea purpurea</i>
Quail	<i>Coturnix coturnix</i>
Red Kite	<i>Milvus milvus</i>
Redwing	<i>Turdus iliacus</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Ring Ouzel	<i>Turdus torquatus</i>
Ruddy Shelduck	<i>Tadorna ferruginea</i>
Ruff	<i>Calidris pugnax</i>
Sandwich Tern	<i>Sterna sandvicensis</i>
Scaup	<i>Aythya marila</i>
Short-eared Owl	<i>Asio flammeus</i>

Preliminary Ecological Appraisal

Skylark	<i>Alauda arvensis</i>
Slavonian Grebe	<i>Podiceps auritus</i>
Smew	<i>Mergellus albellus</i>
Song Thrush	<i>Turdus philomelos</i>
Spoonbill	<i>Platalea leucorodia</i>
Spotted Flycatcher	<i>Muscicapa striata</i>
Starling	<i>Sturnus vulgaris</i>
Swift	<i>Apus apus</i>
Temminck's Stint	<i>Calidris temminckii</i>
Tree Pipit	<i>Anthus trivialis</i>
Tree Sparrow	<i>Passer montanus</i>
Turtle Dove	<i>Streptopelia turtur</i>
Velvet Scoter	<i>Melanitta fusca</i>
Whimbrel	<i>Numenius phaeopus</i>
White Stork	<i>Ciconia ciconia</i>
White-fronted Goose	<i>Anser albifrons</i>
Whooper Swan	<i>Cygnus cygnus</i>
Wood Sandpiper	<i>Tringa glareola</i>
Woodlark	<i>Lullula arborea</i>
Yellow Wagtail	<i>Motacilla flava</i>
Yellowhammer	<i>Emberiza citrinella</i>
Flora	
Common Name	Latin Name
Annual Beard-grass	<i>Polypogon monspeliensis</i>
Butcher's-broom	<i>Ruscus aculeatus</i>
Corn Mint	<i>Mentha arvensis</i>
Crosswort	<i>Cruciata laevipes</i>
Dittander	<i>Lepidium latifolium</i>
Dwarf Spurge	<i>Euphorbia exigua</i>
Field Scabious	<i>Knautia arvensis</i>
Fringed Water-lily	<i>Nymphoides peltata</i>
Frogbit	<i>Hydrocharis morsus-ranae</i>
Galingale	<i>Cyperus longus</i>
Grape-hyacinth	<i>Muscari neglectum</i>
Greater Bladderwort	<i>Utricularia vulgaris</i>
Hoary Plantain	<i>Plantago media</i>
Marsh Dock	<i>Rumex palustris</i>
Marsh Ragwort	<i>Senecio aquaticus</i>
Mousetail	<i>Myosurus minimus</i>
Narrow-leaved Water-dropwort	<i>Oenanthe silaifolia</i>
Needle Spike-rush	<i>Eleocharis acicularis</i>
Opposite-leaved Pondweed	<i>Groenlandia densa</i>

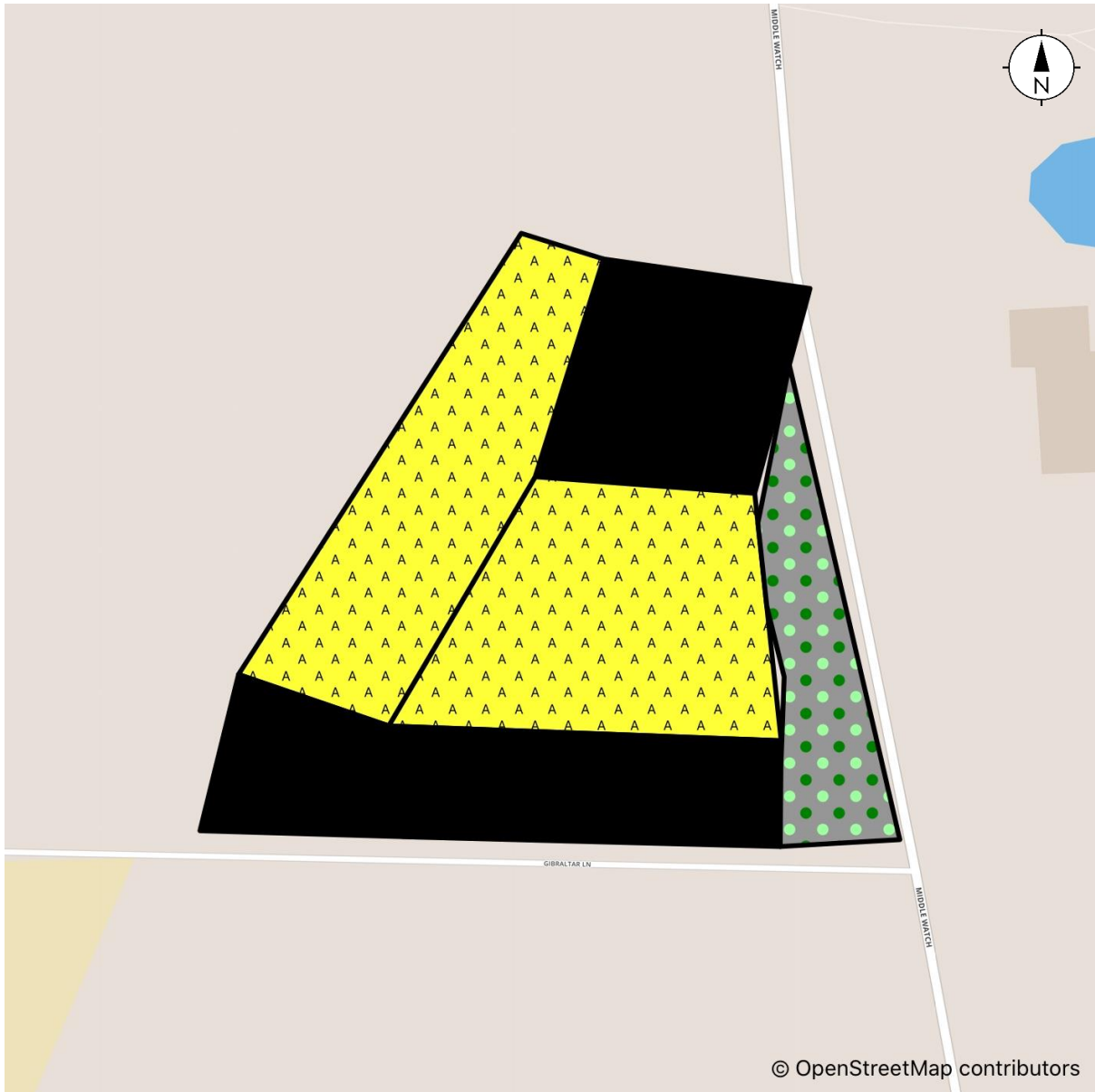
Preliminary Ecological Appraisal

Quaking-grass	<i>Briza media</i>
Ragged-Robin	<i>Silene flos-cuculi</i>
River Water-dropwort	<i>Oenanthe fluviatilis</i>
Sainfoin	<i>Onobrychis viciifolia</i>
Shining Pondweed	<i>Potamogeton lucens</i>
Small Water-pepper	<i>Persicaria minor</i>
Strawberry Clover	<i>Trifolium fragiferum</i>
Tasteless Water-pepper	<i>Persicaria mitis</i>
Tormentil	<i>Potentilla erecta</i>
Treacle-mustard	<i>Erysimum cheiranthoides</i>
Tubular Water-dropwort	<i>Oenanthe fistulosa</i>
Water-soldier	<i>Stratiotes aloides</i>
Water-violet	<i>Hottonia palustris</i>
Welsh Poppy	<i>Meconopsis cambrica</i>
Invertebrates	
Common Name	Latin Name
Belladonna Flea Beetle	<i>Epitrix atropae</i>
Blood-vein	<i>Timandra comae</i>
Bright Four-spined Legionnaire	<i>Chorisops nagatomii</i>
Bulrush Veneer	<i>Calamotropha paludella</i>
Cinnabar	<i>Tyria jacobaeae</i>
Dark-barred Twin-spot Carpet	<i>Xanthorhoe ferrugata</i>
Dusky Brocade	<i>Apamea remissa</i>
Green Hairstreak	<i>Callophrys rubi</i>
Grizzled Skipper	<i>Pyrgus malvae</i>
Large Nutmeg	<i>Apamea anceps</i>
Latticed Heath	<i>Chiasmia clathrata</i>
Lesser Earwig	<i>Labia minor</i>
Mottled Rustic	<i>Caradrina morpheus</i>
Platyderus depressus	<i>Platyderus depressus</i>
Rustic	<i>Hoplodrina blanda</i>
Scarce Chaser	<i>Libellula fulva</i>
Shaded Broad-bar	<i>Scotopteryx chenopodiata</i>
Small Heath	<i>Coenonympha pamphilus</i>
Trichosirocalus barnevillei	<i>Trichosirocalus barnevillei</i>
Variable Damselfly	<i>Coenagrion pulchellum</i>
Wall	<i>Lasiommata megera</i>
White Ermine	<i>Spilosoma lubricipeda</i>
White-spotted Pinion	<i>Cosmia diffinis</i>
Mammals	
Common Name	Latin Name

Preliminary Ecological Appraisal

Bats	<i>Chiroptera</i>
Brown Hare	<i>Lepus europaeus</i>
Brown Long-eared Bat	<i>Plecotus auritus</i>
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>
Eurasian badger	<i>Meles meles</i>
European otter	<i>Lutra lutra</i>
European water vole	<i>Arvicola amphibious</i>
Long-eared Bat species	<i>Plecotus</i>
Natterer's Bat	<i>Myotis nattereri</i>
Noctule Bat	<i>Nyctalus noctula</i>
Pipistrelle Bat species	<i>Pipistrellus</i>
Pole cat	<i>Mustela putorius</i>
Serotine	<i>Eptesicus serotinus</i>
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>
West European Hedgehog	<i>Erinaceus europaeus</i>
Reptiles	
Common Name	Latin Name
Common Lizard	<i>Zootoca vivipara</i>
Grass Snake	<i>Natrix helvetica</i>

Appendix C: Phase 1 Habitat Map



Polygons



A3.3 Mixed Parkland/
scattered trees



J1.2 Cultivated/disturbed
land - amenity
grassland



J3.6 Buildings

Appendix D: Site Photographs

Plate 1: The land at 48 Middle Watch, Swavesey.



Plate 2: Land at Middle Watch, Swavesey.



Appendix E: Biodiversity Legislation and Policy

General Legislation and Policy:

The framework of legislation and policy which underpins nature conservation in England. This is a material consideration in the planning process in England.

Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2010 as amended)

The Conservation of Habitats and Species Regulations 2017 consolidate and update the Conservation Regulations 1994 and the conservation of habitats and species regulations 2010 (and all their amendments). The Conservation of Habitats and Species Regulations 2017 are the principal means by which the EEC Council Directive 92/43 (The Habitats Directive) as amended is transposed into English and Welsh law.

The Conservation of Habitats and Species Regulations 2017 place duty upon the relevant authority of government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria are, in conjunction with the European Commission, designated as Sites of Community Importance, which are subsequently identified as Special Areas of Conservation (SAC) by the European Union member states. The regulations also place a duty upon the government to maintain a register of European protected sites designated as a result of EC Directive 79/409/EEC on the Conservation of Wild Birds (The Birds Directive). These sites are termed Special Protection Areas (SPA) and, in conjunction with SACs, form a network of sites known as Natura 2000. The Habitats Directive introduces for the first time for protected areas, the precautionary principle; that is that projects can only be permitted having ascertained no adverse effect on the integrity of the site. Projects may still be permitted if there are no alternatives, and there are imperative reasons of overriding public interest.

The Conservation of Habitats and Species Regulations 2017 also provide for the protection of individual species of fauna and flora of European conservation concern listed in Schedules 2 and 5 respectively. Schedule 2 includes species such as otter and great crested newt for which the UK population represents a significant proportion of the total European population. It is an offence to deliberately kill, injure, disturb or trade these species. Schedule 5 plant species are protected from unlawful destruction, uprooting or trade under the regulations.

The Wildlife and Countryside Act (WCA) 1981 (As amended)

The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Conservation (Natural Habitats. & c.) Regulations 1994 (as amended), offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).

Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species.

The Countryside and Rights of Way (CROW) Act 2000

The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife legislation detailed in the WCA. It places a duty on government departments and the National Assembly for Wales to have regard for biodiversity, and provides increased powers for the protection and maintenance of SSSIs.

The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

The Natural Environment and Rural Communities (NERC) Act 2006

Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all of their functions. Sections 41 (England) and 42 (Wales)

list habitats and species of principal importance to the conservation of biodiversity. These lists supersede Section 74 of the CRoW Act 2000. These species and habitats are a material consideration in the planning process.

The Hedgerow Regulations 1997

The Hedgerow Regulations make provision for the identification of important hedgerows which may not be removed without permission from the Local Planning Authority.

UK Biodiversity Action Plan

The United Kingdom Biodiversity Action Plan (UKBAP), first published in 1994 and updated in 2007, is a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UKBAP contains a list of priority habitats and species of conservation concern in the UK, and outlines biodiversity initiatives designed to enhance their conservation status. Lists of Broad and Local habitats are also included. The priority habitats and species correlate with those listed on Section 41 and 42 of the NERC Act.

The UKBAP requires that conservation of biodiversity is addressed at a County level through the production of Local BAPs. These are complementary to the UKBAP, however are targeted towards species of conservation concern characteristic of each area. In addition, a number of local authorities and large organisations have produced their own BAPs. UKBAP and Local BAP targets with regard to species and habitats are a material consideration in the planning process.

Planning Policy (England) and National Planning Policy Framework

In early 2012, the National Planning Policy Framework (NPPF) replaced much previous planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives. The latest National Planning Policy Framework was updated in February 2019, with the section in relation to conserving the natural environment being located within section 15.

Section 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains in biodiversity. Opportunities to incorporate biodiversity gains into a development should be encouraged.

If a proposed development would result in significant harm to the natural environment which cannot be avoided (through the use of an alternative site with less harmful impacts), mitigated or compensated for (as a last resort) then planning permission should be refused.

Species Specific Legislation

This section contains a summary of legislation with relation to the species present or potentially present in the survey area. The reader should refer to the original legislation for definitive interpretation.

Nesting and Nest Building Birds

Nesting and nest building birds are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Some species (listed in Schedule 1 of the WCA) are protected by special penalties.

Subject to the provisions of the act, if any person intentionally:

- kills, injures or takes any wild bird;
- takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
- takes or destroys an egg of any wild bird, he shall be guilty of an offence.

'Reckless' offences with regard to the disturbance of nesting wild birds included in Schedule 1 of the Wildlife and Countryside Act were added by the Countryside and Rights of Way Act 2000.

The Natural Environment and Rural Communities (NERC) Act 2006 places a duty on Government Departments to have regard for the conservation of biodiversity and maintains lists of species and habitats which are of principal importance for the purposes of conserving biodiversity in England and Wales. These lists include a number of bird species.

The reader is referred to the original legislation for the definitive interpretation.

Badger

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to:

- wilfully kill, injure, take or attempt to kill, injure or take a badger;
- possess a dead badger or any part of a badger;
- cruelly ill-treat a badger;
- use badger tongs in the course of killing, taking or attempting to kill a badger;
- dig for a badger;
- sell or offer for sale or control any live badger;
- mark, tag or ring a badger; and
- interfere with a badger sett by:
 - damaging a sett or any part thereof;
 - destroying a sett;
 - obstructing access to a sett;
 - causing a dog to enter a sett; and
 - disturbing a badger while occupying a sett.

The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger".

Bats

All species of bat are fully protected under a variety of domestic, European and international legislation and conventions. These include:

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- Conservation of Habitats and Species Regulations 2010
- Countryside Rights of Way Act 2000

- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

In addition to this, some species have additional protection by being listed on the UK Biodiversity Action Plan (UKBAP).

The legislation afforded to bats makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which protects birds, nests, eggs and nestlings from harm. In addition to this, some rarer species, such as barn owls are afforded extra protection.

National Planning Policy Framework, Section 15:

The published framework in 2018 replaces the previous Planning Policy Statement 9 and National Planning Policy (dated 2012).

Section 15: Conserving and enhancing the natural environment reaffirms the government's commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife. It also aims to improve the quality of the natural environment and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.

Biodiversity 2020:

This sets out to halt overall biodiversity loss and support healthy well-functioning ecosystems by establishing coherent ecological networks, with more and better places for nature, to the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

Freshwater White-clawed Crayfish

The white-clawed crayfish is partially protected under Wildlife and Countryside Act 1981 (as amended). It is listed on schedule 5 and therefore afforded protection under Section 9 (1 and 5). Therefore, it is an offence to take white-clawed crayfish and to sell, or attempt to sell, any part of the species, alive or dead, or intend to buy or sell.

Great Crested Newt

The great crested newt (*Triturus cristatus*) is fully protected under a variety of legislation and conventions. These include:

- Bern Convention (Appendix II)
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)
- Conservation of Habitats and Species Regulations 2010
- EU Habitats Directive (Annex II and IV)
- Nature Conservation (Scotland) Act 2004
- NERC Act 2006 (Section 41 England; Section 42 Wales)
- Wildlife and Countryside Act 1981 (as amended)

In addition to this, the great crested newt has been listed as a priority species on the UK Biodiversity Action Plan (UKBAP).

Preliminary Ecological Appraisal

This legislation covers all aspects of newt life stages (eggs, efts and adult newts) and makes it illegal to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a great crested newt while it is occupying a structure or place which it uses for that purpose.

Licenses can be obtained from Natural England (DEFRA) under the Conservation (Natural Habitats etc.) Regulations 1994, to permit activities for the purposes of:

- Regulation 44(2)(e): Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment, or
- Regulation 44(2)(f): Preventing the spread of disease
- Regulation 44(2)(g): Preventing serious damage to any form of property or fisheries

Or

- If there is no satisfactory alternative.

The above regulations allow people to carry out activities which would otherwise be illegal.

Hazel Dormouse

Hazel Dormouse and their habitats are protected by:

- Wildlife and Countryside Act 1981 (as amended)
- Countryside Rights of Way (CROW) 2000
- The Natural Environment and Rural Communities Act 2006
- Conservation of Habitat and Species Regulations 2010

These make it an offence to:

- Capture, injure or kill a Hazel Dormouse
- Disturb a Hazel Dormouse
- Damage or destroy breeding or nesting sites in use by Hazel Dormice
- Disturb a Dormouse whilst it is occupying a structure or place that they use for shelter or protection
- Obstruct access to any structure or place that the Dormouse uses for shelter and protection.
- To possess or control any live or dead specimens.

Otter

Otters are fully protected by the European Habitats Directive (92/43/EEC) by being incorporated in annex II of the legislation. In addition to this, otters are listed on schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- To intentionally kill, injure or take an otter.
- To possess or control any live or dead specimens.
- To intentionally or recklessly damage, destroy or obstruct access to any structure, feature or place of shelter in use by otters.
- To intentionally or recklessly disturb an otter whilst it is in occupation of a feature or structure.
- To sell, possess or transport for the purpose of sale or publicly declare the desire to buy or sell otters.

Reptiles

All six native reptiles within Great Britain are legally protected, with the extent of protection varying dependent upon their rarity and conservation importance.

Those that receive full protection under the Wildlife and Countryside Act 1981 (as amended) are the rare sand lizard and smooth snake. These species also receive protection under the Conservation

(Natural Habitats &c.) Regulations 1994 (also referred to as the Habitats Directive). This means that they are protected from deliberate disturbance, killing, injury or capture and the habitat in which they live is also fully protected against damage or destruction. Any activity involving disturbance or damage to habitats utilised by sand lizards or smooth snakes would require a licence issued by the Department of the Environment, Food and Rural Affairs (DEFRA) following consultation with the statutory nature conservation organisation (Natural England).

The remaining four reptile species are 'partially protected' under the Wildlife and Countryside Act 1981 (as amended), with these species being slow-worm, common lizard, grass snake and adder. This means that these species are protected against intentional killing, injuring and against sale, but their habitat is not protected. In planning terms this means that the presence of these species is a material consideration and there is a requirement to ensure that any reptile interest is safeguarded. If a proposed development is likely to have an impact on these reptiles, then the statutory nature conservation organisation must be notified, particularly if capture and translocation is being proposed. In some parts of the UK, sites that support common reptile species such as common lizards and slow-worms can qualify as County Wildlife Sites. Sites of this designation may receive protection in planning policy.

Water Voles

Water Voles are fully protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- To intentionally kill, injure or take a water vole.
- To possess or control any live or dead specimens.
- To intentionally or recklessly damage, destroy or obstruct access to any structure, feature or place of shelter in use by water voles.
- To intentionally or recklessly disturb a water vole whilst it is in occupation of a feature or structure.
- To sell, possess or transport for the purpose of sale or publicly declare the desire to buy or sell water voles.

Non-Native Floral Species

It is an offence under schedule 9 of the Wildlife and Countryside Act 1981 (as amended) to plant or otherwise cause non-native flora to grow in the wild. This includes the transportation of earth that has previously had non-native species growing and includes the spread of the species.

All stands of non-native floral species need to be disposed of safely at a licenced landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991.

Appendix F: Bats and Artificial Light

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotis bats (*Myotis* spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

Current recommendations for all bat species specifies that no bat roost should be directly illuminated.

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

➤ **To introduce lighting curfews or use of PIR sensors.**

Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

➤ **To consider no lighting solutions where possible.**

Options such as white lining, good signage and LED cats eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

➤ **To use only high pressure sodium or warm white LED lamps where possible.**

High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

➤ **To minimise the spread of light.**

The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

➤ **To consider the height of the lighting column.**

While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

➤ **To avoid reflective surfaces below lights.**

The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

9 Notice to Readers: Conditions of this Report

All reports are certified products and cannot be shown, copied or distributed to third parties without the written permission of Elite Ecology. No liability is accepted for the contents of the report, other than to that of the client(s). If any part of this report is altered without the written permission of Elite Ecology, then the whole report becomes invalid.

Elite Ecology agrees to supply ecological consulting services and advice of a preliminary or thorough nature as advised or commissioned. Upon commissioning Elite Ecology to undertake the work, the client(s) grant access to the site upon the agreed date. If no site access is available upon this date, Elite Ecology holds the right to charge the client(s) for lost staffing time and additional travel costs.

Elite Ecology undertake all site surveys with reasonable skill, care and diligence, within the terms of the contract that has been agreed with the client and abiding by the Elite Ecology Terms and Conditions. The actions of the surveyors on site, and during the production of the report, were undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management.

The latest good practice guidelines put in place by Natural England or the relevant statutory conservation bodies have been followed by the surveyors on site. If those methodologies fail to identify a protected species during the survey efforts, no responsibility can be attributed to Elite Ecology. If any of these guidelines are adapted between the date(s) of the surveys being undertaken and the submission of this report, then Elite Ecology takes no responsibility for this.

Should any equipment be damaged or lost on site at the fault of the client(s), then Elite Ecology withholds the right to charge 100% above the current market value for that exact product or the nearest similar product.

The survey results purport the current status of the site and its potential for protected species utilisation at the time of surveying. It should not be viewed as a complete list of the possible flora and fauna species that could be using the site at different times of the year.

Elite Ecology has been provided with full payment for this report and thus the product has been released to the client(s) for the purpose of their planning application. If any part of the report is lost or altered without the written permission of Elite Ecology, then the entire report becomes invalid. Due to the potential for continual change within the natural world, this report is valid for **2 years only** from the date of the last survey visit. If this report is submitted after the 2 year deadline, then a further updated inspection will be required to ascertain whether the site remains in the same condition as it was when initially inspected.

No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.