

PHILLIPS ECOLOGY

EXTENDED PHASE 1 ECOLOGICAL ASSESSMENT AND PHASE 2 SURVEYS

LAND AT LITTLE MEADOW, YAPTON, WEST SUSSEX BN18 0JY

DRAFT REPORT

March 2021

Report conditions

<i>Report title</i>	Extended Phase 1 Ecological Assessment and Phase 2 Surveys – Land at Little Meadow, Yapton, West Sussex BN18 0JY		
<i>Client</i>	Ann Taylor		
<i>Report status</i>	Draft		
<i>Survey date</i>	25 th June 2020, June 2020 – November 2020		
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Executive Summary

- This extended phase 1 ecological assessment and phase 2 surveys report has been prepared in order to support a planning application for the proposed residential development on land at Little Meadow, Yapton, West Sussex BN18 0JY.
- An extended phase 1 ecological assessment of the application site was undertaken on the 25th June 2020 by Izabel Phillips and Katy Goddard of Phillips Ecology.
- The survey area comprised the entire site within the application boundary which included the existing field boundary features. A data search extended to a 2km radius for statutory designated sites, protected species, priority species and a 1km radius for priority habitats.
- The site was considered to support opportunities for protected and priority species including dormice, breeding birds, great crested newts and reptiles.
- Further survey work in accordance with Natural England's standing advice was required to confirm the presence/absence of reptiles, great crested newts and dormice to ascertain the potential impact of the proposal and finalise any necessary mitigation.
- A reptile refugia presence/absence survey was undertaken between June and September 2020. The survey has confirmed that the site supports low populations of common lizard and slow-worm.
- The proposed development will result in the loss of reptile habitat. As such, a mitigation strategy has been designed to ensure that reptiles are not killed or injured as a result of the construction and operational phases of the development.
- A dormouse presence/absence survey was carried out between July and November 2020. The survey work has confirmed the absence of dormice on site.
- A great crested newt eDNA survey of the on-site pond was undertaken in accordance with Biggs *et al* (2014) during June 2020. The survey has conclusively shown great crested newts to be absent from the on-site pond.
- With the implementation of construction and operational mitigation and avoidance measures, impacts on other protected species will be avoided.
- Provided the recommendations set out in section 15 are followed, the planning authority can be confident that the development would accord with relevant planning policy, legislation and caselaw.

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1. Introduction

1.1 Report purpose

This report has been prepared in order to present the extended phase 1 ecological assessment and phase 2 surveys undertaken for the proposed residential development on land at Little Meadow, Yapton, West Sussex BN18 0JY.

1.2 Description of proposal

The current proposals comprise the construction of 81 residential units and associated infrastructure, amenity space and an enlarged employment area within the application site. The proposal will require the construction of a new site access from Bilsham Road through an existing hedgerow.

1.3 Report context

Critchley Architecture and Design (CAAD) Ltd have prepared an outline planning application on behalf of Ann Taylor (the Applicant) for the construction of 81 residential units on land to the east of the Old Chicken Farm. The planning authority, Arun District Council, have requested that the planning application is accompanied by ecological survey and assessment work. Phillips Ecology have been instructed by the Applicant to undertake this assessment.

1.4 Scope of assessment

An extended phase 1 ecological assessment was carried out on the 25th June 2020. The survey comprised a field survey and desktop study in order to identify notable or protected sites, habitats or species potentially affected by the proposal under consideration. This survey was followed by further species-specific surveys in the form of reptile presence/absence surveys, dormouse presence/absence surveys and a great crested newt eDNA survey of the on-site pond.

1.5 Survey area

The survey area comprised the approximate 5.56ha site. A data search extended to a 2km radius for statutory designated sites and protected species and a 1km radius for priority habitats.

1.6 Limitations

Limitations which are specific to each phase of the assessment are given in the relevant sections, below.

2. Data search

2.1 Methodology

A desk-based assessment was undertaken by Phillips Ecology on the 18th June 2020 with Multi-Agency Geographic Information for the Countryside (MAGIC) and Sussex Biodiversity Records Centre (SxBRC). The MAGIC database was consulted for records of statutory designated sites for the application site and a 4km radius and priority habitats for the site and a 1km radius, whilst SxBRC was consulted for records of locally designated sites, protected species and priority species within the application site and a 2km radius.

2.2 Limitations

The data search results are bound by the following statement contained within MAGICs general disclaimer: *“The materials contained on this website are of a general, informational, nature. We have used reasonable endeavours to ensure the accuracy and completeness of the contents of the pages on this site but the information does not constitute advice and must not be relied on as such”* and by the following statement contained within SxBRCs Terms and Conditions: *“All recipients of data provided by the Sussex Biodiversity Record Centre should be aware of, and agree to, the following: SxBRC takes data validation very seriously, but cannot be held responsible for the accuracy of data included in search reports. Any record is specific to the date of recording and does not imply the continuance of the species at that site. The lack of species or habitat information for a geographically defined area does not necessarily imply a low biodiversity value for that area; it may simply be unrecorded..”*

2.3 Results

2.3.1 Statutory designated sites

One statutory designated site is located within a 4km radius of the application site. This comprises Climping Beach Site of Special Scientific Interest (SSSI) which is located 3.6km south-east of the application site. The site comprises a stretch of coast with a vegetated shingle beach, behind which is a sand dune system. The intertidal zone supports important populations of wintering birds and the numbers of wintering sanderling, in particular, are of European significance. The application site is located outside the impact risk zone for Climping Beach SSSI.

2.3.2 County Wildlife Sites and Ancient woodlands

Two local designated sites are located within a 2km radius of the application site. These are detailed in table 1, below. No ancient woodlands are present within a 2km radius of the application site.

Table 1 Local Wildlife Sites within 2km of the application site

Site Name	Approx. distance and direction from the site	Reason for designation
Elmer Rocks – Ar18	2km S	Intertidal sand and shingle, vegetated shingle and off-shore rocks
Middleton Shingle – Ar19	2km S	Vegetated shingle

2.3.3 *Priority habitats*

The data search revealed the following priority habitats within 2km of the application site:

- Deciduous woodland
- Coastal floodplain grazing marsh
- Coastal vegetated shingle
- Coastal sand dune
- Chalk stream

2.3.4 *Priority species*

Records of protected and priority species are reported in the relevant sections (4.0).

3. Habitats

3.1 Methodology

A field survey was carried out on the 25th June 2020 by Izabel Phillips (bat licence ref: 2015-11750-CLS-CLS, dormouse licence ref: 2016-19512-CLS-CLS, GCN licence ref: 2015-16928-CLS-CLS). During the survey all broad habitat types were identified and a list was compiled of characteristic plant species within each habitat type. These habitats are described below in accordance with Phase 1 habitat terminology.

3.2 Limitations

The habitat survey was carried out during June which is during the optimal period for recording vascular plant species. Therefore, it was possible to identify vegetation to effectively classify habitat types in accordance with Phase 1 habitat terminology and no limitations were encountered.

3.3 Existing records

The data search revealed that priority habitats associated with the nearby coastal landscape are the most prevalent priority habitats within a 2km radius of the site. Woodland cover is limited within the 2km data search area with only several small blocks of priority woodland were recorded within 2km of the site. Arable farmland which is interspersed by mature hedgerows and residential properties is the dominant habitat within the wider landscape beyond the residential area of Bilsham.

3.4 Results

The following Phase 1 habitat types were recorded within the survey site. The locations of the recorded habitats are shown in Map 1.

3.4.1 Improved grassland

The majority of the application site comprises two improved grassland fields which are cultivated for horse grazing and silage and/or hay production (Figure 1). The grassland is dominated by false-oat grass *Arrhenatherum elatius*, Yorkshire fog *Holcus lanatus*, perennial rye-grass *Lolium perenne*, cock's-foot *Dactylis glomerata* and sweet vernal-grass *Anthoxanthum odoratum*. Herb species including creeping buttercup *Ranunculus repens*, common ragwort *Jacobaea vulgaris* and white clover *Trifolium repens* were recorded amongst the grasses. Patches of oxeye daisy *Leucanthemum vulgare*, field bindweed *Convolvulus arvensis*, common fleabane *Pulicaria dysenterica* and common knapweed *Centaurea nigra* were recorded close to the boundary hedgerows which are set apart from the horse-grazed pasture.



Figure 1 – improved grassland adjacent to the northern site boundary



Figure 2 – improved grassland grazed by horses

3.4.2 Intact hedgerows

Three intact hedgerows are located within the site (H2, H3 and H7). The hedgerows are dominated by dense blackthorn *Prunus spinosa*, with hawthorn *Crataegus monogyna*, ash *Fraxinus excelsior*, goat willow *Salix caprea*, dog rose *Rosa canina* and bramble *Rubus fruticosus*. The hedgerow field layers are dominated by suckering blackthorn which extends into the grassland and creates a scalloped, graded edge.



Figure 3 – hedgerow 2



Figure 4 – hedgerow 7

3.4.3 Defunct hedgerows

Five defunct hedgerows are located within the site (H1, H4, H5, H6 and H8). The defunct hedgerows comprise a mix of native species hedgerows and non-native species-poor hedgerows as follows:

- H1 comprises a line of recently planted native species saplings. The saplings are protected by rabbit guards.
- H4 comprises a garden privet *Ligustrum ovalifolium* hedgerow which has been planted within the existing commercial area.
- H5 comprises a line of early maturity *leylandii* trees which border the site entrance.
- H6 comprises a defunct and gappy native species hedgerow which borders the adjacent residential properties.

- H8 comprises a short length of willow dominated gappy hedgerow.

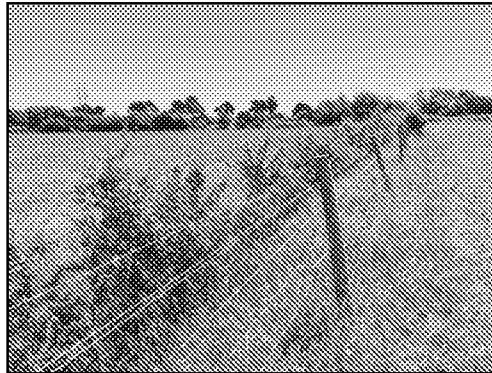


Figure 5 – hedgerow 1

3.4.4 Scrub

An area of native species scrub is located adjacent to the pond within the west of the site. The scrub has established from the adjacent hedgerows and has succeeded from grassland. The scrub supports a range of native species including hawthorn, elder *Sambucus nigra*, hazel *Corylus avellana* and ash.



Figure 6 – scrub within the west of the site

3.4.5 Standing water

A single pond is located within the application site. The pond is very shallow and is dominated by bulrush *Typha latifolia* and common duckweed *Lemna minor*.



Figure 7 – on site pond

4. Protected and notable species assessment

The scope of works, data search and habitat assessment have informed the scope of the protected and notable species assessment. On this basis, the following protected and priority species have been considered further within this report:

- Bats (foraging and commuting)
- Hedgehogs
- Hazel dormice
- Badgers
- Breeding birds
- Reptiles
- Amphibians
- Invertebrates

The surveyed site has been assessed for its potential to support the above-named protected species based upon the criteria in Table 2.

Table 2 Protected species grading criteria

Grading criteria	Justification
<i>Negligible</i>	Site is entirely unsuitable for species. Presence of species highly unlikely.
<i>Low</i>	Minimal suitable habitat present or, if present, highly degraded/fragmented. Minimal linkage to suitable habitat beyond site. Presence of species unlikely.
<i>Moderate</i>	Presence of some suitable habitat features for species. Surveyed site within/close to known range or known occurrence but factors such as isolation/fragmentation may reduce potential. Presence of species is more likely than not.
<i>High</i>	Presence of optimal habitat features for species. Surveyed site within known range/close to known occurrence. Excellent connectivity to optimal habitat. No justification for discounting presence of species.
<i>Confirmed presence</i>	Species confirmed on site through direct sighting, presence of field signs (e.g. scat, hair, prints, nest, eggs, habitation etc.) or through desk-based assessment.

5. Bats

5.1 Methodology

An assessment was made of the site's suitability to support foraging and commuting bats in accordance with the Bat Conservation Trust (BCT) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition).

No structures are present within the site and the proposal will not result in any trees being felled, therefore, the survey did not comprise a detailed inspection of potential roost structures/trees.

5.2 Limitations

Limitations were not encountered during the course of the survey.

5.3 Assessment methodology

The site's suitability for supporting commuting and foraging bats will be assessed against the guidelines within Table 3 which have been adapted from the BCT Good Practice Guidelines.

Table 3 Suitability assessment guidelines

Suitability	Description of Foraging/Commuting Habitats
<i>Negligible</i>	Negligible habitat features on site likely to be used by commuting or foraging bats.
<i>Low</i>	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitats. Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not parkland situation) or a patch of scrub.
<i>Moderate</i>	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such tree, scrub, grassland or water.
<i>High</i>	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of tree and woodland edge. High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

5.4 Existing records

The data search revealed a number of bat records within a 2km radius of the application site. Common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, brown long-eared *Plecotus auritus*, Leisler's *Nyctalus leisleri*, noctule *Nyctalus noctule*, Natterer's *Myotis nattereri*, whiskered *Myotis mystacinus* Brandt's *Myotis brandtii*, Daubenton's *Myotis daubentonii*, and barbastelle *Barbastella barbastellus* bats have all been recorded within the search radius. Therefore, it is expected that the species detailed above will both forage and roost within 2km of the application site.

5.5 Results

The site supports intact hedgerows which are well connected to further intact hedgerows and small woodland blocks. Hedgerows, which are linear habitat corridors within the landscape, are favoured by bats for commuting and foraging. The range of woody species recorded within the hedgerows will support an abundance of invertebrates and provide a sheltered environment for foraging bats.

5.6 Assessment

When considered in view of the criteria set out in Table 3, the site is considered to support moderate suitability for foraging and commuting bats. This assessment is based on the presence of continuous hedgerow habitat which is well connected to the wider landscape.

In the context of the wider landscape, the habitats within the application site are considered unexceptional for foraging and commuting bats. They are, nevertheless, suitable for commuting and foraging bats and it is highly likely that bats will commute and forage through the site as a component of their wider foraging range.

6. Badgers

6.1 Methodology

The survey involved a detailed investigation of the site to identify evidence of badger residence, foraging or territorial activity. This includes badger setts, latrine sites, dung piles, well-used trails, prints and hairs. Particular emphasis was placed on locating badger setts, paths and signs of territorial activity such as dung piles and latrines.

6.2 Limitations

The dense blackthorn which forms the majority of the hedgerow habitat within the site could obscure evidence of badger activity. Nevertheless, it is likely that any frequently used, well-worn pathways which are indicative of nearby setts would have been evident.

6.3 Existing records

Badger records are not provided by the SxBRC data search at the request of the local badger groups.

6.4 Results

No evidence of badger activity was recorded during the survey. However, the permanent grassland is optimal foraging habitat for badgers. No evidence of a badger sett was recorded within the application site, however, suitable habitat for the formation of a sett is present.

6.5 Assessment

Badger setts are considered to be absent from the site, however, there is considered to be high potential for badgers to utilise foraging opportunities within and surrounding the site such as the permanent grassland.

7. Dormice

7.1 Methodology

An assessment was made of the suitability of habitat on site to support hazel dormice. Key habitats are woodland, scrub and hedgerows, particularly where these offer dense vegetation within which to nest/hibernate and key resources such as hazel nuts, fruiting/nectar-rich plants (e.g. hawthorn, bramble) to provide a continuum of food resources throughout the active season and honeysuckle *Lonicera periclymenum* (for nesting material). Landscape-scale habitat linkages such as hedgerows are fundamental for dormouse presence where small scale or sub-optimal habitats are recorded within a site.

Following the extended phase 1 ecological survey, a phase 2 presence/absence dormouse survey was undertaken. The presence/absence survey comprised the installation of 75 nest tubes within suitable dormouse habitat within the site. The nest tubes were subsequently surveyed for evidence of dormouse activity.

In accordance with survey guidance (The Dormouse Conservation Handbook and Standing Advice for Protected Species), surveys will be undertaken between July and November in order to meet the minimum survey requirement (20 total survey points derived from monthly surveys which are weighted accordingly to reflect the suitability of the survey period). However, if dormouse presence is determined prior to November, the survey duration will be truncated as sufficient information will have been collected to inform a European Protected Species (EPS) Licence application (the nest tubes are only used for determining presence / likely absence and do not qualify population sizes).

7.2 Limitations

Limitations were not encountered during the course of the survey.

7.3 Existing records

No records of dormice are present within a 2km radius of the application site.

7.4 Results

The intact hedgerows within the site are considered to support suitable habitat for dormice. They support a rich diversity of food plant species including blackthorn, hawthorn, dog-rose and bramble, and opportunities for nesting and hibernation. These features are directly connected to the surrounding woodland and hedgerow network. The dates and results of the presence/absence surveys are given in table 4, below.

Table 4 Dormouse survey results

Survey	Date	Comments
Survey tube deployment	30/06/2020	N/A
Tube inspection 1	23/07/2019	Negative
Tube inspection 2	26/08/2020	Negative
Tube inspection 3	27/09/2020	Negative
Tube inspection 4	24/10/2020	Negative
Tube inspection 5	13/10/2020	Negative

7.5 Assessment

The application site is not considered to support a population of dormice.

8. Hedgehogs

8.1 Methodology

The site was assessed for its suitability to support hedgehogs based on the presence of favoured habitats such as woodland edges, hedgerows, grassland and suburban habitats.

Hedgehogs are most abundant within gardens, parks and amenity land close to or within human settlements. They are generally scarce in areas of coniferous woodland, marshes and moorland, probably because of a lack of suitable sites and materials for the construction of winter nests (Morris, 2006). Any evidence of hedgehog activity such as prints or droppings would be recorded.

8.2 Limitations

Low detections rates are associated with evidence of hedgehog activity; therefore, absence of evidence does not confirm the absence of hedgehogs. For this reason, the assessment of the likely presence/absence of hedgehogs has largely been informed by the species' local distribution and the habitats within the site and local area.

8.3 Existing records

33 records of hedgehog are present within a 2km radius of the site.

8.4 Results

The hedgerow understorey habitat and grassland within the site has the potential to support foraging hedgehog although no direct evidence was noted.

8.5 Assessment

There is considered to be high potential for hedgehog to occur on site.

9. Reptiles

9.1 Methodology

An assessment was made of the site's suitability to support reptile populations. Key habitat features include: tussocky/patchy grassland, scrub edge, linear watercourses, ponds, compost heaps, brash piles and rubble/soil heaps. Linkage to suitable habitat within the surrounding landscape will increase the potential for reptiles to occur, although populations can occur within isolated/fragmented habitats even within urban areas.

Following the extended phase 1 ecological survey, a phase 2 reptile survey was undertaken. The phase 2 reptile surveys involved the distribution of reptile refugia across the site in suitable areas of habitat. A total of 68 refugia were distributed evenly through the margins of the site to confirm the presence/absence, numbers and distribution of reptile species on site. The refugia were then inspected on suitable weather conditions during July, August and September 2020. The refugia warm more rapidly than the surrounding environment and reptiles use them to thermoregulate. Inspection of refugia is most effectively carried out in marginal weather conditions such as cold but sunny weather or hazy and somewhat overcast conditions, as this will maximise the thermal value of the refugia for basking reptiles. Inspections are generally ineffective in cold, wet conditions or in very hot sunny weather. Whilst on site, surveyors slowly and quietly walked around the site in order to visually search for animals basking in the open. The dates and weather conditions of the reptile refugia surveys are given in table 5, below.

Table 5 Reptile survey dates and weather conditions

Survey	Date	Precipitation	Temperature	Wind	Cloud Cover
Refugia deployment	30/06/2020	N/A	N/A	N/A	N/A
Refugia inspection 1	07/07/2020	Nil	17°C	11 mph	20%
Refugia inspection 2	24/07/2020	Nil	16°C	4 mph	10%
Refugia inspection 3	26/08/2020	Nil	18°C	7mph	60%

Refugia inspection 4	15/09/2020	Nil	19°C	3mph	30%
Refugia inspection 5	20/09/2020	Nil	17°C	10mph	40%
Refugia inspection 6	22/09/2020	Nil	13°C	Still	40%
Refugia inspection 7	27/09/2020	Nil	15°C	10mph	30%

9.2 Limitations

July is not considered to be within the optimal period for reptile surveys due to the high temperatures that are typical of this month. However, this was not reflected by July 2020 when consistently suitable weather conditions for reptile surveys were encountered.

9.3 Existing records

Common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis* and grass snake *Natrix helvetica* have been recorded within the 2km search radius.

9.4 Results

Table 6 presents the total counts of the phase 2 reptile refugia survey visits which have been undertaken. Map 2 provides the locations of the reptile records.

Table 6 Reptile survey summary of results

Survey	Date	Slow-worm	Common Lizard	Grass snake
Refugia deployment	30/06/2020	N/A	N/A	N/A
Refugia inspection 1	07/07/2020	2	1	0
Refugia inspection 2	24/07/2020	2	0	0
Refugia inspection 3	26/08/2020	6	3	0
Refugia inspection 4	15/09/2020	3	0	0
Refugia inspection 5	20/09/2020	2	0	0
Refugia inspection 6	22/09/2020	1	0	0

Survey	Date	Slow-worm	Common Lizard	Grass snake
Refugia inspection 7	27/09/2020	2	3	0
Total Adult Peak Counts		6	3	0

9.5 Assessment

The site supports a low population of slow-worm and common lizard. Common lizards were recorded primarily in the southern scrub boundary of the southern field, while slow-worms were primarily recorded in the southern hedgerow and scrub boundary of the horse field. No reptiles were recorded in the north eastern corner of the site, where the village green is proposed to be.

10. Great Crested Newts

10.1 Methodology

Great crested newts are only present in their breeding ponds during the spring and early summer – for the rest of the year, they will be dispersed across the surrounding area, generally in grassland, scrub, woodland and hedgerows, although they may be found in gardens and brownfield sites. They can travel some distance from their breeding ponds, and as a general rule, developments within 250m of such a pond may have the potential to have an impact on GCN, although to a certain extent, this does depend on any intervening habitat or barriers to dispersal.

An assessment was made of any waterbodies and terrestrial habitat within the site for their suitability to support populations of amphibians. Suitable waterbodies will generally be characterised by the presence of good quality water, diverse macrophyte cover and an absence of fish. For the European-protected great crested newt, each waterbody is normally assessed using the Habitat Suitability Index (HSI) system (Oldham et al., 2000) and assigned a grading score between zero (poor suitability) and 1 (excellent suitability).

Further to the HSI survey, an eDNA survey was undertaken of the garden pond. The field water sample was collected from the on-site pond at on the 30th June 2020.

The survey did not depart from *Appendix 5: Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA* of Biggs et al. (2014) that accompanies Defra's research project into eDNA (Biggs et al, 2014). Strict adherence to this methodology is required by Natural England's standing advice.

The water sample was processed in accordance with the protocol set out in *Appendix 5* of Biggs et al. (2014) by Surescreen Scientific.

10.2 Limitations

The HSI for great crested newts is a measure of habitat suitability. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores.

However, in isolation, the system is not sufficiently precise to allow the conclusion that any particular pond with a high score will support newts, or that any pond with a low score will not do so (Oldham et al., 2000).

10.3 Existing records

Four great crested newt records are present within a 2km radius of the application site. The records are located in Yapton, Bognor Regis and Elmer. The closest record is located 1.4km north of the application site.

10.4 Results

The application site supports a single pond. The pond is very shallow and is dominated by bulrush and common duckweed. A HSI assessment for the pond is presented in Table 7.

Table 7 – HSI Assessment of the garden pond

	Criteria	Result
S1	Location	1 (optimal)
S2	Pond Area	0.6 (300m ²)
S3	Pond Drying	0.5 (sometimes)
S4	Water Quality	0.67 (moderate)
S5	Shade	0.5 (80%)
S6	Fowl	0.67 (minor)
S7	Fish	1 (absent)
S8	Pond Count	0.65 (3)
S9	Terrestrial	1 (good)
S10	Macrophytes	0.85 (95%)
	Total	0.0372
	Tenth Root	0.7195
	HSI Ranking	Good

The HSI assessment reveals that the pond supports good suitability for great crested newts. Coupled with the presence of great crested newt records within 2km of the site, there was considered to be high potential for great crested newts to utilise the on-site pond. However, the eDNA survey has conclusively shown great crested newts to be absent from the on-site pond.

Two further ponds are located within 500m of the application site. However, the ponds are associated with residential properties and support high populations of water fowl. The result is an absence of submerged vegetation (egg laying habitat) and poor water quality

as a result of nutrients build-up. Overall, both ponds are considered to be wholly unsuitable for great crested newt.

10.5 **Assessment**

The only pond with suitability for great crested newts (the on-site pond) has been conclusively shown not to support great crested newts through eDNA testing. No further water bodies with suitability for great crested newts are present within a 500m radius of the application site. As such, there is considered to be negligible potential for great crested newt to occur on site.

11. Breeding birds

11.1 **Methodology**

An assessment was made of the site's suitability to support breeding bird species. Nesting birds will utilise a broad range of habitats, including: built structures, trees, scrub, isolated shrubs, dense herbaceous vegetation (terrestrial and aquatic) and open grassland. All bird species and evidence of breeding activity (active or inactive) observed on site were recorded.

11.2 **Limitations**

Limitations were not encountered during the course of the survey.

11.3 **Existing records**

A diverse list of bird species which reflect the diversity of habitats within 2km of the application site have been revealed by the data search. This includes bird species such as woodcock *Scolopax rusticola*, nightingale *Luscinia megarhynchos* and kestrel *Falco tinnunculus*.

11.4 **Results**

The following bird species were recorded within or close to the application site during the course of the survey: chaffinch *Fringilla coelebs*, robin *Erithacus rubecula*, goldfinch *Carduelis carduelis*, blue tit *Cyanistes caeruleus*, wren *Troglodytes troglodytes*, blackbird *Turdus merula* and whitethroat *Sylvia communis*.

11.5 **Assessment**

The hedgerows are considered to support nesting opportunities for a range of species including those recorded within or close to the site during the survey. The sward height of the grassland is considered to be too low to provide suitable nesting opportunities for ground nesting species such as skylark *Alauda arvensis*.

12. Invertebrates

12.1 **Methodology**

The presence of important invertebrate species or assemblages is generally dependant upon distinct micro-habitats such as dead wood (standing, fallen, of all decay stages), sap

runs, damp/wet soils, mixed sun/shade, bare/friable soils (e.g. exposed sand banks) and a diversity of plant species. For aquatic invertebrates, important species/assemblages will generally be associated with high-quality aquatic habitats such as ponds, rivers, streams and ditches. Key factors will include water quality, substrate, waterbody morphology and plant diversity.

An assessment of the site's potential to support a diverse invertebrate assemblage and/or specialist species is based loosely on the presence of habitat features described in Kirby (2001). Where possible, a list of all invertebrate species encountered has been made.

12.2 Limitations

The survey was undertaken outside of the active season for many species of invertebrate, therefore, the assessment relied upon the presence of suitable habitat and species records.

12.3 Existing records

A diverse list of invertebrate species which reflect the diversity of habitats within 2km of the application site have been revealed by the data search.

12.4 Results

The site supports a moderate diversity of terrestrial habitats including improved grassland and hedgerow. The structural diversity, rather than the species diversity exhibited by these features, improves upon the number of invertebrate niches available which benefits the diversity of invertebrate species on site. However, it is considered that these habitats are widespread and common. It is therefore probable that the site generally supports similarly widespread and common terrestrial invertebrate species.

12.5 Assessment

It is probable that the site generally supports widespread and common terrestrial invertebrate species.

13. Discussion and Assessment of Impacts

13.1 Relevant legislation and policy

Circular 06/2005 identifies that applicants should not be required to provide information on protected species unless there is a reasonable likelihood that they will be present and affected by the proposed development. The site is considered to support habitats with suitability and potential for protected species and these may be affected by the proposed development. Therefore, the proposal triggers 'reasonable likelihood' under the Circular.

The Wildlife and Countryside Act 1981 (as amended) and the Habitats Directive, which is transposed into UK law by the Conservation of Habitats and Species Regulations 2017 (commonly referred to as the Habitats Regulations) may apply should protected species be confirmed on site.

In the case that a European protected species (such as dormouse) is found to be present and impacted by the proposal, the local planning authority will be required to engage with the Habitat Regulations. Permission will be granted unless:

- a) the development is likely to result in a breach of the EU Directive, and
- b) is unlikely to be granted an EPS licence from Natural England to allow the development to proceed under a derogation from the law (under licence).

When considering whether Natural England would not be unlikely to grant a licence for the identified impact, the local planning authority must consider the three tests which are set out in the Habitat Regulations:

1. the consented operation must be for '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' (Regulation 53(2)(e));
2. there must be 'no satisfactory alternative' (Regulation 53(9)(a)); and
3. the action authorised 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range' (Regulation 53(9)(b)).

Case-law (*Morge vs. Hampshire County Council*) has clarified that planning authorities are able to grant permission for developments that would cause a breach of the Regulations is likely (i.e. in the case of this proposal, destruction of a bat roost), provided that sufficient information is provided to give the planning authority assurance that the relevant EPSM licence is not unlikely to be granted - i.e. planning authorities also have a duty to assess planning applications against these tests.

13.2 Designated sites

The proposed development will not result in the direct loss of any of the identified designated sites. Nor will it result in the direct loss of any habitat that could be considered functionally linked supporting habitat for the species for which the sites were designated. The site is not located within the impact risk zone of the only SSSI located within a 4km radius of the application site. Given the distance of the site from the identified statutory and non-statutory designated sites and the lack of impact pathways, indirect impacts through air or water quality and urban edge effects are not anticipated.

13.3 Habitats

The proposal will require the cutting back of intact hedgerow habitat which is a priority habitat. The uncompensated, net loss of this habitat is likely to be contrary to Policy ENV DM5 – Development and biodiversity of the Arun Local Plan 2011 - 2031.

13.4 Bats

The application site is considered to support moderate suitability for foraging and commuting bats. This suitability is associated with intact species-rich hedgerows. The proposal to create a new site access from Bilsham Road will result in a reduction in hedgerow habitat on site.

Illumination of the hedgerows would render them unsuitable for foraging and commuting bats despite their retention, resulting in isolation/fragmentation effects.

13.5 Badgers

The site supports high suitability for badger. Therefore, impacts to badgers could occur during construction if trenches are left open. Impacts on badgers associated with loss or damage of setts or loss of foraging habitat are not anticipated.

13.6 Hazel dormouse

Phase 2 surveys have confirmed that the hedgerows within the site do not support dormice. Therefore, no impacts on dormice are anticipated.

13.7 Hedgehog

Impacts on hedgehogs are likely to be associated with the removal of foraging habitat associated with the hedgerow understorey.

13.8 Reptiles

The proposal will result in the loss of habitat which supports common lizard and slow-worm. Therefore, the construction phase of the proposed development has the potential to result in killing or injury of reptiles which would be an offence under the Wildlife and Countryside Act 1981 (as amended).

13.9 Great crested newts

Great crested newts are considered unlikely to be present on site. Therefore, impacts to great crested newt are not anticipated as a result of the proposal.

13.10 **Breeding birds**

The proposal will result in the loss of suitable breeding bird habitat. The removal of this habitat has the potential to damage or destroy active bird nests if carried out during the breeding bird season which is generally seen as extending from March to the end of August, although may extend longer depending on local conditions. The proposal will also result in a net loss of bird nesting opportunities.

13.11 **Invertebrates**

No impacts on invertebrates are anticipated given the small scale of habitat loss in the context of the local area.

14. Requirement for further surveys

Further surveys are required where there is a reasonable likelihood that a protected species will be present and impacted by the proposed development. An assessment into the requirement for further surveys is presented below, however in summary, all further surveys considered necessary are in progress.

14.1 Bats

The affected areas of habitat within the site are considered to be unexceptional in the context of the local area as a foraging or commuting resource. In addition, the proposal will result in minimal loss of linear features within the site. Therefore, subject to the avoidance measures proposed in section 15 in respect of lighting and protection and enhancement of these linear features, further survey is considered unnecessary for understanding impacts on foraging and commuting bats.

14.2 Badgers

Subject to the precautionary mitigation measures set out in Section 15, no further surveys are considered necessary.

14.3 Hazel dormice

In order to determine the status of the species on site and the extent that they may be affected by the proposed development as required by Circular 06/2005, further survey work in accordance with Natural England standing advice was required.

In accordance with survey guidance (The Dormouse Conservation Handbook and Standing Advice for Protected Species), further survey effort in the form of a presence / absence survey comprising monthly visits was undertaken between July and November 2020. No further surveys in respect of dormice are considered necessary.

14.4 Hedgehog

Subject to the precautionary mitigation measures set out in Section 15, no further surveys are considered necessary.

14.5 Reptiles

In order to provide robust confirmation of the status of reptiles and the extent that they may be affected by the proposed development as required by Circular 06/2005, further survey work in accordance with Natural England standing advice was required.

In accordance with these guidelines, further survey effort in the form of a presence / absence survey comprising seven visits was undertaken during the reptile active season between July and September 2020. No further surveys in respect of reptiles are considered necessary.

14.6 Great Crested Newts

No further surveys are considered necessary in respect of great crested newts.

14.7 Breeding birds

Subject to the precautionary mitigation measures set out in Section 15, no further surveys are considered necessary in respect of breeding birds.

14.8 Invertebrates

No further surveys are considered necessary in respect of invertebrates.

15. Mitigation Strategy

15.1 Bats

In order to avoid impacts on foraging and commuting bats, the development layout should protect or compensate for the areas which are likely to be the most important locations for commuting and foraging bats within the site. Avoiding or compensating for impacts on these areas will be achieved by incorporating measures in the proposed lighting and landscape schemes. The areas prioritised for protection and compensation comprise the linear vegetated boundaries which surround the site. The lighting strategy should ensure that these areas are not illuminated. In addition, external lighting associated with the development will need to be sensitively devised to reduce the deleterious impacts which lighting could have. The following recommendations are made:

- External lighting within the development should be kept to a minimum; in quantity, aspect and lux level;
- Where lighting is required, consideration should be given to the practicability of using motion sensitive lighting, using low level bollard lighting (with minimal upwards light spill) on pathways and using directional or hooded lighting that illuminates only required areas; and
- Lighting should be selected that emits minimal ultra violet light and avoids white and blue wavelengths of the light spectrum.

15.2 Hedgehogs

In order to avoid harm to hedgehogs during the construction works the following precautionary measures will be employed:

- Any accumulations of brash will be dismantled by hand in a sensitive and careful manner.
- No bonfires will be made or lit on site.

15.3 Reptiles

This section describes the proposed mitigation measures for common reptiles which occur within suitable habitat along the margins of the application site. The strategy comprises the persuasion of reptiles from the construction footprint through habitat manipulation and the creation of new terrestrial habitat within the application site. Given the ephemeral presence of the majority of suitable terrestrial habitat on site for reptiles as a result of grazing, the persuasion of reptiles from the site through habitat manipulation is considered to be the most appropriate option for ensuring that reptiles are not killed or injured during the development.

Habitat creation

The application site currently supports grassland which is either grazed or mown and as such, supports limited hibernation and permanent shelter opportunities for reptiles. In order to provide hibernation and shelter opportunities within the site, two hibernation features and three shelter opportunities will be constructed within the proposed hedgerow buffers and margins of Bilsham Corner Village Green during the habitat manipulation

works detailed below. The creation of these features will create cover, provide additional structure and enhance prey availability within the site. Three brash piles will be constructed from native woody species cuttings. The centre of the brash pile will be compacted whilst the outer layers will be laid loosely. The hibernation features will be constructed in a similar manner to the brash pile, however, inert brick rubble and logs will be used within the centre of each pile instead of compacted brash. Loose brash will be laid on top of the rubble and log pile and grassland turves from the construction footprint will be lifted and placed on top of this. The hibernation feature will be dug into the site to a depth of 30cm.

In addition, the proposed hedgerow buffers and Bilsham Corner Village Green will be sown with a native wildflower mix. This will improve the vegetation species diversity in the seeded locations and provide a seed source to improve the diversity of adjacent grassland areas. An Emorsgate wildflower mixture will be utilised and will be sown onto the surface of a prepared fine seedbed during either August-September or March-April. In the first year following sowing, when the new grassland grows to a height of 10-15 cm, it should be mown to a height of 5 cm, and the grass cuttings removed. Following this, the grassland can be grazed or mown once a year in late summer/early autumn once the seed has dropped.

Habitat manipulation

Any currently mown or grazed grassland within the site will be maintained to a short sward until construction works commence at the site. Any tall grassland, scrub and suckering blackthorn within the application site (primarily within the site margins) will be cut to ground level in a two-stage process. These habitats will be strimmed to 15cm and then cut to ground level the next day. Cutting the vegetation in this manner is consistent with the typical management of the site and will ensure that any reptiles are persuaded into adjacent habitats prior to commencement of the development. Following the two-stage grassland management, the topsoil will be scraped back by an excavator under the supervision of an ecological clerk of works. Several turves will be lifted and placed over the proposed hibernation features during this work. If a reptile is unexpectedly encountered, it will be removed to the new shelter features within the site. The construction site will be maintained as bare ground until construction commences.

Construction site maintenance

The following measures will be implemented during the construction phase of the development:

- All waste shall be placed directly into a skip so that rubble piles and therefore potential hibernation areas are not created in areas which will subsequently be disturbed by site works.
- Piles of loose sand or other granular materials into which reptiles could bury are not to be left around the site. All such materials will ideally be delivered in bags and kept in such bags until required for use. Bags should be stored on pallets. If it is essential that they are delivered loose, they should only be dug into by hand.

- All trenches will be left covered at night. They must be checked in the morning before they are filled in.
- Vegetation must not be allowed to become established within the construction footprint.

15.4 **Breeding birds**

Care should be taken that the development does not disturb breeding birds. The bird nesting season is taken to be March to August inclusive. Any removal of suitable nest habitat will either need to be undertaken outside of this period or else checked by an experienced ecologist to ensure that no nesting birds are present. If occupied nests are present then the nest must not be removed, and clearance can only recommence once the nest becomes unoccupied of its own accord.

The development will result in the loss of nest sites. Therefore, in order to avoid an overall loss of nesting opportunities within the site and provide a valuable enhancement, native species hedgerows will be planted within the site. The new planting will result in a net gain in hedgerow habitat.

16. Enhancements

The delivery of biodiversity enhancement on development sites is promoted by the National Planning Policy Framework (NPPF) and Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006.

Where opportunities exist it is best practice to provide enhancement features which encourage greater biodiversity within development sites in accordance with the NPPF and Local Planning Authority's responsibilities under the NERC Act.

Opportunities for enhancement which are to be incorporated within the development are specified below and illustrated within Map 3.

The proposed enhancement measures would commence during the construction phase in all areas that would not be affected by construction works.

The biodiversity enhancement features and habitats will be managed and maintained for ten years.

16.1 Birds

A total of 20 bird boxes are to be installed in suitable locations within the site. These will comprise 10 swift bricks which will be installed in brickwork below the eaves of five buildings within the site. Swift bricks provide a permanent, discrete and maintenance-free enhancement for a declining species of bird. In addition, a mixture of open fronted (5) and hole entrance (5) woodcrete bird boxes will be installed on trees within the Little Meadow Garden and within the eastern boundary hedgerow.

16.2 Bats

Five wooden Kent bat boxes will be installed on trees within the Little Meadow Garden. The boxes will be installed above 3m on a mixture of south-east, south-west and north tree faces to provide opportunities for bats to thermoregulate throughout the year.

16.3 Hedgerow and scrub

Native and locally appropriate woody species planting will be incorporated into the proposed hedgerow buffers to create a scalloped hedgerow edge and along the boundaries of the southern field where the hedgerow is defunct or absent and along the northern site boundary to strengthen the recently planted hedgerow. The following species mix will be utilised: blackthorn *Prunus spinosa* (25%), hawthorn *Crataegus monogyna* (25%), dog-rose *Rosa canina* (10%), elder *Sambucus nigra* (10%), field maple *Acer campestre* (10%), hazel *Corylus avellana* (10%) and wild privet *Ligustrum vulgare* (10%). Areas will be planted as follows:

- Specimens planted in staggered rows and/or randomised groups as necessary. Plants c.500mm apart, rows c.500mm apart.
- Specimens to be minimum 90cm whips (2-3 yrs. old), bare rooted.
- Specimens to be protected using standard tree guards.

- Whips to be planted in late winter/early spring.
- The planting will be maintained under a prescriptive contract for a period of 5 years, under which dead diseased and dying plants will be replaced like for like, and fencing/tree guards will be repaired and managed as necessary.
- Periodic management would be undertaken to prevent scrub spreading into the grassland. Regeneration would be managed to promote diversity and a varied age structure within areas of scrub, whilst maintaining open areas and edge habitat. Undesirable species such as injurious weeds and invasive non-native plant species would be removed or treated, as necessary.

16.4 Grassland

The proposed hedgerow buffers and Little Meadow Garden will be sown with a native wildflower mix. This will improve the vegetation species diversity in the seeded locations and provide a seed source to improve the diversity of adjacent grassland areas. The botanical enhancement and management of existing grassland areas to create lowland neutral grassland habitat would contribute to LBAP targets for the expansion of this priority habitat type. A bespoke grassland seed mix will be used, the composition of which would be matched as closely as possible to the composition of local species-rich grasslands. The seed mix will be sown onto the surface of a prepared fine seedbed or mown and scarified grassland during either August-September or March-April.

The grassland areas would then be subject to low intensity hay meadow management, including:

- the grassland would be cut to 15cm height in late autumn following seeding to reduce late summer growth of grasses (all arisings removed);
- if the grass re-grows vigorously over the first winter following seeding, a second cut to 15cm height would be taken in February to reduce competition for germinating target species;
- targeted spot treatment of weeds would also be undertaken in the first spring after seeding, and may need to be repeated periodically within the first few years of establishment (the frequency of treatments would be reviewed as part of the proposed monitoring works);
- Following establishment, the grassland can be grazed or mown once a year in late summer/early autumn once the seed has dropped. This will also prevent the grassland from succeeding to scrub.
- All arisings from management activities will be removed from the area; and the grass cutting would be used within the wider site to create habitat piles.

The establishment of species-rich grassland would be monitored by undertaking a Condition Assessment walkover survey every two years in the first five years following seeding. These surveys would assess whether the grassland is developing as intended and whether any remedial actions such as additional seeding or changes in management are required to achieve the desired species rich sward.

16.5 Trees

Several native trees will be planted within Little Meadow Garden to replace the existing non-native leylandii which are currently present in this location. Native tree species which are appropriate for the location will be used. Further new trees will be planted in areas where they would complement existing habitats and contribute to the enhancement of green infrastructure.

16.6 Aquatic habitat

The existing pond within Little Meadow Garden will be enhanced. The pond is currently heavily vegetated with bulrush and common duckweed and has a thick silt layer. Without management, the pond will eventually dry. The pond will be enhanced as follows:

- The pond enhancements will be carried out during late-summer /autumn when water levels are at their lowest.
- The dense bulrush cover will be reduced. 25% of the pond will be left with dense vegetation. The bulrush will be removed and placed on the edges of the pond for 24 hours to enable invertebrates and any amphibians to return to the water.
- Duckweed will be removed with a fine mesh net over several days to considerably reduce its cover.
- Tree cover will be reduced along the pond's southern boundary so the pond receives morning sun over a large area. Heavy tree cover shades the pond and falling leaves increase nutrients in the water. This is likely contributing to the heavy duckweed growth. The pond should be open, with at least 3/4 of its edges cleared of scrub. Mature trees will be retained, with scrub targeted instead.
- Any fallen trees or branches will be removed from the water.
- Silt will be dredged from the pond to help reduce the nutrient load. The original pond profile will be retained during the silt removal works. The silt will be removed from the pond area to ensure that nutrients do not re-enter the water.
- Two metres of semi natural habitat will be retained between the managed green and the top of the pond's northern bank.
- A selection of locally appropriate, native species plug plants will be planted at the pond's margins. These will comprise tall emergent: branched bur-reed *Sparganium erectum*, floating leaved: broadleaved pondweed *Potamogeton natans* and marginal herbs: water mint *Mentha aquatica*, water forget-me-not *Myosotis scorpioides*, Fool's watercress *Apium nodiflorum* and marsh pennywort *Hydrocotyle vulgaris*.
- The pond will be enclosed in post and rail fencing and an information board detailing the wildlife value of the pond will be installed to discourage damage to the pond by dogs and the introduction of non-native plants or fish.

17. Conclusion

The extended phase 1 ecological assessment identified potential for a range of protected species including breeding birds, reptiles and dormice. Therefore, further survey work in accordance with Natural England standing advice was required in order to provide robust confirmation of the status of protected species and the extent that they may be affected by the proposed development as required by Circular 06/2005. Further survey work for reptiles and dormice is currently on-going. This report and the proposed avoidance, mitigation and enhancement measures will be updated with the results of the further surveys as they become available.

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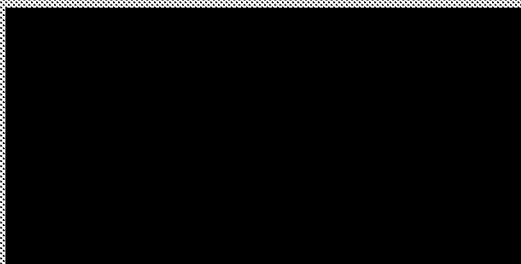
Appendix 1 – Proposed Site Plan

Map 1 – Phase 1 Habitats

Map 2 – Phase 2 Reptile Survey Results

Map 3 – Ecological Enhancement Plan

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