

Preliminary Ecological Appraisal

The Cottage, Shripney Road
Bognor Regis, West Sussex

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LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing. Whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date. This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated, only dominant species may be recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

Background

1.1 The Ecology Partnership was commissioned by Intecare Developments to undertake a Preliminary Ecological Appraisal (PEA) and internal and external inspections of land at The Cottage, Shripney Road, Bognor Regis, West Sussex, PO22 9PA.

1.2 The key objectives of a PEA (CIEEM 2017) are to:

- Identify the likely ecological constraints associated with a project;
- Identify any mitigation measures likely to be required, following the 'Mitigation Hierarchy' (CIEEM 2016; BSI 2013, Clause 5.2);
- Identify any additional surveys that may be required to inform an Ecological Impact Assessment (EcIA); and
- Identify the opportunities offered by a project to deliver ecological enhancement.

1.3 This report comprises the:

- Legislative and planning context (Section 1);
- Assessment methodologies (Section 2);
- Results (Section 3);
- Implications for development (Section 4);
- An impact assessment (Section 5); and
- Conclusions (Section 6).

Site Context and Status

1.4 The site is located on land at The Cottage on Shripney Road in Bognor Regis, West Sussex (SU 93834 02327). The site covers approximately 0.65ha and includes a house and garden with a glasshouse and a boundary of trees and hedgerows. The site is directly adjacent to a public house and hotel. The site is surrounded by a mosaic of agricultural fields and medium-density housing. There is one statutory designation, a Local Nature Reserve (LNR) within 2km of the site.



Figure 1: Approximate location of the red-line boundary

Description of Proposed Development

- 1.5 Application for the removal of existing buildings and necessary trees, and the construction of new building, parking and landscaping. The final layout is yet to be determined.

Planning Policies

- 1.6 The outline application was assessed against policy guidance provided by the National Planning Policy Framework, as well as relevant planning policies from Arun District Council Local Plan 2011-2031 (adopted July 2018). The below policies are considered relevant to ecology, biodiversity and nature conservation:

- Policy ENV SP1: Natural Environment
- Policy ENV DM3: Biodiversity Opportunity Areas
- Policy ENV DM4: Protection of Trees
- Policy ENV DM5: Development and Biodiversity

- 1.7 The new Environment Bill is currently under review but it is expected to be adopted in 2021, therefore, the proposals need to consider the new policies outlined within the proposed submission document. The current draft of the Environment Bill (26th February 2020) has outlined the requirement for granted developments to provide a biodiversity value post-development which exceeds the pre-development biodiversity value of the onsite habitat by at least 10%. Proposals also need to provide a net gain in

biodiversity in accordance with the NPPF. The DEFRA biodiversity metric will also likely to be required to ensure a 10% net gain in biodiversity is met post-development.

1.8 This report addresses the site in relation to nature conservation and wildlife and indeed to the local planning requirements as well as national planning and nature conservation legislation.

1.9 The site was surveyed to assess its ecological value and to ensure compliance with national and local plan policies. The report has been produced with reference to current guidelines for preliminary ecological appraisal (CIEEM 2017) and in accordance with BS 42020:2013 Biodiversity – Code of Practice for Planning and Development.

2.0 Methodology

Desktop Study

2.1 A desktop study search was completed using an internet-based mapping service (www.magic.gov.uk) for statutory designated sites and an internet-based aerial mapping service (maps.google.co.uk) was used to understand the habitats present in and around the survey area and habitat linkages and features (ponds, woodlands etc.) within the wider landscape. Satellite imagery, historic ecology report and recent photographs have also been used to inform the baseline of the site. Biological records (up to 1km) were acquired from Sussex Biological Records Centre (SxBRC).

Preliminary Ecological Appraisal

2.2 A Preliminary Ecological Appraisal (PEA) was undertaken on 3rd June 2021 by The Ecology Partnership ecologists Matt Pendry BSc (Hons) and Digby Hayden BSc (Hons). The surveyors identified the habitats present, following the standard 'Phase 1 habitat survey' auditing method developed by the Joint Nature Conservancy Council (JNCC). The site was surveyed on foot and the existing habitats and land uses were recorded on an appropriately scaled map (JNCC 2010). In addition, the dominant plant species in each habitat were recorded. The potential for the site to support protected species was also assessed.

- 2.3 Plant species abundance was recorded using the DAFOR scale and species abundance was assigned to one the following categories in Table 1. The abundance of some species was localised only and an L was added before the DAFOR to denote this.

Table 1: DAFOR Scale Lettering

DAFOR Category	Letter
Dominant	D
Abundant	A
Frequent	F
Occasional	O
Rare	R

Bat Internal and External Survey

- 2.4 The buildings on site were internally and externally assessed for their suitability for roosting bats. The survey was undertaken on the 3rd June 2021 by The Ecology Partnership ecologists Matt Pendry BSc (Hons) GradCIEEM and Digby Hayden BSc (Hons), under the authority of Natural England bat licence holder Alexia Tamblyn MA (Oxon) MSc CEol CEnv MCIEEM FRGS.
- 2.5 The surveyors assessed the building visually and searched for evidence such as:
- Staining beneath or around a hole caused by natural oils in bat fur.
 - Bat droppings beneath a hole, roost or resting area.
 - Bat droppings and/or insect remains beneath a feeding area.
 - Audible squeaking from within a hole.
 - Insects (especially flies) around a hole.
 - Dead bats.
- 2.6 Buildings which are considered to have a higher potential to support roosting bats would include the following:
- Agricultural buildings (e.g. farmhouses, barns and out buildings) of traditional brick or stone construction and/or with exposed beams;
 - Buildings with weatherboarding and/or hanging tiles that are within 200m of woodland and/or water;
 - Pre-1960s detached buildings and structures within 200m of woodland and/or water;
 - Pre-1914 buildings within 400m of woodland and/or water;
 - Pre-1914 buildings with gable ends or slate roofs regardless of location;

- Buildings which are located within or immediately adjacent to woodland and/or immediately adjacent to water;
- Dutch barns or livestock buildings with a single skin roof and board and gap or Yorkshire boarding if, following a preliminary roost assessment the site appears to be particularly suited to bats.

Additional Protected Species Assessments

- 2.7 Any evidence of additional protected species was recorded. Standard methods of search and measures of presence, or likely presence based on habitat suitability were used for bats in trees (Collins 2016), breeding birds (BTO 2020), dormouse (Bright *et al.* 2006), great crested newt (ARG 2010), reptiles (Froglife 2015), badgers (Creswell *et al.* 1990) and water vole (Strachan *et al.* 2011).

Limitations

- 2.8 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no single investigation could ensure the complete characterisation and prediction of the natural environment. The site was visited over the period of one site visit, as such seasonal variations cannot be observed and potentially only a selection of all species that potentially occur within the site have been recorded. Therefore, the survey provides a general assessment of potential nature conservation value of the site and does not include a definitive plant species list.
- 2.9 The protected species assessment provides a preliminary view of the likelihood of protected species occurring on-site, based on the suitability of the habitat and any direct evidence on site. It should not be taken as providing a full and definitive survey of any protected species group. The assessment is only valid for the time when the survey was carried out. Additional surveys may be recommended if, on the basis of this assessment it is considered reasonably likely that protected species may be present.

3.0 Results

Desktop Study

- 3.1 The site does not fall within or adjacent to any statutory designated areas. However, the following statutory sites are present within the local area:
- Pagham Harbour SSSI, LNR, Ramsar and SPA- contains *Petrorhagia nanteulii* within a vegetated shingle habitat, and is approximately 6.4km south west of the site.
 - Felpham SSSI – contains a new Palaeocene aged flora, and is approximately 3.2km south of site
 - Bognor Reed SSSI– contains *Petrorhagia nanteulii* within a vegetated shingle habitat approximately 3.5km south of site
 - Brooks Local Nature Reserve (LNR) which lies approximately 700m southwest of site.
- 3.2 There are 10 units of priority deciduous woodland within 2km of the site (Figure 2). The closest of these is an unnamed area of woodland approximately 250m southwest, on the opposite side of Shripney road. There are no areas of ancient woodland within 2km of the site. There are several areas of coastal & floodplain grazing marsh within the local area, the closest being approximately 700m to the east, but no such areas are present on or adjacent to the site.
- 3.3 There are no major ponds on or within 250m radius of the red line boundary. The closest is situated approximately 400m to the north of the site.

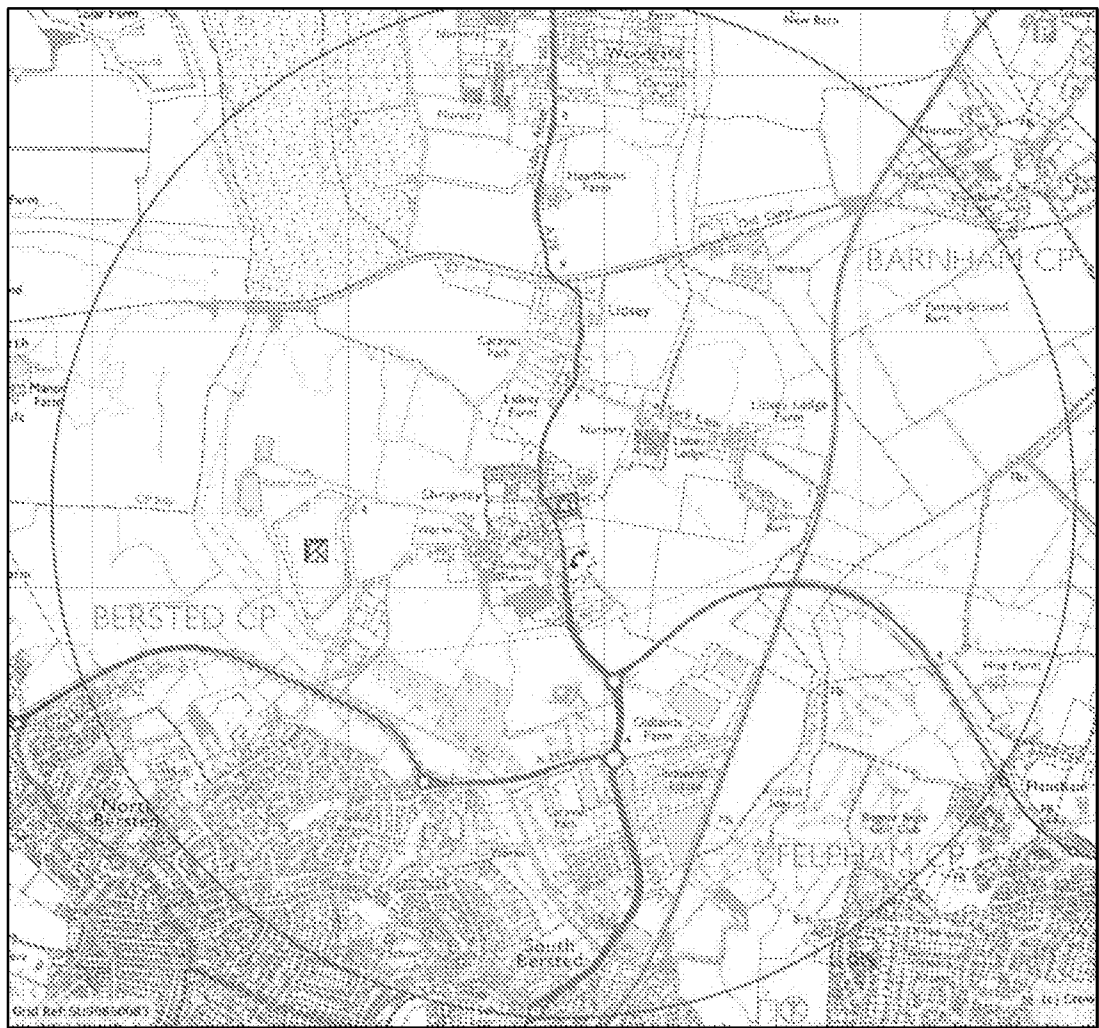


Figure 2: Woodland habitat within 2km of the red line boundary (dark green shading)

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3.4 A 2km radius data search was requested from the Sussex Biodiversity Record Centre. Notable protected species from this search are outlined below (Table 2). Only records from within the last ten years and those closest to site have been included.

Table 2: Biological Records from Sussex Biodiversity Record Centre within 2km of the site from the past 10 years

Species	Status	Date of most recent record and location	Approx. distance and direction of closest record
European Water Vole <i>Arvicola amphibius</i>	NERC Act (2006) Section 41; Wildlife and Countryside Act (1981 as amended) Schedule 5	07/08/2018 (c. 1.8km South West)	c. 1km North (2012)
West European Hedgehog <i>Erinaceus europaeus</i>	NERC S41; UK BAP Priority	01/10/2017 (1.95km South)	c. 1.95km South (2017)
Slow worm <i>Anguis fragilis</i>	Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC Act (2006) Section 41; Bern Convention Appendix 3	06/08/2019 (c. 1km East)	c. 1km East (2019)
Grass Snake <i>Natrix helvetica</i>	Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC Act (2006) Section 41; Bern Convention Appendix 3	29/07/2019 (c. 1km East)	c. 1km East (2019)
Common lizard <i>Zootoca vivipara</i>	Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC Act (2006) Section 41; Bern Convention Appendix 3	06/08/2019 (c. 1km East)	c. 1km East (2019)
Western barbastelle <i>Barbastella barbastellus</i>	The Conservation of Habitats and Species Regulations (2017) Schedule 2; Habitat and Species Directive (1992) Annex 2 & 4; Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC Act (2006) Section 41; UK BAP Priority.	2015 (c. 1.1km North West)	c. 1.1km North West (2015)
Serotine <i>Eptesicus serotinus</i>	The Conservation of Habitats and Species Regulations (2017) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 5	17/07/2018 (c. 1.7km North)	c. 870m South East (2014)
Myotis species	The Conservation of Habitats and Species Regulations (2017) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 5	06/09/2017 (c. 1.93km South)	c. 20m South (2010)
Nyctalus Bat Species <i>Nyctalus</i>	The Conservation of Habitats and Species Regulations (2017) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC Act (2006)	29/08/2017 (c. 1.8km North)	On Site (19/09/2016)
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>	The Conservation of Habitats and Species Regulations (2017) Schedule 2; Habitat and Species Directive (1992) Annex 4;	05/09/2017 (c. 1.8km South East)	c. 1.8km South East (2017)

	Wildlife and Countryside Act (1981 as amended) Schedule 5		
Common pipistrelle <i>Pipistrellus pipistrellus</i>	The Conservation of Habitats and Species Regulations (2017) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC Act (2006) Section 41; UK BAP Priority.	21/06/2019 (c. 1.7km South West)	On Site (2014)
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	As above	07/08/2019 (c. 550m North East)	On site (2019)
Long-eared Bat species <i>Plecotus</i>	As above	23/10/2017 (c. 630m South East)	c. 1.8km North (2017)
Brown long-eared bat <i>Plecotus auritus</i>	As above	08/10/2018 (c. 1.8km North)	c. 850m South West (2014)
Swift <i>Apus apus</i>	Wildlife and Countryside Act (1981 as amended) Schedule 1 Part 1; Birds Directive Annex 1	01/01/2011 (c. 670m South West)	c. 670m South West (2011)
Swallow <i>Platalea leucorodia</i>	Wildlife and Countryside Act (1981 as amended) Schedule 1 Part 1; Birds Directive Annex 1	06/01/2016 (c. 850m South West)	c. 850m South West (2016)
Red Kite <i>Milvus milvus</i>	As above	09/05/2016 (c. 410m South East)	c. 410m South East (2016)
Merlin <i>Falco columbarius</i>	As above	11/09/2015 Within 2km	Within 2km
Common House Martin <i>Delichon urbicum</i>	Wildlife and Countryside Act (1981 as amended) Schedule 1 Part 1	25/07/2015 Within 2km	Within 2km
Wheatear <i>Oenanthe oenanthe</i>	As above	03/05/2018 c. 1.25km South	c. 850m South (2012)
Yellowhammer <i>Emberiza citrinella</i>	As above	04/07/2018 (c. 1.5km South West)	c. 1.5km South West (2018)
Dunnock <i>Prunella modularis</i>	Wildlife and Countryside Act (1981 as amended) Schedule 1 Part 1; Birds Directive Annex 1	04/07/2018 (c. 1.5km South West)	c. 1.25km South (2015)

**Additional species are present within the biological records but may be older than 10 years or outside our search radius. Some species have not been included due to the likelihood of presence on site due to habitat types.*

Previous Survey Work

3.5 A previous ecological appraisal (Ecology Partnership September 2017, updated in September 2018) was conducted on the site. The site was recorded as being primarily comprised of amenity grassland. This was found to be species poor, and subject to regular maintenance. A small number of sheep were present in the north of the site. Species found include perennial rye-grass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), red fescue (*Festuca rubra* agg) yarrow (*Achillea millefolium*), daisy (*Bellis perennis*) and white clover (*Trifolium repens*) dandelion (*Taraxacum* agg.) and greater

plantain (*Plantago major*). Several additional species were present within the southern section of lawn including ground ivy (*Glechoma hederacea*), ribwort plantain (*Plantago lanceolata*), and creeping buttercup (*Ranunculus repens*).

- 3.6 The site contained scattered trees throughout the residential garden. These were mainly confined to the site boundaries, and formed tree lines along the edge of the site. Tree species present included sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), elder (*Sambucus nigra*), copper beech (*Fagus sylvatica* 'purpurea'), apple (*Malus* sp.), hazel (*Corylus avellana*), holly (*Ilex aquifolium*), *Eucalyptus* sp., willow (*Salix* sp.), cherry (*Prunus* sp.), silver birch (*Betula pendula*), hawthorn (*Crataegus monogyna*) and Monterey cypress (*Cupressus macrocarpa*).
- 3.7 Sections of hedgerow were found largely to the south of the site. The boundary of the southern section contained Sycamore and Forsythia on the southern section, with sections of Sycamore and Hazel in the western and northern boundaries. The northern boundary of the public footpath contained a section of Privet (*Ligustrum ovalifolium*) hedge. The northern section of the site also contained several isolated sections of ornamental hedges, with hawthorn, cherry laurel (*Prunus laurocerasus*) and shrubby honeysuckle (*Lonicera* sp.) present
- 3.8 Four bat activity surveys were undertaken, with only one common pipistrelle seen to emerge from one building, The Cottage. It was concluded that bats are only using external features. This was confirmed by an extensive period of static recording in May 2017. Five surrounding trees were found to have bat roosting potential, but no roost was identified within the survey period.
- 3.9 No evidence of badgers was recorded on site, although some areas were not able to be accessed fully. Badgers may use the site for foraging.
- 3.10 The buildings and hedgerows were found to have potential for nesting birds, with evidence of an old Swallow/House Martin nest on building 10. It was recommended that clearing work on site be undertaken outside of the breeding bird season, by a suitably qualified ecologist.

Phase 1 Habitat Survey

- 3.11 The site comprised of a residential dwelling, comprising a house and several outbuildings, including a large greenhouse, sheds, and a garage. The garden was all regularly maintained.
- 3.12 Four sheep populated the garden, who were grazing the centre of the site, and had caused damage to multiple trees had sustained from chewing bark.
- 3.13 The habitat map is presented in **Appendix 1** and a full species list is provided in **Appendix 3**.

Amenity grassland

- 3.14 The majority of the site consisted of amenity grassland. The habitat is subject to regular maintenance and grazing as the grassland was at a short sward at the time of the survey. Present species were dominantly rough meadow grass (*Poa trivialis*) with abundant perennial ryegrass (*Lolium perenne*) and white clover (*Trifolium repens*), and frequent daisy (*Bellis perennis*), Red fescue (*Festuca rubra*), Yorkshire fog (*Holcus lanatus*), and soft brome (*Bromus hordeaceus*). More species were found amongst the unkept, shaded borders of the garden, including annual meadowgrass (*Poa annua*) and yarrow (*Achillea millefolium*).

Woodland, Scattered Trees and Tree Lines

- 3.15 The site contained scattered trees throughout the residential garden, which were primarily confined to the boundaries and formed tree lines along the edges of the site. Species present included ash (*Fraxinus excelsior*), Monterey cypress (*Cupressus macrocarpa*), Cedar of Lebanon (*Cedrus libani*), silver birch (*Betula pendula*), cherry (*Prunus sp.*), sycamore (*Acer pseudoplatanus*), hawthorn (*Crataegus monogyna*), Norway spruce (*Picea abies*), hornbeam (*Carpinus betulus*), eucalyptus (*Eucalyptus parvifolia*), elder (*Sambucus nigra*) and oak (*Quercus robur*).
- 3.16 The north-eastern corner of the site consists of broadleaved plantation woodland. This extends along most of the eastern boundary, and was primarily comprised of ash (*Fraxinus excelsior*) and silver birch (*Betula pendula*), with two dead cypress sp. In the northern most corner.

Hedgerows and Shrubs

- 3.17 Two ornamental hedgerows were present to the south of buildings 1 and 2. The first was a circular feature, comprising of primarily cherry laurel (*Prunus laurocerasus*) and hazel (*Corylus avellana*), and the second extended south from the rear of the garage, and then east. This feature comprised of solely shrubby honeysuckle (*Lonicera periclymenum*). The western half of the southern border was primarily comprised of garden privet (*Ligustrum ovalifolium*).

Buildings

- 3.18 There were a total of eleven buildings on site, including a residential house, a garage, a large greenhouse, and eight other sheds and small outbuildings.

Hardstanding

- 3.19 A driveway into the property was present, that led up to the house from the A29. This driveway extended to the garage and building 3, with an island of amenity grassland directly in front of the house.

Ponds

- 3.20 An old ornamental pond was present on site. At the time of the survey, this was dry and holes in the liner were clearly visible, so unlikely to hold water for a meaningful amount of time. This pond was dry at the time of the last two inspections (2016 & 2018).

Off-site habitats

- 3.21 A large pub and hotel is present to the north of the site, with agricultural land mostly arable to the east, the A29 bounds the site to the west and residential properties are present to the south.

Protected Species

Bats

3.22 Eleven buildings were identified on site. All of these buildings were internally and externally assessed for their potential to support roosting bats. Their locations can be seen in Figure 8 below.



Figure 3: Location and labels for buildings (B) present on site. Buildings highlighted in red have been removed/demolished since the last survey.

3.23 There are a number of buildings on site:

- Building B1 – the residential dwelling;
- Building B2 – garage
- Building B3 – small outbuilding
- Building B4 – stable block
- Building B5 – wooden shed/workshop
- Building B6 – demolished
- Building B7 – removed
- Building B8 – demolished, but foundations still remain
- Building B9 – two storey dilapidated structure

- Building B10 – breezeblock shed
- Building B11 – large greenhouse
- Building B12 – small wooden shed

B1 – Residential dwelling

- 3.24 Building 1 was the single residential building on site. This detached house had a pitch tiled roof, with many cracked/missing tiles providing access to the two roof voids.
- 3.25 The first was accessed at the top of the stairs, and was the smaller of the two. This void was too small to be accessed fully, but a detailed search around the access was carried out. The base was lined with insulation, and the void contained only pipes and a water tank. No boarding or felt lining was present, leaving the roof structure open to the internal environment. No evidence of roosting bats was recorded within this void. A number of mouse droppings were found, but no other signs of activity.
- 3.26 The second void was larger in size, and ran the length of the house from east to west. The base of the void was covered in insulation, which prevented safe access into the void, but a thorough inspection around the access was carried out. The roof tiles on the eastern half of the roof were covered with wooden sarking, but on the western half were internally exposed. There was a large, inactive wasp nest present, that was also present in the 2016 and 2018 surveys. A number of mouse droppings were found, but no other signs of activity.
- 3.27 Externally the building had a large pitched roof which covered much of the first floor. The roof had numerous broken, missing, slipped and lifted clay tiles, presenting potential opportunities for crevice dwelling bats such as common pipistrelle.

B2 – Detached garage

- 3.28 This building was a detached garage. The structure was largely flat roofed, with a slight pitch to the front section, above the garage door. There was no enclosed void, and the internal environment was well lit and regularly used by the occupants. There were no suitable features for roosting bats on an external inspection.

B3 – Small Outbuilding

- 3.29 Building 3 was a small outbuilding, to the north of the main house (building 1). The structure had a pitched clay tiled roof, with several gaps caused by slipped, missing, or lifted tiles. Between the southern wall and roof, there was a notable crevice that would also provide opportunities for crevice dwelling bats.
- 3.30 Internally, this building was used for storage. The tiles were lined with chipboard. There was no internal void, and the presence of windows meant the building was well lit. The building was unable to be accessed, but on a visual inspection through an open window, there was no evidence of bats using the space for roosting.

B4 & B5 – Stable block/Wooden shed/workshop

- 3.31 These two buildings are adjacent to one another on the northern boundary of the site to the east of building 3. Building 4 appeared to be used as shelter for the inhabiting sheep, and building 5 was an old wooden storage shed, with a sheltered outdoor workshop attached on the eastern end. Both buildings are small and flat roofed, with no potential or suitable features for roosting bats.

B6, B7 & B8 – Demolished/removed buildings

- 3.32 Building 6, which was previously a medium sized greenhouse, is no longer present, and the area is now a patch of gravel, with no visible hardstanding.
- 3.33 Building 7, which was previously an old polytunnel frame, is no longer present.
- 3.34 Building 8 was another old polytunnel frame, with a concrete floor and ground level brick walls as a foundation. The ground level brick wall still remains, but the floor is now amenity grassland.

B9 – Two storey hut

- 3.35 Building 9 was a two storey hut. The ground floor was an old redbrick structure, and the first floor appeared to be a newer breezeblock structure. The roof was in a dilapidated state, with large sections missing. The structure itself had open sides and windows, which prevented the provision of any shelter. This structure was not considered suitable for roosting bats, and no evidence of roosting bats was found.

B10 – Breezeblock shed

- 3.36 Building 10 was an old breezeblock shed. The flat, felt roof had previously collapsed, leaving a large hole and little shelter within the structure. This, alongside a lack of features, prevented the building being considered suitable for roosting bats. There were two old swallow nests present within the structure. However, these were both noted as ‘old’ and unused in both the 2016 and 2018 surveys, and are considered not to have been used since

B11 – Large Greenhouse

- 3.37 Building 11 was a large greenhouse, with a wooden structure on the western end. There was considered to be no potential roosting features for roosting bats.

B12 – Small wooden shed

- 3.38 Building 12 was a small garden shed in the north eastern corner of the site. The structure appeared to be well sealed with no potential roosting features for roosting bats.

Trees

- 3.39 Several trees are present within the red-line boundary. The majority of trees within the red-line boundary were considered to have ‘negligible’ potential to support roosting bats owing to their small stature and/or lack of suitable roosting features, such as broken and split limbs, woodpecker holes, cavities and dense ivy cover. Those that had some potential are shown in figure 4.
- 3.40 Towards the south east of the site a mature Cedar of Lebanon with 4 woodpecker holes was identified. The lowest of the woodpecker holes appeared to be superficial. A climbing inspection is recommended to assess the suitability of the other holes in the tree for roosting bats.
- 3.41 Additionally, a mature Monterey cypress tree was present on the western boundary, to the south of the site entrance. There was a fair amount of lifted bark, which would provide low roosting potential for bats.

- 3.42 Also present on the western boundary was a dead tree, converted into a 10ft monolith. There were some areas of lifted bark, which would provide low roosting potential for bats.



Figure 4: Location and labels for trees identified to have bat potential on site

Tree Number / Species	Features	Potential
1 – Monterey Cypress	Lifted Bark	Low
2 – Cypress sp. (Dead)	Dead monolith, some small sections of lifted bark	low
3 – Cedar of Lebanon	Multiple woodpecker holes	Medium (subject to climbing inspection)

Foraging and commuting bats

- 3.43 The hedgerows, tree-lines and strips of mature scrub could all provide linear commuting corridors for bats in addition to foraging opportunities.
- 3.44 The remaining habitats on site including the frequently maintained amenity grassland and hardstanding, which dominate the site, are considered to be of limited interest for foraging bats.

Badgers

- 3.45 No evidence of badgers such as setts, latrines or footprints were observed on site on the day of survey; however, the site is considered to provide opportunities for foraging and commuting badgers in the local area.

Great Crested Newts (GCN)

- 3.46 One ornamental garden pond was present on site at the time of the survey. The pond was dry and contained no water. The pond was partially shaded by sizeable adjacent trees. The pond is not historic or natural and was constructed by the current owner of the house, containing a pond liner. The pond was dry on both previous inspections in 2016 and 2018, was noted as such during subsequent bat surveys. The site is well maintained with very short grassland and a lack of thick vegetation to provide cover for amphibians from predators, whilst in their terrestrial phase.

Hazel Dormice

- 3.47 The habitats on site are considered to be of low value for dormice. Despite a presence of fruit trees on site, which could act as a food source for the species, the well maintained lawn, and a lack of dense vegetation means that cover from predators and habitat connectivity were lacking. In addition, the local landscape lacks areas of woodland which could support a population of the species in any number. As such the site is not considered to be suitable for dormice, and dormice are not considered further in this report.

Reptiles

- 3.48 The wider hedgerows, and, woodland edge habitats on site were deemed to have some suitability to support reptiles. As this habitat is largely restricted to the edge of the site, as is unlikely to be significantly impacted, a full reptile survey is not considered necessary. However, if proposals are likely to impact the small areas of reptile habitat on site, then an appropriate mitigation strategy and method statement should be prepared by an ecologist to outline the precautions to be adhered to during clearance, to ensure protection of potential reptiles on site. Clearance of any suitable habitat should be carried out sensitively by hand during the summer months to prevent injury to any hibernating individuals.

Nesting Birds

- 3.49 The trees, hedgerows and buildings on site have the potential to support nesting birds. An old swallow nest was present within building 10, although recorded as disused in 2016 and seemingly inactive since then. It is considered that although the green houses are unsuitable for nesting birds the remaining buildings do have potential for nesting birds.

Water Voles

- 3.50 There are a large number of records for water voles within the local area. However, the nearest record is approximately 0.95km to the northwest of the site. There is no suitable habitat present for water voles on site, with a dry man-made pond and well maintained gardens. It is considered highly unlikely that the species are present on site and this species is not discussed further in this report.

4.0 Discussion

- 4.1 The following paragraphs consider the effects of the development on designated sites, priority habitats and protected and priority species. Where the desk study and Phase 1 survey provide sufficient evidence for an assessment of effects on any of these groups to be taken through planning, these are detailed below, the need for additional surveys and when and how these should be completed are summarised, if required.
- 4.2 Provisional recommendations are also given for means to achieve net biodiversity gain, following the principle (CIEEM et al. 2016) of following the mitigation hierarchy of; avoidance, minimisation of loss, compensation on site and biodiversity offset.

Effects on statutory designated sites

- 4.3 The site contains a single residential dwelling with the grounds currently managed as residential garden and includes former nursery buildings. The site does not lie within or adjacent to any statutory or non-statutory sites. The site is considered to have ecological value at site level only as the habitats present are common and widespread throughout the UK and local area.
- 4.4 With regards to planning policies, firstly policies ENV SP1 and ENV DM1, recommendations for enhancement of biodiversity and the natural environment have

been made within this report. With regards to designated sites, the site is not situated within or adjacent to any designated sites, it is not considered that the development would have any significant direct or indirect impact on protected sites.

- 4.5 With regards to ENV DM2 the site is outside the 5km zone B with regards to Pagham Harbour SSSI, LNR, Ramsar and SPA, with the development site situated approximately 6.4km away. It is not considered that the development would have negative affect on this designation, however it for the local planning authority to establish whether an appropriate assessment would be required.
- 4.6 With regards to Policy ENV DM3, the site is not considered to support locally valued and important habitats with the habitats present considered to have site value only. Recommendations have been made to minimise disturbance to habitats with recommendations for removal outside nest bird season and with regards to roosting bats.
- 4.7 The site does not contain ancient woodland or areas of significant woodland with regards to Policy ENV DM4. Replacement trees will need to be planted if trees are to be removed on site. Arboricultural consultant's recommendations should be followed.

Effects on non-statutory Designated Sites

- 4.8 With regards to non-statutory designated sites, the only designated site within 2km of the site is The Brooks LNR and is considered to have importance at local level. The designation is managed for recreational use and it is not considered that the development would have a significant negative effect directly or indirectly on this site.

Effects on ancient woodland/Priority Habitats

- 4.9 A total of 10 units of priority deciduous woodland has been identified within 10km of the site. Given the distance from the site, and the highways running between the site and the woodland, any development is considered to have negligible effects.

Effect on on-site habitats

- 4.10 The habitats on site offer limited opportunities for wildlife due to the previous use as a residential dwelling, and regular management of the grounds of the site, with

mowing, strimming, and grazing from sheep. The habitats are widespread and common throughout the local area and the UK as a whole.

- 4.11 It is recommended that the tree lines around the edges of the site and the broad leaved woodland in the north eastern corner of the site are to be retained and enhanced where possible. The retention of these features allows for the retention of the green corridors around the site and ensures the retention of the ecological functionality.
- 4.12 The redevelopment of the site will not isolate or fragment nearby habitats and will not impact upon landscape connectivity. Therefore, it will have negligible ecological impact and enhancements recommended would increase the ecological value of the site post-development.
- 4.13 The retention of the habitats outlined above in combination with implementation of the below recommendations for enhancements, further surveys, mitigation and compensation would ensure the proposals are completed in accordance with the Arun Adopted Local Plan (2018). In particular, with Policy ENV DM5: Development & Biodiversity. A full Ecological Enhancement and Mitigation Plan (EEMP) is recommended for the site once more detailed proposals are available and further phase 2 surveys have been conducted.

Effects on Protected Species

Bats

Buildings

- 4.14 The majority of the buildings (2, 4-12) on site retained 'negligible' potential for roosting bats due to lacking in suitable conditions and features for roosting bats. These can be removed without further consideration for roosting bats.
- 4.15 The residential dwelling (building B1) retained 'high' potential for roosting bats due to supporting a low number of potentially suitable external features. In surveys previously carried out in 2016 & 2017, one common pipistrelle was confirmed to be roosting in the building. It is likely that this building is to be demolished as part of the proposals, and being a previously confirmed roost, it is recommended that three bat surveys are undertaken. These should consist of two dusk emergence surveys, and

one dawn re-entry survey. The outbuilding (B3) is also considered to have 'low' potential to support roosting bats. This building would require a single survey to assess if bats are using such features.

- 4.16 Dusk emergence surveys are to be undertaken when bats are most active, which is between May and the end of September, although May to August is the optimum time for surveys. Dusk emergence surveys commence at least 15 minutes before sunset until 2 hours after sunset, during which time, bats are identified and recorded using a bat detector, such as the EchoMeter Touch 2. Dawn emergence surveys follow a similar methodology, commencing at least 1.5 hours before sunrise and lasting until 15 minutes after sunrise. In addition to the above, bat surveys are required to be undertaken during suitable weather conditions, when conditions are relatively dry and mild with little/no wind. Surveys are required to be spaced at least two weeks apart.
- 4.17 Dependant on the results of the recommended surveys and the remote recordings, works will likely require a licence from Natural England to proceed.
- 4.18 Under the Bat Mitigation Guidelines, the level of mitigation required will depend upon the nature of the roost identified during the emergence/re-entry surveys. In the event of a larger roost, such as a maternity roost, being identified then a like for like replacement will be required if any roost space is to be lost.
- 4.19 Bat boxes should be hung on mature trees or buildings around the site to create new roosting opportunities on site. Recommended boxes include:
- Vivara Pro WoodStone Bat Box – A general purpose bat box that supports a range of species (Figure 5). These can be hung on trees in a variety of heights and aspects in order to provide a variety of micro-climates.
 - Large Multi Chamber WoodStone Bat Box – This is a multipurpose box designed for larger colonies and a range of bat species including pipistrelles, noctules and brown long-eared bats. These should be hung on mature trees around the site (Figure 5).

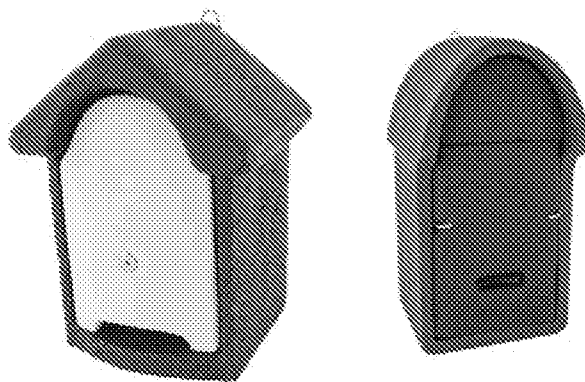


Figure 5: Vivara Pro WoodStone Bat Box (left) and Large Multi Chamber WoodStone Bat Box (right)

4.20 The siting of bat boxes is important and have the best rate of occupancy when they are situated within or adjacent to bat-friendly features, such as treelines. The bat boxes should be situated where they are sheltered from strong winds and should be exposed to the sun for most of the day, therefore southern aspects are favourable. Multiple boxes may be hung on one large tree, facing different aspects. Bat boxes should be hung as high as possible, preferably around 5m high, although lower boxes may also be used by brown long-eared bats.

4.21 Bat tubes should also be integrated into the structure of the new buildings as enhancement. Recommended bat tubes include Schwegler 2FR Bat Tubes and Habibat 001 bat boxes unfaced (Figure 6). Both require no maintenance as droppings fall out of the entrance ramp. These should be placed where they will receive sunlight for most of the day as temperature is an important factor in the success of artificial bat roosts. They should also be placed as close to the eaves or gable apex as possible and not above windows to reduce the risk of cat predation.

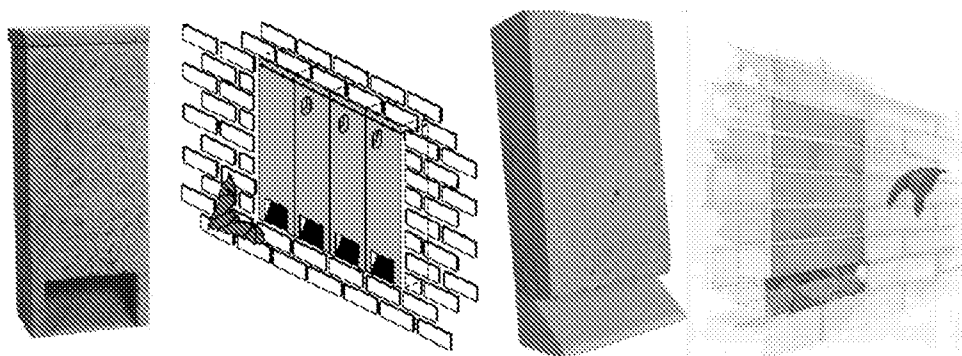


Figure 6: Schwegler 2FR tube (left) and Habibat 001 bat box (right)

Trees

- 4.22 With regards to potential bat roost trees on site, the recommendations within the species-specific bat report are considered still valid. Trees 1 & 2 were both classed as low potential.
- 4.23 Trees 1 & 2 are classed as 'low' potential and need to be removed. Following guidance, no further surveys are necessary prior to removal but they should be felled in accordance with specific advice provided by the bat-worker ensuring that reasonable avoidance measures are followed. Recommended measures include:
- Re-checking the tree and any features for evidence of bats
 - Areas of ivy and loose bark should be re checked and carefully removed to reveal the tree trunk below and if any features or bats present
 - If evidence of bats is present then works should stop and the advice of an ecologist sought immediately
 - Cavities in the trees should not be sawn through but cut above and below cavities
 - Sections which support cavities should be soft felled and roped carefully down to the ground
 - If a bat is found and is injured the advice of an ecologist should be sought
 - If a roost is discovered and no bats are harmed, no further works should be undertaken and the advice of an ecologist sought.
- 4.24 However, tree 3, the Cedar of Lebanon, which is considered to have a 'medium' potential to support roosting bats, is due to be felled, so two surveys are required. Dusk emergence surveys are to be undertaken when bats are most active, which is between May and the end of September, although May to August is the optimum time for surveys.
- 4.25 Street tree planting, and new planting within the scheme, should include native species of ecological value. Street tree planting can provide stepping stones across the development and allow movement of species within the site boundaries, linking external habitats to habitats within the redline boundary.

Foraging and commuting bats

- 4.26 The overall suitability of the site for foraging and commuting bats is limited due to the usage of the site for sheep grazing which has reduced the suitability of the habitats on site for bats. The tree-lines, hedgerows, mature scrub and woodland edges would all provide commuting corridors for bats.
- 4.27 The Bat Conservation Trust survey guidelines (Collins 2016) states that in table 4.1, *“guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement”*. It is important that proportionality is employed when recommending further survey work for bat species on a proposed development site. As stated within section 8.2.7. of these guidelines (Collins 2016), the following points need to be considered with regard to planning activity surveys:
- Likelihood of bats being present;
 - Likely species concerned;
 - Number of individuals;
 - Type of habitat affected;
 - Predicted impacts of the proposed development on bats;
 - Type and scale of proposed development.
- 4.28 Considering the habitats present on site, and the retention of habitat edges and the north eastern corner of woodland, and the recommendations for the retention or replacement of trees on site, it is considered that no further activity surveys are recommended.
- 4.29 However, any proposed lighting scheme as part of the development will have to consider bats in the surrounding area, as well as on site and it is recommended that a sensitive lighting scheme is conditioned as part of the full planning application. All bat species are nocturnal, resting in dark conditions in the day and emerging at night to feed. Bats are known to be affected by light levels which can affect both their roosting behaviour as well as their foraging behaviour. This needs to be considered, with a sympathetic lighting scheme for the development. Recommendations include:
- Installing lighting only if there is a significant need;
 - Using LED luminaries due to their lower intensity, sharp cut-off and good colour rendition – any lights with UV elements or metal halide lights should not be used;

-
- Lights with peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012);
 - Lights with an upward light ratio of 0% and good optical control;
 - Careful consideration of column height to avoid light spill;
 - Any external security lights should use motion-sensors and short (1-minute) timers;
 - Accessories such as baffles and hoods should be used as a last resort to reduce light spill and direct light only to where needed;
 - Avoid putting lighting near tree lines or hedgerows and angling light away from these linear features which are used by commuting and foraging bats;
 - Planting a barrier or using man-made features required within the scheme to form a barrier.

Badgers

- 4.30 No evidence of badgers, such as setts or latrines, was observed anywhere on site. It is recommended that any areas of dense vegetation on site, are sensitively cleared with hand tools only. As such, if a mammal hole or confirmed badger sett is identified, then the clearance would not have impacted upon the nature or structure of the sett. If indeed a sett is identified it is recommended that a more detailed badger survey is completed across the site to identify the size and type of sett.
- 4.31 Best practice guidelines should also be followed even if a badger sett is not confirmed on site as habitats on site are considered to retain potential for foraging and commuting opportunities for badgers in the local area. The guidelines are as follows:
- Any trenches or excavations on site should be either covered over at night or a plank of wood placed in so as to allow any mammals to escape if the badgers were to accidentally fall in.
 - Any open pipes or conduits laid should be blocked off each night to prevent badgers from entering them.
 - Disturbances, such as loud noises, vibrations and flood lighting in association with night working should be minimised.
- 4.32 Any design for the site should consider the retention of edge habitats within any proposals would ensure that if badgers are present in the local area that they would be able to move across the site and into the wider landscape.

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- 4.33 It is always recommended that a badger update survey be carried out immediately prior to works commencing on site. This is because they are a highly mobile species and new setts can be created in a short period of time.

Great Crested Newts

- 4.34 The habitats on site are largely sub-optimal for GCN due to heavy grazing and frequent management. The local surroundings also primarily comprised of agricultural land and hardstanding. There are no waterbodies on site, with the pond on site considered to be defuncted and no other ponds are present in the local landscape. Considering the above, and the lack of GCN records within 1km of the site, it is considered that no impacts are predicted on GCNs within the landscape, and they are not a constraint to the development.

Reptiles

- 4.35 The wider hedgerows, and, woodland edge habitats on site were deemed to have some suitability to support reptiles. As this habitat is largely restricted to the edge of the site, as is unlikely to be significantly impacted, a full reptile survey is not considered necessary. However, if proposals are likely to impact the small areas of reptile habitat on site, then an appropriate mitigation strategy and method statement should be prepared by an ecologist to outline the precautions to be adhered to during clearance, to ensure protection of potential reptiles on site. Clearance of any suitable habitat should be carried out sensitively by hand during the summer months to prevent injury to any hibernating individuals.

Birds

- 4.36 Birds are likely to use the trees and hedgerows on site and along the boundaries for foraging and breeding. Old swallow nests were present within building 10. It is considered that although the green houses are unsuitable for nesting birds the remaining buildings do have potential for nesting birds. It is recommended that trees and hedgerows be retained where possible or replaced. Any scrub or tree removal or building demolition should be implemented outside the breeding bird season (March-September) or immediately after a nesting bird check by a suitably qualified ecologist. If active nests are identified, works in the vicinity of the nest must cease until the birds have fledged the nest.

- 4.37 Bird boxes can be hung on mature trees to increase the number of breeding opportunities throughout the site. Woodcrete (or similar) boxes are recommended as they provide better thermal properties, are longer lasting and more durable than wooden boxes. These should be positioned at least 2.5m from ground level, on retained mature trees on site.

Ecological Enhancements

- 4.38 The site is dominated by grazed pastures which are all in a 'poor' condition due to heavy grazing, and the remaining features are largely species-poor or man-made, therefore the overall ecological value of the site is limited. As such the loss of these habitats would not be considered ecologically significant. The most valuable habitats on site are the hedgerows, tree-lines, and grassland on the site boundaries.
- 4.39 It is therefore important that significant considerations are given in the masterplan towards maintaining and enhancing on-site habitat and connectivity with the wider landscape post-development. It is important to utilise native species of local provenance in landscaping schemes to enhance the ecological value of a development.
- 4.40 New tree planting should occur along the site boundaries to improve the local green infrastructure network. These should include native species of value to wildlife such as oak (*Quercus robur*), hazel (*Coryllus avellana*), holly (*Ilex aquifolium*), wild cherry (*Prunus avium*) and apple (*Malus sp.*).
- 4.41 Planting of species-rich hedgerows along the site boundaries and within areas of open space would also create new opportunities for wildlife on site and improve connectivity across the site. Species that may be planted include blackthorn, hawthorn, hazel, holly, elder, alder buckthorn (*Frangula alnus*), guelder rose (*Viburnum opulus*), dog rose (*Rosa canina*) and dogwood (*Cornus sanguinea*). Planting the base and edges of the hedgerow with herbaceous plants and bulbs attract bees, butterflies and other insects as well as providing ground cover for smaller animals. Seeds that are tolerant of semi-shade and are suitable for sowing beneath newly planted or established hedges should be used. As a guide, the following species can be included in the mix; however, appropriate seed mixes may be purchased from native species stockists:
- Yarrow - (*Achillea millefolium*);
 - Agrimony – (*Agrimonia eupatoria*);

- Garlic mustard – (*Alliaria petiolata*);
- Common knapweed – (*Centurea nigra*);
- Wild Basil – (*Clinopodium vulgare*);
- Hedge bedstraw – (*Galium album*);
- Wood avens – (*Gerum urbanum*);
- Oxeye daisy – (*Leucanthemum vulgare*);
- Ribwort plantain – (*Plantago lanceolata*);
- Cowslip – (*Primula veris*);
- Selfheal – (*Prunella vulgaris*);
- Red campion – (*Silene dioica*);
- Hedge woundwort – (*Stachys sylvatica*);
- Upright hedge parsley – (*Torilis japonica*); &
- Tufted vetch – (*Vicia cracca*).

4.42 Sustainable Drainage Systems (SuDS) may also be required on site. Recommended species for these areas, including the ditch banks, should include the following:

- | | |
|--|---|
| • Sneezewort (<i>Achillea ptarmica</i>) | • Purple Loosestrife (<i>Lythrum salicaria</i>) |
| • Wild Angelica (<i>Angelica sylvestris</i>) | • Meadow Buttercup (<i>Ranunculus acris</i>) |
| • Marsh Marigold (<i>Caltha palustris</i>) | • Water Figwort (<i>Scrophularia auriculata</i>) |
| • Hemp Agrimony (<i>Eupatorium cannabinum</i>) | • Ragged Robin <i>Silene flos-cuculi</i> - (<i>Lychnis flos-cuculi</i>) |
| • Meadowsweet (<i>Filipendula ulmaria</i>) | • Devil's-bit Scabious (<i>Succisa pratensis</i>) |
| • Square-stalked St John's Wort (<i>Hypericum tetrapterum</i>) | • Common Meadow-rue (<i>Thalictrum flavum</i>) |
| • Yellow Iris (<i>Iris pseudacorus</i>) | • Tufted Vetch (<i>Vicia cracca</i>) |
| • Greater Birdsfoot Trefoil (<i>Lotus pedunculatus</i>) | • Meadow foxtail (<i>Alopecurus pratensis</i>) |
| • Gypsywort (<i>Lycopus europaeus</i>) | • Sweet vernal-grass (<i>Anthoxanthum odoratum</i>) |
| | • Crested dogstail (<i>Cynosurus cristatus</i>) |

- Tufted hair grass (*Deschampsia cespitosa*)
- Common bent (*Agrostis capillaris*)

4.43 Newly formed areas of amenity grassland, boundaries and vacant spaces post-development could be supplemented by integrating a variety of native plant species. Patches of bare soil can be sown with wildflower seed mixes to increase the biodiversity of the site and also offer aspects of aesthetic appeal. The following should be considered when creating wildflower meadows:

- Use an appropriate seed mix from local native species stockists and tailor them to the soil type present.
- In areas where grassland already exists, the grass and weeds should be removed to prevent competition. The fertility of the soil will also need to be reduced either by removing the topsoil or by closely mowing the area for several seasons and removing the cuttings.
- Before sowing, the ground needs to be prepared through ploughing or rotovating.
- Seeds are best thrown in March-April or August-September.
- Plug plants can be used for species that are difficult to establish from seed such as meadow cranesbill (*Geranium pratense*), field scabious (*Knautia arvensis*) and clustered bellflower (*Campanula glomerata*). These should be planted in weed-free soil in late March-April and should be well-watered.
- Ensure yellow rattle (*Rhinanthus minor*) is included within the seed mix as this will help to reduce competition from rigorous grass species.
- A lot of management is required until establishment but after this the meadows only need to be cut once or twice a year.

4.44 For gardens and shared open areas, species-rich lawn turf can be acquired which includes a wide range of plant species tolerant of regular mowing and wear. Alternatively, areas of bare earth which will become regularly mown amenity grassland can be sown with an appropriate wildflower lawn seed mix tolerant to such management and can include:

- Red fescue (*Festuca rubra*)
- Meadow fescue (*Festuca pratensis*)
- Sheep's fescue (*Festuca ovina*)
- Common bent (*Agrostis capillaris*)
- Creeping bent (*Agrostis stolonifera*)

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- | | |
|---|---|
| <ul style="list-style-type: none"> • Annual meadow grass (<i>Poa annua</i>) • Smooth meadow grass (<i>Poa pratensis</i>) • Crested dogtail (<i>Cynosurus cristatus</i>) • Perennial ryegrass (<i>Lolium perenne</i>) • White clover (<i>Trifolium repens</i>) • Red clover (<i>Trifolium pratense</i>) • Yarrow (<i>Achillea millefolium</i>) • Selfheal (<i>Prunella vulgaris</i>) • Bird's-foot trefoil (<i>Lotus corniculatus</i>) • Bulbous buttercup (<i>Ranunculus bulbosus</i>) • Cat's ear (<i>Hypochaeris radicata</i>) | <ul style="list-style-type: none"> • Common knapweed (<i>Centaurea nigra</i>) • Lady's bedstraw (<i>Galium verum</i>) • Lawn chamomile (<i>Anthemis nobilis</i>) • Daisy (<i>Bellis perennis</i>) • Meadow vetchling (<i>Lathyrus pratensis</i>) • Wild thyme (<i>Thymus polytrichus</i>) • Common dog violet (<i>Viola riviniana</i>) • Kidney vetch (<i>Anthyllis vulneraria</i>) • Ribwort plantain (<i>Plantago lanceolata</i>) • Sorrel (<i>Rumex acetosa</i>) |
|---|---|

4.45 Green walls could be created adjacent to new buildings to provide opportunities for bats, invertebrates and other wildlife. Climbing plants can be grown onto trellis along the walls. Species which can be planted include:

- Honeysuckle (*Lonicera japonica*; *L. fragrantissima*; *L. standishii*);
- Clematis (*Clematis vitalba*, *C. armandii*, *C. alpina*, *C. montana*, *C. tangutica*);
- Ivy (*Hedera helix*);
- Climbing hydrangea (*Hydrangea petiolaris*);
- Dog rose (*Rosa canina*).

4.46 New shrub and herb planting should occur within the newly created garden habitats to provide new opportunities for birds and hedgehogs. Recommended native species include bilberry (*Vaccinium myrtillus*), spindle (*Euonymus europaeus*), buckthorn (*Rhamnus cathartica*), foxglove (*Digitalis purpurea*), wood sage (*Teucrium scorodonia*), betony (*Stachys officinalis*) and sweet woodruff (*Galium odoratum*).

4.47 It is also recommended that log piles are created within shared open areas. The log piles can be created from any trees that are being removed as part of the proposal. Log

piles offer shelter for hibernating small mammals and insects, as well as a foraging area for some birds. Recommended structures for the log piles is shown in Figure 18 below.

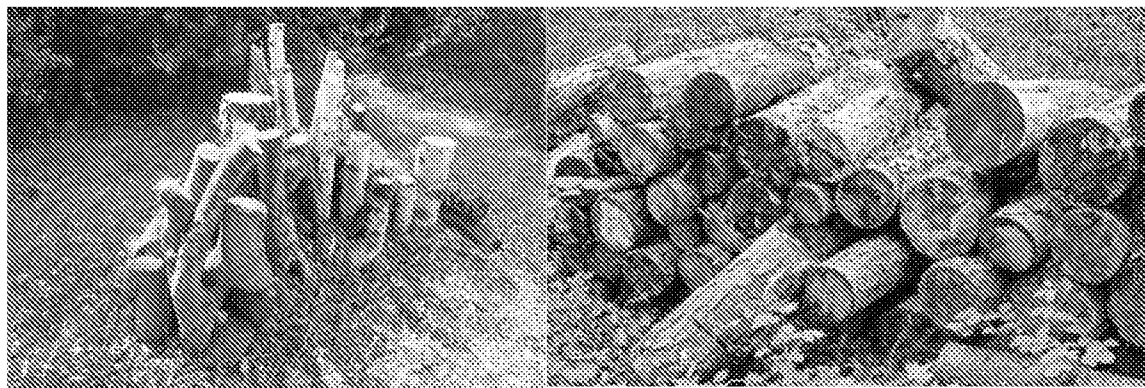


Figure 18: Examples of log piles that can be made on site.

Summary of Recommended Further Surveys

4.48 Considering the nature of the site and the surrounding areas the following surveys are therefore recommended;

- At least 3 surveys on building 1
- A single activity survey on building 3
- Two activity surveys on tree 3

5.0 Impact Assessment

5.1 This section of the report forms an EcIA (Ecological Impact Assessment) and is designed to quantify and evaluate the potential impacts of the development on habitats and species present on site, or within the local area.

5.2 A detailed impact assessment is not possible at this stage owing to a deficiency in data and lack of any clear proposals for the site. It is considered that a full Ecological Impact Assessment (EcIA) report will be required at a later date in support of a planning application. However, some broad conclusions can be made from the preliminary ecological appraisal.

Methodology

5.3 The approach to this assessment accords with guidance presented within the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 2018). In

essence, an EcIA assesses the activities associated with a proposed scheme that are likely to generate changes within identified zone of influences, on identified ecological features and receptors. The proposals are subsequently reviewed and mitigation and compensation measures are outlined which help to reduce negative impacts.

5.4 The zone of influence for the development is defined as:

- The project red-line, for effect on habitats and species;
- Adjacent habitat, considered by species, for mobile species with territories or foraging ranges that may overlap the site;
- Up to 1km for national statutory and non-statutory designations; and,
- Up to 15km for international statutory designations.

5.5 The types of features considered in the assessment of effects, to meet legislative and policy requirements are:

- Designated sites (European, national and local);
- Protected species;
- Habitats and species of principal importance (Section 41 list);
- Hedgerows and woodland, where not of principal importance; and
- Habitats, where not of principal importance, that may function as wildlife corridors or stepping stones.

Impact Assessment and Mitigation

5.6 Table 6 below summarises the impacts and required mitigation for each receptor as previously detailed in the discussion.

Table 6: Assessment of effects from the proposal after mitigation and compensation

Feature	Scale of Importance	Mitigation/Compensation Required	Residual Effect
Pagham Harbour SSSI, LNR, Ramsar and SPA	International	None required – considerable distance from the site, no related habitats will be lost through this scheme and wider landscape connectivity is to be maintained.	Not significant
Felpham SSSI	National	None required – considerable distance from the site, no related habitats will be lost through this scheme and wider landscape connectivity is to be maintained.	Not significant
Bognor reed SSSI SAC	National	None required – considerable distance from the site, no related habitats will be lost through this scheme and wider landscape connectivity is to be maintained.	Not significant

Brooks Local Nature Reserve (LNR)	Local	None required – considerable distance from the site, no related habitats will be lost through this scheme and wider landscape connectivity is to be maintained.	Not significant
Bats (roosting)	Local	Confirmed common pipistrelle roost in residential dwelling (B1). Three surveys recommended to inform an appropriate mitigation scheme. Retention of all 'low' and 'moderate' potential trees on site if possible. Trees with potential for roosting bats should be sensitively felled using reasonable avoidance measures. Compensation through the installation of bat boxes and bat tubes.	Undetermined
Bats (foraging and commuting)	Local	Retention and enhancement of all linear features on site. New native planting to occur along the site boundaries and a sensitive lighting scheme to be implemented across the site.	Not significant
Badgers	Local	No evidence identified on site. Further badger survey prior to development to check for presence/absence on site. Precautionary method of works during construction to ensure that commuting and foraging badgers are protected.	Not Significant
GCN	Local	Considered unlikely to be present on site.	Not significant
Dormice	Local	Considered unlikely to be present on site. Retention of boundary tree-lines, hedgerows and woodland and enhancement of site boundaries.	Not significant
Reptiles	Local	Considered unlikely to be present on site.	Not significant
Nesting Birds	Local	Mitigating direct harm to nests by removal of any suitable nesting habitat outside of nesting bird season or after a check by a suitably qualified ecologist. Compensation in the form of the installation of bird boxes.	Not significant
Stag Beetles	Local	Retention and protection of standing and fallen deadwood on the site boundaries, where possible. Installation of log piles.	Not Significant

Summary

- 5.7 The full impact of the development is unknown at this stage. Detailed proposals and, further survey work for bats are required to fully assess the impact of any proposals.

6.0 Conclusions

- 6.1 The site does not lie within or adjacent to any statutory designated sites but it does lie within the 'zone of influence' for the Pagham Harbour SSSI. Impacts are not considered to be significant if advice follows the avoidance strategy outlined within the Arun Local Plan. The site is sufficiently separated from the remaining designated sites that adverse impacts are considered unlikely.
- 6.2 The LNR lies within 1km of the site, therefore there is potential for direct impacts by increasing recreational pressure on this site. These impacts can be minimised by including an area of greenspace as part of the development.
- 6.3 The habitats on site are common and widespread throughout the local area and the UK as a whole. The site is dominated by buildings, short amenity grassland, ornamental planting and broadleaved plantation woodland. There had been not significant change to the habitats on site since the initial survey work undertaken in September 2016.
- 6.4 Buildings 2, & 4-12 all retained 'negligible' potential for roosting bats. These can be removed without any further consideration for roosting bats.
- 6.5 Building 3 on site retained 'low' potential for roosting bats owing to a small number of suitable external features. A single dusk emergence or dawn re-entry survey will be required between May to August.
- 6.6 A confirmed common pipistrelle roost was previously identified within the residential dwelling (B1) and therefore it is recommended that three further bat surveys are undertaken by suitably qualified ecologists.
- 6.7 Whilst the majority of trees on site were considered to have 'negligible' potential for roosting bats, few trees on the boundaries of the site and on the edge were considered to have 'low' and 'moderate' potential for roosting bats. It is recommended that all trees are maintained and buffered within the scheme. New tree planting within the scheme is always recommended. Precautionary measures have been outlined if 'low' potential trees are to be removed. Further surveys are required for 'moderate' potential trees.

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- 6.8 The site supports potentially suitable commuting corridors which includes the woodland edges and tree-lines. These features should be retained, enhanced and buffered from nearby development. New linear features should be created along the remaining site boundaries to improve overall connectivity around the site. These measures in addition to a sensitive lighting scheme on site are considered sufficient to maintain the favourable conservation status of bats.
- 6.9 No evidence of badger activity, such as sett entrances, faeces or badger hairs, was observed, however these could be present within the areas of dense vegetation on site. The site is considered to have potential for foraging and commuting badgers and therefore it is recommended that measures to protect foraging/commuting badgers are taken during the construction phase of the development and that an update badger survey be undertaken prior to works. A precautionary approach should be followed for vegetation clearance and consideration of access to foraging and commuting habitat must also be made
- 6.10 The majority of the grounds within the site comprised of sheep-grazed fields which were considered to lack in the species diversity and structure commonly associated with common reptile species, however edge habitats have some potential. It is recommended that these are retained within the proposals. If significant areas are lost further surveys may be required.
- 6.11 Birds may use the introduced shrubs, hedgerows, and trees to nest within. They may also use buildings for nesting. Any works to these features should therefore be undertaken outside of bird nesting season (March – September inclusive) or after a nesting bird check by a qualified ecologist
- 6.12 The site does not support suitable habitat for dormice, GCN, water voles, or otters. Therefore, further surveys for these species groups are not considered necessary.
- 6.13 Recommendations for enhancements have been made within this report, aimed at improving the ecological value of the site and providing a net gain in biodiversity post-development.

7.0 References

ARG., (2010) *UK Advice Note 5: Great crested newt habitat suitability index*. Amphibian and Reptile Groups of the United Kingdom.

Bright, P., Morris, P. & Mitchell-Jones, T., (2006)., *The Dormouse Conservation Handbook*. 2nd edition. English Nature.

CIEEM., (2017)., *Guidelines for Preliminary Ecological Appraisal, 2nd Edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM., (2018)., *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Chartered Institute of Ecology and Environmental Management, Winchester.

Chapman, C., & Tyldesley, D. (2016). *Small-scale effects: How the scale of effects has been considered in respect of plans and projects affecting European sites-a review of authoritative decisions*. Natural England Commissioned Reports, (205).

Collins, J. (ed.)., (2016)., *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). Bat Conservation Trust, London.

Creswell, P., Harris, S. & Jeffies, D.J. (1990)., *The history, distribution status and habitat requirements of the badger in Britain*. Nature Conservancy Council, Peterborough.

English Nature., (2004)., *Reptiles: guidelines for developers*. English Nature, Peterborough.

Froglife., (2015)., *Surveying for Reptiles*. Froglife, Peterborough.

Franklin, J. F. (1993)., 'Preserving Biodiversity: Species, Ecosystems, or Landscapes?', *Ecological Applications*, 3: 202-205.

Joint Nature Conservation Committee., (2010)., *Handbook for Phase 1 habitat survey – a techniques for environmental audit*. JNCC, Peterborough.

Institution of Lighting Professionals., (ILP – 2018)., *Guidance Note 08/18 – Bats and artificial lighting in the UK*. ILP, Rugby.

Langton, T.E.S., Beckett, C.L. & Foster, J.P. (2001)., *Great Crested Newt Handbook*. Froglife, Halesworth.

Mitchell-Jones, A.J. (2004)., *Bat Mitigation Guidelines*. English Nature, Peterborough.

Natural England., (2011)., *Badgers and Development: A guide to best practice and licensing*. Natural England, Bristol.

Neal, E. & Cheeseman, C. (1996)., *Badgers*. T & A D Poyser Ltd. London.

Stone, E.L., Jones, G., Harris, S. (2009)., Street lighting disturbs commuting bats. *Current Biology*, **19**: 1123-1127.

Stratchan, R., Moorhouse, T., & Gelling, M. (2011)., *Water Vole Conservation Handbook*. 3rd Edn. Wildlife Conservation Research Unit, University of Oxford.

Wilson, G.J., Harris, S. & McLaren, G. (1997)., *Changes in British badger population, 1988-1997*. People's Trust for Endangered Species, London.

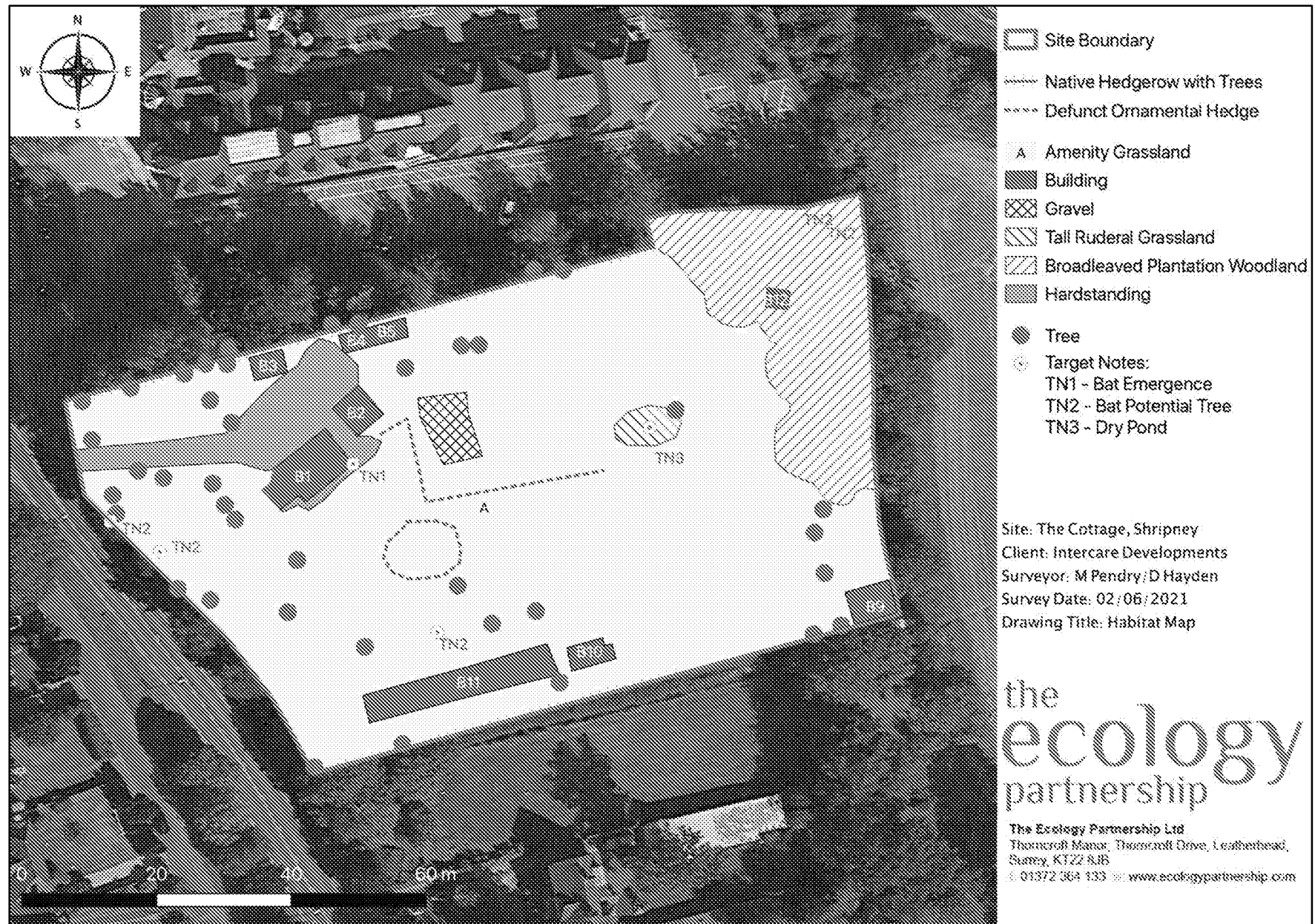
Internet resources:

Arun District Council: <https://www.arun.gov.uk>

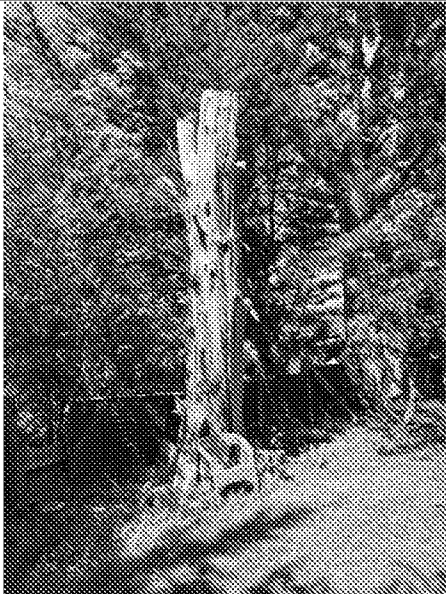
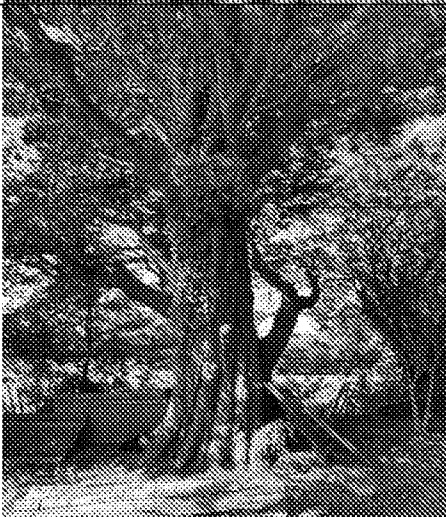
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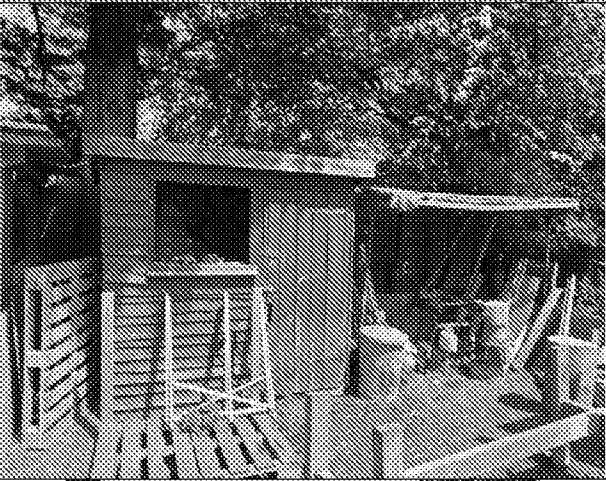
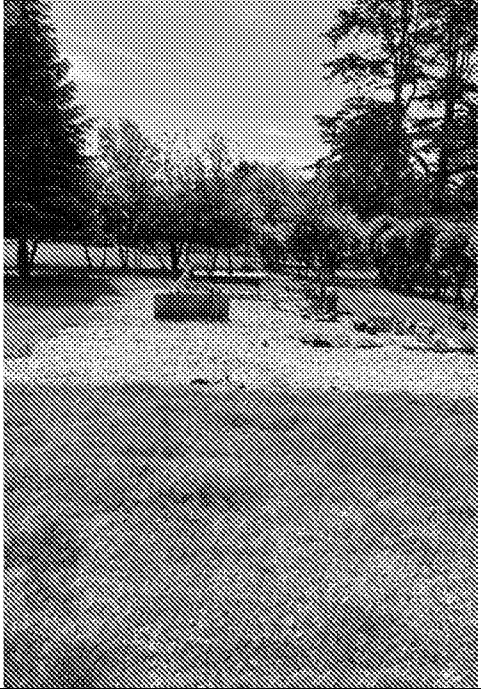
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Appendix 1: Habitat Ma

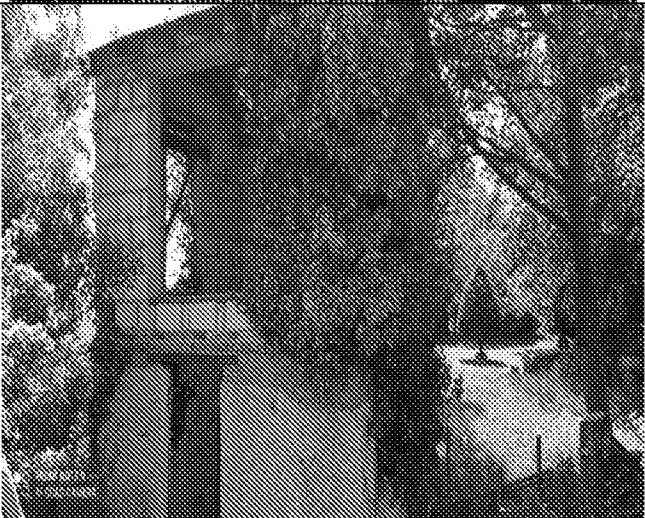


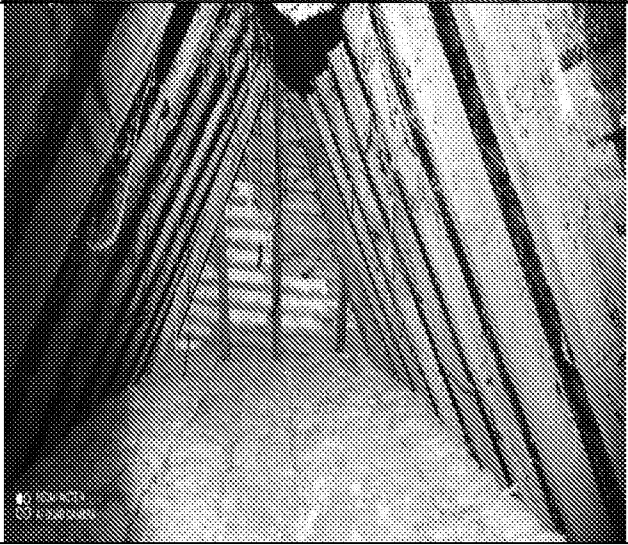
Appendix 2: Site Photographs

Photograph 1: Dead Cypress sp. Identified as 'low' bat potential			
Photograph 2: Cypress sp. Identified as 'low' bat potential			
Photograph 3: Damage caused by sheep gnawing at bark			

Photograph 4: Building 4	 A black and white photograph of a small, rectangular wooden building with a gabled roof. The building appears to be made of vertical wooden planks. There is a small porch or entrance area on the right side. The building is surrounded by trees and foliage.
Photograph 5: Building 5	 A black and white photograph of a small, rectangular wooden building, similar to Building 4, but with a different roof structure. It has a small porch area. The building is surrounded by trees and foliage.
Photograph 6: Site of the now-demolished building 6	 A black and white photograph showing a grassy area with a small, rectangular structure in the background. The structure appears to be a shed or a small building. There are trees and foliage in the background.

Photograph 7: Dry pond	
Photograph 8: Building 3	
Photograph 9: Building 1	

Photograph 10: Building 10	 A black and white photograph showing a close-up of a building's exterior. The building has a light-colored, possibly stone or brick, wall. A dark, vertical structure, possibly a door or a window frame, is visible on the right side. The foreground is filled with dense, dark foliage, including what appears to be a large, leafy plant or tree branch.
Photograph 11: Building 9	 A black and white photograph of a building, likely a house, partially obscured by dense trees and foliage. The building has a light-colored wall and a dark roof. A chimney is visible on the left side. The foreground is filled with thick, dark vegetation, including large trees and bushes.
Photograph 12: Building 1	 A black and white photograph of a two-story building with a steep, tiled roof. A chimney is visible on the left side of the roof. A small, white, rectangular window is visible on the upper floor. The building is surrounded by trees and foliage. The foreground shows a dark, possibly paved area.

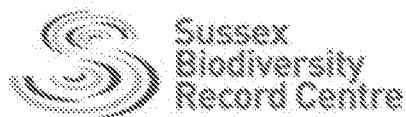
Photograph 7: Cavity 2	 A black and white photograph showing a narrow, vertical cavity or tunnel. The walls are made of rough, uneven material, possibly stone or concrete. A small, dark, rectangular opening is visible at the top of the cavity. The lighting is dim, with some highlights on the walls.
Photograph 7: Cavity 1	 A black and white photograph showing a narrow, vertical cavity or tunnel, similar to the one above. The walls are made of rough, uneven material. A small, dark, rectangular opening is visible at the top of the cavity. The lighting is dim, with some highlights on the walls.

Appendix 3: Species List

Common name	Latin name	DAFOR score
Amenity Grassland		
Annual Meadowgrass	<i>Poa annua</i>	O
Barren Brome	<i>Bromus sterilis</i>	O
Bluebells	<i>Hyacinthoides non-scripta</i>	R
Bramble	<i>Rubus sp.</i>	R
Broad Leaved Dock	<i>Rumex obtusifolius</i>	R
Broadleaved Willowherb	<i>Epilobium montanum</i>	R
Cleavers	<i>Galium aparine</i>	O
Cock's-foot	<i>Dactylis glomerata</i>	O
Common Chickweed	<i>Stellaria media</i>	O
Common Hogweed	<i>Heracleum sphondylium</i>	R
Common Self heal	<i>Prunella vulgaris</i>	O
Cow Parsley	<i>Anthriscus sylvestris</i>	R
Creeping Buttercup	<i>Ranunculus repens</i>	O
Creeping Thistle	<i>Cirsium arvense</i>	O
Cut-Leaved Cranesbill	<i>Geranium dissectum</i>	O
Daisy	<i>Bellis perennis</i>	F
Dandelion	<i>Taraxacum sp.</i>	R
Dog Violet	<i>Viola riviniana</i>	R
Foxglove	<i>Digitalis sp.</i>	R
Greater periwinkle	<i>Vinca major</i>	R
Greater plantain	<i>Plantago major</i>	R
Ground Ivy	<i>Glechoma hederacea</i>	O
Hearts Tongue	<i>Asplenium scolopendrium</i>	R
Herb Robert	<i>Geranium robertianum</i>	O
Ivy Leaved speedwell	<i>Veronica hederifolia</i>	R
Lesser celandine	<i>Ficaria verna</i>	R
Lords and Ladies	<i>Arum alpinum</i>	R
Mouse ear	<i>Cerastium sp.</i>	O
Nipplewort	<i>Lapsana communis</i>	R
Perennial rye	<i>Lolium perenne</i>	A
Red campion	<i>Silene dioica</i>	R
Red fescue	<i>Festuca rubra</i>	F
Rough meadowgrass	<i>Poa trivialis</i>	D
Slender speedwell	<i>Veronica filiformis</i>	R
Small nettle	<i>Urtica urens</i>	R
Smooth sowthistle	<i>Sonchus oleraceus</i>	R

Soft Brome	<i>Bromus hordeaceus</i>	F
Spear thistle	<i>Cirsium vulgare</i>	R
Spiney sow thistle	<i>Sonchus asper</i>	R
Wall speedwell	<i>Veronica arvensis</i>	R
White bryoni	<i>Bryonia alba</i>	R
White clover	<i>Trifolium repens</i>	A
Wood dock	<i>Rumex sanguineus</i>	R
Woodsorrel	<i>Oxalis. Sp.</i>	R
Yarrow	<i>Achillea millefolium</i>	O
Yorkshire fog	<i>Holcus lanatus</i>	F
Mixed Trees and Shrubs		
Ash	<i>Fraxinus excelsior</i>	O
Beech	<i>Fagus sylvatica</i>	R
Cedar of Lebanon	<i>Cedrus libani</i>	R
Cherry Laurel	<i>Prunus laurocerasus</i>	O
Cherry	<i>Prunus sp.</i>	R
Elder	<i>Elder Sambucus nigra</i>	R
Eucalyptus	<i>Eucalyptus globulus</i>	R
Golden Rain	<i>Laburnum anagyroides</i>	R
Hawthorn	<i>Crataegus monogyna</i>	O
Hazel	<i>Corylus avellana</i>	O
Hornbeam	<i>Carpinus betulus</i>	R
Hybrid Poplar	<i>Populus sp</i>	R
Lawson's Cypress	<i>Chamaecyparis lawsoniana</i>	R
Monterey Cypress	<i>Chamaecyparis macrocarpa</i>	O
Norway Spruce	<i>Picea abies</i>	R
Oak	<i>Quercus robur</i>	R
Portugal Laurel	<i>Prunus lusitanica</i>	R
Privet Garden	<i>Ligustrum ovalifolium</i>	R
Sycamore	<i>Acer pseudoplanatus</i>	R
Walnut	<i>Juglans regia</i>	R
Wilson's Honeysuckle	<i>Lonicera nitida</i>	R

Appendix 4: Biological Records from SxBRC



Ecological Data Search SxBRC/21/Z20 - Summary Report

An ecological data search was carried out for land at The Cottage, Shripney Road, Bognor Regis on behalf of Digby Hayden (The Ecology Partnership) on 11/06/2021.

The following datasets were consulted for this report:

	Requested	Radius/buffer size
Designated sites, habitats & ownership maps	No	
Protected, designated and invasive species	Yes	2km

Summary of results

Sites and habitats

Statutory sites	Not requested
Non-statutory sites	Not requested
Section 41 habitats	Not requested
Ancient and/or ghyll woodland	Not requested

Protected and designated species

International designations	41 species	544 records
National designations	96 species	4,077 records
Other designations	157 species	5,853 records
Total	176 species	5,453 records
Invasive non-native	29 species	96 records

The report is compiled using data held by Sussex Biodiversity Record Centre (SxBRC) at the time of the request. SxBRC does not hold comprehensive species data for all areas. Even where data are held, a lack of records for a species in a defined geographical area does not necessarily mean that the species does not occur there – the area may simply not have been surveyed.

This summary page may be published.
The full report and maps may not be published or otherwise shared.
The data search report is valid until 11/06/2023 for the site named above.

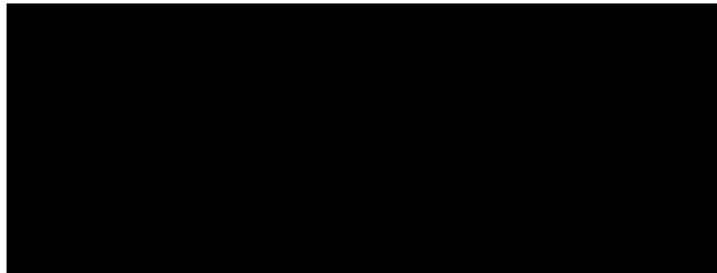
The Ecology Partnership Ltd

Thorncroft Manor

Thorncroft Drive

Leatherhead

KT22 8JB



Approved: Alexia Tamblyn MA (Oxon) MSc CEnv MCIEEM FRGS

Date: 16/06/2021