



PRELIMINARY ECOLOGICAL APPRAISAL

The Pines, Worthing

On behalf of: Faithful and Gould

Client:	Faithful and Gould			
Project:	The Pines, Worthing			
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Validity:

This report is valid for 18 months from the date of the site visit. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified ecologist to assess any changes in the habitats present on site, and to inform a review of the conclusions and recommendations made.



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SUMMARY

Lizard Landscape Design and Ecology has been commissioned by Faithful and Gould to undertake a Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) of The Pines, Worthing (*Grid Reference: TQ 11113 04474–hereafter referred to as ‘the site’*). The PEA and PRA were undertaken on 19th June 2023, to appraise the existing ecological resource within the land and the surrounding area.

The main body of the site is formed of The Pines Adult Training Centre, a modern, redbrick building with a tiled roof. To the north and south lie hard-standing areas used as a car parking area and patio. Along the northern and eastern boundary runs an ornamental hedgerow, found to be suitable for traversing reptiles and amphibians. Small swards of other neutral grassland areas lie on the western boundary and adjacent to the existing Building B1, with scattered trees dispersed along the western boundary. Introduced shrubs can be found on the southern boundary as well as adjacent to the eastern fringes of Building B1. Modified grassland swards can be found to the eastern aspect of the site, nestled around the greenhouse and patio area. The habitats found onsite are of limited ecological value.

The bat roost assessment identified Building B1 as containing, a ‘Low’ roost suitability, therefore 1no. bat emergence/re-entry survey should be undertaken between May – August inclusively. The site also provides suitable habitat for foraging and commuting bats and breeding birds. Subject to sensitive design which ensures the retention of suitable habitats, impacts upon these species can be avoided.

Ecological enhancements should be included within any future scheme to ensure compliance with local and national planning policies. Given that the site is currently dominated by hard-standing and existing buildings of low ecological value, it is envisaged that any future scheme would be able to achieve the required levels of Biodiversity Net Gain. Recommendations for enhancement which should be included within the scheme are detailed in section 7.0 below.

Table No. 01 – Summary of Recommendations

Potential Ecological Constraint	Presence	Recommended mitigation	Further assessment requirement	Time Constraint	Opportunities for enhancement
Reptiles	Possible within ornamental hedgerow	Retention of fruiting hedgerow specimens	Standard reasonable avoidance measures implemented when working in close proximity to and during removal of hedgerow	Prior to development / removal of hedgerow specimens	Flowering grassland creation incorporated into the scheme design
Foraging and Commuting Bats	Possible within ornamental hedgerow	Incorporation of lighting scheme in line with best practice (BCT & ILP, 2018).	Any lighting designs should be assessed by an ecologist to confirm their acceptability	Prior to application	Bat roosting features should be included in the design of the proposed buildings and retained trees
Roosting Bats	Possible within Building B1	See above	Building B1 should be subject to a single bat emergence / re-entry survey within the recognised survey season (April-October)	Prior to development	See above
Bird presence	Possible within scattered trees and ornamental hedgerow	Retention and protection of on-site hedgerow Any bird nesting habitat should be removed outside of the bird nesting season	If not possible to remove bird nesting habitat outside of the nesting season, the vegetation should be checked by an ecologist prior to removal	(March to August inclusive)	Incorporation of species of known value to birds within any new planting and additional nesting box provision.
Hedgehogs	Possible within bounding hedgerow	Standard mammal mitigation measures implemented into scheme design.	None	Prior to development	Hedgehog house incorporated into the scheme design.
BNG	Confirmed	Incorporation of areas for wildlife within the scheme design	BNG Assessment	n/a	Provided herein, further consultation required

1.0 INTRODUCTION

1.1 Lizard Landscape Design and Ecology has been commissioned by Faithful and Gould to undertake a Preliminary Ecological Appraisal (PEA) and Preliminary Roost Assessment (PRA) of The Pines, Worthing (*Grid Reference: TQ 11113 04474– hereafter referred to as 'the site'*).

1.2 The purpose of this report is to establish the site's suitability for development, inform the design process for future proposals, record the ecological baseline and identify key ecological features within and around the proposal site.

1.3 This report has been compiled in accordance with current guidelines, including British Standard 42020:2013 Biodiversity. Code of Practice for Planning and Development, 2013 and CIEEM, 2017 and 2018.

Site Information

1.4 The survey area covers c. 0.4 hectares (ha) primarily consisting of buildings and hardstanding with an ornamental hedgerow along the northern and eastern boundaries. Scattered trees and other neutral grassland swards are found to the site's western boundary. The site is located in West Durrington, a neighbourhood in the northwest of the town of Worthing. The main body of the site is formed of The Pines Adult Training Centre, a modern, redbrick building with a tiled roof. To the north and south lie hard-standing areas used as a car parking area and patio, a greenhouse can be found to the east of the existing Building B1. The site is bound to the west by Faraday Road. To the south lies Romany Road. The north and eastern boundaries are bordered by a housing development.

Surrounding Landscape

1.5 The immediate surrounding landscape is entirely urban, in the form of the suburbs of Worthing. The urban landscape continues to the north south and especially east. To the west, approximately 0.7 kilometres (km) at its nearest point, are a series of small, wooded areas, with arable and pastoral fields beyond. The English Channel marine landscape can be found c.2.7km to the south.

Pond Study

- 1.6 There are 2no. waterbodies within a 250m radius of the site and a further 4no. waterbodies within a 500m radius of the site. The nearest waterbody lies approximately 0.2km to the south-east.

Development Proposals

- 1.7 It is understood that the proposals include the refurbishment of the existing Adult Education Building which currently dominates the site.

2.0 SCOPE OF THE SURVEY

- 2.1 The aim of the preliminary ecological appraisal survey has been:
- To identify the main habitat types present on site;
 - To assess the likely importance of the habitats present;
 - To assess the likely presence of protected species;
 - To provide recommendations for surveys of protected species where necessary;
 - To list ecological constraints present on the site;
 - To highlight any ecological opportunities and list potential enhancements for inclusion within the scheme.

3.0 METHODOLOGY

3.1 Desk Study

- 3.1.1 A desk study was conducted to establish the presence of priority habitats, protected species and statutory designated sites within the Zone of Influence (ZoI) of the proposed development site.

3.2 Preliminary Ecological Appraisal

Field Survey

- 3.2.1 The field survey was undertaken on 19th June 2023 by a Suitably Qualified Ecologist (Benjamin Sear, BSc *Hons* 2 years professional experience). Weather conditions were warm (24°C), with a moderate south-westerly wind (Beaufort Scale 3), 100% cloud cover and no rain.
- 3.2.2 The field survey comprised a walkover inspection of the land and covered all accessible parts of the site, including boundary features. Habitats were recorded according to the UKHabs Classification System as described within the UK Habitats Manual (Butcher *et al*, 2020).
- 3.2.3 A list of plant species was compiled, together with an estimate of abundance made according to the DAFOR scale (*Table No. 07*). In addition, Target notes (*Table No. 08*) were used to provide supplementary information on features which were particularly interesting or significant, or too small to map.
- 3.2.4 The survey methodology was extended to provide more detail in relation to the sites potential to support rare or protected fauna, as described by the *Chartered Institute of Ecology and Environmental Management's Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017b)*. The assessment of habitat suitability for protected, rare or priority species is based on current good practice guidance such as that presented in the *Herpetofauna Workers' Manual (Gent and Gibson, 2003)* and *Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collin (ed.), 2016)*.

Evaluation Criteria

- 3.2.5 The importance of ecological features has been evaluated in relation to a geographical frame of reference, i.e. international/European value, national, regional, county, local, site or negligible value (based on CIEEM, 2018).

3.3 Preliminary Bat Roost Assessment

- 3.3.1 A Preliminary Bat Roost Assessment was undertaken on 19th June 2023 by an experienced bat surveyor who undertook a ground-level assessment of trees and buildings within and adjacent to the proposed construction zone.

- 3.3.2 The bat surveyor assessed the trees visually and searched for direct evidence such as:

- Grease Marks;
- Urine Stains;
- Bat Droppings;
- Feeding Remains;
- Dead or Live Bats.

- 3.3.3 Potential Roost Features (PRF's) were also recorded, such as:

- Woodpecker Holes;
- Knot Holes;
- Tear-outs;
- Flush Cuts;
- Double Leaders.

- 3.3.4 Once features had been assessed the trees were then categorised in accordance with *Table 4.1 of the Bat Conservation Trust's Good Survey Guidelines (2016)*: (shown below):

Table No. 02 – Bat Roost Suitability Guidelines (BCT, 2016)

Category	Buildings	Trees
`Negligible`	No suitable features identified.	No suitable features identified.
`Low`	A structure which could be used opportunistically, however, are not likely to be used on a regular basis / by a large number of bats.	Tree of sufficient size / age to support bat roost features; but with none identified from the ground.
`Moderate`	A building with features which, could be used regularly by a small number of bats.	Tree with features which, may support a bat roost of low conservation status.
`High`	A building with features suitable for use by a large number of bats on a regular basis.	A tree with several potential bat roost sites that are suitable for use by a large number of bats.

3.4 Great Crested Newt Habitat Suitability Index Assessment

3.4.1 The *Habitat Suitability Index (HSI)* was developed by *Oldham et al (2000)* as a way of providing a numerical index allowing a direct comparison to be made between different water bodies. This index assesses ponds against 10 no. different criteria, each of which have a bearing on the likelihood of great crested newts (*Triturus cristatus*) being present in the pond under consideration.

3.4.2 The 10 no. attributes against which ponds can be assessed are:

- Geographic Location;
- Pond Area (at its highest level);
- Permanence;
- Water Quality;
- Perimeter Shading;
- Numbers of Wildfowl;
- Numbers of Fish Present;
- Pond Count (within a 1.0 km radius);
- Terrestrial Habitat (within 250.0 m);
- Macrophyte Coverage.

- 3.4.3 The *HSI* results in a score between 1 and 0; with 1 being optimal conditions and 0 being unlikely to support a population. However, the index merely gives an indication as to whether a pond has the potential to support great crested newts and is not a substitute for more detailed presence / absence surveys for protected species of amphibian.

3.5 Badger Walkover Survey

- 3.5.1 The site was systematically searched during the site visit for any evidence of badger such as:

- Setts
- Latrines
- Snuffle Holes
- 'Push-unders' through boundary fencing
- Hair
- Prints
- Mammal tracks

- 3.5.2 All areas within the site, and where possible in the immediate surroundings were searched. Any evidence was then mapped to allow the status and distribution of badger activity to be assessed.

3.6 Constraints and Limitations

- 3.6.1 Due to the field survey consisting of only one site visit, certain species, particularly some of the flowering plants, may not have been visible or may have been otherwise inconspicuous at the time of the survey and hence overlooked. These are accepted constraints associated with the standard Survey Methodology.
- 3.6.2 Biological records centre data has not been provided and therefore it is not possible to rule out the potential that useful information to inform the assessment has been missed. However, the quantum of development proposed is small, and the potential for significant adverse effects is limited. Therefore, the omission of biological records centre data is unlikely to have a significant bearing on the results of this assessment.

4.0 RESULTS

4.1 Desk Study

- 4.1.1 The following designated sites are not necessarily representative of the existing site's ecology but are indicative of the ecological context of the surrounding area; a factor that may be important when assessing the presence / absence potential of certain species groups.

Statutory Protected Sites

- 4.1.2 The desk study searched for Local Nature Reserves and Sites of Special Scientific Interest within 2.0km of the site and European Designated sites including SAC's and SPA's within 10km of the site. Where SAC's designated for their bat interest are present, this ZOI has been extended to 12km in accordance with recent guidance (SDNP, 2020). No Statutory Protected sites lie within a ZOI of the proposed construction zone.
- 4.1.3 The site is located within the *Impact Risk Zone* of Cissbury Ring SSSI (located 4.0km to the northeast) and Climping beach SSSI (located 8.8km to the southwest). Due to the nature of the proposals, the LPA will not be required to consult with Natural England.

Non-Statutory Protected Areas

- 4.1.4 *Sites of Nature Conservation Importance (SNCIs)* are designations applied to the most important non-statutory nature conservation sites. They are recognised by the *National Planning Policy Framework* (Ministry of Housing, Communities & Local Government, 2021) and as such are material considerations when assessing planning applications. There were no SNCIs identified within 2.0km of the site:

Priority Habitats

- 4.1.5 Within 2.0km of the site there are *Priority Habitats* of *Lowland Calcareous Grassland, Traditional Orchids, Ancient and Semi-Natural Woodland and Deciduous Woodland*.

4.2 Habitats

Site Assessment

4.2.1 Habitats within and adjacent to the site include:

- u1b – Developed Land; Sealed Surface;
- u1b5 – Buildings;
- g3c – Other neutral grassland with scattered trees;
- g4 – Modified grassland;
- 1160 – Introduced Shrub; and
- h2b – Non-native and ornamental hedgerow.

Developed Land; Sealed Surface

- 4.2.2 A tarmac and concrete car park can be found to the north of the existing Building B1, as well as hard standing pathways and patio area to the south of the existing building. This habitat is of **negligible value**.

Buildings

- 4.2.3 A large, red brick built asbestos tiled former adult education centre dominated the site. The building was comprised of a complex series of tiled gables, flat gravel roofs, vertical tiled aspects and skylights. The building was at the time of survey, covered with metal security plating against all ground floor doors and windows. Further details of the bat roost assessment in section 4.3.

Other neutral Grassland with scattered trees

- 4.2.4 A linear strip of grassland c. 50m² is present to the north-west of the existing Building B1. At present this area of grassland had been allowed to flower, displaying numerous examples of forbs with a known benefit to invertebrates. Given the dominance of grasses within the sward, this common and widespread habitat is of **site value only**.
- 4.2.5 There were numerous scattered trees throughout the site, some of which were native species and some ornamental, some of which held landscape and ecological value, these are assessed in later sections of this report.

Non-native and Ornamental hedgerow

- 4.2.6 A line of mature fruiting cherry *Prunus sp.*, Japanese medlar *Eriobotrya japonica*, willowleaf pear *Pyrus salicifolia*, cotoneaster *Cotoneaster sp.* and non-fruiting Cherry *Prunus sp.*, can be found along the northern and eastern boundary of the site. These trees add structural diversity as well as an invertebrate foraging resource to the landscape and are of **site value**.

Invasive species

- 4.2.7 During site survey, it was noted that there were examples of *cotoneaster sp.* as well as *buddleja sp.* within the ornamental hedgerows and on the southern boundary fenceline, some of which are listed on Schedule 9 – Invasive species. *Cotoneaster sp.* specimens can be found within the ornamental hedgerows and to the south-eastern boundary of the site.

4.3 Protected Species Assessment

*Amphibians**Desk Study*

- 4.3.1 There are 3no. records for great crested newt (GCN) *Triturus cristatus* within 2.0km of the site boundary, gathered from European species license return data through the MAGIC Map Application (MAGIC, 2023).

Site Assessment

- 4.3.2 The other neutral grassland, and ornamental hedgerow to the site margins do provide some suitable terrestrial habitat for amphibians such as GCN and common toad *Bufo bufo*. But these are not well connected to the wider landscape of suitable amphibian habitat so therefore have reduced potential to provide terrestrial opportunities for amphibians. The site, therefore, holds **low potential** to support traversing amphibians.
- 4.3.3 A total of 6no. ponds are present within 500m of the site, all of which are separated by residential buildings and busy roads, which likely prevents dispersal from any potential breeding GCN ponds. The nearest 2no. ponds were assessed for their suitability for breeding GCN using the Habitat Suitability Index. Pond P1 can be found c.90m to the southeast, within the Whitebeam Woods deciduous woodland area, Pond P2 can be found c. 460m to the north-west within an ongoing construction area. Results are summarised in Table No. 03 below.

Table No. 03 – Summary of HSI Results

HSI Criteria	P1	P2
Location	1	1
Pond Area	0.6	0.6
Permanence	0.5	0.5
Water Quality	0.33	0.67
Shade	0.6	0.65
Waterfowl	1	0.67
Fish	0.67	0.67
Pond Count	0.95	0.95
Terrestrial Habitat	1	0.33
Macrophytes	0.3	0.3
HSI Score	0.64	0.59
Suitability	Average	Below Average

- 4.3.4 Given the average habitat suitability of pond P1, an eDNA analysis was carried out to test as to whether GCN DNA was present, which would indicate its use as a breeding pond.

Reptiles

Site Assessment

- 4.3.5 The other neutral grassland and ornamental hedgerow found within the margins of the site do provide some refugia habitat for common, widespread reptile species such as common lizards and slow worms, this habitat is of **site** value to reptiles. The wider landscape surrounding the site is urban, which would preclude the traversal of reptiles to and from the site. Reptiles require a mosaic of habitat to thrive within a landscape, the site only presents refuge opportunities and open basing areas, the quantity of non-native introduced flora on site would not allow for foraging opportunities for a diverse invertebrate assemblage. It is therefore considered that reptiles only have a **low** potential to be on site.

Bats*Preliminary Roost Assessment - Buildings*

- 4.3.6 The existing Buildings on site weres assessed for their bat roost suitability details of these findings.. are shown in Table No. 04 below.

Table No. 04 – Buildings with potential roost features

Ref.	Description	Category
<i>B1</i>	Large, single and double storey designed, brick built building with pitched roof. The asbestos tiles were tightly formed against one another, with no gaps, lifted or missing tiles. The complex series of gables, flat roofs and flashing surrounding window frames and chimney stacks hosted many niches that were hidden from view during the site survey. No internal assessment was possible due to a lack of access inside the building. In the presence of caution, it is not possible to rule out the presence of roosting bat opportunities.	<i>Low</i>
<i>B2</i>	<i>Small outbuilding shed of wooden single skinned construction and broken windows, holding no potential roosting features.</i>	<i>Negligible</i>
<i>B3</i>	<i>Small glass construction greenhouse, too light inside to support roosting bats.</i>	<i>Negligible</i>
<i>B4</i>	<i>Polytunnel that allows too much light inside to support roosting bats.</i>	<i>Negligible</i>
<i>B5</i>	<i>Small outbuilding shed of wooden construction that held no potential roosting features.</i>	<i>Negligible</i>

Preliminary Roost Assessment - Trees

- 4.3.7 Various trees were identified as offering some level of bat roost suitability during the ground-level assessment. A summary of these features is shown below.

Table No. 05 – Trees with potential roost features

Ref.	Description	Category
T01	<i>Semi-mature Norway maple with pruning wounds not yet healed above 3.0m.</i>	<i>Low</i>
T02	<i>Young prunus sp., too small and shrubby to host any bat roosting features.</i>	<i>Negligible</i>
T03	<i>Early mature beech with no potential bat roosting features</i>	<i>Negligible</i>
T04	<i>Semi-mature spruce with no potential bat roosting features.</i>	<i>Negligible</i>
T05	<i>Mature cherry with deadwood, dense ivy cladding above 3.0m and a pruning wound at 2.0m.</i>	<i>Low</i>
TG07	<i>Semi-mature Norway maple with an upright form and no potential bat roosting features.</i>	<i>Negligible</i>
T08	<i>Mature weeping willow with moderate deadwood, no potential bat roosting features.</i>	<i>Negligible</i>
T09	<i>Semi-mature five-needle pine sp. with no potential bat roosting features.</i>	<i>Negligible</i>

Foraging and Commuting Suitability

- 4.3.8 The surrounding ornamental hedgerow and scattered trees are the most valuable habitats to bats on site and are considered likely to support foraging and commuting by various bat species. Invertebrate assemblages were noted to be foraging throughout these habitats, increasing their value to foraging and commuting bats within the site. This habitat is likely to be of **local importance** to the local bat community.

Dormouse*Site Assessment*

- 4.3.9 Boundary vegetation does not contain species suitable to support dormouse foraging. Furthermore, these boundaries are not functionally connected to areas of suitable habitat in the wider environment. These factors, combined with the absence of records of dormice locally, result in the site being assessed as having **negligible value** to this species.

Badger*Site Assessment*

- 4.3.10 No signs of badgers were identified during the site survey, nor were any signs of other traversing mammals. The ornamental hedgerow does convey some suitability for traversing badgers, but the fence lines act as barriers to entry so would likely preclude the use of the site by badger.

Water Vole*Site Assessment*

- 4.3.11 No ditches nor areas of wetland were identified within the bounds of the site, or in the wider local area, water vole can be scoped out of further assessment within this report.

Other Mammals*Desk Study*

- 4.3.12 Numerous records of common mammals including rabbit exist within 2.0km of the site area.

Site Assessment

- 4.3.13 The ornamental hedgerow and dense *cotoneaster sp.* shrubs found on site may hold potential for traversing and foraging hedgehogs, however, the fence line on the eastern boundary of the site would prevent access for mammals such as rabbit. Hedgehogs are widespread and commonly found in urban garden plots so have been considered to have 'low' potential to be present on site.

Birds

Site Assessment

- 4.3.14 Optimal nesting habitat for small passerines is limited to the surrounding hedge / tree lines. The hedgerows, scattered trees and dense shrubs may provide suitable habitat for nesting bird species, and the abundance of fruiting cherry trees provides a foraging resource within the summer months. The site is considered to be of **local value** to breeding birds.

Invertebrates

Site Assessment

- 4.3.15 Suitable habitat for invertebrates is limited to the ornamental hedgerow and scattered trees which border the site, as well as small swathes of other neutral grassland. Ornamental hedgerows are generally unsuited to native invertebrate species, but fruiting cherry trees do provide a foraging resource for a number of invertebrates. During the site survey it was noted that a large number of garden bumblebee *Bombus hortorum* were centred around the beech tree to the western boundary of the site, likely foraging for sugar secretions from beech aphids. Chance occurrences of meadow brown *Maniola jurtina* was noted within the other neutral grassland areas. An invasive harlequin *Harmonia axyridis* larvae was noted to be resting on the leaf of the goat willow to the east of the existing building B1. The site in general lacks the floral diversity to support a good range of invertebrates but is likely to be of value within the **local area** owing to the urban nature of the site's surrounds.

Others

- 4.3.16 No suitable habitat for any other protected species was recorded on site.

5.0 EVALUATION AND RECOMMENDATIONS

- 5.0.1 The following section evaluates the value of the habitats within and adjacent to the site, assessed where further survey is required and details any avoidance and mitigation measures. Wherever possible potential adverse effects should be avoided by avoidance / mitigation embedded in scheme design, as this gives increased certainty over successful delivery and ensures adhesion to the 'Mitigation Hierarchy' (BSI, 2013) (CIEEM, 2018).

5.1 Designated Sites

- 5.1.1 The nearest statutory designated site is Cissbury Ring SSSI, which lies 4.0km north-east. Future development proposals are unlikely to require the payment of SAMM contributions as they shall not cause a net gain in residential units. Nitrate neutrality calculations may be required for any future development however this is currently only required for developments which result in a net gain in overnight accommodation.
- 5.1.2 The proposals are over 2.0km from the nearest non-statutory site and as such shall not impact any locally designated site.

5.2 Habitats

- 5.2.1 The main body of the site is dominated by hard-standing and existing building habitats, which have limited ecological value. If the ornamental hedgerow, scattered trees and other neutral grassland habitats are to be directly affected by any future development proposals, they are considered of **value within the site area**. Native scattered tree habitat should be retained and protected as part of development proposals. Any loss of non-native shrubs and trees should be replaced on a like-for-like basis, with all non-native ornamental hedgerow or trees lost, replaced with native woody UK species. Any tree work related to the proposed development, such as pruning or limb removal, must take place outside the nesting bird season (*March-August inclusive*). It is recommended that all non-fruiting ornamental shrubs which form the hedgerow on the northern boundary should be replaced with native fruiting woody specimens such as crab apple *Malus sylvestris*, rowan *Sorbus aucuparia* or dog rose *Rosa canina*.

Invasive species

- 5.2.2 The non-native ornamental hedgerow found on the northern boundary of the site, as well as scattered throughout the southern boundary contains specimens of *Cotoneaster sp.* An invasive species management and removal plan should therefore be implemented within development proposals. A suitability-qualified ecologist or contractor should be employed to carefully dig up any invasive species specimens on site and be placed in a thick garden waste bag, whilst being careful to not leave any berries or roots behind.

5.3 Protected Species***Reptiles***

- 5.3.1 Should development proposals involve the removal of areas of suitable reptile habitat such as the ornamental hedgerow and other neutral grassland, reasonable avoidance measures should be implemented into the construction management plan to avoid causing an offence associated with the Wildlife and Countryside Act 1981. This could be implemented into a Construction and Environmental Management Plan as part of the development proposals. This would involve removing vegetation and strimming down in stages, and leaving time between stages to allow for any reptiles that may reside there to disperse.

Bats

- 5.3.2 Building B1 has been assessed as holding 'low' bat roost suitability and therefore is subject to a single bat emergence/re-entry survey within the recognised survey period (*Low Roost Suitability, May-August inclusive*).
- 5.3.3 Trees which have been identified as offering bat roost suitability will require further survey work should they be scheduled for removal; major tree surgery works or disturbance through excessive noise and vibration.
- 5.3.4 The ornamental hedgerow which bound the site to the north and east are likely to form foraging and commuting corridors for bat species. Given that records exist for light-tolerant bat species in the local area, the removal of treelines has the potential to cause habitat fragmentation which may adversely affect the local bat population.

- 5.3.5 A sensitive lighting scheme should be employed with light spill upon the northern and eastern boundaries completely avoided. All lighting should comply with planning policy *DM22 – Pollution* (Adur and Worthing, 2023).

Badgers

- 5.3.6 The protected species assessment concluded that there were no signs of badgers within the bounds of the site, nor were any badger setts identified within the local area. However, reasonable avoidance measures should be implemented within the construction phase of development to ensure that no large mammals such as badgers should become trapped in ditches or excavated areas on site.

Breeding Birds

- 5.3.7 The removal of suitable nesting habitat (*scattered trees/ ornamental hedgerow*) should be undertaken outside the nesting season (*avoiding March-August*) or following an inspection by a suitably-qualified ecologist to ensure no active nests are present.

Invertebrates

- 5.3.8 All treelines should be retained where possible. Proposals which only affect the hard-standing and existing buildings would not affect habitats of any value to invertebrates.

6.0 ECOLOGICAL ENHANCEMENTS / OPPORTUNITIES

6.1 The design of the proposed development must include ecological enhancements to ensure compliance with *Local Planning Policy* and the emerging *Environment Bill 2020* which mandates a minimum 10% net gain in biodiversity across all development sites. Recommendations for ecological enhancements that should be considered as part of development proposals include:

- Native fruit and seed-producing trees and shrubs should be incorporated along the northern and eastern boundary and within the soft landscape scheme for the benefit of foraging birds and to create a wildlife corridor on-site stretching east to west;
- Re-enforce and gap up the existing hedgerow with species-rich whip planting. Species should include a minimum 5 woody species such as hazel, blackthorn, crab apple, dogwood, oak, spindle, and guelder rose;
- Altered management of the existing other neutral grassland for the benefit of wildlife, including the addition of suitable wildflower seed/plugs and an altered mowing regime which benefits floristic diversity;
- The provision of nesting boxes for a variety of bird species within scattered trees and on any newly constructed buildings;
- Bat boxes suitable for a range of species to be incorporated onto the southern aspect of retained mature trees and any newly constructed buildings; and
- Installation of invertebrate boxes in both sunny and sheltered locations to cater for a range of species.

7.0 CONCLUSIONS

- 7.1 The proposals are unlikely to adversely impact any surrounding statutory or non-statutory designated site.
- 7.2 The main body of the site is formed of hard-standing and existing buildings. This habitat is of negligible ecological value, however, higher value habitats such as scattered trees, other neutral grassland and ornamental hedgerow exist to the boundaries of the site. With a suitable design, any future proposals could ensure the retention of native specimens and the enhancement of non-native features, resulting in an overall benefit to local wildlife.
- 7.3 The site provides suitable habitat for traversing amphibians and reptiles, roosting bats, and breeding birds. The existing Building B1 should be subject to a single bat emergence survey within the recognised survey period (*Low Roost Suitability May-August inclusive*). Reasonable avoidance measures should be implemented when removing invasive and non-fruiting specimens within the ornamental hedgerow, in order to not recklessly kill or injure reptiles or amphibians that may be residing there. Any tree work planned for the ornamental hedgerow must be completed outside the bird nesting season (*March-August inclusive*). Following the bat emergence survey, implementing sensitive design which ensures the retention of suitable habitats, and reasonable avoidance measures during the construction phase of development, impacts upon these species can be avoided.
- 7.4 Ecological enhancements should be included within any future scheme to ensure compliance with local and national planning policy. Given that the site is currently dominated by hard-standing and existing buildings of negligible ecological value, it is envisaged that any future scheme would be able to achieve the required levels of Biodiversity Net Gain.

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Table No. 06 – Species List for Habitat Parcels**Ornamental Hedgerow**

Common Name	Scientific Name	DAFOR
Cherry	<i>Quercus robur</i>	A
Japanese medlar	<i>Eriobotrya japonica</i>	R
Field maple	<i>Acer campestre</i>	F
Willowleaf pear	<i>Pyrus salicifolia</i>	R

Understorey Vegetation – Ornamental Hedgerow

Common Name	Scientific Name	DAFOR
Bramble	<i>Poa annua</i>	F
Cleavers	<i>Gallium aparine</i>	F
Ivy	<i>Hedera helix</i>	F
Barren strawberry	<i>Potentilla sterilis</i>	O
Red dead nettle	<i>Lamium purpureum</i>	O
Hollyhock sp.	<i>Alcea sp.</i>	O
Spear thistle	<i>Cirsium vulgare</i>	F
Hawthorn	<i>Crataegus monogyna</i>	O

Modified Grassland

Common Name	Scientific Name	DAFOR
False oat	<i>Arrhenatherum elatius</i>	F
Perennial ryegrass	<i>Lolium perenne</i>	A
Oxeye daisy	<i>Leucanthemum vulgare</i>	O
Cocks foot	<i>Dactylis glomerata</i>	F
Barren brome	<i>Anisantha sterilis</i>	F
White clover	<i>Trifolium repens</i>	O
Catsear	<i>Hypochaeris radicata</i>	O
Common couch	<i>Elymus repens</i>	R
Upright brome	<i>Bromus erectus</i>	F
Ribwort plantain	<i>Plantago lanceolata</i>	O
Tormentil	<i>Potentilla erecta</i>	O
Yarrow	<i>Achillea millefolium</i>	O
Morning glory sp.	<i>Convolvulaceae sp.</i>	R

Introduced shrub

Common Name	Scientific Name	DAFOR
Juniper sp.	<i>Poa annua</i>	F
Bramble	<i>Rubus fruticosus</i>	F
Bristly oxetongue	<i>Helminthotheca echoides</i>	O
Catsear	<i>Hypochaeris radicata</i>	O
False oat	<i>Arrhenatherum elatius</i>	F
Scentless mayweed	<i>Tripleurospermum inodurum</i>	O
Dwarf gorse	<i>Ulex gallii</i>	R
Ash	<i>Fraxinus excelsior</i>	R
Prickly lettuce	<i>Lactuca serriola</i>	O
Hollyhock sp.	<i>Alcea sp.</i>	F
Stone parsley	<i>Sison amomum</i>	O
Dog rose	<i>Rosa canina</i>	O
Wild raspberry	<i>Rubus idaeus</i>	R
Green dock	<i>Sorrel sp.</i>	F
Mint sp.	<i>Mentha sp.</i>	O
Borage	<i>Borago officinalis</i>	F
Field maple	<i>Acer campestre</i>	O
Stonecrop sp.	<i>Sedum sp.</i>	R
English rose	<i>Rosa sp.</i>	R

Scattered trees

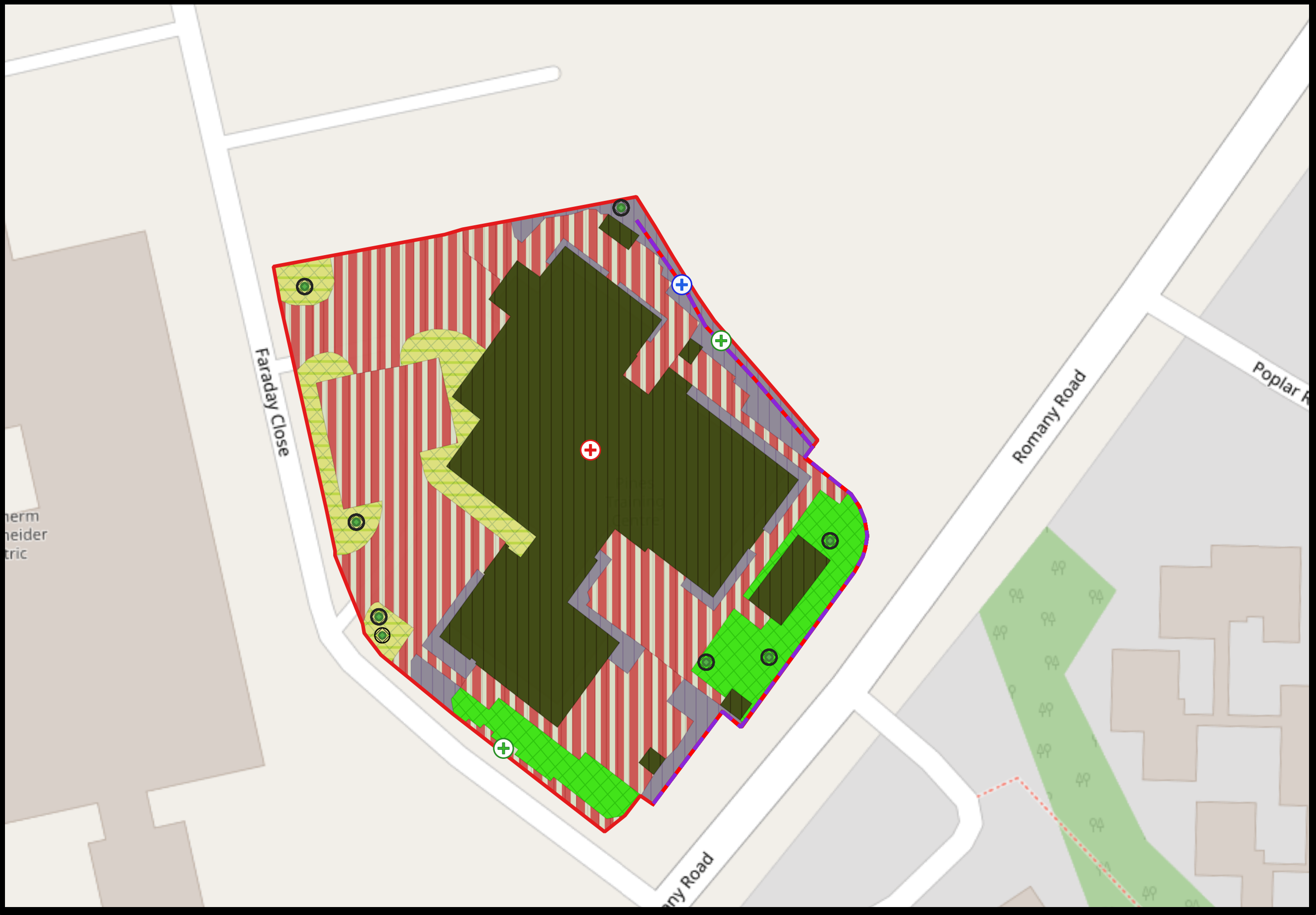
Common Name	Scientific Name	DAFOR
Norway maple	<i>Acer platanoides</i>	O
Barren Cherry sp.	<i>Prunus sp.</i>	O
Fruiting Cherry sp.	<i>Prunus sp.</i>	O
Beech	<i>Fagus sylvatica</i>	R
Colorado blue spruce	<i>Picea pungens</i>	R
Weeping willow	<i>Salix babylonica</i>	R
Five-needle pine sp.	<i>Pinus parviflora</i>	R

D – Dominant; A – Abundant; F – Frequent; O – Occasional; R – Rare; L – Locally

Table No. 07 – Target Notes

Ref	Feature	Description
TN01	Building B1	Large existing building with a complex series of flat roofs and steep gables that indicated it holds 'low' bat roost potential.
TN02	Suitable reptile habitat	Ornamental hedgerow and other neutral grassland that provides suitable refugia habitat for common and widespread reptiles
TN03	Invasive species	<i>Cotoneaster sp.</i> specimens that are found on Schedule 9 Invasive Species Register.

Figure 1: Site Habitat Plan



Legend

- Red Line Boundary
- Existing Medium Urban Tree
- Existing Small Urban Tree
- Non-native and ornamental hedgerow - h2b
- Developed land; sealed surface - u1b
- Introduced shrub - 1160
- Modified grassland - g4
- Buildings - u1b5
- Other neutral grassland - g3c
- TN01 - Building B1 which held 'low' bat roost potential
- TN02 - Ornamental hedgerow which provides reptile refugia habitat
- TN03 - Invasive species Cotoneaster sp. specimens

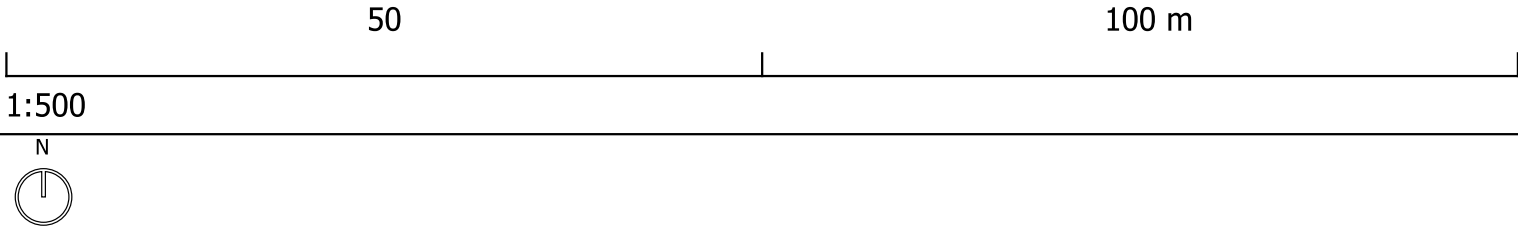
Final Issue

Rev	Description	Date	Initials
00	Final Issue	06/07/23	BS



Client			
Faithful and Gould Ltd.			
Project Title and Location			
The Pines, Worthing			
Drawing Title			
Figure 1 - Site Habitat Plan			
Scale	Drawn	Approved	Date
1:500 @A3	BS	CO	06.07.23

Figure 1 - Site Habitat Plan
The Pines, Worthing



Appendix A – Site Photographs

Image 01 – View looking east of the existing Building B1 and other neutral grassland swards found on the western aspect of the site.



Image 02 – View of the Beech *Fagus sylvatica* scattered tree specimen to the western boundary of the site, underlying which is a sward of other neutral grassland.



Image 03 – View of the invasive species cotoneaster sp. found within the ornamental hedgerow as well as along the northern boundary of the site.



Image 04 – View of the non-native ornamental hedgerow along the eastern boundary of the site which provides bird nesting, reptile refugia as well as bat foraging and commuting habitat.



Image 05 – View of the western aspect of Building B1.



Appendix C: Planning Policy

Legislation

Legislation relating to wildlife and biodiversity of particular relevance to this PEA includes:

- *The Conservation of Habitats and Species Regulations 2017;*
- *The Wildlife and Countryside Act 1981 (as amended);*
- *The Natural Environment and Rural Communities (NERC) Act 2006;*
and
- *The Environment Act 2021.*

This above legislation has been addressed, as appropriate, in the production of this report. Further details of legislation relating to the protection of particular ecological receptors are provided in the table below:

Table No. 08 – Relevant National Planning Policy

Ecological Constraint	Rationale
SACs (Special Area of Conservation), SPAs (Special Protection Areas) and Ramsars (Wetlands of International Importance)	Under the Conservation of Habitats and Species Regulations 2017 places a duty on the competent authority to maintain the favourable conservation status of designated SAC, SPA and Ramsar sites. Therefore, where it appears to the appropriate nature conservation body that a notice of a proposal relates to an operation which is, or forms, part of a plan or project which is likely to have a significant effect on a European site (either alone or in-combination with other plans or projects), and (b) is not directly connected with or necessary to the management of that site, it must make an appropriate assessment of the implications for that site in view of that site's conservation objectives. In the light of the conclusions of the assessment, it may give consent for the operation only after having ascertained that the plan or project will not adversely affect the integrity of the site.
European protected species (bats, otters, dormice, water voles, great crested newts)	It is an offence under the Conservation of Habitats and Species Regulations 2017 to deliberately kill or injure a European protected species, to destroy breeding/resting sites, or to deliberately disturb these species and affect their ability to survive, rear young, breed, or hibernate.
Nationally protected species (bats, water vole, otter)	It is an offence under the Wildlife and Countryside Act 1981 (as amended) to intentionally or recklessly disturb a species listed on Schedule 5 whilst it is in a place of shelter, or to obstruct access to a place for shelter.
Nationally protected species (reptiles)	It is an offence under the Wildlife and Countryside Act 1981 (as amended) to kill or injure common species of reptiles.
National conservation priority species (white-clawed crayfish, fish, common toad, reptiles, noctule, water vole, otter, hedgehog), i.e., UKBAPs	Section 41 of the NERC Act 2006 requires the Secretary of State to publish a list of species and habitats that are of principal importance for the conservation of biodiversity, and to take, and promote others to take, such steps to further the conservation of these habitats and species. These species and habitats will be considered by Planning Authorities in regard to the National Planning Policy Framework (Ministry of Housing, Communities & Local Government, 2021) to conserve and enhance the natural environment.
Badgers	It is an offence under the Protection of Badgers Act 1992 to damage or destroy a badger sett; obstruct any entrance of a badger sett; and disturb a badger whilst it is occupying a

	badger sett.
Wild mammals (rabbits, foxes, water vole, otter, hedgehog, badger)	It is an offence under the Wild Mammals (Protection) Act 1996 to inflict unnecessary suffering to any wild mammal with intent.
Nesting birds	It is an offence under the Wildlife and Countryside Act 1981 (as amended) to damage or destroy a bird's nest whilst it is in use, and to kill or injure a bird or destroy an egg.
Non-statutory designated sites (SNCI's, LWS, LNR's, etc.)	LNRs are designated under Section 21 of the National Parks and Access to the Countryside Act 1949, which was amended by the Natural Environment and Rural Communities Act 2006. The value for biodiversity of LNRs and LWSs are recognised, and the sites and surrounding buffers are protected by the Local Plan.
Biodiversity	Section 40 of the NERC Act 2006 states that each public authority "must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity." This legislation makes it clear that planning authorities should consider impacts to biodiversity when determining planning applications. Chapter 15 of the National Planning Policy Framework (Ministry of Housing, Communities & Local Government, 2021) states that the planning system and policies should minimise impacts on and provide net gains for biodiversity, and that, if significant harm to biodiversity would result from a development, then development should be avoided (through locating on alternative sites with less harmful impacts).
Irreplaceable habitats (ancient woodland, veteran trees, lowland meadows)	Chapter 15 of the National Planning Policy Framework (Ministry of Housing, Communities & Local Government, 2021) states that development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.

Local Planning Policy

The existing local plan (Adur and Worthing, 2013) sets out the local existing planning policies for the district. Those of potential relevance to this assessment include *Policy DM18 – Biodiversity*, *Policy DM22 – Pollution* and *Policy DM19 – Green Infrastructure*. These planning policies are laid in Table No. 02 below:

Table No. 9 – Relevant Local Planning Policies

Policy Reference	Policy Text
Worthing Local Plan (Adur and Worthing, 2023)	
<i>Policy DM18 – Biodiversity</i>	a) Planning applications should be supported by relevant environmental information, which is informed by appropriate up-to-date ecological information, prior to determination. b) All development should ensure the protection, conservation, and enhancement of biodiversity. If significant harm cannot be avoided (by locating development on an alternative site with less harmful impacts or through design), then such harm should be adequately mitigated. Where it cannot be adequately mitigated then as a last resort such harm must be compensated for. Where it cannot be compensated for, then planning permission should be refused. This process is known as the mitigation hierarchy. c) Developments which would adversely affect a Site of Special Scientific Interest (SSSI) (individually or cumulatively) will not normally be permitted. Exceptions will only be made where the benefits of the development on the particular site clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts. Where an exception is considered the mitigation hierarchy will apply. d) Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) will be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists. e) Proposals for development in, or likely to have an

	adverse effect (directly or indirectly) on a Local Wildlife Site, wildlife corridors, stepping stones or Local Geological Site will not be permitted unless it can be demonstrated the benefits of the proposal outweigh the need to safeguard the nature conservation value of the site/feature. Where an exception is considered the mitigation hierarchy will apply. f) Development that is likely to have an adverse effect on priority habitat or species will not be permitted unless it can be demonstrated the benefits of the proposal outweigh the need to safeguard the nature conservation value of the site/feature. Where an exception is considered the mitigation hierarchy will apply. g) Where relevant, new development adjacent to the coast will have to demonstrate how it is reducing the impacts of coastal squeeze. h) New developments (excluding change of use and householder) should provide a minimum of 10% net gain for biodiversity - where possible this should be onsite. Where it is achievable, a 20%+ onsite net gain is encouraged and is required for development on previously developed sites. Major developments will be expected to demonstrate this at the planning application stage using biodiversity metrics. This should be accompanied by a long term management plan. i) Where appropriate, the Council will use planning conditions or obligations to provide appropriate enhancement and site management measures, and where impacts are unavoidable, mitigation or compensatory measures.
<i>Policy DM19 – Green Infrastructure</i>	a) The Council will work with relevant partners and developers to facilitate the creation of an integrated network of green infrastructure within and beyond Worthing. A Green Infrastructure Strategy will be produced by the Council and when in place, developments will be expected to comply with it. Until such time, applicants are encouraged to refer to existing information and records on green

	infrastructure assets to inform how their development can protect, conserve, enhance and deliver green infrastructure across Worthing. b) All developments (excluding householder) will need to demonstrate how they will contribute to the implementation of the Green Infrastructure Strategy both at site level and with regard to the wider green infrastructure network. Opportunities should be taken to incorporate elements of green infrastructure onsite to create, protect, enhance and manage green infrastructure assets and/or networks to achieve environmental net gain. This should be based on up-to date ecological evidence on, and information about, green infrastructure networks and assets to maximise multi-functional benefits. c) In all new developments there should be no net loss of trees and any trees removed should usually be replaced on a 1:1 basis to maintain current levels of canopy cover. Additional tree planting is encouraged where appropriate to improve the quality of the local environment and increase appropriate species canopy cover. d) Arrangements and funding for the management and maintenance of green infrastructure over the long term should be identified and implemented. Where appropriate, the Council will seek to secure this via planning obligations. e) Major developments should demonstrate how they are meeting the requirements of this policy in their submitted sustainability statements and are encouraged to achieve Building with Nature Full Award (Excellent).
DM22 - Pollution	a) Development should not contribute to, be put at risk from, or be adversely affected by unacceptable levels of soil, air, water, artificial light or noise pollution or land instability. Where possible development should help to improve local environmental conditions. b) New development in Worthing will be located in areas most suitable to the use of that development to avoid unacceptable risks from all sources of pollution.

	c) Mitigation measures will need to be implemented for developments that could increase levels of pollution, taking into account any cumulative impact. Mitigation should avoid, minimise and offset the impact of development and take opportunities to improve local environmental conditions. Where there are significant levels of increased pollution that cannot be mitigated development will be refused. d) Where appropriate, air quality and/or noise assessments and lighting assessments will be required to support planning applications. These should be undertaken in accordance with the most up to date guidance and have regard to any relevant action plans. Any new development in the Worthing Air Quality Management Area must be consistent with the Air Quality Action Plan. Where any identified harm to any of these factors cannot be adequately mitigated, planning permission will be refused. e) Where there is potential risk of contaminated land, proportionate investigations and assessments will be required in relation to relevant development proposals. These should assess the nature and extent of contamination and the potential risks to human health, adjacent land uses and the local environment. Where identified risks of contamination cannot be adequately mitigated, planning permission will be refused.
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Appendix D – Summary of Abbreviations Used

Summary of Abbreviations

A non-technical summary of the abbreviations used in report are provided in the table below:

Abbreviation	Explanation
BAP	Biodiversity Action Plan; A plan developed by the LPA to identify local priorities for biodiversity in the district.
BNG	Biodiversity Net Gain; an overall assessment of whether proposals will result in benefits or losses to biodiversity interests, as defined by the DEFRA metric.
BSI	British Standards Institute.
CIEEM	Chartered Institute of Ecology and Environmental Management
EcIA	Ecological Impact Assessment; an assessment of development proposals on the ecological value of the site.
EPS	European Protected Species; species designated at the European level.
EPSML	European Protected Species Mitigation Licences
GCN	Great Crested Newt; amphibian species designated at the national and European level.
HRA	Habitat Regulations Assessment; assessment conducted to determine whether proposals have the potential to result in likely significant effect/s to sites designated at the European level.
HSI	Habitat Suitability Assessment; Assessment conducted to assess the suitability of a water body to support GCN.
LNR	Local Nature Reserve
LPA	Local Planning Authority; council responsible for overseeing the planning applications and policy in the district.
LWS	Local Wildlife Site.
NE	Natural England; a non-departmental public body responsible for ensuring that England's natural environment, including its land, flora and fauna, freshwater and marine environments, geology and soils, are protected and improved.
NNR	National Nature Reserve.
PEA	Preliminary Ecological Appraisal; initial ecological scoping assessment conducted to inform planning design
Ramsar	Ramsar; Wetlands of International Importance, as designated under the Ramsar Convention.
SAC	Special Area of Conservation; site designated internationally for its ecological value.
SNCI	Site of Nature Conservation Importance.
SPA	Special Protection Area; site designated internationally for its value to wild birds.
SSSI	Site of Special Scientific Interest; site designated at the national level for its environmental value.
UKBAP	United Kingdom Biodiversity Action Plan; species of habitat designated under the NERC Act, 2006.
UKHabs	Habitat classification system associated with ecological appraisals and BNG.