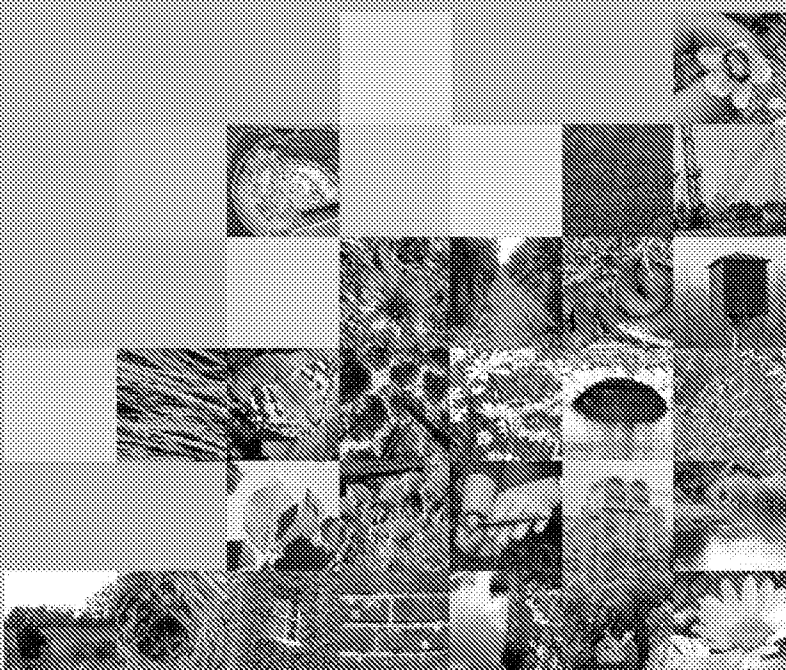




Land adjacent to 18 Queens Lane, Arundel

Preliminary Ecological Appraisal (PEA)

Report for The Angmering Park Estate

Job Number	6760			
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Summary of key findings

Temple (formerly The Temple Group comprising of The Ecology Consultancy, Temple Group and Arbeco) was commissioned by The Angmering Park Estate in November 2021 to carry out a Preliminary Ecological Appraisal (PEA) comprising a habitat survey, protected species assessment and ecological evaluation of Land adjacent to 18 Queens Lane, Arundel. The proposed development comprises a single dwelling.

The main findings of the PEA are as follows:

- ✦ **Arun Valley SPA impact zone** – The proposed development is located within the Arun Valley SPA impact zone. A biodiversity survey and report is required for sites within the Arun Valley SPA impact zone where Bewick's swan may be present in order to comply with the Arun District Councils validation requirements (item 6) (Arun District Council, 2021a). Biological records from the Sussex Biodiversity Record Centre of Bewick's swan were identified with 2km of the site. The site is not considered suitable to support wintering Bewick's swan due to the absence of suitable foraging and roosting habitat and the size and location of the site. Due to the nature and scale of the development it is not considered likely the proposed development will impact the wider landscape where suitable habitat for Bewick's swan is located.
- ✦ **Habitats** – The development will not result in the direct loss of habitats of principal importance (HPI) however proximity to HPI in the surrounding landscape risks degradation through indirect impacts such as lighting and noise. Mitigation measures such as the implementation of a sensitive lighting strategy is recommended.
- ✦ **Biodiversity Net Gain** – The design proposals should take into account the aim to achieve Biodiversity Net Gain in the Arun Local Plan 2011 - 2031 Policy ENV DM5. Following consideration by the local planning authority, a biodiversity net gain assessment may be required.
- ✦ **Amphibians** - Habitat suitable for amphibian species was present and measures should be taken to safeguard these species through sensitive clearance of suitable habitat (as required).
- ✦ **Badger** – Habitats suitable for foraging badger was recorded on site and precautionary measures for badgers are recommended.
- ✦ **Bats** – The site supports foraging and commuting habitat for bats with a single tree identified adjacent to site with moderate bat roost potential. Mitigation measures should be implemented including a sensitive lighting strategy to maintain the suitability of this habitat for bats and ensure the potential roost site adjacent to site is safeguarded.

- » **Breeding birds** – Habitat suitable for a variety of breeding birds was present and precautionary mitigation measures are recommended including avoidance of any vegetation clearance during nesting bird season or a pre-works check for nests when this period cannot be avoided.
- » **Great crested newt** – The site supports suitable terrestrial habitat for great crested newt. It is anticipated that the proposed development will result in the loss of marginal habitat, tall ruderal vegetation, scrub and poor semi-improved grassland which provides suitable terrestrial habitat for great crested newt. It is recommended that habitat retention is formalised in the landscape design plan and that a precautionary method of works is implemented which includes a supervised two stage vegetation cut.
- » **Hedgehog** – Habitat suitable for hedgehog was present and measures should be taken to safeguard this species through clearance of suitable habitat (as required) and continue accommodating this species on site post-development.
- » **Invasive Species** – Schedule 9 invasive plant species montbretia and cotoneaster was recorded on site and specialist advice and guidance should be sought to avoid spreading these species into the wild.
- » **Reptiles** – The site supports suitable foraging and commuting habitat for reptiles. It is anticipated that the development will result in the loss of marginal habitat, tall ruderal vegetation, scrub and poor semi-improved grassland provides suitable habitat for reptiles. It is recommended that habitat retention is formalised in the landscape design plan and that a precautionary method of works is implemented which includes a supervised two stage vegetation cut.

Recommendations to enhance the biodiversity value of the site in accordance with national and local planning policies comprise the provision of log piles, bat and bird boxes and wildlife planting.

1 Introduction

BACKGROUND TO COMMISSION

- 1.1 Temple (formerly the Temple Group comprising of The Ecology Consultancy, Temple Group and Arbeco) was commissioned by The Angmering Estate in November 2021 to carry out a Preliminary Ecological Appraisal (PEA) of Land adjacent to 18 Queens Lane, Arundel. The appraisal was carried out to provide ecological information to inform a full planning application (AB/136/21/PL) for a proposed residential development comprising a single dwelling.
- 1.2 The report was commissioned in order to comply with the Arun District Councils validation requirements (item 6) stating that a biodiversity survey and report is required for sites within the Arun Valley SPA impact zone where Bewick's swans may be present (Arun District Council, 2021a). The proposed development is located within the Arun Valley SPA impact zone which is identified on the Arun District Council planning validation requirements map (Arun District Council, 2021b).
- 1.3 This appraisal considers land within the survey boundary (hereon referred to as 'the site') as indicated on the plan provided by the client (Savills, 2021) and denoted by the red line on the Phase 1 Habitat Map in Appendix 1.

SCOPE OF THE REPORT

- 1.4 The aim of this appraisal is to provide baseline ecological information about the site. This will be used to identify any potential ecological constraints associated with the proposed development and/or to identify the need for additional survey work to further evaluate any impact that may risk contravention of legislation or policy relating to protected species and nature conservation. Where necessary, avoidance, mitigation/compensation and/or enhancement measures have been recommended to ensure compliance.
- 1.5 This appraisal is based on the following information sources:
 - ✧ a desk study of the site and land within a 2km surrounding radius (extended to 15km for European designated sites);
 - ✧ a Phase 1 habitat survey (JNCC, 2010) of the site to identify and map the habitats present;

- » a protected species assessment of the site to identify features with potential to support legally protected species;
- » an evaluation of the site's importance for nature conservation;
- » a preliminary bat roost assessment comprising a detailed building inspection of all buildings on site; and
- » a ground-level tree assessment of all trees on site.

1.6 This appraisal has been prepared with reference to best practice guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM, 2018) and as detailed in British Standard 42020:2013 *Biodiversity - Code of Practice for Biodiversity and Development* (BSI, 2013).

1.7 The survey, assessment and report were conducted and written by Zoe Courchene BSc (Hons) MSc ACIEEM an ecologist with five years' experience who is competent in carrying out Phase 1 habitat surveys and protected species assessments.

SITE CONTEXT AND STATUS

1.8 The site is located off Queens Lane on the edge of the town of Arundel, East Sussex. The site is centred on National Grid Reference TQ 01875 06814 and is approximately 0.1ha in size. The site comprised a single small structure used for storage situated close to the site entrance. The site was dominated by tall ruderal vegetation with scrub, short perennial and marginal vegetation present. The site was bounded by a wet ditch on the western extent and a species poor hedgerow on the eastern extent. The wider landscape comprises residential properties and agricultural grazed pasture fields situated on the floodplain of the River Arun. The site is located on the edge of the town of Arundel and the River Arun is located approximately 95m northwest of the site and the A27 195m south.

DEVELOPMENT PROPOSALS

1.9 The development proposals for the site comprise the construction of a new single dwelling with associated access. It is assumed that much of the existing habitat such as scrub and tall ruderal will not be retained in the landscape design and will become a formalised garden for the proposed dwelling.

RELEVANT LEGISLATION AND PLANNING POLICY

1.10 The following key pieces of nature conservation legislation are relevant to this appraisal.

A more detailed description of legislation is provided in Appendix 5:

- ✧ The Conservation of Habitats and Species Regulations 2019 (commonly referred to as the Habitats Regulations);
- ✧ The Environment Act (2021);
- ✧ Wildlife and Countryside Act 1981 (as amended);
- ✧ Natural Environment and Rural Communities Act 2006;
- ✧ Protection of Badgers Act 1992; and
- ✧ Wild Mammals (Protection) Act 1996.

1.11 The National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2021) requires local authorities to avoid and minimise impacts on biodiversity and, where possible, to provide net gains in biodiversity when taking planning decisions.

1.12 Planning policies at the local level which are of relevance to this development are found within the Arun Local Plan 2011 - 2031 (Arun District Council, 2018).

2 Methodology

DESK STUDY

2.1 The following data sources were reviewed to provide information on the location of statutory designated sites¹, non-statutory designated sites², legally protected species³, Species and Habitats of Principal Importance⁴ and other notable species⁵ and notable habitats⁶ that have been recorded within a 2km radius of the site and 15km for European-level statutory sites:

- ✧ The Sussex Biological Records Centre (SxBRC), principally for species records and information on non-statutory sites (see limitations);
- ✧ MAGIC (<http://www.magic.gov.uk/>) - the Government's on-line mapping service; and
- ✧ Ordnance Survey mapping and publicly available aerial photography.

HABITAT SURVEY

2.2 A habitat survey of the site was carried out on 1 December 2021 in clear, dry conditions. It covered the entire site including boundary features. Habitats were described and mapped following the standard Phase 1 habitat survey methodology (JNCC, 2010). Habitats were marked on a paper base map and subsequently digitised using ESRI ArcGIS software. Habitats were also assessed against descriptions of Habitat of Principal Importance as set-out by the JNCC (BRIG, 2008)⁷

¹ Statutory designations include Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR).

² Non-statutory sites are designated by local authorities (e.g. Sites of Importance for Nature Conservation or Local Wildlife Sites).

³ **Legally protected species** include those listed in Schedules 1, 5 or 8 of the Wildlife and Countryside Act 1981 (as amended); Schedule 2 of the Conservation of Habitats and Species Regulations 2017; or in the Protection of Badgers Act 1992.

⁴ **Species of Principal Importance** are those defined by Section 41 of the Natural Environment and Rural Communities Act, 2006.

⁵ **Notable species** include Species of Principal Importance under the Natural Environment and Rural Communities Act 2006; Local Biodiversity Action Plan (LBAP) species; Birds of Conservation Concern (Stanbury *et al.*, 2021); and/or Red Data Book/nationally notable species (JNCC, undated).

⁶ **Notable habitats** include Habitats of Principal Importance under the Natural Environment and Rural Communities Act, 2006; those included in an LBAP; Ancient Woodland Inventory sites; and Important Hedgerows as defined by the Hedgerow Regulations 1997.

⁷ Data required to confirm that certain habitats (including rivers and ponds) meet criteria for Habitats of Principle Importance is beyond that obtained during a Phase 1 habitat survey. In these cases the potential for such habitats to meet relevant criteria is noted but further surveys to confirm this assessment may be recommended

- 2.3 Records for dominant and notable plants are provided, as are incidental records of birds and other fauna noted during the habitat survey.
- 2.4 Common names are used where widely accepted – for amphibians, birds, fish, mammals, reptiles, and vascular plants. Scientific names are provided for other groups but at first mention only if there is also an accepted common name.
- 2.5 The site was also surveyed for the presence of invasive plant species as defined by Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). However, detailed mapping of such species is beyond the scope of this commission and the location on the habitat plan is indicative only.
- 2.6 Target notes are used to provide information on specific features of ecological interest (e.g., a badger sett) or habitat features that were too small to be mapped.

PROTECTED AND NOTABLE SPECIES ASSESSMENT

- 2.7 The suitability of the site for legally protected species was assessed based on relevant desk study records⁸ combined with field observations from the habitat survey. The likely value of habitat for protected species occurrence was ranked on a scale from 'negligible' to 'present' as described in Table 2.1.
- 2.8 The assessment of habitat suitability for protected or notable species was based on professional judgement drawing on experience of carrying out surveys of a large number of urban and rural sites and best practice survey guidance on identifying field signs which includes that for the following species: badger (e.g. Roper, 2010); bats (Collins (ed.), 2016); hazel dormouse (English Nature, 2006); great crested newt (Langton *et. al.* 2001) and reptiles (Gent and Gibson, 2003);

Table 2.1: Protected species assessment categories

Category	Description
Present	Presence confirmed from the current survey or by recent, confirmed records.
High	Habitat present provides all of the known key requirements for a given species/species group. Local records are provided by desk study. The site is within or close to a national or regional stronghold for a particular species. Good quality surrounding habitat and good connectivity.
Moderate	Habitat present provides all of the known key requirements for a given species/species group. Several desk study records and/or site within national distribution and with suitable surrounding habitat. Factors

⁸ Primarily dependent on the age of the records, distance from the site and types of habitats at the site.

Table 2.1: Protected species assessment categories

Category	Description
	limiting the likelihood of occurrence may include small habitat area, barriers to movement and disturbance.
Low	Habitat present is of relatively poor quality for a given species/species group. Few or no desk study records. However, presence cannot be discounted on the basis of national distribution, nature of surrounding habitats or habitat fragmentation.
Negligible	Habitat is either absent or of very poor quality for a particular species or species group. There were no desk study records. Surrounding habitat unlikely to support wider populations of a species/species group. The site may also be outside or peripheral to known national range for a species.

2.9 The findings of this assessment establish the need for protected species surveys that are required to achieve compliance with relevant legislation. Surveys are commonly required for widespread species such as bats, great crested newt, reptiles and badger; but may be necessary for other species if suitable habitat is present.

2.10 Surveys may be required where a site is judged to be of low suitability for a particular species/species group. However, in some cases there may be opportunities to comply with legislation, without further survey, through precautionary measures prior to and during construction.

Arun valley Impact Risk Zone

2.11 A report is required for sites within the Arun Valley SPA impact zone where Bewick's swans may be present in order to comply with the Arun Councils validation requirements (item 6) (Arun District Council, 2021a). If the biodiversity survey finds records of breeding / feeding of Bewick's swans or land supporting the habitat a more detailed assessment is required:

- ✦ Detailing the special characteristics and features for which the Arun valley has been designated ;
- ✦ Species and habitat survey results including methodology used ; and
- ✦ Sufficient scientific and /or historical evidence about the site suitability and use by Bewick's swan.

Preliminary Bat Roost Assessment - Buildings

2.12 The survey comprised an external inspection of the building on site, involving a detailed search for bat droppings, urine staining, scratch marks, and feeding remains.

Windowpanes and other external surfaces were visually checked for droppings or other secondary evidence. The building structure was inspected using close focusing binoculars. This included external features, such as: soffit boxes, roof tiles, hanging tiles, ridge areas and window casements. Any features that could potentially provide access into internal areas, such as roof voids and cavity walls, were noted.

- 2.13 An internal inspection was undertaken looking for evidence bats, staining and droppings and an assessment made of the suitability for roosting bats. The Preliminary Bat Roost Assessment was undertaken in accordance with best practice survey standards (BCT, 2016).

Ground Level Tree Roost Assessment

- 2.14 The survey comprised an inspection of all trees within and adjacent to the site boundary to identify any crevices or cavities within the structure of the tree which may be suitable for roosting bats. Each feature was inspected with binoculars to record details on the structure of the feature and to search for any evidence by roosting bats such as bat droppings, urine staining, scratch marks, and feeding remains.
- 2.15 It should be noted that the Ground Level Tree Roost Assessment was undertaken from the ground and therefore it was not possible to accurately determine the characteristics of the feature, for example the depth of the feature within the tree. The classification therefore follows a precautionary approach using professional judgement. The Ground Level Tree Roost Assessment was undertaken in accordance with best practice survey standards (BCT, 2016).

SITE EVALUATION

- 2.16 The site's ecological value has been evaluated broadly following guidance issued by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2019b) which ranks the nature conservation importance of a site according to a geographic scale of reference: international, national, regional, county/metropolitan, district/borough, local/parish or of importance at the site scale. In evaluating the nature conservation importance of the site, the following factors were considered: nature conservation designations; species/habitat rarity; naturalness; fragility and connectivity to other habitats.

DATA VALIDITY AND LIMITATIONS

2.17 Every effort has been made to provide a comprehensive description of the site; however, the following limitations apply to this assessment.

- » The protected species assessment provides a preliminary view of the likelihood of protected species occurring on the site. It should not be taken as providing a full and definitive survey of any protected species group. Additional surveys may be recommended if based on the preliminary assessment or during subsequent surveys it is considered reasonably likely that protected species may be present.
- » The ecological evaluation is preliminary and may change subject to the findings of further ecological surveys (should these be required).
- » Even where data for a particular species group is provided in the desk study, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest, the area may simply be under-recorded.
- » Where only four figure grid references are provided for protected species by third parties, the precise location of species records can be difficult to determine, and they could potentially be present anywhere within the given 1km x 1km square. Equally six figure grid references are accurate to the nearest 100m only.
- » The Phase 1 habitat survey does not constitute a full botanical survey or provide accurate mapping of invasive plant species.
- » The survey was carried out in December which is outside the optimal period for surveying general flora and fauna. This is not considered to impede the recording of the general species composition present.
- » Bats are highly mobile and can have seasonal use of buildings so may arrive and commence using a site after it has been surveyed or be roosting elsewhere during the survey period. For this reason, bats may potentially be present but remain undetected, particularly during day time assessment surveys.
- » Ecological survey data is typically valid for 2 years unless otherwise specified (CIEEM, 2019a).

2.18 Despite these limitations, it is considered that this report accurately reflects the habitats present, their biodiversity importance and the potential of the site to support protected and notable species.

3 Results

DESIGNATED SITES

- 3.1 The proposed development site is not subject to any statutory/non-statutory nature conservation designations.
- 3.2 Overall, two national statutory designated sites were present within 2km of the site: Arundel Park Site of Special Scientific Interest (SSSI) (580m north west) and South Downs National Park (180m north east).
- 3.3 This search was extended to 15km for European level statutory designated sites including Special Areas of Conservation (SAC) and Special Protection Areas (SPA). Overall, four sites were recorded within this search radius: Arun Valley SAC and SPA (6.5km north-east), Duncton to Bignor Escarpment SAC (7.1km north-west) and The Mens SAC (14.8km north).
- 3.4 There are four non-statutory designated sites present within 2km of the site boundary, all of which are Local Wildlife Sites (LWS).
- 3.5 These statutory and non-statutory sites are detailed in Table 3.1 below.

Table 3.1: Designated Nature Conservation Sites within 2km of the site

Site Name	Habitats/Species of Interest	Location
Statutory Designated Sites		
Arun Valley SPA	This site qualifies as an SPA under Article 4.1 of the Directive (79/409/EEC) due to the population of overwintering Bewick's swan and Article 4.2 of the Directive (79/409/EEC) for its waterfowl assemblage. Overwintering Bewick's swan at the site represent at least 1.6% of the wintering population of Great Britain. Additionally, the site is used regularly by over 20,000 waterfowl. These are qualifying features of the site. The winter bird assemblage supported includes nationally important populations of wigeon, teal, pintail, shoveler and ruff. Golden plover and kingfisher are also present within the Arun valley SPA. These are non-qualifying features of the site.	6.5km north-east

Table 3.1: Designated Nature Conservation Sites within 2km of the site

Site Name	Habitats/Species of Interest	Location
Arun Valley SAC	The site is designated due to the presence of Ramshorn snail which occurs across a range of sites in southern and eastern England. The Arun valley is one of the three main population centres for this species in the UK. This proposed site includes two of its core sites in the wash lands of the Arun floodplain (Pulborough Brooks and Amberley Wild Brooks SSSIs).	6.5km north-east
Duncton to Bignor Escarpment SAC	This site is designated for the beech forests that occur here. The forest is located on steep scarp slopes and on more gently-sloping hillsides in mosaic with ash woodland, scrub and grassland. Much of the beech woodland is high forest but with some old pollards. Rare plants are recorded at this site.	7.1km north-west
The Mens SAC	This site is designated for its forest habitat. The Mens is an extensive area of mature beech woodland rich in lichens, bryophytes, fungi and saproxylic invertebrates, and is one of the largest tracts of Atlantic acidophilous beech forests in the south-eastern part of the habitat's UK range. It is developing a near-natural high forest structure, in response to only limited silvicultural intervention over the 20 th century, combined with the effects of natural events such as the 1987 great storm. This site is also designated due to the presence of barbastelle bats as a qualifying feature but not the primary reason for designation.	14.8km north
Arundel Park SSSI	Arundel Park is one of the most important sites in the country for invertebrates including a number of rare and notable species. The area has a particularly diverse breeding bird community and is important for overwintering species. The site also includes examples of species-rich chalk grassland containing several plants uncommon in Sussex.	580m north west
South Downs National Park	The South Downs National Park comprises a variety habitats across 600km ² . The National Park designation is largely an amenity designation than a biological designation.	180m north east
Non-Statutory Designated Sites (SNCI's)		
Rewell Wood Complex LWS	Rewell Wood is a large ancient woodland complex. It has a diversity of habitats including ancient semi-natural woodland, worked Sweet Chestnut coppice, conifer plantation, Beech plantation and species-rich chalk grassland. Wide rides and glades support a rich flora and butterfly fauna. The disused gravel pits are of entomological importance.	550m west

Table 3.1: Designated Nature Conservation Sites within 2km of the site

Site Name	Habitats/Species of Interest	Location
Arun Valley, Watersfield to Arundel LWS	This section of the River Arun and its floodplain forms an extensive tract of wetland, a nationally declining habit. Although many of the flood meadows have been improved, the wet grassland is important for breeding and wintering waders and wildfowl. There is a good network of ditches, some of which are very important botanically. The site is important for birds, dragonflies, water beetles, snails and plants, and supports many rare and declining species. The unimproved meadows of Watersfield Brooks are of great botanical interest.	250m north-east
Binstead Wood Complex LWS	Binstead Wood is a mixture of ancient woodland, recent woodland, conifer plantation, species rich pasture and old tracks and shaws. The mix of habitats and geology gives rise to a very rich and diverse flora. The paths and rides are especially species rich and Scotland Lane supports an outstanding wet ride flora that includes at least 11 species of sedge including Long-stalked Yellow-sedge <i>Carex viridula</i> ssp. <i>brachyrhyncha</i>, a county rarity at its only recorded West Sussex location. The site supports a rich butterfly fauna. This is the largest block of ancient semi-natural woodland south of the South Downs in Sussex.	1.1km west
Poling Copse LWS	Poling Copse is a broadleaved woodland just off the South Downs east of Arundel. Much of it is ancient replanted woodland, largely of hazel coppice with oak and ash standards. Active coppice management has recently recommenced on the site. Ecological diversity is increased by the presence of subsidiary habitats including wet woodland, streams, ponds and swamp vegetation. Records indicate the site supports a diversity of bat species including barbastelle, common pipistrelle, brown long-eared bat, serotine, whiskered bat and natterer's bat. Notable bird species of woodland habitat recorded breeding within the vicinity of the site include dunnock, marsh tit, mistle thrush, song thrush, tawny owl and willow warbler.	2km east

Sites of Special Scientific Interest: Impact Risk Zones

- 3.6 IRZs are intended as a tool for local planning authorities to identify when specific types of development may require consultation with Natural England regarding their potential impact on SSSIs. The site lies within the Arundel Park SSSI Impact Risk Zone (IRZ). However as a small residential development this does not sit in any of the at risk

categories of development and therefore does not require consultation with Natural England (Magic, 2021).

Arun valley Impact Risk Zone

- 3.7 The site is located within the Arun Valley SPA impact zone and the presence of suitable habitat and records of Bewick's swan, which are a qualifying feature of this designated site, is detailed in Table 3.3 below.

Habitat inventories

- 3.8 The desk study search returned records of 10 habitats of principal importance (including ancient woodland) within 2km of the site which are summarised below:

Ancient woodland

- 3.9 Multiple pockets of ancient woodland are located north, east and south of the site with the closest being located approximately 450m north of the site. Many of these areas of woodland comprise extensive woodland blocks. Ancient woodland is separated from the site by the Arun floodplain and the town of Arundel and is not well connected to the site.

Chalk stream

- 3.10 The closest chalk stream, is situated approximately 525m west of the site across the Arun River and situated in the Rewell Wood LWS on the opposing side (west) of the Arun River to the site. Another chalk stream is located north of the site adjacent to the Wildfowl and Wetlands Trust (WWT) Arundel Wetland Centre.

Lowland fen

- 3.11 The closest parcel of lowland fen, a Habitat of Principal Importance, is situated approximately 1.3km north east of the site located further north on the Arun floodplain and forming part of the WWT Arundel Wetland Centre. Another parcel of lowland fen habitat is situated in close proximity back located on the opposing side of the floodplain.

Reedbed

- 3.12 The closest parcel of reedbed, a Habitat of Principal Importance, is situated approximately 1km north of the site located further north on the Arun floodplain and forming part of the Wildfowl and Wetlands Trust (WWT) Arundel Wetland Centre.

Another parcel of reedbed habitat is situated in close proximity back located on the opposing side of the floodplain.

Intertidal mudflat

- 3.13 The closest parcel of intertidal mudflat is situated approximately 280m north east of the site situated on the Arun River. Another instance of this habitat type is situated south of the site at the furthest extent of the search radius.

Coastal saltmarsh

- 3.14 The closest parcel of coastal saltmarsh is situated approximately 1.5km south west of the site situated on the Arun River further south on the Arun floodplain. The A27 is situated between the site and this habitat type. There is only one area of this habitat type.

Traditional Orchard

- 3.15 The closest parcel of traditional orchard is situated approximately 750m south east of the site. This habitat type is separated from the site by a railway and the A27. Another instance of this habitat type is also located east of the railway and further north on the Arun floodplain.

Lowland calcareous grassland

- 3.16 The closest parcel of Lowland calcareous grassland is situated approximately 1.1km north of the site. The habitat type is located west of the Arun River and divided from the site by both the Arun River and the town of Arundel. This habitat type is located within Arundel Park SSSI.

Coastal & floodplain grazing marsh

- 3.17 The closest parcel of Coastal & floodplain grazing marsh is situated approximately 45m south-east of the site. This habitat type is extensive and makes up a large part of the Arundel floodplain. This habitat type is situated along the length of the Arun River throughout the search radius. The site is located on the urban fringe alongside allotments and residential properties that are located adjacent to this habitat type.

Deciduous woodland

- 3.18 Multiple pockets of deciduous woodland are located north, east and south of the site with the closest being located approximately 325m north of the site. Many of these

areas of woodland comprise extensive woodland blocks. Deciduous woodland is separated from the site by the Arun floodplain and the town of Arundel and is not well connected to the site.

HABITAT SURVEY

Overview

- 3.19 The site is located off Queens Lane on the edge of the town of Arundel, East Sussex. The site is centred on National Grid Reference TQ 01875 06814 and is approximately 0.1ha in size. The site comprised a single small structure used for storage situated close to the site entrance, scrub, short perennial vegetation and was bounded by a wet ditch on the western extent and a species poor hedgerow on the eastern extent. The wider landscape comprised residential properties and agricultural grazed pasture fields situated on the floodplain of the River Arun. The River Arun is located approximately 95m northwest of the site and the A27 195m south.
- 3.20 A Habitat Map of the site showing locations of Target Notes (TN) is presented in Appendix 1, with photographs in Appendix 2.
- 3.21 Phase one habitat types within the survey boundary are mapped in Figure 1 (Appendix 1), areas for habitats within the development footprint are given in Table 3.2 A description of dominant and notable species and the composition of each habitat within the survey boundary is provided below.

Table 3.2 Habitat Areas (within the development footprint only)

Habitat	Extent (ha)	%
C3.1 Other tall herb and fern – ruderal	0.04	36
J4 Bare ground	0.02	23
J1.3 Cultivated/disturbed land – ephemeral/short perennial	0.01	11
A2.1 Scrub – dense/continuous	0.01	11
F2.1 Marginal vegetation	0.01	7
B6 Poor semi-improved grassland	0.01	8
J3.6 Buildings	0.01	7
J5 Hardstanding	0.00	3
Total Area of Development Footprint	0.10	100

Habitat description

A3.1 Broadleaved Scattered Trees

- 3.22 The site was predominately open however there were occasional scattered trees. Within the site there was a mature walnut tree *Juglans regia* located next to the building. There was a single mature alder tree *Alnus glutinosa* on the northeast boundary of the site which is rooted in the adjacent land. There were scattered immature trees adjacent to the southern and south-western site boundary in the adjacent land parcel.

A2.1 Continuous scrub

- 3.23 Bramble *Rubus fruticosus* agg. And ivy *Hedera helix* was overgrowing the boundary fence at the north-eastern extent of the site. The land adjacent to the boundary comprised bramble scrub which is spreading. This was creating a vegetated boundary.

B6 Poor Semi-improved Grassland

- 3.24 There was a small area of poor semi-improved grassland which has established between the building on site and the bare earth area. This habitat included false oat grass *Arrhenatherum elatius*, cocksfoot *Dactylis glomerata*, creeping buttercup *Ranunculus repens*, thistle *Cirsium* sp. and perennial ryegrass *Lolium perenne*.

C3.1 Tall Ruderal

- 3.25 The margins of the site were dominated by tall ruderal vegetation which predominately comprised of common nettle *Urtica dioica*. There was additionally thistle, ivy, alder, elder *Sambucus nigra* and burdock *Arctium minus* predominately located on the margins of this habitat type.

G1 Standing Water

- 3.26 There was a drain which was bounded by metal sheeting located on the western site boundary which runs along the length of the site. A drainpipe from the adjacent land parcel fed into this structure. The drain is therefore likely ephemerally wet depending on rainfall and water drainage from the surrounding land. No standing water was present at the time of the survey.

F2.1 Marginal vegetation

- 3.27 Alongside the drain *Phragmites* sp. was growing with some elder shrubs and saplings.

J1.3 Short perennial

- 3.28 The site appeared to have been accessed by vehicles in the past creating a track and turning circle of bare earth. In the centre of this circle and adjacent to the track was

areas of short perennial species composition. This included groundsel *Senecio vulgaris*, red dead nettle *Lamium purpureum*, thistle, perennial ryegrass, bristly ox-tongue *Helminthotheca echioides*, cleavers *Galium aparine* and Yorkshire fog *Holcus lanatus*.

J2.1.2 Species poor intact hedgerow

- 3.29 Along the north-eastern site boundary was a managed species poor intact hedgerow which forms a boundary between the site and the adjacent residential property. There was a small 1m gap in the hedge where a garden gate is situated. The species composition of the hedgerow includes cotoneaster *Cotoneaster* sp. and privet *Ligustrum* sp.. There was montbretia *Crocsmia x crocosmiiflora* growing at the hedgebase which likely was an 'escapee' from the adjacent garden. Both cotoneaster and monbretia are schedule 9 species.

J2.4 Fence

- 3.30 A chain link fence was present on the north-eastern boundary of the site.

J2.5 Walls/ J5 Hardstanding

- 3.31 A small building which functioned as a storage garage was present and adjacent to the building on site there were short breeze block walls in a square formation. There was no obvious use of this structure and the floor was hardstanding.

J4 Bare earth

- 3.32 The site appeared to have been access by vehicles in the past creating a track and turning circle of bare earth.

Preliminary Bat Roost Assessment and Ground Level Tree Assessment

- 3.1 A preliminary bat roost assessment was undertaken on site to assess the exterior and interior of the buildings' structure for evidence of bats and any suitable bat roosting features. A ground level tree assessment was undertaken to identify trees with suitable features to support roosting bats.
- 3.2 One building was present on site which was assessed and several scattered trees in and adjacent to site. Of these a single tree was identified as having the potential to support roosting bats.

Building 1 - Garage (negligible potential)

- 3.3 External Description: The building functioned as a garage which was a single storey structure approximately 2.5m high, with pebble dash walls and a flat roof comprising asbestos sheeting. The garage was completely open on the north-eastern aspect with no enclosing wall or doors. There was a narrow wooden barge board on the north-eastern aspect which may have supported a garage door in the past. The barge board was located 2 inches clear of the wall was too shallow in depth and open to create a suitable roosting cavity. There were windows on the north east, north west and southern aspect of the building. The window panes were missing in several windows.
- 3.4 Internal inspection: The building had a single layer asbestos sheet roof and there was no internal rafters or roof void subsequently the structure did not have suitable roof voids for roosting or spaces for feeding perches. No evidence of bats were identified within the structure i.e. staining, scratch marks, droppings or feeding remains.
- 3.5 Results: No suitable roosting features for bats were identified and no evidence such as bat droppings or staining was identified.
- 3.6 DNA analysis: No droppings were found at the time of inspection therefore DNA analysis was not possible. No bat droppings were seen on windowsills or external surfaces.
- 3.7 Roost potential type: Overall this structure was classed as having negligible suitability for roosting bats due to an absence of suitable roosting cavities.

Tree 1 – Alder (moderate potential)

- 3.8 A mature alder tree was located on the northeastern site boundary (TQ 01851 06820) but was situated in the adjacent land parcel. The tree was approximately 16m high and in good condition with no obvious signs of decay. This tree is classified as having moderate potential to support roosting bats as mature ivy was present over many parts of the tree which may obscure cavities or other potential roost features.

PROTECTED AND INVASIVE SPECIES ASSESSMENT

- 3.33 The potential for the site to support protected species has been assessed using criteria provided in Table 2.1 based on the results of the desk study and observations made during the site survey of habitats at the site. Other legally protected species are not referred to as it is considered that the site does not contain habitats that would be suitable to support them. The following species/species groups are potentially present at the site:

- ❖ Amphibians;

- ✦ Badger;
- ✦ Bats (foraging and roosting);
- ✦ Breeding birds;
- ✦ Winter birds;
- ✦ Great crested newts;
- ✦ Hedgehog;
- ✦ Invasive species;
- ✦ Otter;
- ✦ Reptiles; and
- ✦ Water vole.

3.34 Table 3.3 below details the species/species groups are potentially present at the site and also summarises relevant legislation and policies relating to protected and invasive species. Key pieces of statute are summarised in Section 1 and set out in greater detail in Appendix 7.

Table 3.3 Protected and Invasive Species Assessment

Habitat/ species	Status 9, 10	Likelihood of occurrence
Amphibians	WCA S5 SPI	MODERATE (site): The biological records data search returned records for three amphibian species within 2km of the site with the most recent and closest record shown in the following list: common toad (2019) located approximately 915m northeast of the site, palmate newt (2018) located approximately 950m north and common frog (2013) located approximately 1km north east of the site. Suitable amphibian habitat is present on the site in the form of standing water (drain), marginal habitat including phragmites and elder shrubs, tall ruderal vegetation, scrub and poor semi-improved grassland. Marginal habitat, tall ruderal scrub and poor semi-improved grassland provide suitable foraging and commuting terrestrial habitat. This habitat is suitable for foraging and commuting. As habitats within the development footprint have moderate suitability to support amphibians, they are considered further in Section 4 of this report.
Badgers	PBA	LOW (site): The SxBRC do not provide data for this species group as they are confidential. No evidence of badgers was observed during the survey and the site does not provide suitable topography for sett building. The habitat present, specifically the short perennial habitat, provides foraging opportunities for badgers. No evidence of badgers was recorded onsite. However, the site provided low suitability for badger sett building and foraging. Therefore, badgers are considered further in Section 4 of this report.
Bats (roosting)	HR WCA S5 SPI	NEGLIGIBLE (site): The biological records data search returned records for 12 species recorded within 2km of the site with the most recent record shown in the following list: barbastelle (2019), serotine (2020), alcaholic (2014), Bechstein's bat (2019), Daubenton's bat (2014), whiskered bat (2019), whiskered/ brants (2019), Natterer's (2019), noctule (2021), common pipistrelle (2021), soprano pipistrelle, Nathusius' pipistrelle (2020) and brown long-eared (2019).

⁹ The following abbreviations have been used to signify the legislation regarding different species: HR = Conservation of Habitats and Species Regulations 2019 (as amended); WCA S1 = Schedule 1 of the Wildlife and Countryside Act 1981 (as amended); WCA S5 = Schedule 5 of the Wildlife and Countryside Act 1981 (as amended); WCA S9 = Schedule 9 of the Wildlife and Countryside Act 1981 (as amended); PBA = Protection of Badgers Act, 1992.

¹⁰ The following abbreviations have been used to signify the policy of conservation assessments applying to notable species: SPI = Species of Principal Importance under the NERC Act 2006; LBAP = Local Biodiversity Action Plan species; BoCC = Birds of Conservation Concern - amber list / red list (Stanbury *et al.*, 2021); and/or RD/NN = red data book/nationally notable species (JNCC, undated).

Table 3.3 Protected and Invasive Species Assessment

Habitat/ species	Status 4, 10	Likelihood of occurrence
		Overall ten bat roosts were identified within 2km of the site within the past ten years: ✦ One serotine maternity roost located approximately 530m north west; ✦ Two Bechstein's roosts – one maternity roost approximately 1.9km west and one unspecified roost located approximately 1.4km west; ✦ Pipistrelle sp. unspecified roost located approximately 490m north west; ✦ One common pipistrelle unspecified roost located approximately 670m north west; ✦ Two long eared bat sp. unspecified roost 480m north west, maternity roost approximately 500m north west; and ✦ Three brown long-eared bat roosts: one unspecified roost approximately 480m north west, one unspecified roost approximately 520m north west and one unspecified roost approximately 520m north west. Overall, two European protected species mitigation licences for bats was identified within 2km of the site. One permitted the destruction of a roost between 2015 and 2020 and three species (brown long-eared bat, common pipistrelle and serotine) were listed on the licence. The other European protected species mitigation licence permitted the destruction of a roost in 2013 and two species (common pipistrelle and brown long-eared bat) were listed on the licence. The single building onsite provided negligible potential roosting opportunities for bats due to an absence of suitable roost features. There were no trees identified on site with potential roost features to support bats however one mature alder tree located adjacent to the site boundary (see Appendix 4, Target Note 1) was classified as having moderate potential to support bats. This is a precautionary classification as the tree had mature ivy growing on it which may obscure roost features on the tree. As there is moderate suitability for roosting bats adjacent to the site, these species are considered further in Section 4 of this report.
Bats (foraging and commuting)	HR WCA S5 SPI	MODERATE (site): The biological records data search returned multiple records of bat species within 2km of the site as outlined above. The River Arun, the Arun floodplain with a network of wet ditches and hedgerows within the surrounding landscape of the site provides suitable habitat for foraging and commuting bats. The habitat within the site itself including standing water, marginal habitat including phragmites and elder shrubs, scattered trees and tall ruderal vegetation which provides suitable foraging and commuting habitat for bats.

Table 3.3 Protected and Invasive Species Assessment

Habitat/ species	Status 4, 10	Likelihood of occurrence
		As there is moderate suitability for bats within the development footprint, these species are considered further in Section 4 of this report.
Breeding birds	WCA SPI	MODERATE (site): The biological records data search recorded a large number of BoCC red and amber listed species within 2km of the site. BoCC 4 Amber List: pintail, teal, mallard, greylag goose, taiga bean goose, brent goose, barnacle goose, goldeneye, tundra swan, Bewick's swan, whooper swan, mute swan, wigeon, gadwall, smew, eider, shoveler, garganey, shelduck, swift, nightjar, stone curlew, oystercatcher, grey plover, black-headed gull, Mediterranean gull, common gull, lesser black-backed gull, glaucous gull, great black backed gull, yellow legged gull, common tern, arctic tern, little tern, sandwich tern, avocet, common sandpiper, turnstone, sanderling, dunlin, curlew sandpiper, snipe, bar-tailed godwit, spotted redshank, wood sandpiper, greenshank, green sandpiper, redshank, bittern, spoon-bill, stock dove, kingfisher, marsh harrier, osprey, honey-buzzard, kestrel, quail, crane, spotted crane, reed bunting, bullfinch, house martin, meadow pipit, water pipit, redstart, willow warbler, dunnoek, Dartford warbler, fulmar, short-eared owl, tawny owl. BoCC 4 Red List: white fronted goose, pochard, scaup, long tailed duck, common scoter, ringed plover, kittiwake, herring gull, ruff, curlew, black-tailed godwit, whimbrel, woodcock, cuckoo, turtle dove, white-tailed eagle, merlin, grey partridge, marsh warbler, skylark, corn bunting, yellowhammer, lesser redpoll, hawfinch, linnet, twite, grasshopper warbler, tree pipit, grey wagtail, pied flycatcher, nightingale, spotted flycatcher, black redstart, whinchat, golden oriole, willow tit, marsh tit, house sparrow, tree sparrow, wood warbler, starling, song thrush, redwing, fieldfare, ring ouzel, mistle thrush, shag, lesser spotted woodpecker, slavianian grebe, red necked grebe. On site scattered trees and marginal habitat including elder trees and shrubs provide suitable nesting habitat for a range of common and widespread species. The site is not considered to support suitable breeding habitat for Schedule 1 or Annex 1 species. Scattered trees adjacent to the western site boundary additionally provide suitable nesting habitat. The grazed marsh fields in the surrounding landscape provide suitable foraging for ground feeding birds such as starling and green woodpecker. Habitats within the development footprint have moderate suitability for breeding birds therefore they are considered further in Section 4 of this report.
Winter birds	WCA SPI	NEGLIGIBLE (site): The biological records data search recorded a large number of BoCC red and amber listed species within 2km of the site which are outlined above. These records included Bewick's swan which is a qualifying feature of the Arun valley SPA and an Annex 1

Table 3.3 Protected and Invasive Species Assessment

Habitat/ species	Status 4, 10	Likelihood of occurrence
		species. A total of 466 records were returned and the latest record of this species was from 2020. Record locations were not provided by the Sussex Biodiversity Record Centre. Scattered trees adjacent to the western site boundary provide very limited roosting habitat for wintering birds. The grazed marsh fields in the surrounding landscape provide suitable foraging for ground feeding birds such as starling, Bewick's swan and whooper swan. The site is not considered suitable to support wintering Bewick's swan due to the absence of suitable foraging and roosting habitat. Additionally, the size and location of the site is considered too small and disturbed by adjacent developments on the north east, south-west and northern site boundary to support this species. Due to the nature and scale of the development it is not considered likely the proposed development will impact the wider landscape where suitable habitat for Bewick's swan is located. The proposed development is not anticipated to impact this qualifying species of the Arun valley SPA as a result. The proposed development will not remove suitable habitat for winter birds or impact habitat in the wider area and subsequently winter birds are not considered further in this report.
Great crested newts	HR WCA S5	MODERATE (site): The biological records search returned no records for great crested newt and no European protected species mitigation licences or great crested newt class licence returns were identified within 2km of the site (MAGIC, 2021). Suitable terrestrial great crested newt habitat is present on the site in the form of standing water (drain), marginal habitat including phragmites and elder shrubs, tall ruderal vegetation, scrub and poor semi-improved grassland. Marginal habitat, tall ruderal, scrub and poor semi-improved grassland provide suitable foraging and commuting terrestrial habitat. The drain is bounded by steep corrugated sheeting which is likely to prevent great crested newt from crossing the feature and the absence of standing water during the survey is indicative that this feature only occasionally holds water. It is likely that this drain only holds water during periods of high rainfall or when the water table is high and it is therefore likely to be dry during many great crested newt breeding seasons. Therefore suitable breeding habitat for GCN is considered to be absent from the site and in immediately adjacent habitat. There are no ponds within 250m of the site. In addition to the drain located on the western site boundary there are two other drains within 250m of the site which have several interconnected nodes and offshoots which intersect part of the grazing marsh HPI present in the landscape around the site. The ditches intersecting the surrounding fields appear largely isolated from the surrounding floodplain by the A27 to the south but based on satellite imagery and mapping appear to link under a bridge south-west of the site to rest of the Arun floodplain. The terrestrial habitat in the surrounding landscape is of limited suitability for great crested newt largely comprising grazed grassland with a very short sward. The boundary vegetation along the ditches in these surrounding fields is likely to provide a

Table 3.3 Protected and Invasive Species Assessment

Habitat/ species	Status 4, 10	Likelihood of occurrence
		network of suitable terrestrial habitat for great crested newt and habitat connectivity in the landscape. There are allotments located adjacent to the northern most corner of the site boundary which is likely to provide some habitat suitability and connectivity for great crested in the surrounding landscape. However, the drain adjacent to the western site boundary is considered to present a boundary to dispersal for great crested newts due to the corrugated sheeting bounding it. The rapid risk assessment tool within the great crested newt licence application form (WML-A14-2), which is used to assess the risk of the proposed development on great crested newt was completed as part of this assessment. Based on the assumption that all suitable habitat (<0.1ha) will be removed as part of the proposed development and altered into formalised garden habitat the tool indicates a 'green' risk meaning the risk of an offence being committed is considered to be highly unlikely and that a mitigation licence from Natural England is not required. As habitats within the development footprint had moderate suitability to support great crested newts, they are considered further in Section 4 of this report.
Hedgehog	SPI	MODERATE (site): The biological records data search returned records of hedgehog within the search radius with the most recent record reported in 2020 and the closest record being 785m north east of the site. The tall ruderal vegetation, scrub and poor semi-improved grassland provides suitable foraging and commuting habitat for this species. Habitats within the development footprint have moderate suitability for hedgehog therefore they are considered further in Section 4 of this report.
Invasive species	WCA S9	PRESENT The field survey recorded several montbretia plants along the eastern site boundary. This site boundary comprises a species poor hedgerow which acts as a boundary between the site and the residential property adjacent. This plant is likely a garden escapee. This species is classified as schedule 9 and it is illegal to cause this to spread into the wild. Schedule 9 species have been identified on site. Development activities may cause this species to spread into the wild and is considered further in Section 4 of this report.
Otter	WCA S5 SPI	LOW (site): The SxBRC do not provide data for this species group as they are confidential.

Table 3.3 Protected and Invasive Species Assessment

Habitat/ species	Status 4, 10	Likelihood of occurrence
		The River Arun is located approximately 110m north west of the site boundary. On the western site boundary there is a drain and the Arun floodplain in which the site is situated comprises a network of wet ditches which provides some habitat connectivity. Despite this the site is not considered to be well connected to the River Arun due to the housing developments along Fitzland Road dividing the site from the River Arun. The proposed development will not remove suitable habitat for otter and subsequently otter are not considered further in this report.
Reptiles	HR WCA S5 SPI	MODERATE (site): The biological records data search returned records for five reptile species recorded within 2km of the site with the most recent and closet record shown in the following list: slow worm (2019) located approximately 1.2km west, sand lizard (2019) located approximately 1.7km southeast, grass snake (2019) located approximately 1.1km northeast and adder (2011) located approximately 1.6km south west. Suitable foraging and commuting reptile habitat was present in the form of marginal habitat including phragmites and elder shrubs, tall ruderal vegetation, scrub and poor semi-improved grassland. There was limited suitable hibernation habitat present though no features were identified in the survey the vegetation may hide suitable logs and reptiles may hibernate around the building recorded on site. There are allotments located adjacent to the northern most corner of the site boundary which is likely to provide some habitat suitability and connectivity for reptiles. However, the drain located on the is western site boundary is bounded by steep corrugated sheeting which may provide some limitations for animals to disperse between the site and the allotments. The terrestrial habitat in the surrounding landscape is of limited suitability for reptiles largely comprising grassland with a very short sward but the network of vegetated wet ditches provide ecological corridors for these species for foraging and commuting. Habitats within the development footprint had moderate suitability to support widespread reptiles, therefore they are considered further in Section 4 of this report.
Water vole	WCA S5 SPI	LOW (site): The biological records data search returned records of water vole within the search radius with the most recent record reported in 2018 and the closest record being 400m north east of the site. The records for water vole are mostly from the WWT Arundel Wetland Centre and the opposing side of the Arundel River from the site. The network of ditches in the surrounding landscape provide suitable habitat for this species. The drain adjacent to the western site boundary is considered sub-optimal for this species because of the corrugated sheeting bounding the length of the feature. This has created a steep sided drain without marginal vegetation or sloping banks suitable for water vole to burrow. The absence

Table 3.3 Protected and Invasive Species Assessment

Habitat/ species	Status 9, 10	Likelihood of occurrence
		of marginal vegetation results in poor foraging opportunities and the drain is consider sub-optimal. The drain is a dead end adjacent to the site OS mapping suggests it runs near to but does not connect with another drain on the western extent (Magic, 2021). It is considered unlikely that water vole are using the drain adjacent to site due to the sub-optimal conditions outlined above and it is therefore considered unlikely water vole will be affected by the proposals. No habitat suitable for this species will be removed as part of the proposed development and this species is not considered further in Section 4 of this report.

NATURE CONSERVATION EVALUATION

- 3.35 The site is not subject to any nature conservation designations but is situated in a location relatively close to several statutory designated sites.
- 3.36 The site has the potential to support several legally protected species including foraging and commuting bats, great crested newts, reptiles, breeding birds and foraging badger. Species of Principal Importance (SPI) such as hedgehog and toad may also be present. The potential for these protected species to be present within the development footprint is however much lower due to the reduced extent and quality of the habitats present.
- 3.37 The site is of **Site** importance due to the potential presence of a range of protected species (CIEEM, 2019).

4 Potential Impacts and Recommendations

4.1 This section summarises the potential impacts on habitats and notable species that may be present at this site. The impact assessment is preliminary and further detailed assessment and surveys will be required to assess impacts and design suitable mitigation, where appropriate.

4.2 The following key ecological issues have been identified:

- ✧ Habitat suitable for roosting bats may be disturbed by the development. Measures to mitigate the impacts of lighting on adjacent habitats which have potential for roosting is required.
- ✧ Habitat suitable for badger, breeding birds, hedgehog, amphibians, great crested newts and reptiles is present – a precautionary approach to these species is required including safeguarding measure and in-corporate suitable habitat retention or compensation into the design.
- ✧ Habitats – Habitats of principal importance are present off-site and mitigation for these habitats is required.
- ✧ Invasive plant species are present – measures must be taken to prevent their spread in the wild.

CONSTRAINTS AND MITIGATION/COMPENSATION

Designated Nature Conservation Sites

- 4.2.1 Overall, two national statutory designated sites were present within 2km of the site: Arundel Park Site of Special Scientific Interest (SSSI) (580m north west) and South Downs National Park (180m north east).
- 4.2.2 This search was extended to 15km for European level statutory designated sites including Special Areas of Conservation (SAC) and Special Protection Areas (SPA). Overall, four sites were recorded within this search radius: Arun valley SAC and SPA (6.5km north-east), Duncton to Bignor Escarpment SAC (7.1km north-west) and The Mens SAC (14.8km north).
- 4.3 No impacts are envisaged on any designated sites due to the distance of the site from any designated sites, low impact of the development and the absence of suitable habitat to support qualifying features.
- 4.4 The site is located within the Arun valley impact zone where Bewick's swans may be present which was a key rationale for undertaking this ecological assessment. The biological records search undertaken by the Sussex Biodiversity Records Centre (2021) returned multiple records of Bewick's swan within 2km of the site.
- 4.5 The site is not considered suitable to support wintering Bewick's swan due to the absence of suitable foraging and roosting habitat. Additionally, the size and location of the site is considered too small and disturbed by adjacent developments on the north east, south-west and northern site boundary to support this species. Due to the nature and scale of the development it is not considered likely the proposed development will impact the wider landscape where suitable habitat for Bewick's swan is located. The proposed development is not anticipated to impact this qualifying species of the Arun Valley SPA as a result.

Habitats

- 4.6 Based on current development proposals no HPI habitat will be removed. The nearest HPI is coastal and floodplain grazing marsh located approximate 45m south east of the site and separated from the site by Queens Lane and a small area of grazed field.
- 4.7 This habitat is at risk of degradation from the indirect effects such as lighting, noise, vibrations and pollution without the following mitigation measures.

4.8 Best environmental practice guidance such as outlined in the Environment Agency's Pollution Prevention Advice and Guidance (NetRegs, ND) and those outlined by the Construction Industry Research and Information Association guidance (CIRIA, 2015) must be followed. The following minimum standards must be adhered to prevent ecological impacts to habitats of principal importance beyond the site boundary:

- ✧ Measures must be taken to prevent dust and other emissions from construction affecting land beyond the site. Though unexpected should there be long periods of hot and dry weather when there is the risk of spreading high numbers of particulates. The ground or material should be damped down where possible.
- ✧ Chemicals and fuels must be stored in secure containers located away from watercourses or water bodies. Spill kits must be available.
- ✧ Excavations must be covered or securely fenced (with no potential access points beneath fencing) when the Site is closed (e.g. overnight) to prevent entrapment of animals.
- ✧ Retained trees must be protected in accordance with BS5837;
- ✧ Noise and vibration must be controlled and kept to the minimum necessary.
- ✧ Lighting used for construction must be switched-off when not in use and positioned so as not to spill on to adjacent land.
- ✧ A sensitive lighting strategy must be implemented to avoid light spillage that might degrade the suitability of the coastal and floodplain grazing marsh for protected species such as bats and is outlined below.

Amphibians

4.9 Common toad are also listed as SPI under the NERC Act 2006 and are a material consideration in the planning process.

4.10 The biological records data search returned records for common toad (2019) and two other amphibian species (palmate newt and common frog). Suitable amphibian habitat is present on the site in the form of standing water (drain), marginal habitat including phragmites and elder shrubs, tall ruderal vegetation, scrub and poor semi-improved grassland. Marginal habitat, tall ruderal scrub and poor semi-improved grassland provide suitable foraging and commuting terrestrial habitat. This habitat is suitable for foraging and commuting.

4.11 These habitats should be retained where possible and these animals should be specifically watched for during any vegetation clearance and ground works. The sensitive vegetation clearance outlined below for great crested newt and reptiles will also safeguard amphibian species. The habitat retention outlined below for great crested newts will also maintain habitat for amphibians on site.

Badger

4.12 Badgers are protected under Protection of Badgers Act 1992. It is an offence to wilfully kill or injure a badger or to interfere with badger sets including damaging or destroying a badger sett or any part of it, obstructing access to, or any entrance of, a badger sett or disturbing a badger when it is occupying a badger sett.

4.13 No badger setts or foraging signs were identified during the survey. The topography of the site is considered unsuitable for sett building however suitable foraging habitat is present.

4.14 Precautionary mitigation should be followed during the construction period to avoid potential harm to this species. This should include practical measures such as:

- ✧ oils, fuels and chemicals should be stored in sealed containers and not be left out overnight;
- ✧ any trenches should be covered overnight, or include a means of escape for any animals falling in (such as a ramp); and
- ✧ any open or exposed pipe work should be capped to prevent animals from gaining access.

Bats

4.15 All British species of bat are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2019. Under this legislation it is an offence to deliberately capture, kill a bat or disturb, damage or destroy a bat roost. Some species of bat are also SPI and Sussex BAP species.

4.16 Removal of suitable bat roosting habitat is not anticipated as a result of the development. The building present on site was identified as having negligible potential for roosting bats. The trees on site were also identified as having negligible potential for roosting bats.

- 4.17 One tree (Appendix 4, Target Note 1 (T1)) located offsite but adjacent to the northern site boundary was recorded as having moderate bat roost potential. In order to avoid potentially disturbing a bat roost this tree should be safeguarded from disturbance as detailed below.
- 4.18 The site and the surrounding landscape had moderate potential for foraging bats due to the presence of scattered trees, shrubs, marginal habitat and a network of wet ditches that provide suitable habitat for a diverse invertebrate community which provides food sources for bats.
- 4.19 It is recommended that a sensitive light strategy is incorporated in the proposed development design and a dark corridor is created over the north and western aspect of site. The tree T1/ Target Note 1 located on the northern site boundary must not be lit or subject to light spill due to the risk of disturbing or degrading a potential bat roost. The sensitive lighting strategy must also prevent light spillage out onto the coastal and floodplain grazing marsh south of the site which is classified HPI.
- 4.20 Any new artificial lighting associated with the proposed development should aim to incorporate the following into a sensitive lighting strategy:
- ✧ Use minimum light levels necessary. For example, there should be times throughout the evening (when bats are most active) when all outdoor security lights are unlit to avoid affecting bat activity. Lighting can also be installed using a timer or movement sensor to avoid long periods of an area being lit at night;
 - ✧ Lighting should be a warm white spectrum and feature peak wavelengths higher than 550nm to lower the range of species affected by lighting. Using LED luminaires where possible and avoid luminaires with UV elements, specifically avoiding metal halide and fluorescent sources (Institute of Lighting Professionals, 2018); and
 - ✧ Internal luminaires can be recessed where installed in proximity to windows to reduce glare (Institute of Lighting Professionals, 2018) and light spill and use hoods, louvres or other similar design features to avoid light spill and direct light away from areas of mature vegetation.

Breeding Birds

- 4.21 All wild birds and their nests are protected under the Wildlife and Countryside Act 1981 (as amended).

- 4.22 The marginal habitat (including phragmites and elder), scrub and scattered trees situated on the southern, western and northern site boundaries had suitability to support nesting birds. The species poor hedgerow located on the eastern site boundary provided limited breeding bird habitat. The construction of the proposed development should not necessitate the removal of these habitats however it is likely that some suitable breeding bird habitat will be removed and replaced with a formalised garden in association with the proposed dwelling.
- 4.23 The removal of suitable breeding bird habitats should be carried out September to February inclusive, to avoid any potential offences relating to breeding birds during their main bird breeding season (Newton *et al.*, 2011).
- 4.24 If habitat clearance during the breeding season is unavoidable, then potential nesting habitat must be inspected by a suitably qualified ecologist shortly (up to 48 hours) before work commences to identify active birds' nests. Should they be present, the nest and a suitable buffer of habitat around it must be retained until the young have left the nest.
- 4.25 Planting of new trees and hedgerows, and provision of bird boxes is recommended to improve nesting opportunities for birds. Retention of the scattered trees, marginal habitat comprising elder shrubs and phragmites should be incorporated into the landscape design of the proposed development.

Great crested newt

- 4.26 Great crested newts are protected from killing, injuring or disturbance and their habitats are protected from damage or destruction under the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017.
- 4.27 Suitable breeding habitat for great crested newts was absent from site and in the adjacent habitat. The corrugated sheeting that bounds the drain adjacent to site is considered to prevent newts from accessing the feature for breeding and is likely to prevent a barrier for dispersal on the western site boundary. Great crested newts are therefore considered likely absent from site during their aquatic (breeding) life phase.
- 4.28 Suitable terrestrial habitat for great crested newts was present within the site in the form of standing water (drain), marginal habitat including phragmites and elder shrubs, tall ruderal vegetation, scrub and poor semi-improved grassland. Marginal habitat, tall

ruderal scrub and poor semi-improved grassland provide suitable foraging and commuting terrestrial habitat.

- 4.29 Suitable terrestrial habitat for great crested newts in the form of marginal habitat, ruderal vegetation, scrub and poor semi-improved grassland is likely to be removed and replaced with a formalised garden in association with the proposed dwelling.
- 4.30 Based on the size and scale of the development and connectivity to surrounding habitat it is considered unlikely that great crested newts will be affected by the proposed development. This is supported by the rapid risk assessment tool within the GCN license application form (WML-A14-2) and the absence of desk study records which cannot confirm absence but provide supplementary information in this assessment.
- 4.31 The boundary vegetation on the western site boundary including marginal habitat, ruderal vegetation and scrub should be incorporated into landscape design plans and retained to maintain a wildlife corridor for great newts and other species. This should be formalised in landscape design plans.
- 4.32 Any clearance of suitable terrestrial habitat including marginal habitat, tall ruderal vegetation, scrub and poor semi-improved grassland which cannot be avoided or incorporating into landscape design must be sensitively cleared under a precautionary method of works. This includes a two phased cut, firstly reducing the vegetation to 150mm above ground level, and then after a 24hr period, reducing the vegetation to ground level. A suitably licenced ecologist should supervise the second cut to ground level and move any animals to suitable retained habitat in the unlikely event they are encountered during works. Carpet tiles can be installed by the suitably licenced ecologist after the first cut in order to detect any animals that may be present.
- 4.33 Vegetation clearance should be undertaken in a northerly/ northwesterly direction, to encourage any great crested newts to disperse into retained semi-natural habitats immediately north/ northwest of the site. The timing of these works should be undertaken when newts are active (March – September when temperatures are above 9°C) and ideally in their breeding habitat (March/ mid-June).
- 4.34 It should be noted that should a great crested newt be found works must stop and a European protected species licence (EPSL) may be required to permit works to continue. EPSL for development are issued by Natural England under Regulation 53(2)(e) of The Conservation of Habitats and Species Regulations (2019). This application process can take at least six weeks.

Hedgehog

- 4.35 The European hedgehog is classified as an SPI under the NERC Act 2006. Therefore, the presence of this species on site would be a material consideration in the planning process.
- 4.36 The site supported suitable semi-natural habitat for hedgehogs such as scrub, tall ruderal and semi-improved grassland. However, the proposed development is considered unlikely to result in impacts on European hedgehogs given the size and nature of the site and presence of other suitable habitat within the wider surroundings, providing mitigation measures detailed below are adhered to.
- 4.37 Hedgehogs should be specifically watched for during the removal of features considered to provide potential sheltering habitat (i.e. dense scrub). If any hedgehogs are found, they should be carefully moved to retained areas of vegetation outside of the site.
- 4.38 Furthermore, any new boundaries required as part of the proposed development should be permeable to hedgehogs in order to maintain habitat connectivity across the site and wider surroundings. This can be achieved by creating ground-level boundary holes (approximately 13cm x 13cm) which should link as many neighbouring land parcels as possible.

Invasive Species

- 4.39 Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to plant or otherwise cause the spread in the wild of any plant listed on Schedule 9 of the Act.
- 4.40 Montbretia was recorded at the base of the species poor hedgerow forming the eastern site boundary and the hedgerow itself contained cotoneaster both of which are Schedule 9 species.
- 4.41 Works associated with any proposed development of the site, for example habitat clearance or maintenance, including trimming or pruning and construction activities such as tracking machinery could therefore result in the spread of montbretia and cotoneaster. Given the location of the plant on the Arun floodplain with wet ditches providing ecological corridors and pollution pathways this further increases the risk of this plant spreading into the wild. On this basis, invasive plant species are therefore considered a potential ecological constraint and in order to comply with legislation

regarding invasive plant species, the mitigation measures detailed below should be adhered to.

- 4.42 Any habitat clearance works associated with the proposed development of the site should safely manage and correctly remove and dispose of the cotoneaster and montbretia in order to prevent its spread. A suitably qualified contractor with an understanding of biosecurity protocols should implement and manage the removal of these plant species.

Reptiles

- 4.43 All species of reptile are protected from killing or injuring under the Wildlife and Countryside Act 1981 (as amended).
- 4.44 The biological records data search returned records for slow worm, sand lizard, grass snake and adder.
- 4.45 Suitable foraging and commuting reptile habitat was present in the form of marginal habitat including phragmites and elder shrubs, tall ruderal vegetation, scrub and poor semi-improved grassland. There was limited suitable hibernation habitat present though no features were identified in the survey the vegetation may hide suitable logs and reptiles may hibernate around the building recorded on site.
- 4.46 There are allotments located adjacent to the northern most corner of the site boundary which is likely to provide some habitat suitability and connectivity for reptiles. However, the drain located on the is western site boundary is bounded by steep corrugated sheeting which may provide some limitations for animals to disperse between the site and the allotments. The terrestrial habitat in the surrounding landscape is of limited suitability for reptiles largely comprising grassland with a very short sward but the network of vegetated wet ditches provide ecological corridors for these species for foraging and commuting.
- 4.47 The proposed development will result in the removal of marginal habitat, tall ruderal vegetation, scrub and poor semi-improved grassland which provides suitable habitat for common and widespread reptiles.
- 4.48 The boundary vegetation on the western site boundary including marginal habitat, ruderal vegetation and scrub should be incorporated into landscape design plans and retained to maintain a wildlife corridor for reptiles and other species. This should be formalised in landscape design plans.

- 4.49 Any clearance of suitable reptile habitat including marginal habitat, tall ruderal vegetation, scrub and poor semi-improved grassland which cannot be avoided or incorporating into landscape design must be sensitively cleared under a precautionary method of works. This includes a two phased cut, firstly reducing the vegetation to 150mm above ground level, and then after a 24hr period, reducing the vegetation to ground level. A suitably qualified ecologist should supervise the second cut to ground level and move any animals to suitable retained habitat in the unlikely event they are encountered during works. Reptile felts can be installed by the suitably qualified ecologist after the first cut in order to detect any animals that may be present.
- 4.50 Vegetation clearance should be undertaken in a northerly/ northwesterly direction, to encourage any reptiles to disperse into retained semi-natural habitats immediately north/ northwest of the site. The timing of these works should be undertaken when reptiles are active between March – September in warm and dry weather when temperatures are above 9°C.

Other protected species

- 4.51 In the unlikely event that any protected species are found during site clearance or construction then works must stop immediately and advice sought from a suitably qualified ecologist.

Biodiversity net gain

- 4.52 The design proposals should take into account the aim to achieve Biodiversity Net Gain in local planning policy in the Arun Local Plan 2011 - 2031 Policy ENV DM5. Following consideration by the local planning authority, a biodiversity net gain assessment may be required.

OPPORTUNITIES FOR ECOLOGICAL ENHANCEMENT

- 4.53 Planning policy at the national and local level and strategic biodiversity partnerships encourage inclusion of ecological enhancements in development projects. Ecological enhancements can also contribute to green infrastructure and ecosystem services such as storm water attenuation and pollination. The following measures would be suitable for integration into the site's design but would require a more detailed design to successfully implement.

Provision of bird and bat boxes

- 4.54 To increase the overall provision of nesting and roosting habitat at the site it is recommended that a minimum of two bird and bat boxes are erected. These could be installed retained trees or installed either on the proposed structure or ideally incorporated into the structure itself.
- 4.55 Consideration should be given to the installation and maintenance of artificial bat bricks or bat tubes (i.e. Schwegler 1FR and 2FR bat tubes and Schwegler 1GS bat brick or similar) into the buildings and installation of bat boxes (i.e. Schwegler 2FN or similar) on to suitable retained trees to increase the roosting opportunities for bats within the site. Any artificial roosting features should be placed between 3 and 6m above ground in a variety of locations at slightly different heights and preferably positioned facing a southerly or southeasterly direction.
- 4.56 The installation of artificial bird nest boxes on retained trees or installed trees is also recommended. Given their designation as SPI, particular consideration should be given to installing house sparrow (i.e. Schwegler 1SP or similar) and starling (i.e. Schwegler 3S or similar) nest box terraces. Consideration should be given to installing nest boxes on the proposed new building.

Wildlife Planting

- 4.57 Wildlife planting should be integral to the soft landscape plans and should include native species and/or species of recognised wildlife value¹¹. The use of nectar-rich and berry producing plants will attract a wider range of insects, birds and mammals and continue to accommodate those already recorded at the site. Planting a native species rich hedgerow around the site boundary is recommended to provide and maintain suitable habitat for a range of species such as birds, reptiles, amphibians and mammals such as hedgehog which are classified SPI.
- 4.58 The hedgerow should be planted on the north, northeastern, eastern and southeastern site boundary. This should not replace the phragmites and elder on the western site boundary which should be retained.
- 4.59 Approximately five woody plants should be planted per metre of hedgerow, in double staggered rows. The hedgerow should be managed on an annual rotation, whereby half

¹¹ For example The Royal Horticultural Society (RHS) Perfect for Pollinators Scheme <https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/encourage-wildlife-to-your-garden/plants-for-pollinators> and the joint RHS/Wildlife Trust's Gardening With Wildlife In Mind Database <https://www.lovofplants.com/>

of each hedgerow is cut in any one year. This will encourage a diverse structure to produce both a wide and dense hedgerow. Woody species planted could include the following species:

- » Yew *Taxus baccata*;
- » Oak *Quercus* sp;
- » Hazel *Corylus avellana*;
- » Hawthorn *Crataegus monogyna*;
- » Alder;
- » Honeysuckle *Lonicera periclymenum*;
- » Willows *Salix* spp.; and
- » Crab apple *Malus sylvestris*.

- 4.60 Good horticultural practice should be utilised, including the use of peat-free composts, mulches and soil conditioners, native plants with local provenance and avoidance of the use of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Log Piles

- 4.61 Log piles can be generated from any trees or woody scrub cleared onsite and should be positioned along the site boundaries. This will create habitat piles and hibernacula suitable for reptiles and generalist wildlife such as small mammals and amphibians.

Wildlife Friendly Fencing

- 4.62 Wildlife friendly fencing should be installed to reduce fragmentation and allow connectivity between the residential units and adjacent allotments. This fencing will contain gaps or tunnels in the bottom of panels to allow easy passage of small mammals such as hedgehogs which are classified SPI.

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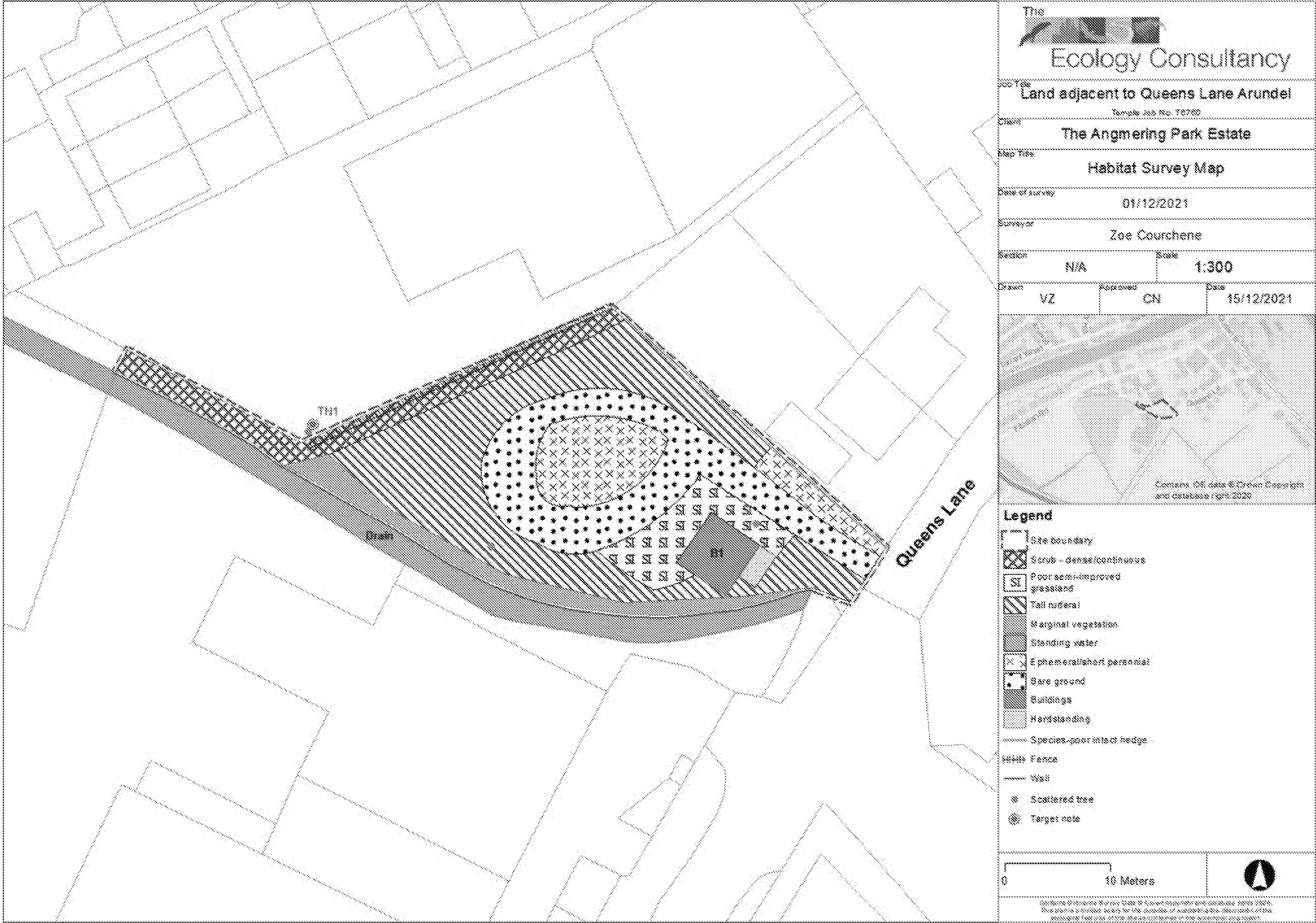
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Appendix 1: Habitat Map

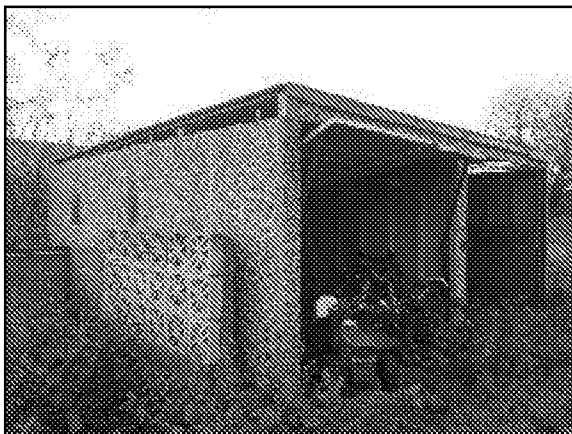
Figure 1: Habitat Survey Map



Appendix 2: Photographs

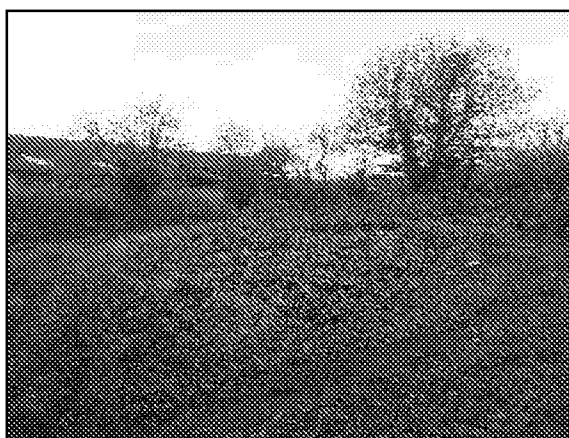
Photograph 1

Building 1 a storage garage located in the southern extent of the site and classified as having negligible bat roost potential. Photo taken facing north west and showing south eastern aspect of the building.



Photograph 2

Photo taken from the southern extent of the site and facing north west. Photo showing bare earth, short perennial habitat, tall ruderal, scrub, marginal and scattered trees.



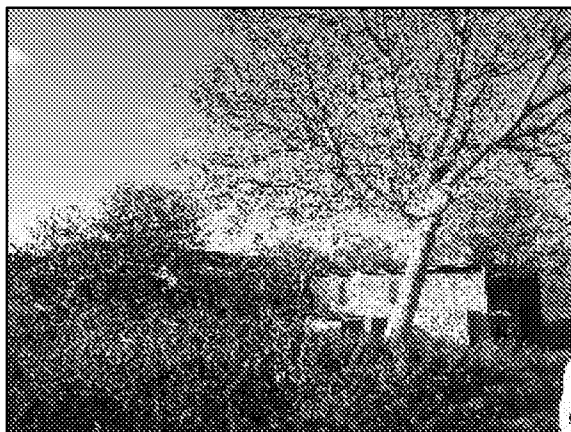
Photograph 3

Photo taken from the southern extent of the site and facing west showing the northern aspect of building 1, scattered trees, marginal, poor semi-improved grassland, bare earth and short perennial habitat.



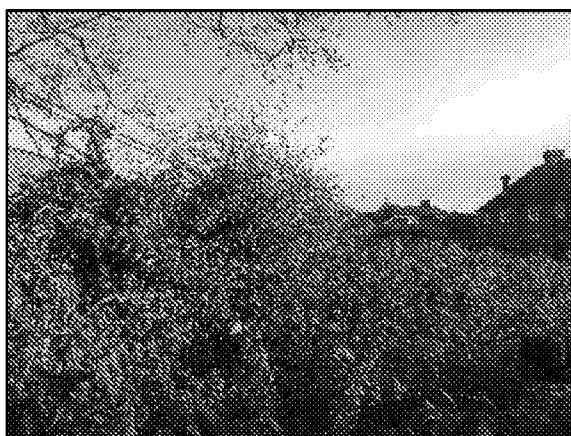
Photograph 4

Photograph taken from the access point of the site in the southern extent and facing



Photograph 5

Photograph taken facing east and showing the northern extent of the site. The photograph shows the fence bounding the site, the scrub encroaching the fence line and tall ruderal habitat.



Photograph 6

Photograph taken facing southeast and showing the scrub habitat, marginal and scattered trees along the southern and south western site boundary.



Photograph 7

Photograph taken at the access point in the southern extent of the site and facing south east. Photograph showing Queens Lane on the southern site boundary and the grazed marsh fields beyond.



Photograph 8

Photograph facing north west looking along the western site boundary. Photograph showing the drain that runs adjacent to the western site boundary, scrub and scattered trees.



Appendix 3: Plant Species List

Plant Species List for land adjacent to 18 Queens Lane, Arundel compiled from the habitat survey carried out on 1 December 2021.

Scientific nomenclature and common names for vascular plants follow Stace (2019). Please note that this plant species list was generated as part of a Phase 1 habitat survey, does not constitute a full botanical survey and should be read in conjunction with the associated results section of this PEA.

Abundance was estimated using the DAFOR scale as follows:

D = dominant, A = abundant, F = frequent, O = occasional, R = rare, L = locally
c=clumped, e=edge only, g=garden origin, p=planted, y = young, s=seedling or sucker,
t=tree, h=hedgerow, w=water

SCIENTIFIC NAME	COMMON NAME	ABUNDANCE	QUALIFIER
<i>Alnus glutinosa</i>	Alder	R	
<i>Arctium minus</i>	Burdock	O	
<i>Arrhenatherum elatius</i>	False oat grass	R	
<i>Cirsium sp</i>	Thistle	O/LD/O	
<i>Cotoneaster sp.</i>	Cotoneaster	A	
<i>Crocsmia x crocosmiiflora</i>	Montbretia	R	
<i>Dactylis glomerata</i>	Cocksfoot	R	
<i>Galium aparine</i>	Cleavers	O	
<i>Hedera helix</i>	Ivy	D/O	
<i>Helminthotheca echioides</i>	Bristley ox-tongue	O	
<i>Holcus lanatus</i>	Yorkshire fog	R	
<i>Juglans regia</i>	Walnut	R	
<i>Lamium purpureum</i>	Red dead nettle	O	
<i>Ligustrum sp</i>	Privet	A	
<i>Lolium perenne</i>	Perennial ryegrass	LD/R	
<i>Phragmites sp.</i>	Common reed	D	
<i>Ranunculus repens</i>	Creeping buttercup	R	
<i>Rubus fruticosus agg.</i>	Bramble	D	
<i>Sambucus nigra</i>	Elder	R	
<i>Senecio vulgaris</i>	Groundsel	O	
<i>Urtica dioica</i>	Common nettle	D/R	

Appendix 4: Target Notes

Target Notes List for 18 Queens Lane, Arundel from the habitat survey and protected and notable species assessment carried out on 1 December 2021.

Target note (TN)	Description
1	Alder tree located offsite and adjacent to the site boundary with moderate bat roost potential.

Appendix 5: Legislation and Policy

~~Important Notice:~~ This section contains details of legislation applicable in England and Wales only (i.e. not including Scotland, the Isle of Man, Northern Ireland, the Republic of Ireland or the Channel Islands) and is provided for general guidance only. While every effort has been made to represent the current (at the time of writing) situation with respect to the UK's position outside of the EU and to ensure accuracy throughout, this section should not be relied upon as a definitive statement of the law.

Over the past few years, three important bills have been published which are intended to shape how growing pressures on the environment post-Brexit (post-transition period) are tackled. Both the Agriculture Bill and Fisheries Bill gained Royal Assent in November 2020 and are now the Agriculture Act 2020 and Fisheries Act 2020 respectively; and, more recently, the Environment Bill was passed into law in November 2021, becoming the Environment Act 2021. *N.B. as environment policy is a devolved matter, most of this Act applies to England only.*

A LEGISLATION AFFORDED TO SPECIES

The objective of the EC Habitats Directive¹² is to conserve the various species of plant and animal which are considered rare across Europe. The Directive is transposed into UK law by **The Conservation of Habitats and Species Regulations 2017 (as amended)** and **The 'Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended)**.

Various amendments to the 2017 Regulations in England and Wales have been made through the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. These changes came into effect on the 1 January 2021 following the UK's departure from the EU and the end of the Transition Period. The changes are largely limited to 'operability changes' that will ensure the Regulations can continue to have the same working effect as before.

The Wildlife and Countryside Act 1981 (as amended) is a key piece of national legislation which implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and implements the species protection obligations of Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.

¹² Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora

Since the passing of the Wildlife & Countryside Act 1981, various amendments have been made, details of which can be found on www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CRoW) Act (2000).

As well as delivering long-term targets to reduce waste and improve resource efficiency and improve air and water quality targets, the **Environment Act 2021** aims to halt the decline of nature by 2030, mandates Biodiversity Net Gain for developments in England and amends the Wildlife and Countryside Act 1981 (as amended) to introduce an additional purpose for granting a protected species licence in relation to development which is ‘for reasons of overriding public interest’. The Act also introduces the Office for Environmental Protection (OEP), which will be a new public body intended to hold government and public authorities to account, although the government will be able to issue guidance to the OEP on how it enforces policies and legislation.

Some of the key biodiversity elements in the Act that will have a bearing on species protection in the UK include:

- ✧ A strengthened biodiversity duty on Local Planning Authorities;
- ✧ Biodiversity net gain to ensure developments, including Nationally Significant Infrastructure Projects (NSIP), deliver at least 10% increase in biodiversity;
- ✧ Local Nature Recovery Strategies to support a Nature Recovery Network;
- ✧ Duty upon Local Authorities to consult on street tree felling;
- ✧ Strengthen woodland protection enforcement measures;
- ✧ Conservation Covenants;
- ✧ Protected Site Strategies and Species Conservation Strategies to support the design and delivery of strategic approaches to deliver better outcomes for nature;
- ✧ Introduces the power for the Habitats Regulations to be amended or ‘refocused’ to ‘to deliver creative public policy thinking that delivers results’.

This section does not provide further detail on the Environment Act 2021 as, at the time of writing (November 2021), the Act, in its final form, has not been published and it remains to be seen how and when the various elements will be enacted at a national and local level.

Other legislative Acts affording protection to wildlife and their habitats include:

- ✧ Salmon and Freshwater Fisheries Act 1975
- ✧ Deer Act 1991
- ✧ Protection of Badgers Act 1992

- ✧ Wild Mammals (Protection) Act 1996
- ✧ Countryside and Rights of Way (CROW) Act 2000
- ✧ Natural Environment & Rural Communities (NERC) Act 2006
- ✧ The Eels (England and Wales) Regulations 2009
- ✧ Environment (Wales) Act 2016

Species and species groups that are protected or otherwise regulated under the aforementioned legislation, and that are most likely to be affected by development activities, include herpetofauna (amphibians and reptiles), badger, bats, birds, dormouse, invasive species, otter, plants, red squirrel, water vole and white clawed crayfish.

Explanatory notes relating to species protected under The Conservation of Habitats and Species Regulations 2017 (as amended), which includes smooth snake, sand lizard, great crested newt, natterjack toad, all bat species, otter, dormouse and some plant, invertebrate and fish species, are given below. **These should be read in conjunction with the relevant species sections that follow.**

- ✧ In the Habitats Directive, the term ‘deliberate’ is interpreted as being somewhat wider than intentional and may be thought of as including an element of recklessness.
- ✧ The Conservation of Habitats and Species Regulations 2017 (as amended) does not define the act of ‘migration’ and therefore, as a precaution, it is recommended that short distance movement of animals for e.g. foraging, breeding or dispersal purposes are also considered where relevant.
- ✧ In order to obtain a mitigation licence for species protected under the Conservation of Habitats and Species Regulations 2017 (as amended), the application must demonstrate that it meets all of the following three ‘tests’: i) the action(s) are necessary for the purpose of preserving public health or safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment; ii) that there is no satisfactory alternative and iii) that the action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

Badger

Badgers *Meles meles* receive protection under The Protection of Badgers Act 1992 which consolidates the previous Badger Acts of 1973 and 1991 and is amended, in Scotland, by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2011. The Act makes it an offence to:

- ✧ Wilfully kill, injure, take, or attempt to kill, injure or take a badger

- ❖ Cruelly ill-treat a badger, including use of tongs and digging
- ❖ Possess or control a dead badger or any part thereof
- ❖ Intentionally or recklessly damage, destroy or obstruct access to a badger sett¹³ or any part thereof
- ❖ Intentionally or recklessly disturb¹⁴ a badger when it is occupying a badger sett
- ❖ Intentionally or recklessly cause a dog to enter a badger sett
- ❖ Sell or offers for sale, possesses or has under his control, a live badger

How is the legislation pertaining to badgers liable to affect development works?

The appropriate licence (e.g. a Development Licence¹⁵) will be required from the relevant countryside agency (e.g. Natural England, Natural Resources Wales) for any development works liable to affect an active badger sett, or to disturb badgers whilst in the sett. In Wales, the Welsh Government is responsible for issuing licences in relation to agricultural and forestry operations or works to maintain or improve any existing watercourse or drainage works, or to construct new works required for the drainage of land, including works of defence against seawater or tidal water.

Depending on the nature of the works and the specifics of the sett and its environs, badgers could be disturbed by work near the sett even if there is no direct interference or damage to the sett itself. The countryside agencies have issued guidelines on what constitutes a licensable activity. N.B. there is no provision in law for the capture of badgers for development purposes and therefore it is not possible to obtain a licence to translocate badgers from one area to another.

¹³ A badger sett is defined in the legislation as "any structure or place which displays signs indicating current use by a badger". This includes seasonally used setts. Natural England (2009) has issued guidance on what is likely to constitute current use of a badger sett:

https://webarchive.nationalarchives.gov.uk/20140605121602/http://www.naturalengland.org.uk/Images/WMLG17_tcm6-11815.pdf

¹⁴ For guidance on what constitutes disturbance and other licensing queries, see Natural England (2006 revised 2011) Badgers & Development: A Guide to Best Practice and Licensing (IN75)

<https://webarchive.nationalarchives.gov.uk/20150303064749/http://publications.naturalengland.org.uk/publication/73034>; Natural England (2009) Interpretation of 'Disturbance' in relation to badgers occupying a sett <https://webarchive.nationalarchives.gov.uk/20150303064749/http://publications.naturalengland.org.uk/publication/73034>; and Natural Resources Wales (2018) Badgers – A Guide for Developers <https://cdn.naturalresources.wales/media/684003/badger-fact-sheet-for-developers-english.pdf?mode=pad&rnd=131620320080000000> and Guidance on working close to badger setts without a licence via <https://naturalresourceswales.gov.uk/permits-and-permissions/species-licensing/uk-protected-species-licensing/badger-licences-issued-by-natural-resources-wales-and-the-welsh-government/?lang=en>

¹⁵ Natural England and Natural Resources Wales will only consider issuing a licence where detailed planning permission (if applicable to operation) has already been granted

Bats

All species of bat are fully protected under The Conservation of Habitats and Species Regulations 2017 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- ✧ Deliberate killing, injuring or capturing of Schedule 2 species (e.g. all bats)
- ✧ Deliberate disturbance of bat species as:
 - a) to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young;
 - (ii) to hibernate or migrate
 - b) to affect significantly the local distribution or abundance of the species
- ✧ Damage or destruction of a breeding site or resting place
- ✧ Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Bats are also protected under the Wildlife and Countryside Act 1981 (as amended) in respect to sub-sections 9 (4) (b) and (c) and 9 (5) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

- ✧ Intentional or reckless disturbance while in their place of shelter (at any level)
- ✧ Intentional or reckless obstruction of access to any place of shelter or protection
- ✧ Selling, offering or exposing for sale, possession or transporting for purpose of sale.

How is the legislation pertaining to bats liable to affect development works?

The appropriate licence issued by the relevant countryside agency (e.g. Natural England, Natural Resources Wales) will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to derogate from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Though there is no case law to date, the legislation may also be interpreted such that, in certain circumstances, important foraging areas and/or commuting routes can be regarded as being afforded protection, for example, where it can be proven that the continued usage of such areas is crucial to maintaining the integrity and long-term viability of a bat roost¹⁶.

Birds

¹⁶ Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected? Mammal News, No. **150**. The Mammal Society, Southampton.

All wild birds, their nests and eggs are protected under Sections 1-8 of the Wildlife and Countryside Act 1981 (as amended). A wild bird is defined as any bird of a species that is resident in or is a visitor to the European Territory of any member state in a wild state. Among other things, the legislation makes it an offence to:

- ✧ Intentionally kill, injure or take any wild bird
- ✧ Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built
- ✧ Intentionally take or destroy an egg of any wild bird
- ✧ Sell, offer or expose for sale, have in his possession or transport for the purpose of sale any wild bird (dead or alive) or bird egg or part thereof.

Certain species of bird, for example the barn owl *Tyto alba*, black redstart *Phoenicurus ochrurus*, hobby *Falco subbuteo*, bittern *Botaurus stellaris* and kingfisher *Alcedo atthis* receive additional special protection under Schedule 1 of the Act. This affords them protection against:

- ✧ Intentional or reckless disturbance while it is building a nest or is in, on or near a nest containing eggs or young
- ✧ Intentional or reckless disturbance of dependent young of such a bird

How is the legislation pertaining to birds liable to affect development works?

To avoid contravention of the Wildlife and Countryside Act 1981 (as amended), works should be planned to avoid the possibility of killing or injuring any wild bird, or damaging or destroying their nests. The most effective way to reduce the likelihood of nest destruction is to undertake work outside the main bird nesting season which typically runs from March to August¹⁷. Where this is not feasible, it will be necessary to have any areas of suitable habitat thoroughly checked for nests prior to vegetation clearance.

Those species of bird listed on Schedule 1 are also protected against disturbance during the nesting season. Thus, it will be necessary to ensure that no potentially disturbing works are undertaken in the vicinity of the nest. The most effective way to avoid disturbance is to postpone works until the young have fledged. If this is not feasible, it may be possible to maintain an appropriate buffer zone or standoff around the nest. It should be noted that there

¹⁷ It should be noted that this is the main breeding period. Breeding activity may occur outside this period (depending on the particular species, geographical location of the site and vagaries of the season in any particular year) and thus due care and attention should be given when undertaking potentially disturbing works at any time of year.

is no threshold under which disturbance is not an offence, that is to say that disturbance need not be 'significant' for an offence to be committed.

While it is possible to obtain a licence to permit some activities that would otherwise constitute an offence, these can only be issued for specific purposes set out in the Act. This includes damage to crops, to preserve public health or safety and to preserve air safety, but does not include development, some land management and recreational activities and damage to property.

Dormouse

Dormice *Muscardinus avellanarius* are fully protected under The Conservation of Habitats and Species Regulations 2017 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- ✦ Deliberate killing, injuring or capturing of Schedule 2 species (e.g. dormice)
- ✦ Deliberate disturbance of dormice as:
 - a) to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young;
 - (ii) to hibernate or migrate
 - b) to affect significantly the local distribution or abundance of the species
- ✦ Damage or destruction of a breeding site or resting place
- ✦ Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Dormice are also protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5 in respect to sub-sections 9 (4) (b) and (c) and 9 (5). Under this Act, they are additionally protected from:

- ✦ Intentional or reckless disturbance while in their place of shelter (at any level)
- ✦ Intentional or reckless obstruction of access to any place of shelter or protection
- ✦ Selling, offering or exposing for sale, possession or transporting for purpose of sale.

How is the legislation pertaining to dormice liable to affect development works?

A mitigation licence issued by the relevant countryside agency (e.g. Natural England and Natural Resources Wales) will be required for works liable to affect dormouse breeding or resting places (N.B. this is usually taken to mean dormouse 'habitat') or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to derogate

from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Once evidence of dormice has been found within a site, all contiguous, suitable habitat should be regarded as supporting dormice. Thus, if clearance of suitable habitat is proposed away from, but contiguous with, an area where a dormouse nest was found, a licence is likely to be required, even if no evidence was found within the specific section to be removed.

Herpetofauna (Amphibians and Reptiles)

The sand lizard *Lacerta agilis*, smooth snake *Coronella austriaca*, natterjack toad *Epidalea calamita*, great crested newt *Triturus cristatus* and pool frog *Pelophylax lessonae* receive full protection under The Conservation of Habitats and Species Regulations 2017 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- ✧ Deliberate killing, injuring or capturing of species listed on Schedule 2
- ✧ Deliberate disturbance of any Schedule 2 species as:
 - b) to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young;
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate
 - c) to affect significantly the local distribution or abundance of the species
- ✧ Deliberate taking or destroying of the eggs of a Schedule 2 species
- ✧ Damage or destruction of a breeding site or resting place
- ✧ Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

With the exception of the pool frog, these species are also listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) in respect to sub-sections 9 (4) (b) and (c) and 9 (5). The pool frog is afforded protection in respect of sub-sections 9(4) (b) and (c) for England only. Under this Act, they are additionally protected from:

- ✧ Intentional or reckless disturbance while in their place of shelter (at any level)
- ✧ Intentional or reckless obstruction of access to any place of shelter or protection
- ✧ Selling, offering or exposing for sale, possession or transporting for purpose of sale (excluding pool frog).

Other native species of herpetofauna are protected solely under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). Species such as the adder *Vipera berus*, grass snake

Natrix natrix, common lizard *Zootoca vivipara* and slow-worm *Anguis fragilis* are listed in respect to sub-section 9 (1) & (5). For these species, it is prohibited to:

- ✧ Intentionally kill or injure these species
- ✧ Sell, offer or expose for sale, possess or transport for purpose of sale these species, or any part thereof.

Common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris* and palmate newt *L. helveticus* are listed in respect to sub-section 9 (5) only which affords them protection against sale, offering or exposing for sale, possession or transport for the purpose of sale.

How is the legislation pertaining to herpetofauna liable to affect development works?

The appropriate licence issued by the relevant countryside agency (e.g. Natural England, Natural Resources Wales) will be required for works liable to affect the breeding sites or resting places of those amphibian and reptile species protected under The Conservation of Habitats and Species Regulations 2017 (as amended). A licence will also be required for operations liable to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licences are to derogate from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Although not licensable, appropriate mitigation measures may also be required to prevent the intentional killing or injury of adder, grass snake, common lizard and slow worm, thus avoiding contravention of the Wildlife and Countryside Act 1981 (as amended).

Otter

Otters *Lutra lutra* are fully protected under The Conservation of Habitats and Species Regulations 2017 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- ✧ Deliberate killing, injuring or capturing of otters
- ✧ Deliberate disturbance of any Schedule 2 species (e.g. otter) as:
 - a) to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young;
 - (ii) (to hibernate or) migrate
 - b) to affect significantly the local distribution or abundance of the species
- ✧ Damage or destruction of a breeding site or resting place

- ✧ Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Otters are also protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5 in respect to sub-sections 9 (4) (b) and (c) and 9 (5). Under this Act, they are additionally protected from:

- ✧ Intentional or reckless disturbance while in their place of shelter (at any level)
- ✧ Intentional or reckless obstruction of access to any place of shelter or protection
- ✧ Selling, offering or exposing for sale, possession or transporting for purpose of sale.

How is the legislation pertaining to otters liable to affect development works?

A mitigation licence issued by the relevant countryside agency (e.g. Natural England, Natural Resources Wales) will be required for works liable to affect otter breeding or resting places (often referred to as holts, couches or dens) or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, and rear young). The licence is to derogate from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Red Squirrel

The red squirrel *Sciurus vulgaris* is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- ✧ Intentionally kill, injure or take (capture) red squirrels
- ✧ Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection
- ✧ Intentionally or recklessly disturb red squirrels while they are occupying a structure or place used for shelter or protection
- ✧ Sell, offer or expose for sale, or have in his possession or transport for the purpose of sale, any live or dead red squirrel or part thereof

How is the legislation pertaining to red squirrels liable to affect development works?

There is no provision in law for the issuing of licences to permit the killing, injuring or taking of red squirrels, the damage, destruction or obstruction of access to places of shelter or protection, or the disturbance of red squirrels for the purposes of development. Therefore, it must be shown that all reasonable effort has been made to avoid contravening the legislation, for example, by ensuring adequate surveys and mitigation measures are in place, that the use of alternative sites has been explored and that there has been liaison with the relevant

countryside agency (e.g. Natural England or Natural Resources Wales). It will be necessary to carefully plan any development activities in areas with red squirrels; this is likely to require timing of works to avoid breeding periods with measures to ensure minimal loss of habitat.

Water Vole

The water vole *Arvicola amphibius* (=terrestris) is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- ✧ Intentionally kill, injure or take (capture) water voles
- ✧ Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection
- ✧ Intentionally or recklessly disturb water voles while they are occupying a structure or place used for shelter or protection
- ✧ Sell, offer or expose for sale, or have in his possession or transport for the purpose of sale, any live or dead water vole or part thereof

How is the legislation pertaining to water voles liable to affect development works?

Wherever development works are liable to affect habitats known to support water voles, the relevant countryside agency must be consulted. It must be shown that means by which the proposal can be re-designed to avoid contravening the legislation have been fully explored e.g. the use of alternative sites, appropriate timing of works to avoid times of the year in which water voles are most vulnerable, and measures to ensure minimal habitat loss. Conservation licences for the capture and translocation of water voles *may* be issued by the relevant countryside agency (e.g. Natural England or Natural Resources Wales) for the purpose of development activities if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will then only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of works. Displacement licences for the purposes of development¹⁸ are also available to suitably experienced consultants which permit the damage or destruction of burrows or displacement of water voles from their burrows for development projects.

Pine Marten

¹⁸ Water voles: Licence to displace them for development projects
<https://www.gov.uk/government/publications/water-voles-licence-to-displace-them-for-development-projects>

The pine marten *Martes martes* is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- ✧ Intentionally kill, injure or take (capture) pine martens
- ✧ Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection
- ✧ Intentionally or recklessly disturb pine martens while they are occupying a structure or place used for shelter or protection
- ✧ Sell, offer or expose for sale, or have in his possession or transport for the purpose of sale, any live or dead pine marten or part thereof.

How is the legislation pertaining to pine martens liable to affect development works?

There is no provision in law for the issuing of licences to permit the killing, injuring or taking of pine martens, the damage, destruction or obstruction of access to places of shelter or protection, or the disturbance of pine martens for the purposes of development. The pine marten has a very restricted distribution in England and Wales with recent reliable records only in rugged upland areas such as the Lake District and Snowdonia. Thus, in the vast majority of cases, development is unlikely to affect this species. In those rare situations where there is potential for impact, it must be shown that all reasonable effort has been made to avoid contravening the legislation, for example, by ensuring adequate surveys and mitigation measures are in place, that the use of alternative sites has been explored and that there has been liaison with the relevant countryside agency (e.g. Natural England or Natural Resources Wales). It will be necessary to carefully plan any development activities in areas with pine martens; this is likely to require timing of works to avoid breeding periods with measures to ensure minimal loss of habitat.

White-clawed Crayfish

The white-clawed crayfish *Austropotamobius pallipes* receives partial protection under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) in respect of Sections 9 (1) and 9 (5). This makes it an offence to:

- ✧ Intentionally take (capture) white-clawed crayfish
- ✧ Sell, offer or expose for sale, or have in his possession or transport for the purpose of sale, any live or dead white-clawed crayfish or part thereof

How is the legislation pertaining to white-clawed crayfish liable to affect development works?

Wherever development works are liable to affect watercourses or wetlands known to support white-clawed crayfish, the relevant countryside agency (e.g. Natural England or Natural Resources Wales) must be consulted. Conservation licences for the capture and translocation of crayfish *may* be issued for the purpose of development activities if it can be shown that the activity has been properly planned and executed and thereby contributes to the conservation of the population. The licence will then only be granted to a suitably experienced person if it can be shown that adequate surveys have been undertaken to inform appropriate mitigation measures. Identification and preparation of a suitable receptor site will be necessary prior to the commencement of works.

Invertebrates (excluding white-clawed crayfish)

Three species of invertebrate are afforded protection under Schedule 2 of The Conservation of Habitats and Species Regulations 2017 (as amended): the large blue butterfly *Phengaris arion*, Fisher's estuarine moth *Gortyna borelii lunata* and the little whirlpool ramshorn snail *Anisus vorticulus*. Regulation 41 prohibits:

- ✧ Deliberate killing, injuring or capturing of Schedule 2 species
- ✧ Deliberate disturbance of Schedule 2 species as:
 - a) to impair their ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young;
 - (ii) to hibernate or migrate
 - b) to affect significantly the local distribution or abundance of the species
- ✧ Damage or destruction of a breeding site or resting place
- ✧ Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

These species, and numerous other invertebrates, including the Norfolk hawker *Aeshna isosceles*, marsh fritillary *Euphydryas aurinia*, purple emperor *Apatura iris*, freshwater pearl mussel *Margaritifera margaritifera* and medicinal leech *Hirudo medicinalis*, are also protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). The degree to which the various invertebrate species are protected by this Act varies widely, ranging from full protection of the animal and its habitat to protection from sale only. Useful summaries of the level of protection afforded individual species can be found at <https://hub.incc.gov.uk/assets/478f7160-967b-4366-acdf-8941fd33850b>.

For those afforded full protection, it is an offence to:

- ✧ Intentionally kill, injure or take (capture) a wild Schedule 5 invertebrate

- ❖ Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection
- ❖ Intentionally or recklessly disturb Schedule 5 invertebrates while they are occupying a structure or place used for shelter or protection
- ❖ Sell, offer or expose for sale, or have in his possession or transport for the purpose of sale, any live or dead Schedule 5 invertebrate or part thereof.

How is the legislation pertaining to protected invertebrates liable to affect development works?

A mitigation licence issued by the relevant countryside agency (e.g. Natural England, Natural Resources Wales) will be required for works liable to affect invertebrate species protected under The Conservation of Habitats and Species Regulations 2017 (as amended). A licence will also be required for operations liable to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed and rear young). The licences are to derogate from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

There is no provision in law for the issuing of licences to permit the killing, injuring or taking of protected invertebrates, the damage, destruction or obstruction of access to places of shelter or protection, or the disturbance of invertebrates for the purposes of development. In situations where there is potential for impact, it must be shown that all reasonable effort has been made to avoid contravening the legislation, for example, by ensuring adequate surveys and mitigation measures are in place, that the use of alternative sites has been explored and that there has been liaison with the relevant countryside agency (e.g. Natural England or Natural Resources Wales). It will be necessary to carefully plan any development activities in areas with protected invertebrates; this is likely to require appropriate timing of works with measures to ensure minimal loss of habitat.

Fish

Only one species of fish, the sturgeon *Acipenser sturio*, is afforded protection under Schedule 2 of The Conservation of Habitats and Species Regulations 2017 (as amended). Regulation 41 prohibits:

- ❖ Deliberate killing, injuring or capturing of sturgeon
- ❖ Deliberate disturbance of sturgeon as:
 - a) to impair its ability:
 - (i) to survive, breed, or reproduce, or to rear or nurture young;
 - (ii) to hibernate or migrate

- b) to affect significantly the local distribution or abundance of the species
- » Damage or destruction of a breeding site or resting place
- » Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

N.B. There are only occasional records of sturgeon in British coastal and estuarine waters and it does not breed here.

This species, and several other fish species, including burbot *Lota lota*, vendace *Coregonus albula*, whitefish (schelly or powan) *Coregonus lavaretus* and allis *Alosa alosa* and twaite shad *A. fallax* are also protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). The degree to which fish species are protected and the geographical extent of this protection varies widely. Useful summaries of the level of protection afforded individual species in England, Wales and Scotland can be found at <https://hub.incc.gov.uk/assets/478f7160-967b-4366-acdf-8941fd33850b>.

For those afforded full protection, it is an offence to:

- » Intentionally kill, injure or take (capture) a wild Schedule 5 fish
- » Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection
- » Intentionally or recklessly disturb Schedule 5 fish while they are occupying a structure or place used for shelter or protection
- » Sell, offer or expose for sale, or have in his possession or transport for the purpose of sale, any live or dead Schedule 5 fish or part thereof.

How is the legislation pertaining to protected fish liable to affect development works?

A mitigation licence issued by the relevant countryside agency (e.g. Natural England, Natural Resources Wales) will be required for works liable to affect sturgeon. The licences are to derogate from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

There is no provision in law for the issuing of licences to permit the killing, injuring or taking of fish listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), the damage, destruction or obstruction of access to places of shelter or protection, or the disturbance of these species for the purposes of development. In situations where there is potential for impact, it must be shown that all reasonable effort has been made to avoid contravening the legislation, for example, by ensuring adequate surveys and mitigation measures are in place, that the use

of alternative sites has been explored and that there has been liaison with the relevant countryside agency (e.g. Natural England or Natural Resources Wales). It will be necessary to carefully plan any development activities in areas with protected fish species; this is likely to require appropriate timing of works with measures to ensure minimal loss of habitat and compensation where appropriate.

Other legislation of relevance to the conservation of fish not covered above and which might affect development works in specific circumstances include:

- » Salmon and Freshwater Fisheries Act 1975
- » The Eels (England and Wales) Regulations 2009

Under Part I, Section 4 of the Salmon and Freshwater Fisheries Act 1975 it is an offence to cause or knowingly permit the input or flow of any liquid or solid matter into any waters containing fish (or into any tributaries of waters containing fish) to such an extent as to cause the waters to be poisonous or injurious to fish, spawn or spawning grounds, or the food of fish. Part II relates to obstruction to passage of fish, whereby there is an obligation to make and maintain fish passes in any waters frequented by salmon or migratory trout if works will lead to increased obstruction to passage

In a similar vein, Part 4 of the Eels (England and Wales) Regulations 2009 makes it an offence to construct a new dam or alter an existing dam in such a way as to be likely to affect the passage eels without first notifying the appropriate agency (The Environment Agency of Natural Resources Wales).

Wild Mammals (Protection) Act 1996

All wild mammals are protected against intentional acts of cruelty under the above legislation.

This makes it an offence to:

- » Mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

To avoid possible contravention, due care and attention should be taken when carrying out works (for example operations near burrows or nests) with the potential to affect any wild mammal in this way, regardless of whether they are legally protected through other conservation legislation or not.

Non-native species (fauna)

Under Section 14 (1) of the Wildlife and Countryside Act 1981 (as amended), it is an offence to release, or allow to escape into the wild, *any* animal that is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state, or is listed on Schedule 9 of the Act. Examples of species included on Schedule 9 are signal crayfish *Pacifastacus leniusculus*, American mink *Neovison vison*, grey squirrel *Sciurus carolinensis* and European pond terrapin *Emys orbicularis*. In the main, Schedule 9 species are those that are already established in the wild, but which continue to pose a threat to the conservation of native biodiversity and habitats, such that further releases should be regulated. The Schedule also includes some native species, such as barn owl *Tyto alba*, to ensure that any releases or re-introduction programmes are undertaken in consultation with the relevant authorities and in accordance with best practice guidelines.

How is the legislation pertaining to non-native faunal species liable to affect development works?

In most cases, development works are unlikely to infringe the legislation. This is because such operations are unlikely to result in the release or escape of non-native faunal species. However, there may be circumstances, particularly where works involve watercourses or water bodies, which have the potential to exacerbate the spread of e.g. signal crayfish or certain fish or amphibian species. If this is deemed a possibility, it will be necessary to ensure appropriate preventative measures are in place prior to and during the works.

Plants & Fungi

All wild plants are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence for an 'unauthorised' person to intentionally uproot wild plants. An authorised person can be the owner of the land on which the action is taken, or anybody authorised by them.

Certain rare species of plant and fungi, for example some species of orchid, red-tipped cudweed *Filago lutescens*, spiked speedwell *Veronica spicata*, holly-leaved naiad *Najas marina*, field cow wheat *Melampyrum arvense* and sandy stilt puffball *Battarraea phalloides* are also fully protected under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) in respect of Section 13. This prohibits any person:

- ✧ Intentionally picking, uprooting or destruction of any wild Schedule 8 species
- ✧ Selling, offering or exposing for sale, or possessing or transporting for the purpose of sale, any wild live or dead Schedule 8 plant species or part thereof.

In addition to the legislation outlined above, several plant species, such as slender naiad *Najas flexilis*, fen orchid *Liparis loeselii* and early gentian *Gentianella anglica*, are fully protected under Schedule 5 of The Conservation of Habitats and Species Regulations 2017 (as amended). These are species of European importance. Regulation 45 makes it an offence to:

- ✧ Deliberately pick, collect, cut, uproot or destroy a wild Schedule 5 species
- ✧ Be in possession of, or control, transport, sell or exchange, or offer for sale or exchange any wild live or dead Schedule 5 species or anything derived from such a plant.

How is the legislation pertaining to protected plants liable to affect development works?

A mitigation licence issued by the relevant countryside agency (e.g. Natural England, Natural Resources Wales) will be required for works liable to affect species of plant listed under The Conservation of Habitats and Species Regulations 2017 (as amended). The licence is to derogate from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Invasive Plant Species

Under Section 14 (2) of the Wildlife and Countryside Act 1981 (as amended), it is an offence to plant or otherwise cause to grow in the wild any species of plant listed on Part II of Schedule 9. Schedule 9 plant species include Japanese knotweed *Fallopia japonica*, giant hogweed *Heracleum mantegazzianum* and Himalayan balsam *Impatiens glandulifera*. In the main, Schedule 9 species are those that are already established in the wild, but which continue to pose a threat to the conservation of native biodiversity and habitats, such that further releases should be regulated.

How is the legislation pertaining to invasive plants liable to affect development works?

Although it is not an offence to have these plants on your land *per se*, it is an offence to *cause* these species to grow in the wild. Therefore, if they are present on site and development activities (for example movement of spoil, disposal of cut waste or vehicular movements) have the potential to cause the further spread of these species to new areas, it will be necessary to ensure appropriate measures are in place to prevent this happening prior to the commencement of works.

As a rule, planting on managed land (private gardens, estates and amenity planting, for example), where it is expected that the spread of the plant will be kept under control, and where the plant will not have an adverse impact, is not regarded as planting in the wild and thus would not constitute an offence. However, where the plant is inadequately managed or contained and is likely to have an adverse effect, it may. Whether or not planting is an offence should therefore

be judged on a case by case basis, taking into account the potential impacts on habitats and native flora and fauna, and the existence or extent of management practices to be employed¹⁹.

Plants: Injurious Weeds

Under the Weeds Act 1959 any land owner or occupier may be required prevent the spread of certain 'injurious weeds' such as spear thistle *Cirsium vulgare*, creeping thistle *Cirsium arvense*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, and common ragwort *Senecio jacobaea* onto agricultural land, particularly grazing areas or land which is used to produce conserved forage. It is a criminal offence to fail to comply with a notice requiring such action to be taken. The Ragwort Control Act 2003 establishes a ragwort control code of practice²⁰ as common ragwort is poisonous to horses and other livestock. This code provides best practice guidelines on how to prevent the spread of this species but is not legally binding.

B EUROPEAN AND NATIONAL LEGISLATION AFFORDED TO SITES & HABITATS

As for certain species described above, habitats and sites are also protected directly through the Wildlife & Countryside Act 1981 (as amended), The Conservation of Habitats and Species Regulations 2017 (as amended) and The 'Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) through the notification, classification or designation of various protected sites as detailed below.

In addition, The Environment Act 2021 and the Water Framework Directive indirectly afford protection to non-designated habitats through the duties placed on public and private bodies to promote nature conservation and biodiversity, for example, the creation of Local Nature Recovery Strategies (LNRS) and associated Species Conservation and Protected Site strategies, and to reduce or avoid harmful activities. Many of these duties and targets form the basis for national and local planning policy and wider conservation strategies and are not covered in detail here.

Statutory Site Designations: National

Nationally important areas of special scientific interest, by reason of their flora, fauna, or geological or physiographical features, are notified by the countryside agencies as statutory Sites of Special Scientific Interest (SSSI) under the National Parks and Access to the Countryside Act 1949 and latterly the Wildlife & Countryside Act 1981 (as amended). As well as underpinning other national designations (such as National Nature Reserves which are

¹⁹ Defra (2010) Guidance on Section 14 of the Wildlife and Countryside Act, 1981.

<http://archive.defra.gov.uk/wildlife-pets/wildlife/management/non-native/documents/section-14-guidance.pdf>

²⁰ Defra (2004) Code of Practice on How to Prevent the Spread of Ragwort:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69264/pb9840-cop-ragwort.pdf

declared by the countryside agencies under the same legislation), the system also provides statutory protection for terrestrial and coastal sites which are important within a European context (formerly referred to as part of the Natura 2000 network and recently amended to the National Site Network in line with the UK's departure from the EU) and globally (such as Wetlands of International Importance) - see subsequent sections for details of these designations. Improved provisions for the protection and management of SSSIs have been introduced by the Countryside and Rights of Way Act 2000.

The Wildlife & Countryside Act 1981 (as amended) also provides for the making of *Limestone Pavement Orders*, which prohibit the disturbance and removal of limestone from such designated areas, and the designation of *Marine Nature Reserves*, for which byelaws must be made to protect them.

Statutory Site Designations: International

Special Protection Areas (SPAs), together with *Special Areas of Conservation (SACs)* form the basis of the *National Site Network* (until recently, these were part of the Natura 2000 network whilst the UK was part of the EU). SPAs are identified and classified by the Government under the EC Birds Directive (Council Directive 2009/147/EC (formerly 79/409/EEC)) on the Conservation of Wild Birds) via the mechanisms set out in the Habitats Regulations (as applicable at the time of classification).

SPAs are areas of the most important habitat for rare (listed on Annex I of the Directive) and migratory birds within the European Union. Protection afforded SPAs in terrestrial areas and territorial marine waters out to 12 nautical miles (nm) is given by The Conservation of Habitats & Species Regulations 2017 (as amended). The 'Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) provide a mechanism for the classification and protection of European Marine Sites or EMS (SPAs and SACs) in UK offshore waters (from 12-200 nm).

SACs are identified and designated under the EC Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) via the mechanisms set out in the Habitats Regulations (as applicable at the time of designation). These are areas which have been identified as best representing the range and variety of habitats and (non-bird) species listed on Annexes I and II to the Directive within the European Union. SACs in terrestrial areas and territorial marine waters out to 12 nautical miles are protected under The Conservation of Habitats & Species Regulations 2017 (as amended). The

'Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) provide a mechanism for the designation and protection of European marine sites or EMS (SACs and SPAs) in UK offshore waters (from 12-200 nm).

Ramsar sites are listed under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention covers all aspects of wetland conservation and wise use, in particular recognizing wetlands as ecosystems that are globally important for biodiversity conservation. Wetlands can include areas of marsh, fen, peatland or water and may be natural or artificial, permanent or temporary. Wetlands may also incorporate riparian and coastal zones adjacent to the wetlands. Ramsar sites are underpinned through prior notification as Sites of Special Scientific Interest (SSSI) and as such receive statutory protection under the Wildlife & Countryside Act 1981 (as amended) with further protection provided by the Countryside and Rights of Way (CROW) Act 2000. Policy statements have been issued by the Government highlighting the special status of Ramsar sites. This effectively extends the level of protection to that afforded to sites in England and Wales which have been designated under the EC Birds and Habitats Directives as part of the Natura 2000 network and now the National Site Network (e.g. SACs & SPAs).

Statutory Designations: Local

Under the National Parks and Access to the Countryside Act 1949 *Local Nature Reserves* (LNRs) may be declared by local authorities after consultation with the relevant countryside agency. LNRs are declared for sites holding special wildlife or geological interest at a local level and are managed for nature conservation and provide opportunities for research and education and enjoyment of nature.

Statutory Protection of Aquatic Habitats

Water Framework Directive and The Environment Act 2021

Aquatic habitats are also afforded protection under The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, which transposes the Water Framework Directive 2000/60/EC (The WFD). At its core it aims to prevent deterioration of the water environment and improve water quality by managing water in natural river basin districts, rather than by administrative boundaries. It looks at ecological, physico-chemical, quantitative and morphological aspects of the water environment and requires that improvements take account of economic aspects, including costs and benefits. Plans to improve the status of water bodies are set out in River Basin Management Plans (RBMPs). The Directive aims for 'good status' of

all ground and surface water (rivers, lakes, transitional water and coastal waters) in the EU and the UK. The Environment Agency and Natural Resources Wales are the competent authorities for river basin planning in England and Wales.

Any works which could affect the hydro-morphology, ecology or water quality of any classified waterbody up to 1nm out to sea requires an assessment under the WFD to demonstrate how any adverse impacts will be mitigated and, where possible, the status of the waterbody enhanced in order to achieve the required good status targets. Construction must have no permanent, unmitigated effects which cause any deterioration in the current status of any surface-water or groundwater body. If a WFD assessment shows an activity will either cause a deterioration in the status of a water body or jeopardise a water body achieving good status, it may then be necessary to consider whether it meets the criteria for an Article 4(7) exemption²¹.

The Environment Act also places a new statutory duty on government to produce a plan to reduce discharges from storm overflows, on water companies and the Environment Agency to publish data on storm overflow operation and on water companies to monitor the water quality upstream and downstream of storm overflows and sewage disposal works. The Act also contains a new duty on the water sector to create drainage and sewerage management plans and enables the revocation or variation of permanent abstraction licences where the change is necessary to protect the environment. This is because some older abstraction licences do not take account of fluctuating water availability and may enable too much water to be taken from the environment.

Non-Statutory Designations

Areas considered to be of local conservation interest may be designated by local authorities as a Wildlife Site, under a variety of names such as Local Wildlife Sites (LWS), County Wildlife Sites (CWS), Listed Wildlife Sites (LWS), Local Nature Conservation Sites (LNCS), Sites of Biological Importance (SBIs), Sites of Importance for Nature Conservation (SINCs), or Sites of Nature Conservation Importance (SNCIs). The criteria for designation may vary between counties.

Together with the statutory designations, these are defined in Local Plan documents under the Town and Country Planning system and are a material consideration when planning

²¹ https://circabc.europa.eu/sd/a/e0352ec3-9f3b-4d91-bdbb-939185be3e89/CIS_Guidance_Article_4_7_FINAL.PDF

applications are being determined. The level of protection afforded to these sites through local planning policies may vary between counties.

The Hedgerow Regulations 1997

The Hedgerow Regulations 1997 are intended to protect 'important' countryside hedgerows from destruction or damage. Under the 'Wildlife and Landscape' criteria of the Regulations, a hedgerow is considered important if (a) it has existed for 30 years or more; and (b) satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

Under the Regulations, it is against the law to remove or destroy important hedgerows without permission from the local planning authority. Hedgerows on or adjacent to common land, village greens, SSSIs (including all terrestrial SACs, NNRs and SPAs), LNRs, land used for agriculture or forestry and land used for the keeping or breeding of horses, ponies or donkeys are covered by these regulations. Hedgerows *'within or marking the boundary of the curtilage of a dwelling-house'* are not.

Local planning policy

The Arun District Council have the following nature conservation policies relevant to the site and the development proposals.

Arun Local Plan 2011-2031

Arun's Local Plan strategic objective for the Natural Environment is:

"To plan for climate change and work in harmony with the environment to conserve natural resources and increase biodiversity."

Policy ENV DM5 - Development and biodiversity

Development schemes shall, in the first instance, seek to achieve a net gain in biodiversity and protect existing habitats on site. They shall also however incorporate elements of biodiversity including green walls, roofs, bat and bird boxes as well as landscape features minimising adverse impacts on existing habitats (whether designated or not). Development schemes shall also be appropriately designed to facilitate the emergence of new habitats through the creation of links between habitat areas and open spaces. Together, these provide a network of green spaces which serve to reconnect isolated sites and facilitate species movement.

Where there is evidence of a protected species on a proposed development site, planning applications shall include a detailed survey of the subject species, with details of measures to be incorporated into the development scheme to avoid loss of the species. This involves consideration of any impacts that will affect the species directly or indirectly, whether within the application site or in an area outside of the site, which may be indirectly affected by the proposals. All surveys shall be carried out at an appropriate time of year and shall be undertaken by a qualified and, where appropriate, suitably licensed person.

All developments shall have regard to Natural England's standing advice for protected Species.

F REGIONAL AND LOCAL BAPS

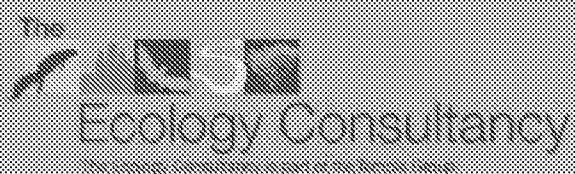
Many local authorities in the UK have also produced a local Biodiversity Action Plan (LBAP) at the County or District level. The Sussex Biodiversity Action Plan is based on the UK list of Species and Habitats of Principal Importance and contains 1,149 species and 65 habitats.

D BIODIVERSITY ACTION PLANS (BAPs)

The UK BAP was published in 1994 to comply with obligations under the Convention on Biological Diversity (The Biodiversity Treaty, 1992). It described the UK's biological resources and committed to developing detailed plans to conserve these resources i.e. Habitat Action Plans and Species Action Plans. Running parallel to this, planning authorities promoted habitat and species conservation at a county and district/borough level through their development of Local BAPs (LBAPs). The aims and objectives of some of these LBAPs (most notable those at county level) are simply to reflect national targets for habitats and species of principal importance, translate them at a local level and to integrate the needs of species and habitats within landscape-scale delivery.

Since the publication of these BAPs, new strategies and frameworks have resulted in the development of biodiversity issues and changes in the terminology used to describe these habitats and species in England. This has been brought about through the replacement of the previous England Biodiversity Strategy with *Biodiversity 2020: A Strategy For England's Wildlife and Ecosystem Services* (2011) and the replacement of the UK BAP itself with the *UK Post-2010 Biodiversity Framework* (2012). All previous UK BAP species and habitats are still of material consideration in the planning process but are now referred to as priority habitats and species (as described under the NERC Act above).

The distribution of BAP/priority habitats has been used to identify Biodiversity Opportunity Areas at a regional scale through Biodiversity Strategies/Partnerships. They represent a strategic landscape scale approach to habitat creation, restoration or expansion. They represent regional priority areas of opportunity to restore and create BAP/priority habitat. They are therefore a spatial representation of targets for BAP/priority habitat and are areas of opportunity, not constraint.



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