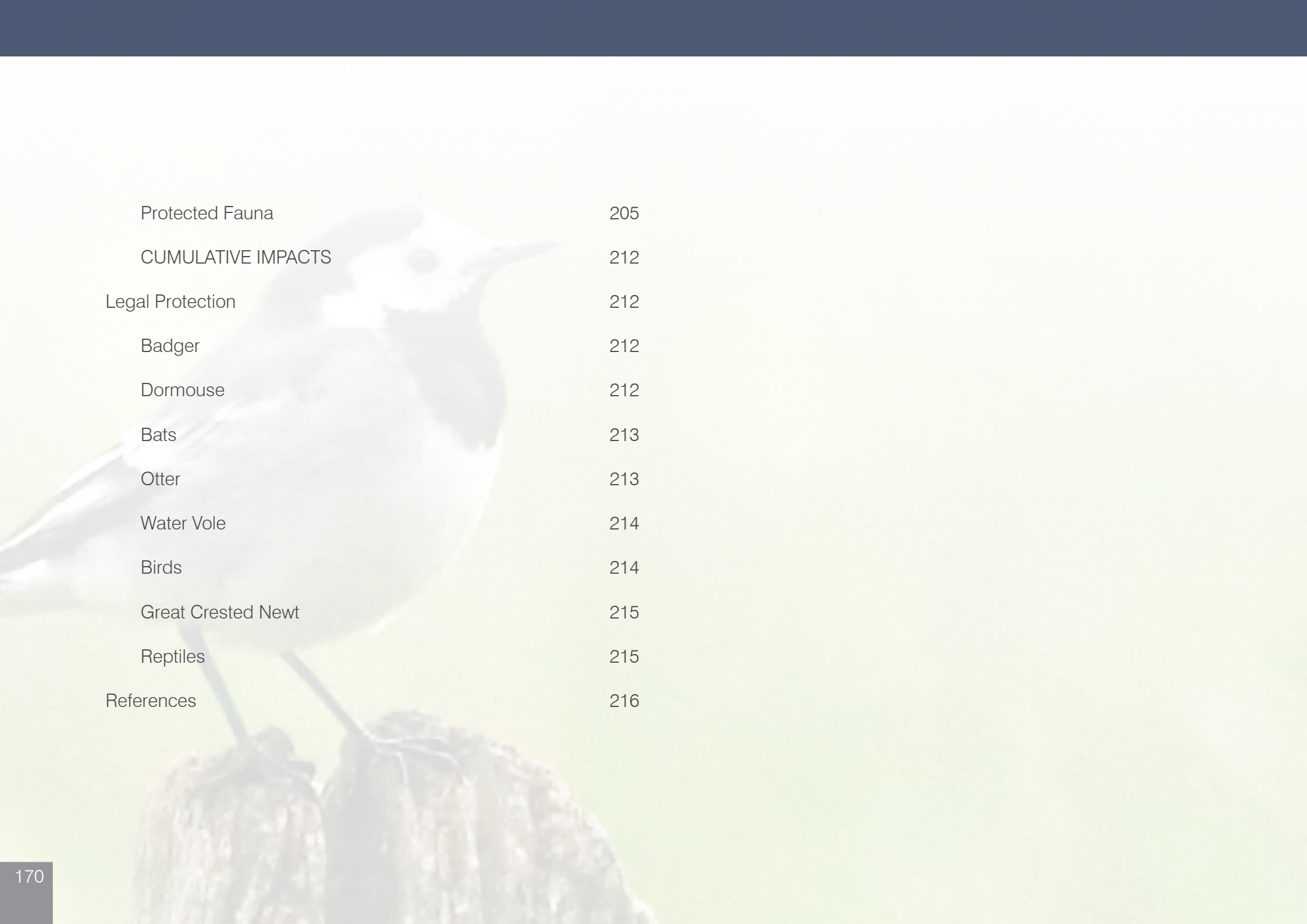


CHAPTER 10 - ECOLOGY

Introduction	171	General	190
Ecological Context	171	Schedule 1 Species	190
Methods for Ecological Survey	174	Red List Birds of Conservation Concern	190
Desk-based Study	174	Amber List Birds of Conservation Concern	191
Phase 1 Habitat Survey	174	Species of Principal Importance (NERC Act 2006)	192
Protected Fauna Surveys and Assessment	174	Local Biodiversity Action Plan Species	192
Constraints	180	Impact assessment	192
Criteria for Assessment	180	Methodology	192
Results	181	Impact Characteristics	193
Desk Study	181	Assessment of Impact Significance	194
Phase 1 Habitat Survey	184	Assessing the Significance of Impacts	198
Protected Fauna	188	Designated Sites	199
Breeding Bird survey	190	Habitats	200



Protected Fauna	205
CUMULATIVE IMPACTS	212
Legal Protection	212
Badger	212
Dormouse	212
Bats	213
Otter	213
Water Vole	214
Birds	214
Great Crested Newt	215
Reptiles	215
References	216



INTRODUCTION

10.1 This chapter has been completed in connection with a proposal to construct and operate a solar power plant within agricultural fields west of Sellindge, Kent (approximate Grid Reference TR 071 387). The location of the proposed development sites is shown in **Figure 1.1** of ES Volume 3 and the proposed development plans are fully detailed in **Chapter 6** of this ES, The Development Proposal and the accompanying figures.

10.2 A Preliminary Ecological Appraisal of the site was carried out on 7th April 2021 and consisted of a Phase 1 Habitat Survey and a Protected Fauna Survey which included a Habitat Suitability Index (HSI) survey of off-site ponds. eDNA surveys were completed in April 2021 and Breeding Bird Surveys were also completed in April, May and June 2021. All surveys were completed by Turnstone Ecology Limited – a Statement of Competence is provided within **Chapter 5** of the ES, EIA.

10.3 This chapter details survey and assessment methodology along with the results of a desk-based study and on-site surveys. It also provides an assessment of potential impacts and appropriate mitigation to offset any impacts associated with the proposal and to satisfy national and local planning policies. Significance in EIA terms is attributed to the residual effects.

Ecological Context

10.4 The proposed development site is located within agricultural fields to the west of Sellindge, Kent. The proposed site comprises three areas of solar arrays (**Plate 10.2**) consisting of:

- Northern Array which is sandwiched between the M20 to the north and the high-speed London – Paris railway to the south. A block of semi-mature broad-leaved woodland is beyond the western boundary and the eastern boundary is demarked by a narrow, fast flowing brook, with an area of plantation woodland to the east of the brook. The Northern Array is within a single, large arable field. Access to the Northern Array will be along an existing hard-standing track leading off Church Lane to the east. The track runs parallel to the M20, crosses the brook and enters the field in which the solar panels will be constructed. An existing bridge over the brook will be upgraded as part of the proposals.
- Southern Array is to the south of the high-speed railway and encompasses two arable fields. To the west of the Southern Array is a large block of semi-mature broad-leaved woodland known as Backhouse Wood. The Southern Array is within two, large arable fields which are separated by a defunct hedgerow. Immediately

north of the Southern Array is the East Stour River and associated river corridor. Access to the southern Array will be off Church Lane through an existing gap in the hedgerow which runs parallel to Church Lane.

- Eastern Array is to the east of Church Lane and within two improved sheep grazed fields. Access to the Eastern Array will be from the Southern array, crossing Church Lane, through an existing field gate entrance. There are two groups of panels within the Eastern Array, and these are separated by a hedgerow between two blocks of broad-leaved woodland; Partridge Plantation and Round Wood. Access through the hedgerow between these two woodland blocks will utilise an existing gap through the hedge.

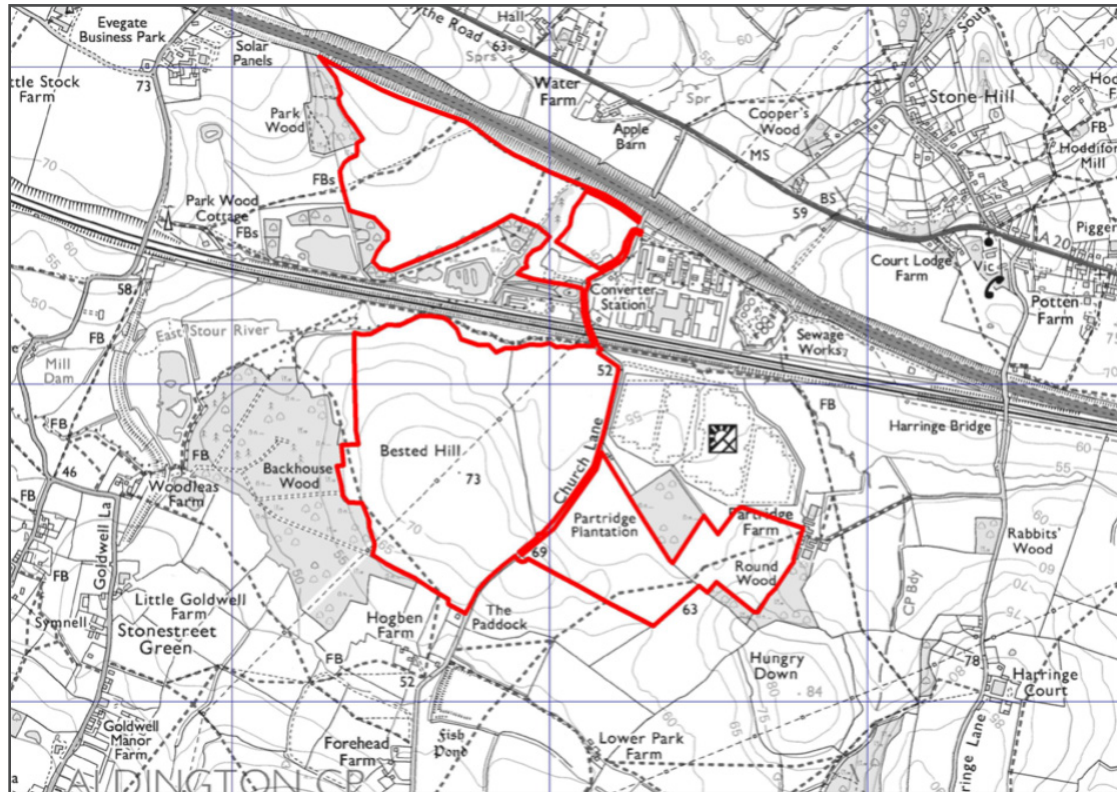


Plate 10.1 - Location of proposed development (application site)

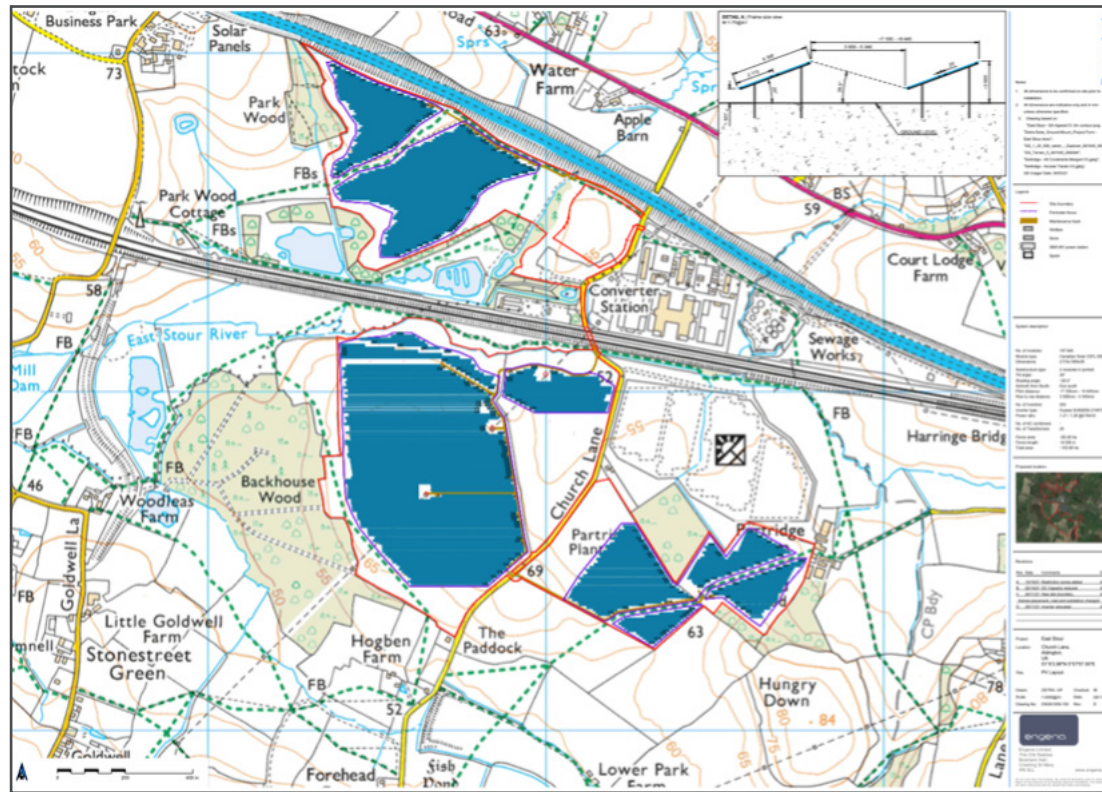


Plate 10.2 - Location of the Solar Arrays

- 10.5 The proposal involves the construction and operation of a solar farm and associated infrastructure, which will cover approximately 65.49 hectares (ha) of farmland. The total area of the application site covers 103.9ha.
- 10.6 The application site is dominated by arable fields or sheep grazed improved grassland. Broad-leaved woodland blocks are present to the west of the Northern and Southern Arrays however these are outside of the application site. To the north of the Northern Array is an area of linear plantation woodland associated with the M20. To the east of the Northern Array is a tree lined brook which flows south to an area of fishing lakes which have been created in an area of broad-leaved woodland which wraps around the southern boundary of the Northern Array, beyond which is the high-speed London to Paris railway.
- 10.7 The northern boundary of the Southern Array is within the arable field with the East Stour River and associated riparian corridor beyond the field's northern boundary and the western and southern boundaries are also within the arable field with woodland further to the west and the

hedge lined Church Lane to the south and east. The eastern boundary of the larger part of the Southern Array is within the arable field with a defunct hedgerow beyond. The boundaries of the smaller part of the Southern Array are entirely within the arable field.

- 10.8 The boundaries of the Eastern Array are entirely within the sheep-grazed grassland.
- 10.9 A number of ponds are present outside of the application site boundary, within 500m, including a balancing pond adjacent to Church Lane and ponds within the woodland associated with the brook and the fishing lake to the south of the Northern Array. There are no ponds within the redline application boundary.
- 10.10 The wider landscape is dominated by arable and pasture fields with scattered woodlands and villages as well as extensive areas of the build environment associated with Ashford the centre of which is approximately 7.4 km north-west of the site and Hythe, the centre of which is approximately 7.6 km south-east of the site.

METHODS FOR ECOLOGICAL SURVEY

Desk-based Study

- 10.11 Information relating to locally designated sites and records of protected species within 5 km of the proposed development site (from TR 07890 37872) has been obtained from the Kent and Medway Biological Records Centre (KMBRC).
- 10.12 Information relating to designated sites, sites where European Protected Species (EPS) Licences have been granted between 2009 and 2019 (the most recent update of the database) and historic records of protected species within 2.5 km of the centre of the site obtained from Magic (www.magic.gov.uk) and other freely available information on the internet, such as planning portals.
- 10.13 Any species-specific historic records are detailed within the relevant species accounts in the Results section.

Phase 1 Habitat Survey

- 10.14 The survey methods were based on the Phase 1 Habitat Survey approach (Joint Nature Conservation Committee 2003), which is a standardised method to survey main habitat types. Plant nomenclature in this report follows Rose (Revised Edition 2006) for native, naturalised and garden varieties of vascular plant. Introduced species and garden varieties are not always identified.

Protected Fauna Surveys and Assessment

- 10.15 The habitats on site were assessed for suitability for protected fauna that occur in the region and obvious signs and incidental sightings of protected species were noted where present. Taking into consideration the geographical region and habitat types on and adjacent to site, the protected species and species groups that could be encountered are listed below:
- Badger;
 - Bats;
 - Dormouse;

- Otter;
- Water Vole;
- Nesting birds;
- Great Crested Newt; and
- Reptiles.

10.16 Details of initial survey methods for each relevant species are given below.

Badger

10.17 Where access allowed a comprehensive assessment was carried out to identify areas that are used by Badgers (*Meles meles*) for foraging and sett digging. Signs of Badgers including setts, foraging signs, paths and latrines, would have been recorded if they had been encountered.

Bats

10.18 Any buildings and trees on or adjacent to the site were visually surveyed to assess them for their potential to support roosting bats, although a thorough inspection of all potential roosting features would not be undertaken as part of the Phase 1 survey.

10.19 Habitats were assessed for their suitability for use by foraging or

commuting bats. Areas of particular interest vary between species, but generally include sheltered areas and those habitats with good numbers of insects, such as woodland, scrub, hedges, watercourses, ponds, lakes and more species-rich or rough grassland.

Dormouse

10.20 Habitats were assessed for their suitability for use by Dormouse (*Muscardinus avellanarius*), which generally use areas of dense woody vegetation cover. Dormice are most likely to be found where there is a wide diversity of woody species contributing to three-dimensional habitat complexity, a number of food sources, plants suitable for nest-building material and good connectivity to other areas of suitable habitat.

Otter

10.21 Watercourses and areas of wetland and adjacent habitat were assessed for their suitability for use by Otter (*Lutra lutra*). This included an assessment of water depth, water quality, vegetation and cover.

10.22 Field signs would have been recorded if they had been encountered, including spraint (droppings), footprints, slides, paths, feeding evidence, holts (underground resting places) or couches (temporary resting places).

Water Vole

10.23 Initial surveys centre on an assessment of habitat suitability. Most watercourses, waterbodies and other areas where there is surface water for the majority of the year (including marshland, rush-pasture, wetland, mires, ponds and other waterbodies) have some potential to support Water Voles (*Arvicola amphibius*). The following factors were taken into consideration: water quality, water-level regime, channel dimensions, bank type and material, vegetation for cover and food sources, shading, predation and competition and habitat management.

10.24 Field signs and direct evidence of the species (including feeding signs, latrines, burrows, footprints, runways, food piles and actual sightings) would have been recorded if they had been encountered.

Birds

10.25 Specific breeding bird surveys were undertaken between April and June 2021 and the objectives of these surveys were to:

- identify the distribution of breeding birds across the site;
- locate the presence of birds protected under Schedule 1 of The Wildlife and Countryside Act 1981(as amended);
- locate the presence of species of conservation concern; and
- identify any species which may require special mitigation during construction and throughout the life of the development.

Methodology

10.26 The survey methodology is based on a combination of the Common Bird Census methodology, devised by the British Trust for Ornithology (BTO), and national Breeding Bird Survey techniques, jointly devised by the BTO, Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservation Committee (JNCC).

10.27 The survey was undertaken by a single ornithologist walking a transect route that covered the entirety of the site so that all habitat possibly used by breeding birds was included. The transect routes started at slightly different points on each visit so that all areas were recorded at different times during the survey to reflect possible changes in bird activity through the morning. All birds seen or heard during each visit were recorded on to maps using BTO standardised codes and symbols representing each species present and activity.

Attention was given to identifying the presence of specially protected and nationally declining bird species. Birds recorded from areas of adjacent habitat were also noted on to the fieldmaps including within areas of adjacent woodland, and the riparian corridors associated with the brook and the East Stour River.

10.28 Full details of the survey visits are provided in **Table 10.1**.

Table 10.1 - *Details of breeding bird survey visits.*

Visit	Date	Start Time	End Time	Weather (Wind = Beaufort scale, Cloud = Octas)
Visit 1	08/04/2021	05:30	10:00	7/8, 1.50C, BF 1, dry and cloudy
Visit 2	06/05/2021	05:15	09:30	3/8, 0.50C, BF1, cold and part cloudy
Visit 3	11/06/2021	05:15	09:30	8/8, 160C, BF1, dry and foggy to start, clearing during survey

Criteria for Evaluation of the Breeding Bird Survey Results

10.29 A number of criteria are available to determine the conservation status of those bird species recorded as well as attributing a value to the overall breeding bird assemblage. The most appropriate of these are;

- Schedule 1 of the Wildlife and Countryside Act – The Wildlife and Countryside Act affords greater protection to certain breeding species that are considered appropriately at risk nationally and are as such listed as specially protected under Schedule 1.
- Birds of Conservation Concern 5 (Eaton et al. 2021) – Under this approach, UK bird populations are assessed using quantitative criteria, to determine the population status of each species and then placed on one of three lists; Red, Amber or Green.
 - Red list species are of high conservation concern, being either globally threatened, having historical UK population declines between 1800 and

1995 or a rapid population decline or breeding range contraction by 50% or more in the last 25 years.

- Amber list species are of medium conservation concern due to a number of factors, for example having suffered between 25% and 49% contraction of UK breeding range or a 25-49% reduction in breeding or non-breeding populations over the last 25 years. Species which have a five year mean of 1-300 breeding pairs (bp) in the UK or an unfavourable European conservation status or for which the breeding population in the UK represents 20% or more of the European breeding populations are also listed on the Amber list.
- Green list species have a favourable conservation status.
- Species of Principal Importance included under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006 as well as those for which specific Local Biodiversity Action Plans have been prepared.

10.30 The results of the survey as well as conservation status of the species recorded are broadly assessed against these selection criteria to assist in the valuation of the combined breeding bird assemblage.

Interpretation of the Breeding Bird Survey Results

10.31 The data is compiled into a summary table (**Appendix 10.2**) giving information on species recorded, conservation status and breeding status. Conservation status is defined with special emphasis on species on Schedule 1, Birds of Conservation Concern, species included in Section 41 of the NERC Act 2006 and Local BAP species. Breeding status is defined using criteria devised by the European Ornithological Atlas Committee (EOAC) and is presented below.

CONFIRMED BREEDING (C)

- Distraction-display or injury feigning;
- Used nest or eggshells found (occupied or laid within period of survey);

- Recently fledged young (nidicolous species) or downy young (nidifugous species);
- Adults entering or leaving nest-site in circumstances indicating occupied nest (including high nest or nest-holes, the contents of which cannot be seen) or adult seen incubating;
- Adult carrying faecal sac or food for young;
- Nest containing eggs; or
- Nest with young seen or heard.

PROBABLE BREEDING (PR)

- Pair observed in suitable nesting habitat in breeding season;
- Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two different days a week or more apart at the same place;
- Courtship and display;
- Visiting a probable nest site;
- Agitated behaviour or anxiety calls from adults;
- Brood patch on adult examined in the hand; or

- Nest building or excavating nest-hole.

POSSIBLE BREEDING (PO)

- Species observed in breeding season in possible nesting habitat.
- Singing male(s) present (or breeding calls heard) in breeding season.

NON-BREEDING (NB)

- A species present during the survey but considered to be not breeding within the survey area. Recorded simply as a bird flying over the site or are present on site but considered to be a non-breeding species due to a lack of suitable breeding habitat or lack of behaviour characteristic of breeding.

Great Crested Newt

10.32 The suitability of any aquatic and terrestrial habitat on the site, and in the immediate vicinity, was assessed for suitability for use by Great Crested Newts (*Triturus cristatus*). Great Crested Newts are known to travel up to 500m between breeding ponds and

suitable terrestrial habitat, so a desk-based search was undertaken for any ponds up to 500m from the site using OS maps and aerial imagery. The terrestrial habitat between the site and these ponds, and therefore connectivity to the site, was also considered.

HABITAT SUITABILITY INDEX ASSESSMENT

10.33 Waterbodies were assessed to determine whether they were suitable for Great Crested Newt using the Habitat Suitability Index (HSI) assessment developed by Oldham et al. (2000), which is derived from systems developed by the US Fish and Wildlife Service. It is a numerical index, between 0 and 1, where 0 indicates unsuitable habitat and 1 represents optimal habitat. The HSI for the Great Crested Newt uses ten factors (suitability indices (SI) 1 to 10) which are thought to affect Great Crested Newts, as follows:

- geographic location (SI 1);
- surface area (SI 2);
- hydrology (drying) (SI 3);
- water quality (SI 4);

- shade (SI 5);
- presence of water fowl (SI 6);
- presence of fish (SI 7);
- number of adjacent water features (SI 8);
- terrestrial habitat (SI 9); and
- macrophyte cover (SI 10).

10.34 Each factor is scored using field and desk-based survey. These ten scores are then converted to SI scores using a scale from 0.01 to 1 from graphs given in Oldham et al. (2000) and an HSI result is calculated using the following formula:

$$HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$$

10.35 Further research by Brady (unpublished) has developed a system for using HSI scores to define pond suitability for Great Crested Newts according to the following categories:

- HSI < 0.5 = poor;
- HSI 0.5 – 0.59 = below average;
- HSI 0.6 – 0.69 = average;
- HSI 0.7 – 0.79 = good; and
- HSI > 0.8 = excellent.

10.36 HSI cannot guarantee the presence or absence of Great Crested Newts however, there is a positive correlation between HSI scores and presence and abundance. Generally, ponds with high HSI scores are likely to support larger populations. The relationship is however not sufficiently precise to conclude that any pond with a high HSI will support newts in high populations, or that any pond with a low score will support low numbers of newts or no newts at all.

ENVIRONMENTAL DNA (EDNA)

10.37 Four ponds, numbered and shown on the Phase 1 map (**Figure 10.1** of ES Volume 3 - Figures), were subject to eDNA surveys completed on the 15th April 2021. The surveys were undertaken by Mark Gash of Turnstone Ecology. Mark holds a licence to survey for Great Crested Newts in all counties of England (Licence number 2015-19057-CLS-CLS).

10.38 The fishing ponds immediately north of the railway line were scoped out from survey based on their current use (sports fishing) and lack of suitable habitat for Great Crested Newts. In addition further ponds are present to

the west of the southern cluster (west of Backhouse Wood) however these ponds are approximately 500m west of the site and were also scoped out as they are large sports fishing lakes and appeared to support no suitable habitat for Great Crested Newts.

10.39 The survey samples were analysed by Surescreen Scientifics for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5' (Biggs et al. 2014).

Reptiles

10.40 The site was assessed for suitability for use by widespread species of reptiles, with particular attention paid to those features that could be used as basking areas (e.g. south-facing slopes), hibernation sites (e.g. banks, walls, piles of hardcore) and opportunities for foraging (e.g. rough grassland and scrub). The site was assessed for its suitability for the commoner reptile species which have broadly similar habitat requirements, but more specific requirements include the following (Beebee & Griffiths 2000):

- Common Lizards (*Zootoca vivipara*) use a variety of habitats from woodland glades to walls and pastures, although one habitat they use is brownfield sites;
- Slow-worms (*Anguis fragilis*) use similar habitats to Common Lizards, and are often found in rank grassland, gardens and derelict land;
- Grass Snakes (*Natrix natrix*) have broadly similar requirements to Common Lizards but with a greater reliance on ponds and wetlands, where they prey on amphibians; and
- Adder (*Vipera berus*) use a range of fairly open habitats with some cover but are most often found in dry heath.

Constraints

- 10.41 April is not an optimal month to undertake Phase 1 Habitat surveys, as many plants are not visible and identifiable, however the site is dominated by arable or pasture fields and therefore taking this into consideration as well as the range of other habitats on the site and nature of the proposals this is not considered to be a significant constraint. Surveys

were also completed later in the year so all parts of the site were walked over at ideal times of the year.

Criteria for Assessment

- 10.42 The scientific value of habitats for nature conservation is assessed according to widely accepted criteria of which the most important are naturalness, extent, rarity, and diversity.
- 10.43 The assessment of impacts is based on the principles within Chartered Institute of Ecology and Environmental Management (CIEEM) Environmental Impact Assessment (EIA) Guidance (2019) which assesses the impacts of the proposal on ecological receptors taking in to consideration extent, duration, reversibility, timing, frequency and certainty.
- 10.44 Mitigation is designed to reduce the level of impact upon receptors. Ecological enhancements, in line with best practice, have also been suggested in order to meet current legislation and planning policy. The information below has therefore been considered during assessment.

- Criteria that have been developed to assist in the identification of statutory Sites of Special Scientific Interest (SSSIs) (JNCC 2013);
- Habitats and species of Principal Importance included under Section 41 (England) and Section 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006;
- The legal status of habitats and species according to The Conservation of Habitats and Species Regulations 2017 (as amended);
- CIEEM Guidelines (2019) for assessing the value of ecological receptors within a defined geographical context using the following categories: international (i.e. Europe); UK and national (England); regional; county; Unitary Authority; local or parish; and zone of influence. Receptors are identified as 'important' at these levels, or as 'not important';
- Species protected by the Wildlife and Countryside Act 1981 (as amended);

- Other species listed as scarce or notable in literature issued by conservation organisations or learned societies e.g. vascular plant species listed in Stewart et al. (1994) and Red and Amber List Birds of Conservation Concern (Eaton et al. 2015);
- Local Wildlife Site selection criteria;
- National Policy Planning Framework (NPPF), 2021;
- BS42020:2013 – Biodiversity Code of practice for planning and development;
- Protected species handbooks and best practice guidelines; and
- The Kent and Medway Biodiversity Action Plan (BAP), identifies and prioritises local habitats and species of conservation importance. These habitats and species are stated as
 - Habitats: Lowland Beech and Yew Woodland, Lowland Mixed Broadleaved Woodland, Chalk Grassland, Lowland Meadow, Lowland Dry Acid Grassland / Lowland Heathland,

Hedgerows, Brownfield, Traditional Orchard, Rivers, Chalk Streams, Ponds, Coastal Floodplain Grazing Marsh, Intertidal Mudflats and Coastal Saltmarsh, Wet Woodland, and Vegetated Shingle.

- Species: A total of 387 UK Priority Species have been recorded in Kent and of these Action Plans have been written for the following species: Shrill Carder Bee (*Bombus sylvarum*), Turtle Dove (*Streptopelia turtur*), Nightingale (*Luscinia megarhynchos*), Swift (*Apus apus*), Adder (*Vipera berus*), Adonis Blue (*Lysandra bellargus*), Heath Fritillary (*Melitaea athalia*), Dwarf or Kentish Milkwort (*Polygala amarella*), European Eel (*Anguilla anguilla*), Lapwing (*Vanellus vanellus*), Sandwich Tern (*Sterna sandvicensis*), Water Vole (*Arvicola amphibius*) and True Fox-sedge (*Carex vulpina*).

RESULTS

Desk Study

Designated Sites

- 10.45 There are four statutory designated sites within 5 km of the proposed solar farm as well as one area of Outstanding Natural Beauty (AONB). These are:
- 10.46 Kent Downs AONB, which wraps around the wider countryside to the north, south and east of the application site. The AONB is at its closest point approximately 1.5 km south-west of the application site (Southern Array).
- 10.47 Lympne Escarpment SSSI is approximately 3.4 km south-east of the Eastern Array. The site consists of a steep escarpment of Kentish ragstone formed by the Hythe Beds of the Lower Greensand. Ragstone is a hard sandy limestone which produces calcareous soils. The grassland and woodland of this site are among the best remaining examples of semi-natural habitats on ragstone in Kent. Wet ash-maple is the predominant woodland type with a small area of

calcareous ash-wych elm wood. Many plants usually associated with chalk soils occur in the grassland, including Early-purple Orchid (*Orchis mascula*).

- 10.48 Otterpool Quarry SSSI is approximately 2.4 km south-east of the Eastern Array and is designated due to its geological importance.
- 10.49 Gibbens Brook SSSI is approximately 3.4 km east of the Northern Array. The SSSI consists of an area of marshy grassland on peaty soils that has developed from an acidic valley bog and still retains many features characteristic of a bog. The site is also notable for its invertebrates, particularly moths including the White-barred Clearwing (*Synanthedon spheciformis*) and the Silver Hook (*Eustrotia uncula*). Another important feature of the site is the alder carr which supports a number of fen plants, including Opposite-leaved Golden Saxifrage (*Chrysosplenium oppositifolium*), Marsh Marigold (*Caltha palustris*) and Yellow Flag (*Iris pseudacorus*).
- 10.50 Hatch Park SSSI is approximately 2.3 km north-west of the Northern Array. The SSSI is of special interest for its unimproved acidic grassland, a scarce

habitat in Kent, and its ancient pollard woodlands, the latter supporting the richest epiphytic lichen community in the county. The acidic grassland is the remnant of a formerly much more extensive deer park, and the turf here is believed to have remained unbroken for the last 500 years. This continuity has resulted in a relatively species-rich sward dominated by Common Bent-grass (*Agrostis capillaris*) and Sheep's Fescue (*Festuca ovina*), but also containing such species as field Wood-rush (*Luzula campestris*), Sheep's Sorrel (*Rumex acetosella*), Heath Bedstraw (*Galium saxatile*), Bird's-foot (*Ornithopus perpusillus*), and Upright Chickweed (*Moenchia erecta*), the latter two species being scarce in Kent. The site is also of importance for the mature timber habitat supporting beetles (Coleoptera) and hole-nesting birds such as Nuthatch (*Sitta europaea*), Stock Dove (*Columba oenas*) and 3 species of woodpecker.

- 10.51 In addition to the above statutory designated sites the site is within 5 km of 14 non-statutory sites including 13 Local Wildlife Sites (LWS) and one Roadside Nature Reserve. None of these sites are within the application

redline boundary, although Backhouse Wood LWS is immediately west of the western boundary of the Southern Array.

Protected Species Mitigation Licences

- 10.52 Two Protected Species Mitigation Licences (formerly European Protected Species Licences) have been issued for projects within 2.5 km from the centre of the site; these are:
- 10.53 EPSM-2013-6123 which was issued for the destruction of a resting place of Common Pipistrelle (*Pipistrellus pipistrellus*) at a site approximately 2.2 km south-west of the centre of the proposed development site.
- 10.54 2014-852-EPS-MIT was issued for the destruction of suitable terrestrial habitat for Great Crested Newt (*Triturus cristatus*) at a site approximately 1.9 km south-west of the centre of the proposed development site.

Preliminary Ecological Survey

10.55 Phase 1 habitat types were recorded within and immediately adjacent to the proposed development sites are listed below and shown in **Plate 10.3** and **Figure 10.1** of ES Volume 3 - Figures:

- Arable;
- Field Margins;
- Improved grassland;
- Hedgerows;
- Ditches;
- Brook;
- Ponds;
- East Stour River Corridor; and
- Woodland.



Plate 10.3 - Habitats present within the survey area

10.56 The site or immediately adjacent areas contain habitat suitable for the protected species and species groups listed below.

- Badger
- Bats
- Dormouse
- Otter
- Water Vole
- Nesting birds
- Great Crested Newt
- Reptiles

Phase 1 Habitat Survey

Arable

10.57 The sites comprises three large arable fields (as well as two sheep grazed pasture fields, described below), which at the time of the survey were either bare or had been recently sown with Wheat. During the course of the breeding bird surveys the crops matured so that all of the fields were well-vegetated by the middle of the year. The arable fields are of low ecological value.



Plate 10.4 - *Arable field – Northern Array looking north-west towards Park Wood and the M20*



Plate 10.6 - *Arable field (Bested Hill, Southern Array, looking north-east)*

Field Margins

10.58 Field margins are largely absent from the arable fields as cropping abuts areas of adjacent habitat, however a 4m margin is present along the northern edge of the Northern Array and a similar sized buffer is present along the northern edge of the Southern Array, adjacent to the East Stour River corridor. These margins consist of improved grassland which are well-used public footpaths which keeps the sward short. Common grass species including Cocks-foot (*Dactylis glomerata*), Perennial Rye



Plate 10.5 - *Bare earth field (eastern part of the Southern Array, looking south)*

Grass (*Lolium perenne*) and False Oat-grass (*Arrhenatherum elatius*) were noted along with forb species including Spear Thistle (*Cirsium vulgare*), Creeping Thistle (*Cirsium arvense*), Ragwort (*Jacobaea vulgaris*), Dandelion (*Taraxacum* sp.), Creeping Buttercup (*Ranunculus repens*), Broad-leaved Dock (*Rumex obtusifolius*), Curled Dock (*Rumex crispus*), White Clover (*Trifolium repens*), Daisy (*Bellis perennis*), Common Hogweed (*Heracleum sphondylium*), Daisy (*Bellis perennis*), Bristly Oxtongue (*Helminthotheca echinoides*) and Germander Speedwell (*Veronica chamaedrys*). Along the field margin of the Southern Array, adjacent to the East Stour River, Great Celandine (*Chelidonium majus*) was present along with Willowherb sp, (*Epilobium* sp.), Horsetail *Equisetum arvense*), Common Nettle (*Urtica dioica*) and White Dead-nettle (*Lamium album*).

- 10.59 Field margins are not present on the western, southern, or eastern sides of the Northern Array as the boundaries of the solar array are within the arable field.

- 10.60 Field margins are not present on the eastern, southern, or western boundaries of the Southern Array as the boundaries of the solar array are within the arable field. Field boundaries are not present on the Eastern Array as the boundaries of the site are within areas of improved sheep grazed grassland and the fields are contiguous to the field boundaries.

Improved Grassland

- 10.61 The two fields comprising the Eastern Array are both sheep grazed grassland and are dominated by short sward improved grassland and comprise of common plant species with occasional White Clover and Creeping Thistle.

Hedges and Trees

- 10.62 There is a central hedge aligned north to south between the two areas of the Southern Array (hedgerow 1 in **Plate 10.3** and **Plate 10.7**). This hedgerow is gappy and defunct and is in poor condition. The edges of the arable field are cropped to within 1m either side of the hedge and as such margins are poor and consist of common grass, forb and ruderal

species including Common Nettle, Bramble (*Rubus fruticosus*), Cleavers (*Galium aparine*), Willowherb and occasional Lords and Ladies (*Arum alpinum*) and Greater Celandine. A dry ditch is present adjacent between the two fields. Tree species within the hedge include Hawthorn (*Crataegus monogyna*) with occasional Blackthorn (*Prunus spinosa*), Willow (*Salix* sp.), Elder (*Sambucus nigra*), Ash (*Fraxinus excelsior*) and Oak (*Quercus* sp.). There are larger trees scattered within the hedge; including one Ash which has a large vertical split along the main trunk.



Plate 10.7 - Central Hedge within the Southern Array (looking south)

10.63 There are two areas of woodland associated with the Eastern Array and these are connected by a Hawthorn dominated hedgerow (hedgerow 2 in **Plate 10.3**) which is gappy at its base, which is also heavily poached and grazed by sheep and as such ground flora along the hedge is very limited. There is a public footpath that crosses through this hedge, at a field gate, and this existing breach will be used to access the north-eastern part of the Eastern Array. Hawthorn dominated hedges are also present around, and within, the sheep-grazed improved grassland and these are generally in poor condition with ground flora limited to occasional Common Nettle, Docks and Bramble. There is a field gate through the hedge leading off Church Lane and this existing breach will be used to access the Eastern Array.

Ditches

10.64 A dry ditch is present along the central hedge within the Southern Array (**Plate 10.7**). Wetter ditches are present immediately beyond the southern boundary of the Northern Array (**Plate 10.8**). The ditches consist of semi-improved grassland which support a variety of common grass

species including Perennial ryegrass, Common Couch (*Elymus repens*), Annual Meadow-grass (*Poa annua*) and Cock's-foot. Forb species present included Cow parsley (*Anthriscus sylvestris*), Curled Dock, Broad-leaved Dock, Cleavers, Common Nettle, White Dead-nettle, Red Dead-nettle (*Lamium purpureum*), Dandelion (*Taraxacum* sp.), Common Hogweed, Black Medic (*Medicago lupulina*), Lords and Ladies (*Arum maculatum*) and species of Willowherb (*Epilobium* sp.). Where water is present stands of Soft Rush (*Juncus effusus*), Brooklime (*Veronica beccabunga*), Greater Celandine and Water Mint (*Mentha aquatica*) were recorded.



Plate 10.8 - *Ditch beyond the southern boundary of the Northern Array*

Brook

10.65 A brook is present to the east of the Northern Array. The brook flows north to south beyond the eastern boundary of the array and is crossed by an existing bridge allowing access to fishing lakes to the south of the Northern Array. The brook flows into this lake system. The brook is approximately 1 to 1.5m wide, fast flowing, muddy-bottomed and shallow. The water is clear however aquatic vegetation is limited to filamentous algae, likely indicating a degree of eutrophication from agricultural run-off. To the west of the brook is a made-up hardcore track leading to the fishing lakes and to the east is a linear mixed woodland which connects to a larger area of woodland that encompasses the lake and wraps around the southern edge of the Northern Array. The banks of the brook consist of ruderal dominated grassland or the herb layer of the woodland.



Plate 10.9 - Brook adjacent to the eastern boundary of the Northern Array

Ponds

- 10.66 There are multiple waterbodies adjacent to the application site including a complex of three large fishing lakes to the south of the Northern Array. The fishing lakes were scoped out from further survey due to being heavily stocked with fish and having limited emergent vegetation for egg-laying amphibians.
- 10.67 Four ponds adjacent to the application site were subject to eDNA surveys for Great Crested Newts. Pond descriptions along with the results of the eDNA surveys are given from **paragraph 10.83 on page 189**.

East Stour River Corridor

- 10.68 The East Stour River flows from east to west beyond the northern boundary of the Southern Array (**Plate 10.10**). The river is approximately 2 – 2.5m wide and up to 1m deep, although generally about 50 – 60cm deep along most of its length. There is no emergent or ephemeral vegetation present and occasional stands of thick filamentous algae, again indicative of eutrophication from agricultural run-off. Large stands of Willow and Alder (*Alnus glutinosa*) are present along the northern edge of the river as well as a dense scrubby complex between the river and the high-speed railway.



Plate 10.10 - East Stour River Corridor

Woodlands

- 10.69 There is no woodland habitat within the application site however there are a number of woodland blocks immediately adjacent to all of the arrays.
- 10.70 Backhouse Wood Local Wildlife Site is immediately west of the Southern Array and consists of semi-natural broad-leaved ancient woodland which supports large stands of Hazel (*Corylus avellana*) coppice along with Ash and Oak. Ground flora within the woodland includes Bluebell (*Hyacinthoides non-scripta*), Wood Anemone (*Anemone nemorosa*), Greater Celandine, Lords and Ladies and dense stands of Dogs Mercury (*Mercurialis perennis*) along with previous described ruderal and scrub species. This site is also known to support Common Spotted Orchid (*Dactylorhiza fuchsia*), Common Twayblade (*Neottia ovata*) and Greater Butterfly Orchid (*Platanthera chlorantha*) (KMBRC, 2021).
- 10.71 Park Wood is a small area of semi-natural ancient woodland to the west of the Northern Array. This woodland is similar in composition to Backhouse Wood.

10.72 Partridge Plantation and Round Wood are associated with the Eastern Array. These woodlands are broad-leaved plantation woodlands with limited ground flora. A hedgerow (as described in 3.3.4) connects these two areas of plantation woodland.

10.73 A mixed plantation woodland is present along the track leading from the brook crossing to the fishing lakes. The plantation woodland is on the east side of the brook.

Protected Fauna

Dormouse

10.74 The woodlands adjacent to the Northern and Southern Arrays are suitable for Dormouse as they support areas of suitable habitat for this species and this species has been previously recorded in Backhouse Wood (KMBRC, 2021). The woodlands adjacent to the Eastern Array are unlikely to support Dormouse due to poor woodland structure, absence of food plants and lack of connectivity to other woodlands.

10.75 The central hedge is not suitable for Dormouse due to its current poor state and it is not connected to areas of more suitable habitat. The hedgerows within the Eastern Array as well as those

adjacent to Church Lane are also not suitable for this species as they are poor quality hedgerows, do not support suitable food plants and are also poorly connected to areas of optimal habitat (e.g. Backhouse Wood).

Bats

10.76 There are no buildings or trees within the proposed application site that will be affected by the proposals. A single tree within the central hedgerow has a large crack within the main trunk and is suitable for roosting bats. The woodlands adjacent to the site are all suitable foraging and commuting habitats and are likely to support roosting bats. The brook and the East Stour River corridor are also optimal habitats for foraging and commuting bats. Data returned from KMBRC indicate that the following bat species have previously been recorded within 5 km of the project site:

- Serotine (*Eptesicus serotinus*);
- Noctule (*Nyctalus noctule*);
- Daubenton's Bat (*Myotis daubentonii*);

- Common Pipistrelle;
- Soprano Pipistrelle (*Pipistrellus pygmaeus*); and
- Brown Long-eared Bat (*Plecotus auritus*).

10.77 It is likely that other common species of *Myotis* bats occur in the area of the project.

10.78 The arable fields and improved grasslands within the application site are unlikely to be important for foraging bats.

Badgers

10.79 Badgers have been assessed within a confidential badger appendix provided to Ashford Borough Council.

Otter

10.80 No evidence of Otter was found during a search along the brook or the East Stour River corridor including footprints, scats or evidence of holts. The brook and river are adjacent to the application site and whilst water quality in both appeared to be poor it is likely that they support populations of fish and as such are suitable foraging habitats and are suitable corridors for Otters to commute through. The large fishing lakes to

the south of the Northern Array are also likely to be used by Otters as a foraging habitat and the brook and river corridor are likely to be used by commuting Otters. No local records of this species was included in the data search.

Water Vole

- 10.81 No evidence of Water Vole was found during a search along the brook or the East Stour River Corridor and both watercourses are considered to be sub-optimal for this species due to the lack of available food plants. The banks of both watercourse are however suitable for burrows to be excavated, although no burrows are present. The closest known populations of this species (KMBRC, 2021) are from Aldington which is approximately 2.1 km south-west of the Southern Array. It is considered certain that Water Vole are not present within the watercourses adjacent to the application site.

Birds

- 10.82 Specific breeding bird surveys were undertaken between April and June 2021, the results of which are included from **paragraph 10.88** of this Chapter.

Great Crested Newt

- 10.83 The nearest historic record of Great Crested Newt is approximately 2.0 km south-west of the site (www.magic.com).
- 10.84 There are four ponds adjacent to the application site that were subject to eDNA surveys. Information on these

ponds is presented in **Table 10.2**. The location of the ponds is shown on **Plate 10.3** and **Figure 10.1** of ES Volume 3 - Figures. The fishing lakes to the south of the Northern Array were scoped out from the surveys due to high densities of stocked fish, presence of waterfowl and absence of suitable egg-laying plants within the ponds.

Table 10.2 - Ponds Subject to eDNA Survey Results of the Habitat Suitability Surveys

Pond Number	Habitat Description	HSI Score	Result of eDNA
Pond 1	Small ephemeral waterbody to the south-west of the Northern Array. Pond is within an area of woodland and is adjacent to a larger reed-lined pool. Pond 1 is 100% shaded and supports dense stands of Common Reed and Common Reedmace. Water quality is poor and water levels are low.	Poor	Negative
Pond 2	Linear waterbody north of the Northern Array, adjacent to the M20. Waterbody is choked with dense stands of Common Reedmace and water quality is poor with evidence of pollution.	Poor	Negative
Pond 3	A woodland pond to the south-east of the Northern Array. Pond is within an area of plantation woodland and is 100% shaded. Dense stands of Common Reedmace are present with occasional Willowherb sp. and Watermint also present. No eggs found during egg search. Waterfowl present and water quality is poor.	Poor	Negative
Pond 4	Pond adjacent to Church Lane and is dominated by Common Reedmace / reed swamp. Poor water quality and pond is shaded by adjacent trees.	Poor	Negative

- 10.85 The hedgerow network as well as the areas of off-site woodland are suitable for terrestrial phase Great Crested Newts, including foraging, commuting and hibernation.

Reptiles

- 10.86 Records of Adder, Slow Worm, Common Lizard and Grass Snake were returned from KMBRC. Terrestrial habitats within the application site consist of arable and improved grass fields which are sub-optimal for reptiles. Areas of adjacent woodland as well as the wider hedgerow network are optimal habitats for foraging, commuting and hibernating reptiles.

Other Species

- 10.87 Brown Hare (*Lepus europaeus*) or deer species were not recorded during the surveys, although it is likely that deer are present in the woodlands adjacent to the application site as the habitats are more than suitable for them. Surveys included multiple visits to the site during the spring and if present it would be expected that Brown Hare would have been recorded and is therefore considered to be absent. It is also possible that

Hedgehog (*Erinaceus europaeus*) also occurs in habitats adjacent to the application site, although this species was not recorded during the surveys and the project site is considered to be unsuitable for this species.

BREEDING BIRD SURVEY

General

- 10.88 A total of forty-five bird species were recorded over the course of the three survey visits. Of these, seven were confirmed to be breeding, thirty were probable breeding species, five were possible breeding species and the remaining three are considered to not have bred within the survey area. Detailed results of the survey including breeding and conservation status of the species recorded are presented in **Appendix 10.2** and a summary is presented below.
- 10.89 In general, bird activity was consistent across all survey visits with limited bird activity recorded within the application site. The highest density and diversity of breeding species occurred in habitats adjacent to the application site including the adjacent woodlands, fishing lakes and associated habitats and the East Stour River corridor.

Schedule 1 Species

- 10.90 Cetti's Warbler was recorded on all visits with adults seen and heard from the habitats adjacent to the fishing lakes as well as at the southern end of Park Wood. It is likely that one or two pairs bred within the habitats between the Northern Array and the high-speed railway.

Red List Birds of Conservation Concern

- 10.91 Seven Red Listed Birds of Conservation Concern (BoCC) species were recorded and, with the exception of Nightingale, all are also NERC priority species. These were Lapwing (probable), Herring Gull (non-breeding), Skylark (confirmed breeding), Starling (non-breeding), Nightingale (possible breeding, but likely), Linnet (probable breeding) and Yellowhammer (probable breeding).
- 10.92 Two pairs of Lapwing were recorded in the arable fields of the Northern Array in April and May. Both pairs were very agitated on the May survey indicating likely presence of young within the arable crop.

10.93 Herring Gull were recorded on all three visits on the bare arable field in the eastern part of the Southern Array. This species was also recorded foraging in the sheep-grazed improved grass fields of the Eastern Array.

10.94 Activity of Skylark was low on all survey visits with breeding confirmed within the large arable fields of the Southern Array (Bested Hill). It is likely, based on registrations of displaying male Skylark, that the site supports between 2 and 3 breeding pairs of Skylarks, all of which are within the Southern Array. This species was not recorded within the Northern or Eastern Arrays.

10.95 Starling was recorded on all survey visits and it is considered likely that this species nests in adjacent farm buildings, residential areas or mature woodland and uses the site for foraging.

10.96 Nightingale were only recorded on the May survey with two singing males recorded; one within the scrubby / ruderal habitats north of the East Stour River and one from within the habitats adjacent to the fishing lakes. Nightingale were not recorded on the June survey which may be indicative of successful nesting as this species

reduces the amount it sings if paired or has a nest with eggs / young.

10.97 Linnet were recorded on all survey visits and based on the registrations of this species it is considered that between 2 and 5 pairs are present in the edge habitats adjacent to the application site.

10.98 Yellowhammer were recorded on all survey visits in habitats adjacent to the Southern Array only. It is likely that the adjacent habitats support between 2 and 4 breeding pairs.

Amber List Birds of Conservation Concern

10.99 Ten Amber List Birds of Conservation Concern were recorded, of which, two are also NERC priority species (Dunnoek and Reed Bunting). Of the Amber list species recorded, only Lesser Black-backed Gull is considered to be non-breeding species.

10.100 Mallard were recorded flying over the site on all survey visits with activity centred on the fishing lakes and associated habitats. A female Mallard with a brood of ducking's was recorded in Pond 4 when undertaking the eDNA surveys.

10.101 Wood Pigeon were recorded on all site visits and this species is likely to have bred in all wooded habitats adjacent to the application site.

10.102 Moorhen were recorded on all visits calling from wetland habitats associated with the fishing lake as well as in the habitat complex between the East Stour River and the high-speed railway line.

10.103 A single Tawny Owl was heard calling from Backhouse Wood on the April breeding bird surveys. It is possible that this species breeds in this off-site woodland, and it is possible that this species hunts on site, although field margin and hedgerow margin habitats are ecological poor quality habitats and are therefore unlikely to support significant populations of mice and voles.

10.104 Wren were recorded on all visits and likely bred in wooded habitats adjacent to the application site.

10.105 Song Thrush were recorded on all surveys singing from adjacent areas of woodland. It is likely that this species breeds in Park Wood, Backhouse Wood and the wooded areas around the fishing lakes and along the brook and East Stour River corridor.

10.106 Dunnock were recorded on all surveys and it is considered that this species probably bred within the off-site woodlands.

10.107 Three Bullfinch were recorded along the linear habitat feature between the northern edge of the Northern Array and the M20. This species possibly bred within areas of wooded habitat adjacent to the application site.

10.108 Reed Bunting were recorded on all of the survey visits within the dense boundary hedgerows as well as around the central areas of the site around the ditch network. It is likely that the site supports up four breeding pairs of this species.

Species of Principal Importance (NERC Act 2006)

10.109 Nine species of Principal Importance (as listed on the NERC Act 2006) were recorded during the course of the breeding bird surveys. These were Lapwing, Herring Gull, Skylark, Starling, Song Thrush, Dunnock, Linnet, Yellowhammer and Reed Bunting and these have been discussed above.

Local Biodiversity Action Plan Species

10.110 Nightingale was the only species recorded during the breeding bird survey for which a Kent Species Action Plan has been written and this species is discussed above.

IMPACT ASSESSMENT

Methodology

10.111 The Ecological Impact Assessment (EclA) broadly follows the UK Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Ecological Impact Assessment in the UK and Ireland' 2019. The guidelines are endorsed by statutory consultees in EIA and other concerned organisations including Natural England, The Environment Agency, Environment and Heritage Service, Association of Local Government Ecologists (ALGE), Institute of Environmental Management and Assessment (IEMA) and the Wildlife Trusts. The CIEEM Guidelines are also recommended in the planning guidance 'Planning

for Biodiversity and Geological Conservation: A Guide to Good Practice' (ODPM 2006) as the recommended procedure for the ecological component of an EIA.

10.112 The impact assessment also includes a metric-based calculation of impact significance in order that the assessment of ecological impact is consistent with other parts of the EIA.

10.113 The EclA involved the following key stages:

- identifying the zone of influence arising from the whole lifespan of the project;
- identifying ecological features (e.g. habitats, species, ecosystems and their functions/processes, previously known as ecological receptors) through field surveys and the background data search;
- Determination of the ecological sensitivity / importance of the ecological features in order to indicate which features require detailed impact assessment (**Table 10.3 on page 196**).
- Identification of the potential impacts and assessment of effects

on the integrity or conservation status of the ecological features in terms of their extent, magnitude, duration, reversibility, timing, and frequency;

- Identify significant effects of impacts in the absence of any mitigation (**Table 10.4** on **page 198**);
- Incorporation of the mitigation hierarchy in order to avoid, reduce or mitigate impacts and where necessary to provide compensation measures to balance any unavoidable significant effects, and enhancement to provide net benefits for biodiversity over and above requirements for avoidance, mitigation and compensation;
- Assessment of the significance of any residual ecological effects remaining after the implementation of mitigation and compensation measures (also follows **Table 10.4**); and
- Identify cumulative impacts.

Impact Characteristics

10.114 An 'impact' is any change to a resource or receptor caused by the presence of a project component or by a project related activity. Impacts can be negative or positive and are described in terms of their characteristics, including the impact's type and the impact's spatial and temporal features (namely extent, duration, scale and frequency). Impact characteristics are defined below.

Type of Impact

- Direct: applies to an impact which can be clearly and directly attributed to a particular environmental or social parameter (e.g. dust generation directly affects air quality).
- Indirect: applies to impacts which may be associated with or subsequent to a particular impact on a certain environmental or social parameter (e.g. high levels of dust could entail nuisance and health effects to workers on site).
- Induced: applies to impacts that result from other activities (which

are not part of the Project) that happen as a consequence of the Project.

- Cumulative: applies to impacts that arise as a result of an impact and effect from the Project interacting with those from another activity to create an additional impact and effect.

Duration of Impact

- Temporary - applies to impacts whose effects are limited to a period of less than 3 years, or only associated with Project pre-construction or construction phases.
- Short-term: applies to impacts whose effects are limited to a five-year period.
- Long-term: applies to impacts whose effects last longer than a period of five years, but limited to within the project lifetime.
- Permanent: applies to impacts whose effects last longer than the life of project – i.e. irreversible.

Extent of Impact

- On-site: impacts that are limited to the Project site.
- Local: impacts that are limited to the Project site and adjacent properties.
- Regional: impacts that are experienced at a regional scale.
- National: impacts that are experienced at a national scale.

Scale of Impacts

10.115 The scale of an impact is a quantitative measure, such as the size of the area damaged / impacted or the fraction of a resource that is lost / affected, etc. It is generally described using numerical values and units rather than assigned fixed designations.

Frequency of Impacts

10.116 The frequency of an impact the measure of the constancy or periodicity of an impact, described using numerical values or a qualitative description.

Likelihood

10.117 Likelihood is a measure of the degree to which the unplanned event (e.g. incidents, spills) is expected to occur. The likelihood of an unplanned event occurring is determined qualitatively, or when data is available, semi quantitatively. Definitions of likelihood as applied in the ESIA are provided as follows:

- Unlikely: The event is unlikely but may occur at some time during normal operating conditions.
- Possible: The event is likely to occur at some time during normal operating conditions.
- Likely: The event will occur during normal operating conditions (i.e. it is essentially inevitable).

Assessment of Impact Significance

10.118 In order to determine the significance of each impact, two overall factors are considered:

- magnitude and nature of impacts; and
- the importance and/or sensitivity of the environmental and social receiving parameter, as determined.

Magnitude of Impact

10.119 Once impacts are characterised (see section above) they are assigned a 'magnitude'. Magnitude is typically a function of some combination (depending on the resource / receptor in question) of the following impact characteristics:

- extent;
- duration;
- scale; and
- frequency.

10.120 Magnitude (from small to large) is a continuum. Evaluation along the continuum requires professional

judgement and experience. Each impact is evaluated on a case-by-case basis and the rationale for each determination is noted. Magnitude designations for negative effects are: negligible, small, medium and large. The magnitude designations themselves are universally consistent, but the definition for the designations varies by issue. In the case of a positive impact, a magnitude designation is also assigned.

conservation importance of habitats and species. A subjective assessment of the sensitivity of habitats and species is made and is based on the information presented in **Table 10.3** on **page 196**.

Sensitivity of Ecological Receptor

- 10.121 In addition to characterising the magnitude of impact, the other principal step necessary to assign significance for a given impact is to define the sensitivity of the receptor. There are a range of factors to be taken into account when defining the sensitivity of the receptor, which may be physical, biological, cultural or human. As in the case of magnitude, the sensitivity designations themselves are universally consistent, but the definitions for these designations will vary on a resource/receptor basis.
- 10.122 For ecological impacts, sensitivity is assigned as negligible, low, medium, high or very high based on the

Table 10.3 - Receptor Sensitivity

Importance	Descriptor
Very High (international / European)	An internationally designated site or candidate/proposed site (Special Protection Area (SPA), potential SPA, special area of conservation (SAC), candidate SAC and/or Ramsar Site. A suitable area of habitat listed in Annex 1 of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of the larger whole. Sustainable population of an internationally important species or site supporting such a species), i.e.: • IUCN Red List species that is listed as critically endangered, endangered or vulnerable; or • Species listed in Annex IV of the Habitats Directive; or • Site that supports 1% or more of the biogeographic population of a species; or • The species is at a critical phase of its life.
High (National)	A nationally designated site (Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), or a discrete area which meets the selection criteria for national designation. An area previously identified by Defra as a Nature Improvement Area. A sustainable area of a priority habitat identified in the UK BAP or smaller areas of such habitat, which are essential to maintain the viability of the whole. Sustainable population are they nationally important species or site supporting such a species (or supplying a critical element of their habitat requirement), i.e.: • Species listed of Schedule 5 or 8 of the WCA (1981); • UK Red Data Book species; • Other species occurring in 15 or fewer 10km squares in the UK; and • Sites supporting 1% or more of the national population.
Medium – High (Regional)	Sites/populations which exceed the County-level designations but fall short of SSSI selection guidelines including the following: • sustainable areas of key habitat identified in the Regional BAP or smaller areas of such habitat, which are essential to maintain the viability of the whole; • Population of a species listed as being nationally scarce which occurs in 16-100 10km squares in the UK; • population of a species listed in a Regional BAP or relevant Natural Area on account of its regional rarity or localization; or • Sites supporting 1% or more of the regional population.

Importance	Descriptor
Medium (County)	Some designated sites (including County Wildlife Sites, Local Wildlife Site). A viable area of habitat identified in the County BAP. Sustainable populations of the following species, i.e.: • Species listed in a County/Metropolitan 'red data book' or BAP on account of its rarity/localisation in a county context; or • Sites supporting 1% or more of a county population.
Low – Medium (Unitary Authority, i.e. Borough)	Some designated sites (including non-statutory designated Sites of Importance for Nature Conservation, Sites of Borough Importance). Viable areas of habitat identified in a District / Borough BAP. Sites/features That are scarce within the District / Borough all that appreciable enrich the District / Borough habitat resource. Sustainable Populations of the following species, i.e.: • Species listed in a District / Borough BAP on account of its rarity / localisation in a district context; or • Sites supporting 1% or more of a District / Borough population.
Low (Local Neighbourhood or Parish)	Sites/populations, which appreciably enrich the Parish/Neighbourhood habitat resource (for example hedgerows of medium richness).
Negligible (i.e Zone of Influence only)	No significant ecological value.

Assessing the Significance of Impacts

10.123 In order to assess the significance of an impact, the sensitivity of the ecological receptor is considered in association with the magnitude of the impact, according to the matrix shown in the **Table 10.4** below.

10.124 While the matrix in **Table 10.4** provides a framework for the determination of significance and enables comparison

across environmental parameters, a degree of professional judgement must be used and some parameter-specific factors considered in making a determination of impact significance.

Summary of Impacts

10.125 The proposed development involves the construction of a solar energy farm and associated access tracks and fencing within arable fields and improved grassland (**Plate 10.11**). Edge and adjacent habitats including

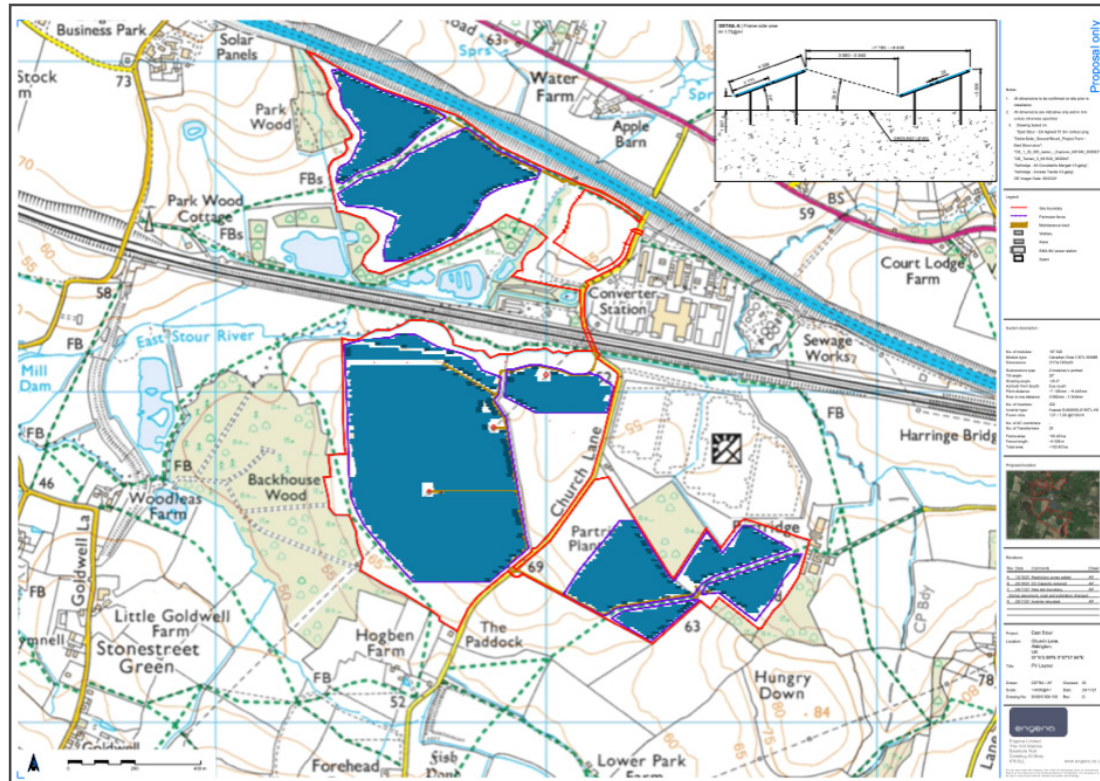
the brook, East Stour River Corridor, Park Wood, Backhouse Wood, Partridge Plantation and Round Wood will not be directly affected by the proposals. Direct and indirect impacts associated within the construction and operation of the solar farm are discussed below.

10.126 Decommissioning impacts are anticipated to be closely equivalent to those associated with construction, although the duration of decommissioning is likely to be slightly less than that for construction.

Table 10.4 - *Determination of Impact Significance*

Magnitude of Impact	Sensitivity of Receiving Receptor		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Low	Negligible	Minor	Moderate
Medium	Minor	Moderate	Major
High	Moderate	Major	Major
Very High	Major	Major	Major

Plate 10.11 - Proposed Development Plan



10.127 The Kent and Medway BAP lists Habitat Action Plans but none of these habitats will be directly affected by the proposals. Indirect impacts on adjacent habitats including woodland and rivers are discussed below. The Kent and Medway BAP also includes Species Action Plans and one species for which an action plan has been written, Nightingale, was recorded in habitats adjacent to the application site. Direct impacts on the habitats where Nightingale were recorded are not predicted however measures to avoid indirect impacts are included below.

10.128 Ecological enhancements are also recommended to ensure the proposals result in a positive ecological gain which is in accordance with the National Planning Policy Framework.

Designated Sites

10.129 There are four statutory designated sites as well as a single AONB with ecological interest within 5 km of the proposed development site however there are no direct links between the habitats on site and habitats within these sites and due to the type and scale of the proposals and

distances from the designated sites, it is considered that there will be no impact on the designated sites as a result of the proposed development.

- 10.130 Backhouse Wood which is a Local Wildlife Site is immediately west of the Southern Array. The proposed scheme will not directly impact on this habitat unit and measures detailed below will ensure no direct impacts on this woodland habitat. The landscaping plan includes additional woodland planting which will link to Backhouse Wood and hedgerow planting will also create linkage habitats.

Habitats

General

- 10.131 The proposed solar farm development will result in the direct loss of approximately 65.49 ha of arable land and sheep-grazed improved grassland. Neither habitat is of significant ecological value and the impact of habitat loss is considered to be negligible.
- 10.132 Access for the Northern Array will be along an existing access track off Church Lane, with additional tracks

within the array being created within the arable field. The track will cross the brook at the site of the existing crossing which will be upgraded to be able to support machinery required for the construction of the solar panels and associated fencing. Access into the Southern Array will be created off Church Lane and will run through areas of arable land. Access into the Eastern Array will be through the Southern Array and across Church Lane at a new crossing where an existing field gate exists. The access track will travel through the improved grassland. Access to the north-eastern part of the Eastern Array will be through an existing field gate. Direct impacts associated with the creation of access tracks on habitats of ecological value are not anticipated.

- 10.133 All areas of adjacent habitats including the brook, the East Stour River corridor and all areas of adjacent semi-natural Ancient Woodland will not be directly affected by the proposals.
- 10.134 To protect areas of adjacent habitat from indirect impacts during construction of the scheme as well as maintaining and increasing the biodiversity of the site and adjacent

habitats, the following mitigation measures and safe working methods will be incorporated into the proposals.

- 10.135 Operational impacts on areas of adjacent habitat, including areas of semi-natural ancient woodland, the Brook and the East Stour River are not anticipated. All works traffic and site maintenance operations will be within the fenced site.

Mitigation and Enhancement

- 10.136 Construction activities will be within areas of existing ecologically poor arable farmland and improved grassland with access to, and across the site, making use of existing hardstanding field gate entrances, farm tracks or areas where no hedgerows are present, and mitigation is not required for these impacts. Working areas will be clearly marked to ensure areas of habitat adjacent to the solar park are not impacted by the scheme.
- 10.137 The entire part of the project site under the panels (65.49ha) will be enhanced with native grassland and wildflower mixes. In addition to this a total of 13.6 ha of lowland wildflower meadow will be sown on Bested Hill (Southern

Array) between the perimeter fencing and Church Lane. Grasslands will also be created between the north-eastern part of the Eastern Array and adjacent woodland. All areas of grassland will be managed as wildflower meadow which, once established, will ultimately be subject to an annual hay cut, between September and October. All cuttings will be removed from the site, after which the areas of grassland within the fenced solar farm (e.g. under the panels) will be subject to low-intensity mop-up grazing between September and March. There will be no mowing or grazing of the grassland areas between March and July / August which will allow the meadow flowers and grasses to flower and set seed. The management regime will also ensure that any ground nesting birds are not impacted by the management of the grassland habitat. Wildflower mixes will be determined as part of the management plan and will be dependent on soil type. Seed mixes should favour locally sourced seed where possible and will reflect the location of the meadows being created (e.g. riparian meadows along the northern edge of the Southern

Array which borders the East Stour River corridor).

10.138 A total of 2.2 km of hedgerow will be planted and this include new hedges:

- On the north-western edge of the Northern Array;
- On the south-western and southern edges of the Southern Array; and
- On the north-western, western and southern edges of the Eastern Array.

10.139 In addition to the above new hedges, the existing Hedgerow 1, hedges along Church Lane and the hedge on the south-eastern edge of the Eastern Array will be improved through planting up of existing gaps resulting in a total of 1.5 km of improved hedgerows across the application site. This work will create vital habitat links between the woodlands adjacent to the Southern and Eastern Arrays which will ultimately provide habitats for a range of breeding birds, as well as improving foraging and commuting habitats for small mammals, including Dormice, Badgers and bats. The planted hedgerows will consist of:

- Hawthorn – 30%;
- Blackthorn – 30%;
- Hazel - (15%); and
- The remaining 25% of tree species planted will consist of the following
 - Dog Rose
 - Guelder Rose (Viburnum opulus)
 - Holly
 - Honeysuckle (Lonicera periclymenum)

10.140 A small area (1.1ha) of low-density woodland will be planted at the southern end of the Southern Array. Tree species planted will include Oak, Ash, Hazel, Small-leaved Lime (*Tilia cordata*), Hornbeam (*Carpinus betulus*) and Holly.

10.141 All newly planted trees will be guarded in a biodegradable tree guard and bark mulch will be used to suppress weed growth as well as aid in water retention. All planted trees will need to be regularly watered once they have been planted and weed killers should not be used. Tree guards should be removed by at least Year 5 (if they have not naturally degraded)

and surveys will be completed in Year 3 and Year 5 and any losses will be replaced. Long term hedgerows will be managed through sympathetic cutting using cutting blades. Flail heads should be avoided as these damage hedgerow trees. Cutting should only be completed in January / February (the later the better) so as to give wintering birds the opportunity to eat berries and fruits. Cutting should not be undertaken at other times of the year, especially during the breeding bird season (March to August inclusive).

10.142 The enhancements to the existing hedgerows will result in a transition from poor quality, low ecologically valuable hedgerows with some (limited) habitat connectivity to hedgerows that are species rich, thick and tall offering nesting opportunities for bird species, and improved habitat connectivity to extend mammal corridors on site. Newly planted hedgerows along with the creation of a small area of low-density tree planting will result in habitats with moderate to high ecological value and improved habitat connectivity for wildlife.

10.143 The brook and the East Stour River corridor will be unaffected by the works and impacts will be avoided through the implementation of a minimum of a 15m stand-off distance from the sites' perimeter fencing and the East Stour River. Riparian meadow will be created along the northern boundary of the Southern Array which will ultimately enhance the East Stour River corridor and associated habitats.

10.144 Indirect impacts to watercourses will be prevented (avoided) during construction by implementing standard pollution control measures outlined below.

10.145 The following measures will be employed during the construction phase of the project to prevent indirect impacts to the adjacent watercourses:

- No construction works to be undertaken within at least 10m of the watercourses, apart from the upgrade of the bridge across the brook and access track laying;
- Edges of the solar farm adjacent to watercourses will be fenced with silt barrier fencing to prevent any surface water run-off into the watercourse during construction.

The construction areas around the brook crossing will be fenced prevent run-off into the adjacent watercourse;

- Spill kits will be stored within the site compound during and post construction and all spills will be cleaned up accordingly and if necessary reported;
- All chemical substances and hazardous materials will be stored in accordance EA guidelines with all diesel fuel and other lubricants will be stored in appropriate containers and within a double bunded storage areas;
- Any washing of concreting vehicles will be done well away from any watercourses and/or drainage systems;
- Any re-fuelling and re-lubrication will only be completed in an approved area in which a spill kit is available; and
- No dirty water associated with the proposed development to be discharged into the watercourse.

Landscape Environmental Management Plan (LEMP) and Monitoring

10.146 It is recommended that a LEMP is written which will detail all of the mitigation and enhancement included in this section for both habitats and fauna. The LEMP will include details on habitat management works that will be completed throughout the operational phase of the project. Monitoring requirements will also be included within the LEMP along with an adaptive management strategy setting out additional measures to be completed depending on the outcome of the operational monitoring.

10.147 It is recommended that habitat condition surveys are completed in Years 3 and 5 after construction to monitor the rate of grassland establishment as well as to assess the rate of establishment of any trees that have been planted. Additional habitat creation or remedial works may be required depending on the results of these surveys and this could include additional seeding or tree planting, and this will be detailed in the LEMP which should be included as a Planning Condition.

10.148 The location of the ecological enhancement is shown on **Figure 10.2** of ES Volume 3 - Figures.

Impact Assessment – Habitats

10.149 **Table 10.5** on **page 204** summarises the predicted direct and indirect construction and operational impacts on habitats.

Table 10.5 - *Impact Assessment Summary – Habitats*

Ecological Receptor	Sensitivity	Construction/ Decommissioning	Operation	Avoidance/ Mitigation	Enhancement	Residual Impact
Arable / Improved Grassland	Negligible	Permanent, long-term irreversible loss of habitats of negligible ecological value. Significance of impact: Negligible.	Habitats will not be impacted during operation of the solar park. Management will be completed for the lifetime of the scheme to maintain created habitats.	N/A	Creation of wildflower meadow under all panels and additional 13.6 ha grassland in Southern Array (previously bare earth field).	Long-term, permanent major positive increase in grassland / wildflower habitat across the application site.
Hedgerows / Woodland	Low (high for woodland)	No construction related direct or indirect impacts predicted. Access to Eastern Array will be through existing field gate entrances. Access to Southern Array is through existing gap in hedgerow network and access to Northern Array is via existing hedgerow breaches.	Habitats will not be impacted during operation of the solar park. Management will be completed for the lifetime of the scheme to maintain created habitats and will result in increased amount and functionality of hedgerow network around the site.	N/A	2.2 km new hedge 1.5 km enhanced hedge 1.1 ha of woodland planting	Long-term, permanent, major positive impact to hedgerow network and habitat connectivity.
Waterbodies – East Stour, brook and off-site ponds / fishing lakes	Low to medium	No direct or indirect impacts predicted. Mitigation measures will ensure no impact.	No direct or indirect impacts predicted. Buffer zones maintained throughout operation of the solar park. Creation of riparian meadows adjacent to the East Stour River.	Buffer zones and preventative construction methods.	Creation of riparian meadows.	Neutral to minor positive. Reduction in fertilisers and pesticides on the arable land likely to have a minor positive impact on the brook and East Stour River.

Protected Fauna

General

10.150 Badgers were recorded within the application site and are known to occur within the wider area. There are records of Dormouse within Backhouse Wood however this habitat unit will remain unaffected by the proposals and there will be no impact to the hedgerow network within the application site. Access to the Northern and Eastern Arrays will utilise existing field gate entrances. Otter could potentially be present along the East Stour River corridor however no evidence of this species was recorded during the surveys. Water Vole and Great Crested Newt are considered to be absent from the application site. Reptiles could potentially be present within the application site however the habitat areas that will be directly affected by the proposals are largely unsuitable for reptiles and edge habitats will remain unaffected.

Dormouse

- 10.151 No woodland habitat will be directly or indirectly affected by the proposals and access into the arrays will be through existing field gate entrances in hedges that are unlikely to support this species. The roadside hedge along Church Lane is not suitable for Dormouse and is not directly connected to known populations of this species in Backhouse Wood. The hedgerow between Partridge Plantation and Round Wood (access to the north-eastern part of the Eastern Array) is also unsuitable for Dormouse and the two woodland blocks are also considered unsuitable for this species due to poor woodland structure and lack of suitable food plants. It is therefore certain that there will be no impact on this species and as such mitigation specific for Dormouse is not recommended.
- 10.152 The landscaping plan will significantly increase the amount of hedgerows around the site and these will be managed specifically for wildlife. The planting scheme includes suitable food plants for this species (e.g. Hazel, Honeysuckle). The newly created hedgerows will link to

Backhouse Wood and into the wider hedgerow network, including existing hedgerows which will be enhanced through additional tree planting. The scheme is therefore likely to result in a minor positive impact on this species.

Bats

- 10.153 No features suitable for roosting bats will be affected by the proposals and the open arable land and improved grassland directly lost to construction works is unlikely to be of importance for foraging bats. Edge habitats including the brook and East Stour River corridor as well as off-site woodlands will remain unaffected by the works. The proposed hedgerow enhancement, creation, and planting of an area of low-density woodland and arable / improved grassland to wildflower grassland will significantly increase foraging and commuting habitats across the site. The lack of use of pesticides across the site should also increase invertebrate availability further enhancing the site for foraging bats.
- 10.154 The site will not be lit during operation of the solar farm and as such there will be no operational impacts on foraging

and commuting bats. Should lighting be required during construction a lighting plan showing the location and specification for any proposed lights on the site will need to be produced and this plan should reflect the Bat Conservation Trust Bats and Lighting in the UK guidance (2018). This will include directing lighting away from all retained trees and hedgerows around the boundaries of site other edge habitats to ensure that suitable foraging and commuting habitats remain unlit. Any lighting required during the operation of the solar park will be activated by PIR units and timed to go off after a period of five minutes. All installed lighting will be hooded so as not to illuminate edge habitats.

- 10.155 Enhancements for bats will be provided through the provision of 15 bat boxes which will be installed within the application boundary. This will comprise of five large pole-mounted bat boxes suitable for maternity or hibernation colonies and 10 smaller multi-purpose woodcrete bat boxes, suitable for summer roosts (**Figure 10.2** of ES Volume 3 - Figures).

Badgers

- 10.156 Badgers have been assessed within a confidential badger appendix provided to Ashford Borough Council.

Otter

- 10.157 No evidence of Otter was in habitat areas adjacent to the application site however the brook and East Stour River corridor are suitable habitats for this species. These habitat units will remain unaffected by direct or indirect impacts associated with the construction or operation of the solar farm and as such impacts on this species are not predicted and specific mitigation or enhancements are therefore not required.

Water Vole

- 10.158 No evidence of Water Vole was recorded during any of the surveys completed on the site and it is considered that this species is absent from the application site. It is therefore certain that this species will not be impacted by the proposals and as such mitigation or enhancements for this species are not required.

Birds

- 10.159 Specific surveys for breeding birds were completed between April and June 2021 and these surveys recorded a fairly typical assemblage of lowland farmland birds including species listed as being of Conservation Concern. The proposal will result in the loss of approximately 65.5ha of arable and improved grassland. The only species recorded breeding within the application site were Lapwing and Skylark. It is predicted that the loss of habitat within the solar park will therefore result in loss of breeding habitat for two pairs of Lapwing and between two and three pairs of Skylark. Similar habitats to those being lost are present in the wider area and the two areas of wildflower meadow being created outside of the solar farm will be suitable for both species. It is therefore likely that the residual impacts of habitat loss on Lapwing and Skylark will be neutral.
- 10.160 Habitat that is supporting Nightingale, a Kent Priority Species, will remain unaffected by the proposals.
- 10.161 Site clearance works as part of the construction programme will be

completed outside of the breeding bird season (March to August inclusive). If this is not possible the fields should be left un-cropped and if vegetation starts to grow up it should be regularly cut and kept short. If crops are planted and or 'fallow' vegetation is higher than 10cm it is possible that ground nesting species could breed on the fields and works will need to be delayed until the end of the breeding bird season.

- 10.162 Direct impacts on areas of adjacent habitat are not predicted and indirect impacts on the breeding bird assemblage in areas of adjacent habitat as a result of construction related impacts will be short-term (one breeding season) and reversible.
- 10.163 Direct or indirect impacts during operation of the solar park are not predicted.
- 10.164 The proposed landscaping plan which includes the conversion of arable land and improved grassland into wildflower grassland as well as the proposed hedge and low-density woodland will significantly improve opportunities for breeding birds across the site.

10.165 Any increases in invertebrates across the site as a result of no longer applying pesticides across the site will obviously benefit breeding birds.

10.166 The site will be further enhanced through the installation of 10 bird boxes which will be erected on trees within the application boundary. This will include 3 larger-hole hole nesting boxes suitable for Starling and 5 smaller-hole hole nesting boxes suitable for a range of common woodland birds (e.g. tits, Nuthatch). Two open-fronted nesting boxes will be installed as well as two large nesting boxes suitable for Tawny Owl or Kestrel (*Falco tinnunculus*) (**Figure 10.2** of ES Volume 3 - Figures).

Great Crested Newt

10.167 Habitats that will be directly impacted by the works are of sub-optimal suitability for use by Great Crested Newts. The four ponds adjacent to the application site were subject to eDNA surveys returned negative results for presence of Great Crested Newt. The closest known record of this species is approximately 2.0 km south of the site.

10.168 Great Crested Newts are therefore considered to be absent from the site and as such no mitigation for this species is required.

Reptiles

10.169 Common reptiles are known to occur within 5 km of the site however the habitats that will be directly affected by the proposals are of limited suitability for reptiles. It is recommended that habitat clearance works are completed during the reptile active season (March to October – but subject to breeding bird mitigation proposals) or the fields are left bare over the winter and that safe working methods are put in place to ensure no reptiles are harmed. During construction, any storage of piles of materials and excavated earth on the site should be kept to a minimum and away from the boundaries to deter reptiles from using them for temporary cover.

10.170 Taking in to account suggested mitigation it is predicted that residual impacts on reptiles during the construction phase will be negligible.

10.171 Habitat creation works will ensure that the scheme has a long-term positive impact on reptiles.

Other Species

10.172 Deer are likely to be present in the off-site woodlands however direct impacts are not anticipated during the construction phase of the works. Indirect impacts are possible as a result of noise and disturbance however are both short-term and reversible. Operational impacts are not anticipated as all suitable off-site habitats will remain unaffected.

10.173 Brown Hare and Hedgehog are considered absent or are unlikely to occur in the project area and as such impacts during construction are not predicted. Operational impacts are likely to be neutral to minor positive as a result of the suggested habitat creation including grassland, hedgerow and woodland habitats.

Summary of Residual Impacts on Ecological Receptors and Mitigation Plan

10.174 A summary of the likely ecological impacts of the scheme on receptors of conservation importance during construction and operation along with residual impacts is shown in **Table 10.6** on **page 209**.

10.175 An assessment of the biodiversity net gain is provided within **Appendix 10.3**.

Table 10.6 - *Impact Assessment Summary – Species*

Ecological Receptor	Sensitivity	Construction/ Decommissioning	Operation	Avoidance/Mitigation	Enhancement	Residual Impact
Dormouse	Medium	No construction related impacts predicted as works will not affect habitats suitable for this species.	No impacts predicted.	Clearly defined working zones to ensure works outside of the application boundary in woodland / hedgerow habitats are avoided.	Landscaping plan will result in 2.2 km of new hedge and 1.5 km of enhanced hedge as well as 1.1ha of woodland. New habitats link to Backhouse Wood. Significant increase in available habitat.	Negligible to minor positive.
Bats	Medium	No impacts predicted as works will not affect habitats suitable for this species.	Impacts on bats are not predicted.	Clearly defined working zones to ensure works outside of the application boundary in woodland / hedgerow habitats are avoided. Lighting plan will be developed. Lighting will not be directed on to areas of habitat outside of the fenced area and lighting will be triggered by PIR units and timed to go off after 5 minutes.	Landscaping plan will result in 2.2 km of new hedge and 1.5 km of enhanced hedge as well as 1.1ha of woodland. New habitats link to existing woodland areas / hedgerow network. Significant increase in foraging and commuting habitats. Provision of bat boxes will provide additional roosting opportunities.	Negligible to minor positive.

Ecological Receptor	Sensitivity	Construction/ Decommissioning	Operation	Avoidance/Mitigation	Enhancement	Residual Impact
Otters and Water Vole	Medium	No direct predicted as works will not affect the brook or East Stour River. Indirect impacts as result of pollution possible.	No impacts predicted.	Standard pollution control measures to be implemented during construction, including installation of silt trap fencing.	N/A	No impact / neutral. Reduction in fertilisers and pesticides on the arable land likely to have a minor positive impact on the brook and East Stour River and species it supports.
Breeding Birds	Medium, presence of BAP and BoCC species	Habitat loss will likely result in the loss of two pairs of breeding Lapwing and up to three pairs of Skylarks from arable fields in the Northern and Southern Arrays. No additional habitat loss (e.g. woodland, hedgerows) is predicted.	No operational impacts are predicted.	Habitat removal will be completed outside of the breeding bird season and the arable fields will be left bare / uncropped / ploughed in the preceding spring to prevent birds from breeding within the working areas.	Creation of wildflower meadows across the site including 13.6ha of meadow without solar panels will provide alternative nesting habitat for ground nesting birds. Planting of 2.2 km of new and enhancement of a further 1.5 km of existing hedgerow as well as will 1.1ha of woodland will ultimately provide additional nesting and foraging habitat for a range of breeding bird. Bird boxes to be erected across the site.	Minor positive.

Ecological Receptor	Sensitivity	Construction/ Decommissioning	Operation	Avoidance/Mitigation	Enhancement	Residual Impact
Great Crested Newt	N/A – Absent	Not present – no impacts predicted	-	N/A	Absent – n/a	-
Reptiles	Low	Habitats being lost to the scheme are not suitable for reptiles and impacts are not predicted.	No impacts predicted.	Standard measures to include storage of materials away from suitable edge habitats.	Creation of wildflower meadows, new and enhanced hedgerows and area of woodland will increase suitable habitat across the site.	Negligible to minor positive.

CUMULATIVE IMPACTS

Construction & Decommissioning

10.176 Whilst all individual projects or actions affect their environment, the combined or cumulative effects of multiple projects or actions can be greater than the sum of their individual parts. This is especially pertinent where these individual projects are similar, and any resultant impact will affect similar ecological receptors.

10.177 One PV development is already operational adjacent to the eastern site boundary. This is a small site (approximately 16ha). A Battery Energy Storage System application is anticipated to the immediate west of Church Lane by the Sellindge Converter Station.

10.178 Given the information available for Cumulative Schemes and the nature of the development, this does not indicate any significant impacts. The predicted impacts within the Environmental Statement conclude no significant impact on any receptor, and it is unlikely that it would cause a significant cumulative impact to biodiversity at any geographical level.

Operation

10.179 The information available for Cumulative Schemes does not indicate any significant impacts. The predicted impacts of this development are not significant and it is unlikely that it would cause a significant cumulative impact to biodiversity at any geographical level.

LEGAL PROTECTION

10.180 This section briefly describes the legal protection afforded to the protected species referred to in this report. It is for information only and is not intended to be comprehensive or to replace specialised legal advice. It is not intended to replace the text of the legislation but summarises the salient points.

Badger

10.181 Badger is protected in Britain under the Protection of Badgers Act 1992 and Schedule 6 of the Wildlife and Countryside Act 1981 (as amended).

10.182 The legislation affords protection to Badgers and Badger setts, and makes it a criminal offence to:

- wilfully kill, injure, take, possess or cruelly ill-treat a Badger, or to attempt to do so;
- interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a Badger sett; or
- to disturb a Badger when it is occupying a sett.

Dormouse

10.183 The Dormouse is on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receives full protection under Section 9. This species is also listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 which gives them full protection under Regulation 42. Protection was extended by the Countryside and Rights of Way Act 2000 (the CRow Act).

10.184 Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;

- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

10.185 Dormouse is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under Section 74 of the CroW Act.

Bats

- 10.186 All species of British bat are protected by The Wildlife and Countryside Act 1981 (as amended) extended by the Countryside and Rights of Way Act 2000. This legislation makes it an offence to:
- intentionally kill, injure or take a bat;

- possess or control a bat;
- intentionally or recklessly damage, destroy or obstruct access to a bat roost; and
- intentionally or recklessly disturb a bat whilst it occupies a bat roost.

10.187 Bats are also European Protected Species listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). This legislation makes it an offence to:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats in such a way as to be likely to (a) impair their ability to: (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or b), to affect significantly the local distribution or abundance of the species to which they belong; and
- damage or destroy a breeding site or resting place of a bat; and
- possess, control, transport, sell, exchange a bat, or offer a bat for sale or exchange.

10.188 All bat roosting sites receive legal protection even when bats are not present.

10.189 Where it is necessary to carry out an action that could result in an offence under the Conservation of Habitats and Species Regulations 2017 it is possible to apply for a Protected Species Mitigation (formerly European Protected Species) licence from Natural England (NE) or Natural Resources Wales (NRW) to allow works to proceed lawfully.

Otter

10.190 Otter is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receives full protection under Section 9. Protection was extended by the Countryside and Rights of Way Act 2000 (the CroW Act). Otter is also included as a Priority Species in the UK Biodiversity Action Plan (Anon, 2007).

- 10.191 Under the above legislation it is an offence to:
- kill, injure or take an individual of such a species;
 - possess any part of such species either alive or dead;

- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

10.192 Otters are European Protected Species listed on of the Conservation of Habitats and Species Regulations 2017 (as amended). This legislation makes it an offence to:

- deliberately capture, injure or kill an Otter;
- deliberately disturb Otters in such a way as to be likely to (a) impair their ability to: (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or b), to affect significantly the local distribution or abundance of the species to which they belong; and

- damage or destroy a breeding site or resting place of an Otter; and
- possess, control, transport, sell, exchange an Otter, or offer an Otter for sale or exchange.

Water Vole

10.193 Water Vole is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receives full protection under Section 9. Protection was extended by the Countryside and Rights of Way Act 2000 (the CroW Act). Water Vole is also included as a Priority Species in the UK Biodiversity Action Plan (Anon, 2007).

10.194 Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;

- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

Birds

10.195 All species of bird are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). The protection was extended by the CroW Act.

10.196 The legislation makes it an offence to intentionally:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

10.197 Certain species of bird are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and receive protection under Sections 1(4) and 1(5) of the Act. The protection was extended by the CroW Act. The legislation confers special penalties where the above-mentioned offences are committed for any such bird and

also make it an offence to intentionally or recklessly:

- disturb any such bird, whilst building its nest or it is in or near a nest containing dependant young; or
- disturb the dependant young of such a bird.

Great Crested Newt

10.198 Great Crested Newt is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), and receive full protection under Section 9. Protection was extended by the Countryside and Rights of Way Act 2000 (the CroW Act).

10.199 Great Crested Newts are also listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) and receive full protection, where they are found to be present. Works which will result in damage to suitable habitat or where killing and injury to Great Crested Newts is possible a Protected Species Mitigation (formerly European Protected Species) licence will need to be applied for and granted prior to works commencing.

10.200 Under the above legislation it is an offence to:

- kill, injure or take an individual of such a species;
- possess any part of such species either alive or dead;
- intentionally or recklessly damage, destroy or obstruct access to any place or structure used by such species for shelter, rest, protection or breeding;
- intentionally or recklessly disturb such a species whilst using any place of shelter or protection; or
- sell or attempt to sell any such species.

10.201 The Great Crested Newt is included as a Priority Species in the UK Biodiversity Action Plan (UKBAP) and also as a species of principal importance for the conservation of biological diversity in England under Section 74 of the CroW Act.

Reptiles

10.202 The common reptile species, such as Common Lizard, Grass Snake, Slow-worm and Adder, are listed under Schedule 5 of the Wildlife and

Countryside Act 1981 (as amended), in respect of Section 9(5) and part of Section 9(1). This protection was extended by the CroW Act.

10.203 Under the above legislation it is an offence to:

- intentionally or deliberately kill or injure any individual of such a species; or
- sell or attempt to sell any part of the species alive or dead.

REFERENCES

Act of Parliament, 1981, Wildlife and Countryside Act, 1981 (as amended).

Act of Parliament, 2006, The Natural Environment and Rural Communities (NERC) Act, (2006).

Act of Parliament, 2010, Conservation of Habitats and Species Regulations, 2010 (as amended).

Act of Parliament, 2019, The Conservation of Habitats and Species Regulations 2017) as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations, 2019.

BRE, 2014, Biodiversity Guidance for Solar Developments. Eds G E Parker and L Greene

CIEEM, 2018, Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1, Chartered Institute of Ecology and Environmental Management, Winchester.

Convention on the Conservation of Migratory Species of Wild Animals, 1979.

Defra, 2021, Biodiversity Metric 3.0,

Ministry for Housing Communities and Local Government (MHCLG), 2021, National Planning Policy Framework.

Natural England, 2010, Technical Information Note TIN020; Traditional orchards: Orchards and wildlife (2nd edition published in 2010)

The Council of Europe's Convention on the Conservation of European Wildlife and Natural Habitats, 1979.

The Convention on Biological Diversity, 1993.