Bubney Solar Farm

ECOLOGICAL ASSESSMENT

On Behalf Of Renewable Connections Developments Limited

March 2021 | P20-1083

ECOLOGICAL IMPACT ASSESSMENT

BUBNEY FARM, WHITCHURCH, SHROPSHIRE

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EXECUTIVE SUMMARY

- Clarkson & Woods Ltd. was commissioned by Pegasus Group on behalf of Renewable Connections Developments Ltd. to carry out an extended Phase 1 survey of an area within Bubney Farm, Whitchurch Shropshire SY13 4QH.

- The proposals for the Site comprise the installation of photovoltaic solar panels which are mounted on trackers and so follow the direction of the sun. Access tracks will be installed and deer fencing around the periphery of the Site. A grid connection route extends to the north to the A41 where it joins the existing substation.

- The Site comprised arable fields planted predominately with maize with some ryegrass. Field margins were narrow and hedgerows were species poor, gappy and isolated. Mature trees were present both in the hedgerow network and within the fields. Ponds were identified on OS maps but were no longer functioning as ponds as they had been ploughed and cropped. To the south and west of the Site was a slope down to a river which comprised woodland, acid grassland and patches of gorse and bracken scrub.

- A Construction Environmental Management Plan will be prepared for the Site which will cover protection of ecological features as well as environmental protection. A Landscape Ecological Management Plan has also been prepared which details the creation of new habitats and prescriptions to deliver biodiversity net gain.

- The habitats within the Site were generally of low ecological value. The mature trees will be protected through appropriate fencing during construction and the hedgerows retained and protected with deer fencing on the periphery of the Site and stock-proof fencing for internal hedgerows. A buffer of at least 8m will be allowed for all hedgerows between the security fencing and hedgerow itself. A small amount of hedgerow will require removal for site access, however, this will be mitigated through the planting of a large amount of new hedgerow habitat within the Site.

- High value habitat was identified off-site on the southern and western boundary; this comprised a river valley with a slope of acid grassland, scrub and woodland copse as well as a wooded river. This habitat will be protected through allowing a buffer of at least 10m and via prescriptions set out within the CEMP to prevent run-off, silt deposition and accidental spills.

- Hedgerows will be infilled using locally appropriate UK grown species and the arable fields seeded with a native, UK sourced meadow mix including non-vigorous grasses and wildflowers.

- Badger setts were identified on the boundary of the Site and a 10m buffer will be established around both setts. This will be appropriately fenced during construction work. A pre-construction badger survey will also be conducted to ensure no new setts have been excavated.

- The Site was of low value for bats, however, several trees contained potential roosting features. Activity surveys have not been completed as the most optimal habitat for bats was off-site, additionally, the habitats within the Site which offered some suitability (trees and hedgerows) are to be retained. The trees will be protected during construction and hedgerows infilled and extended in order to enhance the Site for bats. Bat boxes will be installed to enhance the Site for roosting bats.

- Several ponds were identified from OS maps and aerial photos, however, these were no longer functioning as ponds. They had been ploughed and cropped or turned into agricultural lagoons. Although there are historic records of great crested newts on the Site, the Site no longer supports any suitable breeding habitat. As a precaution, a pre-construction spring visit will be conducted by a suitably licensed ecologist in order to assess the "ponds". Should any be holding water and suitable for breeding great crested newts, an eDNA survey will be undertaken. Should a positive result be identified, the works will either continue under a non-licensed Risk Avoidance Method Statement, or the Natural England District Licensing Scheme will be utilised (depending on the location of the positive record). The Site will comprise a significant enhancement for great crested newts, as the ponds will be protected and deepened and a diverse grassland established within the fields.

- The Site offered low suitability for nesting birds, with the hedgerows and trees being the most optimal habitat. The arable fields were intensively managed with slurry/digestate spreading, ploughing and seeding in the spring when ground nesting birds such as lapwing would be establishing nesting sites. The Site also offered very little suitability for wintering birds as the maize crop offers no spilt chaff and subsequent to harvest, the fields comprised bare ground with no other plant species.

- Overall, it is anticipated that the Proposed Development will deliver a significant biodiversity net gain.

1 INTRODUCTION

1.1.1 Clarkson and Woods Ltd. was commissioned by Pegasus Group on behalf of Renewable Connections Developments Ltd. to carry out an Ecological Impact Assessment at Bubney Farm, Whitchurch, Shropshire SY13 4QH thereafter referred to as 'the Site'.

1.1.2 This Impact Assessment discusses the likely effects of the Proposed Development on the ecology of the Site using information collected during an Extended Phase 1 Habitats Survey carried out by Clarkson and Woods Ltd on 8th and 9th October 2020.

1.1.3 The assessment has been prepared by Hannah Montag, an experienced ecologist, who is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). The report has been subject to a two stage quality assurance review by appropriately experienced senior consultants who are full members of CIEEM.

1.1.4 Unless the client indicates to the contrary, information on the presence of species collected during the surveys will be passed to the county biological records centre in order to augment their records for the area. This is in line with the CIEEM code of professional conduct[1].

1.1.5 If no action or development of the Site takes place within twelve months of the date of this report, then the findings of the assessment and supporting surveys should be reviewed. An update of the surveys and/or assessment may be required.

1.2 Report Aims

1.2.1 The aims of this report are:

- To establish, as far as possible, the baseline ecological conditions existing on Site at the time of survey and to identify any likely future changes in the baseline conditions up to the point of commencement.
- To determine likely significant effects resulting from the proposals upon the ecological features identified within the assessment.
- To assess whether the proposals are likely to be in accordance with relevant nature conservation legislation and planning policies.
- To identify where further surveys to establish baseline conditions, inform assessment or develop mitigation or compensatory measures are required.
- To identify how mitigation or compensation measures will be secured, maintained and monitored.
- To identify ecological enhancements to be carried out and how they will be implemented, maintained and monitored.

1.3 Site Description Summary

1.3.1 The Site comprises a dairy farm with 7 arable fields within the Site boundary. These had been planted with maize and ryegrass as fodder for the livestock. The fields were bounded by species poor hedgerows, many of which were defunct and isolated. Directly to the south and the west of the Site is a slope down to a river valley. Further within the landscape is a canal to the east and a river to the north, with the A41 to the north east.

1.3.2 The Site lies in England on the Welsh border, with Red Brook delineating the border.

1.3.3 The approximate centre of the Site was at Ordnance Survey Grid Reference SJ 513 419, and the location of the site is shown in Figure 1 below.

1.3.4 The survey area is approximately 68 hectares (ha) in size. An aerial photo of the Site and surrounding area is provided in Figure 2. It should be noted that the red line boundary was reduced subsequent to the survey being undertaken and an area in the south west of the site is no longer being included within the application.

[1] Code of Professional Conduct. CIEEM, January 2019.

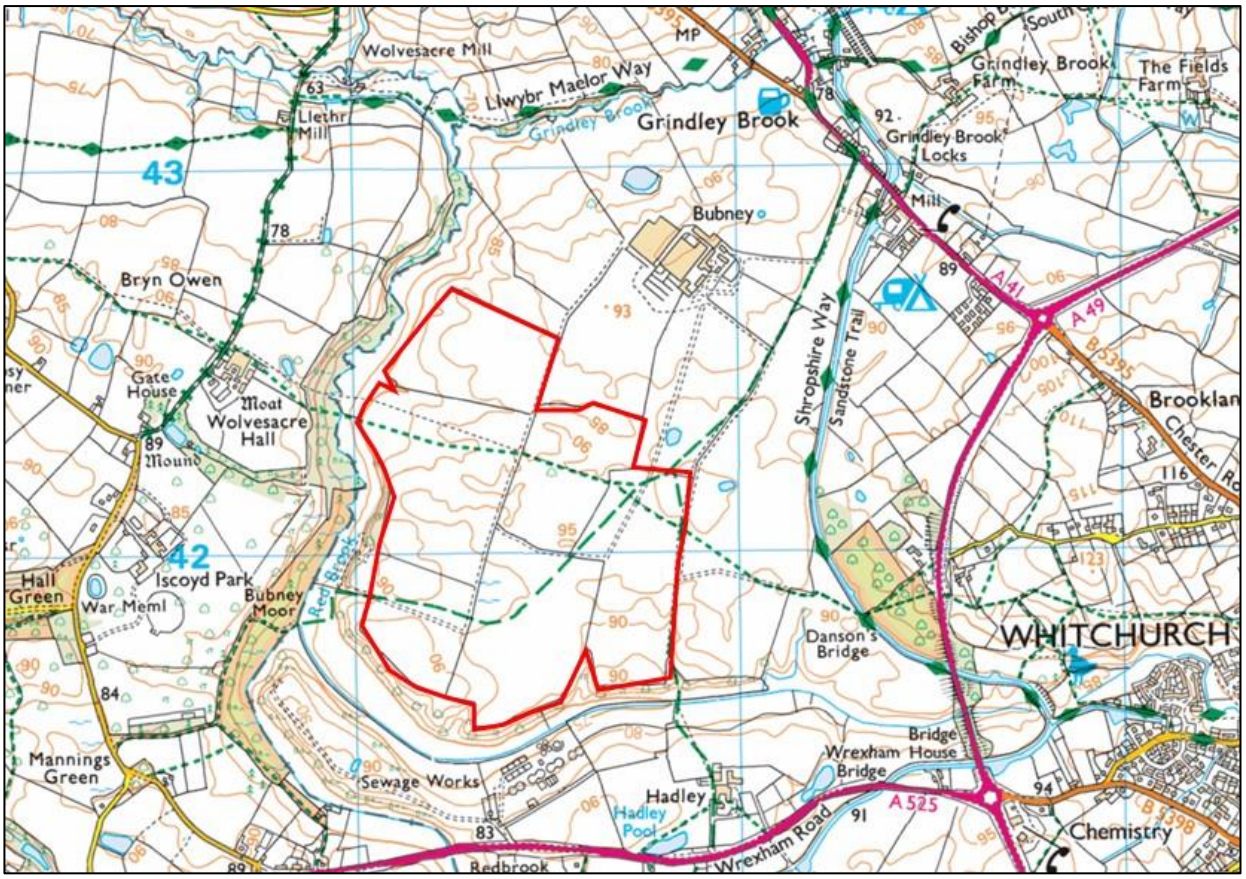

Figure 1: Ordnance Survey Map Showing Location of Site (red line showing survey boundary) (©2020 Bing Maps)

Figure 2: Aerial photograph of Survey Area and Cable Route (Dotted Line) (©2020 Google)

1.4 Development Proposals

1.4.1 The proposed works comprise the installation of tracking photovoltaic solar panels which are mounted on a post and tilt to track the direction of the sun in order to maximise energy output.

1.4.2 The panels are built in north/south rows (rather than the usual east/west) with a gap of 3.2m between the rows of panels (when the panels are horizontal).

1.4.3 Each string will be connected via underground cable to an inverter, which are situated in each field (measuring 6x2.4m). A DNO substation will be constructed at the entrance to the Site which measures 8x6m along with a customer substation adjacent to this measuring 10x4m. All structures will be built on concrete pads.

1.4.4 Access tracks will be constructed from crushed aggregate which lead from the main central (existing) track to each inverter and security fencing in the form of deer fencing installed around the periphery of each field.

1.4.5 A small section of land in the south west of the Site has been removed from the plans, therefore, the redline boundary is smaller than the area surveyed.

1.4.6 Any changes to the building design and layout and landscaping made subsequent to publication of this report should be issued to Clarkson and Woods Ltd. for review. Ecological impacts and mitigation opportunities may be affected by any such changes.

1.5 Quality Assurance

1.5.1 All ecologists employed by Clarkson and Woods are members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow the Institute's Code of Professional Conduct[2] when undertaking ecological work.

1.5.2 The competence of all field surveyors has been assessed by Clarkson and Woods with respect to the CIEEM Competencies for Species Survey (CSS)[3].

1.5.3 This report has been prepared in accordance with the relevant British Standard: *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*[4]. It has been prepared by an experienced ecologist who is a member of CIEEM. The report has also been subject to a two stage quality assurance review by appropriately experienced ecologists who are full members of CIEEM.

1.6 Assessment Scope / Consultation

1.6.1 Pre-application advice was sought from Sophie Milburn, the Ecology Officer at Shropshire Council who advised that an EcIA report was required – this report has been prepared so that is reflects the list which Shropshire Council have given as to what an EcIA should comprise.

1.6.2 Additionally, advice on great crested newts was given; Sophie noted, on behalf of Shropshire Council that ponds within 500m of the proposed development should be assessed using the Habitat Suitability Index. Where ponds are assessed as suitable, a survey for great crested newts should be carried out.

[2] CIEEM (2013). *Code of Professional Conduct*. www.cieem.net/professional-conduct.
[3] CIEEM (2013). *Competencies for Species Survey (CSS)*. www.cieem.net/competencies-for-species-survey-css-
[4] The British Standards Institution (2013*). BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*. BSI Standards Ltd.

2 BASELINE CONDITIONS

2.1 Introduction

2.1.1 This section sets out the results of the Desk Study and ecological field surveys along with an evaluation of their relative importance in order to inform the Impact Assessment. The methodologies associated with the baseline assessment are summarised with each ecological feature's subheading below.

2.1.2 Details of the legislative protection afforded to those protected species which have been identified as occurring or potentially occurring on the Site are given in Appendix A. Species of Conservation Concern are defined as those appearing in any of the following; Priority Habitats and Species under Section 41 of the Natural Environment and Rural Communities Act (2006); red or amber-listed birds within the British Trust for Ornithology's Birds of Conservation Concern (2015); and any specific local conservation priority species such as those listed in Red Data Books.

2.2 Evaluation Methodology

2.2.1 Each recorded ecological feature, whether it is a species, a habitat or a site designated for nature conservation, is described in turn in this section to provide the pre-development baseline conditions on Site. Subsequently, an evaluation of each feature's 'ecological importance' is made. The evaluation of ecological importance is informed by the criteria provided within the CIEEM Guidelines for Ecological Impact Assessment (2018)[5].

2.2.2 With due consideration to the criteria, each feature is classified on a geographical scale of ascending importance as follows; Negligible, Site, Local, District, County, National and International. The chosen geographic level of importance is considered that which best represents the scale at which the loss of the Site's area or population of the feature would have the greatest impact. Where sufficient survey information not available to determine the importance of a species or habitat present on the Site, the importance of the receptor is marked as 'uncertain' and based upon the professional judgement of the author together with available relevant desk study information.

2.2.3 Once importance has been determined for each feature, those of Local importance or above will be considered to be Important Ecological Features (IEFs). Non-IEFs will typically not be considered further within the impact assessment. However, where a feature does not qualify as an IEF but is afforded specific legal protection or coverage under a particular legislation or planning policy it will also be assessed in order to ensure the scheme's legal and policy compliance.

2.3 Desk Study

Methodology

2.3.1 Statutory designated sites for nature conservation were identified using the Natural England/DEFRA web-based MAGIC map database (www.MAGIC.gov.uk). International-level sites such as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) within 5km from the Site were searched for. National-level sites such as National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs) within 2km of the Site were searched for.

2.3.2 The Shropshire Ecological Data Network (SEDN) was consulted for records of protected species and species of conservation concern. This data is freely available. Additionally, the North Wales Environmental Information Service (Cofnod) was consulted to purchase data within 2km on the Welsh side of the Site (as it borders Wales). Neither record centre provides data on locally designated sites.

2.3.3 The Natural England/DEFRA web-based MAGIC map database was also consulted for records of European Protected Species (EPS) licences issued for mitigation projects concerning EPS within 2km of the Site.

2.3.4 The Shropshire Local Plan is currently under review, however, the Core Strategy (Shropshire Local Development Framework: Adopted Core Strategy 2011) was consulted for details of planning policies

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

relevant to designated sites, protected species and habitats, and general ecological and environmental protection.

2.3.5 The Shropshire Local Biodiversity Action Plan (BAP) was consulted for information on conservation priority species and habitats which may require further consideration and weight within Ecological Impact Assessments.

2.3.6 Ordnance Survey maps (1:25,000) and aerial images of the Site were examined online (bing.com/maps and maps.google.co.uk) to allow a better understanding of the context of the Site and its connections to potentially important habitats, known species records and protected sites.

2.3.7 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.

Limitations

2.3.8 No specific limitations to the desk study were encountered.

2.3.9 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.

2.3.10 It should be noted that the data obtained from within the search area will not constitute a complete record of habitats and species present within the search area. It is therefore possible that protected species may occur within the vicinity of the proposed development site that have not been identified within the desk study.

Desk Study Findings

Designated Sites

Statutory Designated Sites

2.3.11 Only one statutorily designated site was identified within 2km of the Proposed Development; Greenfields Local Nature Reserve (LNR), which is 2.3ha in size and is located 1km to the east at its closest point. The site is designated for its raised bog habitat which supports notable plants and invertebrates. Adders and common lizard are present on the site as well as breeding curlew, teal and shoveler.

2.3.12 A series of wildlife sites are located 3km to the south which make up Fenn's, Whixall, Bettisfield, Wem & Cadney Mosses; a Special Area of Conservation (SAC), National Nature Reserve (NNR) and Site of Special Scientific Interest (SSSI). This area also includes the Midland Meres & Mosses Ramsar. This area is internationally and nationally important due to the habitats on site which include raised bogs and fen. The area supports an important range of invertebrates associated with this habitat as well as notable plant assemblages.

2.3.13 Taylor's Rough & Wellmeadow Wood SSSI is located 2.8km to the north west and is designated for the woodland habitat which is scarce in this county.

2.3.14 Two meres which are also part of the Midland Meres & Mosses Ramsar are located 4km to the north east; Quoisley Meres and Oss Mere SSSIs. These are open bodies of water which are nutrient rich and support notable aquatic and marginal plant species as well as aquatic invertebrates.

Evaluation

2.3.15 Although the Sites are of international/national importance, they are considered to be outside of the zone of influence due to the distance of these sites from the Proposed Development.

Local and Non-statutory Designated Sites

2.3.16 Four local or non-statutory designated sites for nature conservation were identified within the desk study and are summarised in Table 1 below. Only data from Wales could be obtained, as SEDN does not hold information on locally designated sites.

Table 1: Summary of Local and Non-statutory Designated Sites for Nature Conservation

Site Name	Size, Distance and Direction from Site	Reason for Designation	Importance
Bubney Moor	22ha 70m west of the Site (on other side Red Brook).	The largest of the Iscoyd Commons, this site consists of mainly wet woodland along the Red Brook with some semi-improved grassland.	Local
Sandholes Meadows	4.5ha 700m north west of the Site.	Semi-improved grassland and marsh along the southern slopes of the Wych Brook valley.	Outside of the zone of influence
Iscoyd Brook	50.6ha 1.1km west of the Site	A long series of diverse semi-natural habitats along the Iscoyd Brook, a tributary of the Wych Brook. The majority of the site is semi-improved grassland and marshes.	Outside of the zone of influence
Fenn's Rough	7.1ha 1.2km south of the Site	Woodland along banks and flood plain of a brook. On the flat ground there is wet alder woodland. The habitat is marshy and diverse.	Outside of the zone of influence

Evaluation

2.3.17 The sites are of Local importance, however, all but one are considered outside if the Zone of Influence of the Proposed Development. Bubney Moor is located on the other side of Red Brook, which runs close to the ilte boundary.

Local BAP

2.3.18 The relevant species and habitats within the Shropshire Local Biodiversity Action Plan (BAP), (last updated 2009) are listed below. These are all species or habitats of principal importance:

- Hedgerows
- Lowland Species Rich Grassland
- Semi-Natural Broadleaved Woodland
- Generic Bird Species Actions
- Barn Owls
- Brown Hare
- Farmland Birds
- Great Crested Newt
- Lapwing
- Snipe
- Song thrush
- Dingy Skipper
- Grayling

Planning Policy

2.3.19 A review of Shropshire Core Strategy (2006 – 2026, adopted 2011) identified the following relevant policies:

CS17: Environmental Networks

Development will identify, protect, enhance, expand and connect Shropshire's environmental assets, to create a multifunctional network of natural and historic resources. This will be achieved by ensuring that all development:

- *Contributes to local distinctiveness, having regard to the quality of Shropshire's environment, including landscape, biodiversity and heritage assets, such as the Shropshire Hills AONB, the Meres and Mosses and the World Heritage Sites at Pontcysyllte Aqueduct and Canal and Ironbridge Gorge.*
- *Does not have a significant adverse impact on Shropshire's environmental assets and does not create barriers or sever links between dependant sites.*

CS8 : Facilities, Services and Infrastructure Provision The development of sustainable places in Shropshire with safe and healthy communities where residents enjoy a high quality of life will be assisted by:

- *Protecting and enhancing existing facilities, services and amenities that contribute to the quality of life of residents and visitors;*
- *Preserving and improving access to facilities and services wherever possible, including access to information and communication technologies (ICT), throughout Shropshire;*
- *Facilitating the timely provision of additional facilities, services and infrastructure to meet identified needs, as outlined in the LDF Implementation Plan whether arising from new developments or existing community need, in locations that are appropriate and accessible;*
- *Positively encouraging infrastructure, where this has no significant adverse impact on recognised environmental assets, that mitigates and adapts to climate change, including decentralised, low carbon and renewable energy generation, and working closely with network providers to ensure provision of necessary energy distribution networks.*

2.4 Habitat Survey

Habitat Survey Methodology

2.4.1 A habitat survey was carried out based on standard field methodology set out in the *Handbook for Phase 1 Habitat Survey* (2010 edition)[6]. The survey was completed by Hannah Montag, MCIEEM. Hannah has 15 years' experience undertaking ecological surveys and has a BSc and MSc in relevant subjects. Hannah holds a licence for the survey of bats (Natural England Reg. No. 2015-16249-CLS-CLS), great crested newts (Natural England Reg. No. 2015-17625-CLS-CLS) and dormice (Natural England Reg. No. 2016-22365-CLS-CLS).

2.4.2 Botanical names follow Stace (1997)[7] for higher plants and Edwards (1999)[8] for bryophytes.

2.4.3 The results of the Phase 1 Habitats Survey are included in map form on Figure 4. Habitats are mapped following the codes and conventions described within the Phase 1 Habitat Survey Handbook and Target Notes (Table 2) are used to describe habitats not readily conforming to recognised types and evidence of, or potential for, protected species and species of conservation concern. Photographs of the Site are provided below.

Habitat Assessment Limitations

2.4.4 One of the fields within the red line boundary and several outside the red line boundary could not be accessed as they contained a mature maize crop which was extremely dense, over 2m tall and planted up to the hedgerows. Small areas were accessed where there was space adjacent to the hedgerow or where tracks ran through the field and where the field was not accessed, the hedgerow was surveyed from the adjacent field.

[6] Nature Conservancy Council. (1990 - 2010 edition). *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit*, Joint Nature Conservation Committee
[7] Stace, C. (1997). *New Flora of the British Isles Second Edition*. Cambridge University Press
[8] Edwards, S.R. (1999). *English Names for British Bryophytes*. BBS, Cardiff

2.4.5 The survey was conducted late in the season for many plants and so some early flowering plants may have been missed during the survey. However, the habitats as a whole were assessed for their suitability to support plants, particularly rare or notable species.

Arable

Desk Study Information

2.4.6 No specific desk study information relates to arable habitat. No records of notable arable plants were identified.

Field Survey Results

2.4.7 The majority of the Site comprised arable land, which was planted with maize or ryegrass *Lolium sp*. At the time of the survey, the maize was being harvested so parts of the Site comprised stubble. The fields were a monoculture with no other species identified and the field margins were small (less than 1m wide). Within the margins, mainly ruderal species were present including nettle, creeping thistle, hedge parsley and couch grass.

Photograph 1 Showing Harvested Arable Crop

2.4.8 Within the south of the Site, where the fields bordered more diverse habitat, the field boundaries were more diverse and included poppy *Papaver rhoeas*, wild pansy *Viola tricolor*, musk thistle *Carduus nutans*, common storksbill *Erodium cicutarium*, small flowered cranesbill *Geranium pusillum*, common fumitory *Fumaria officinalis*, lesser swinecress *Lepidium didymum*, field speedwell *Veronica persica*, scarlet pimpernel *Anagallis arvensis* and black nightshade *Solanum nigrum*.

Evaluation

2.4.9 The arable habitat is considered to be of Site importance, however, there is greater diversity within the southern boundary of the Site. No particularly rare arable plants were identified within this area which may elevate the field margins to Local importance, however, there is scope for enhancements within this area, as discussed in Section 3.

Hedgerows

Desk Study Information

2.4.10 Hedgerows are a priority habitat and included within the Local BAP with targets to maintain the number of hedgerow trees, increase the net amount of hedgerow and achieve favourable management of hedgerows.

Field Survey Results

2.4.11 The hedgerows were species poor, intensively managed and defunct in most areas. All hedgerows on the Site comprised predominately hawthorn, with elder often recorded and occasional holly and rose. Dogwood was recorded in a single hedgerow stretch. Hedgerow height varied between 1.5-4m. Seven of the eleven hedgerows within the Site were defunct, with large gaps present. Five of the hedgerows contained mature standard oak trees.

2.4.12 It was noted during the survey that the waste maize stalks had been shredded and deposited within the hedgerow habitat, which is likely to damage ground flora.

Photograph 2 Showing Species Poor Hedgerow with Narrow Field Margin

Evaluation

2.4.13 None of the hedgerows were considered "Important" under the hedgerow regulations and all were species poor. However, hedgerows are included within the Local BAP and therefore, their importance has been elevated to Local.

Mature Trees

Desk Study Information

2.4.14 Trees associated with hedgerows are included within the Local BAP with a target to maintain the number of hedgerow trees.

Field Survey Results

2.4.15 Mature oak trees were identified within the hedgerow network, as well as several within the fields. These varied in age, with some being very large, particularly in the north west of the Site. The trees are likely to offer valuable habitat for a range of fauna such as birds and bats as well as fungi and lichen.

Evaluation

2.4.16 Given the age of the trees and the fact that they are likely to support a range of wildlife, they are considered to be of Local importance.

Ponds

Desk Study Information

2.4.17 No relevant desk study information was identified.

Field Survey Results

2.4.18 A total of 6 ponds were identified within the Site from maps, however, these had been planted over with the crop either recently harvested or the crop still present and too dense to allow access to the area. The ponds were therefore either no longer present or no longer functioning as waterbodies and it is unknown if this is due to changes in farming practices or if the dry spring caused the waterbodies to dry, allowing them to be ploughed and seeded. Historic imagery shows that they were present in June 2018 although it appears that ryegrass was more widely planted at this time.

2.4.19 A further 6 ponds were identified outside the Site boundary (within 500m), but within the farm ownership. These were also accessed where possible in order to assess their suitability for great crested newts (see relevant section below).

2.4.20 The ponds identified on OS maps and aerial photographs are shown in Figure 3 below.

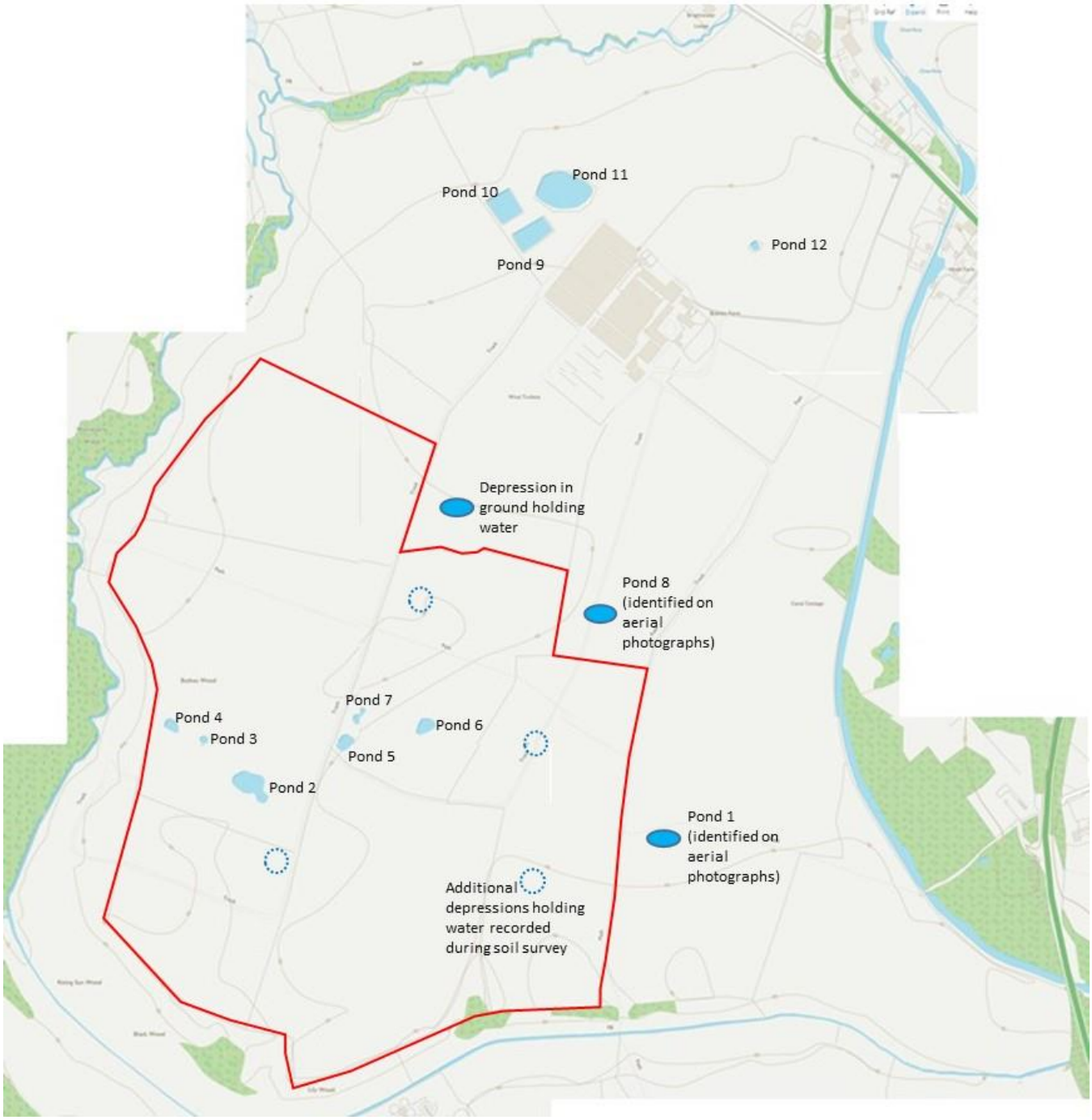

Figure 3: Map Showing Locations of Ponds Identified During the Desk Study

2.4.21 The ponds were surveyed where possible and a summary is as follows:

2.4.22 **Pond 1**: Within very dense maize crop – pond could not be accessed

2.4.23 **Pond 2**: A depression holding shallow water approximately 20m x 20m within an arable field. A crop had been planted and harvested (stubble was evident). Very muddy with no aquatic plants.

Photograph Showing Pond 2

2.4.24 **Pond 3**: An extremely small area of water adjacent to Pond 2, but much smaller (5 x 5m), again, with crops having been planted through it.

2.4.25 **Pond 4**: A slightly larger area of water, approximately 10m x 20m which had signs of a crop being planted and harvested. This pond has been removed from the red-line boundary and now lies outside the site.

Photograph Showing Pond 4

2.4.26 **Ponds 5, 6 and 7**: Within extremely dense maize crop, so could not be accessed. This field was accessed during the soil survey (undertaken on 22nd October 2020 by Daniel Baird Soil Consultancy Ltd) and none of

these ponds were holding water at that time. However, a depression was recorded in the north of the field which held a small amount of water, similar to Pond 2.

2.4.27 **Pond 8**: Depression within ryegrass field with no water, however, cuckooflower *Cardamine pratensis* and chickweed *Stellaria media* were present, indicating that it is damp.

2.4.28 **Ponds 9, 10 and 11**: All slurry lagoons associated with the cattle within the large barns. Pond 11 was an unlined pond which had some open water in the northern end, but large amounts of slurry entering from the south. Ponds 10 and 11 were lined lagoons holding slurry.

Photographs Showing Pond 11 (Left) and Pond 9 (Right - with Pond 10 Beyond)

2.4.29 **Pond 12**: Within extremely dense maize crop, so could not be accessed.

2.4.30 **An additional depression was also found on the Site, as shown in Figure 3**. This was approximately 5 x 5m wide and held shallow water. No aquatic plants were observed.

Photograph Showing Wet Depression Found within Field

2.4.31 The soil survey conducted by Daniel Baird revealed a few more depressions within the fields which held some water, however, it was concluded that these were the result of natural undulations in the ground which do not drain down into the watercourse, as the Site soil is very varied with rapid changes between sand and clay at depth.

Evaluation

2.4.32 Given that the ponds identified on OS maps and historic aerial photographs are no longer ponds, they do not have any current ecological value and so are of Site importance. However, they have been included within Section 3 as there is significant scope for restoring these features.

2.4.33 Several of the ponds could not be accessed during the survey, however, these will be re-visited in the spring in order to re-assess the Site for great crested newts (see the relevant Section below).

Off-Site Habitats

Desk Study Information

2.4.34 Shropshire Council has identified that both the river and area around it off-site to the south and west of the Site, as well as several small fragments within the Site which are likely to be possible ponds identified within aerial photographs are part of The Shropshire Environmental Network (SEN). Habitats within SEN are identified as being of high biodiversity value and the areas that act as connective 'corridors and stepping stones' between them.

Field Survey Results

2.4.35 Directly to the south and west of the Site was a downward sloping area comprising acid grassland, patches of woodland and copses and areas of scrub comprising gorse *Ulex europaeus* and bracken *Pteridium aquilinum*. At the base of this slope lay a river running in a northerly direction which was surrounded by mature woodland.

Photographs Showing Off-Site Habitat to the South (Left) and West (Right)

Evaluation

2.4.36 This habitat comprises a diverse mosaic which is well connected in the landscape and so is likely to be important as a corridor, and is designated as such through the SEN. It is considered to be of Local Importance.

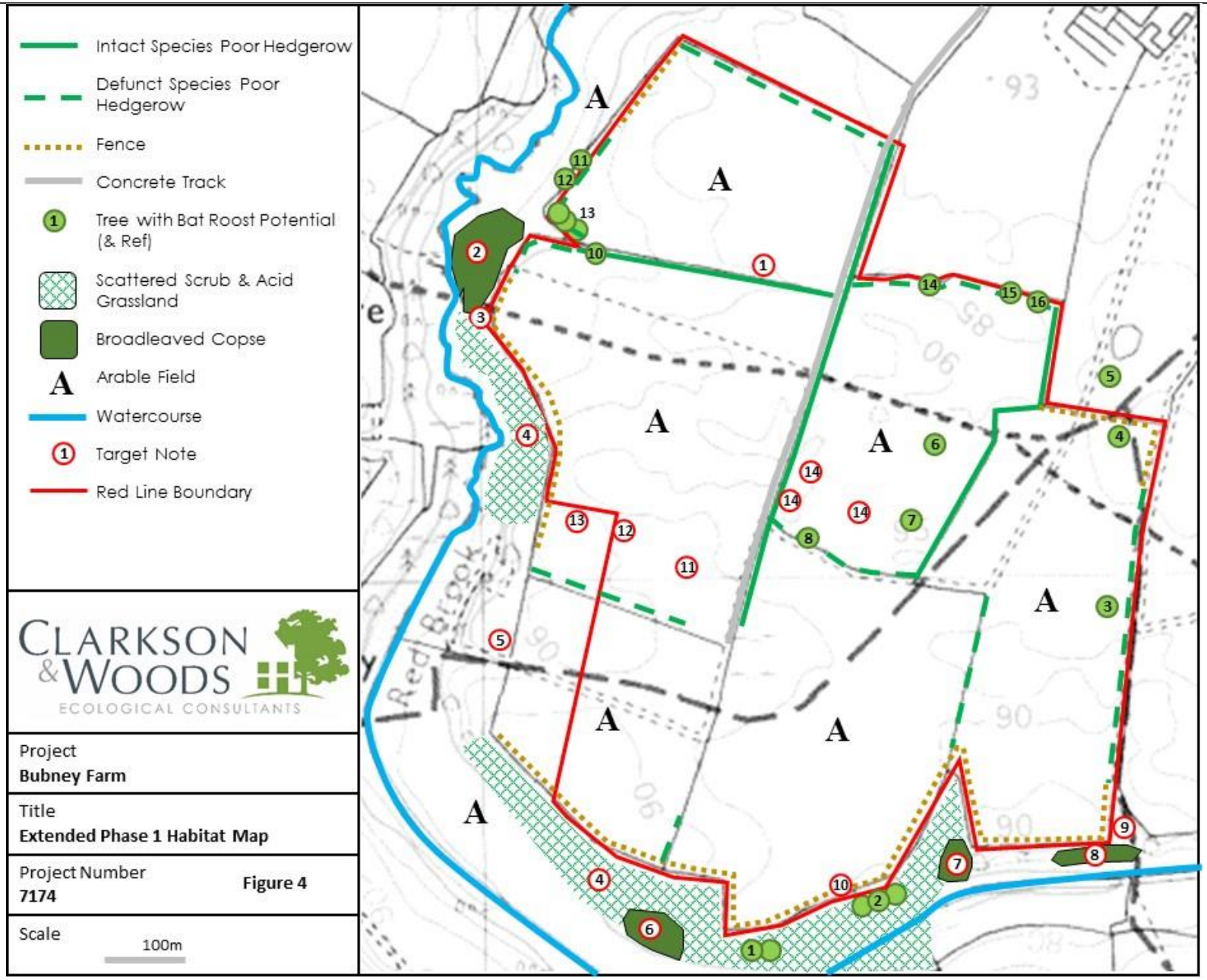
Intact Species Poor Hedgerow
Defunct Species Poor Hedgerow
Fence
Concrete Track
Tree with Bat Roost Potential (& Ref)
Scattered Scrub & Acid Grassland
Broadleaved Copse
Arable Field
Watercourse
Target Note
Red Line Boundary
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS
Project
Bubney Farm
Title
Extended Phase 1 Habitat Map
Project Number
7174
Figure 4
Scale
100m
Red Brook

Table 2: Target Notes

No.	Description
TN1	Two badger latrines
TN2	Area of oak trees extending up from river to Site. Lots of dead limbs and bat roost potential.
TN3	Main badger sett
TN4	Slope of rough acid grassland with scrub patches comprising bracken and gorse. Suitable for reptiles.
TN5	Earth bund with large excavations to the west where the landowner is quarrying sand as cattle bedding.
TN6	Small copse of sycamore and oak
TN7	Copse of oak, sycamore and ash. Several trees with moderate suitability for roosting bats
TN8	Copse of hawthorn (with several potential roosting features for bats), elder, ash (high suitability for roosting bats), sycamore and a dead tree
TN9	Overgrown footpath leading into small valley of ruderals and lined with trees.
TN10	Subsidiary badger sett
TN11	Location of historic pond (Pond 2), now just a depression in the field which has been ploughed, cropped and harvested
TN12	Location of historic pond (Pond 3) , now just a depression in the field which has been ploughed, cropped and harvested
TN13	Location of historic pond (Pond 4) , now just a depression in the field which has been ploughed, cropped and harvested
TN14	Location of Ponds 5, 6 and 7 on OS maps but could not be accessed due to dense maize crop

2.5 Protected Species Survey and Species of Conservation Concern

Badgers

Methodology

2.5.1 A search was made for badger *Meles meles* setts, and any sett entrances found were checked for signs of use by badgers or other mammals. Setts were classified into the following categories; Main, Subsidiary, Annexe or Outlying[9]. Sett entrances found were counted and mapped to record tunnel direction and their relative level of usage.

2.5.2 Field signs such as 'snuffle holes' (holes dug by badgers when searching for invertebrates), pathways through vegetation, 'latrines' (small pits in which badgers deposit their faeces) and 'day nests' (nests of bedding material made by badgers for sleeping above ground) were also mapped, if found.

[9] Lewns, P., Clarkson, T. & Lewns, D. (TBC). *Badger Survey and Mitigation Guidelines (The Mammal Society Mitigation Guidance Series)*. Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London. (*as yet unpublished*)

Limitations

2.5.3 The area around the badger setts which have been identified on the Site was examined closely. If impenetrable vegetation prevented entry then the perimeter was examined in order to detect badger paths suggesting a hidden sett within the area. It cannot be guaranteed that all the entrances have been located, especially if a small sett is currently inactive or used seasonally and concealed in an area of thick scrub. Badgers may dig new holes and create new setts in a very short space of time.

2.5.4 One field was planted with very dense maize and could not be fully accessed. Some of the periphery was walked, where possible and the exterior of the field was examined from the other side of the hedgerow. Therefore, it is possible that badger setts may have been missed within these areas.

Desk Study Information

2.5.5 Several badger records were identified within the SEDN data search. Four records were made between 2011 and 2017 approximately 1.6km south of the Site, 1 record was made in 2016 approximately 650m north-east, 3 records were made between 2013 and 2015 approximately 200m to the east and finally 8 records were made between 2011 and 2017 approximately 800m to the south east of the Site.

2.5.6 Data returned from COFNOD identified 16 records of badger within 2km of the Site in the last 20 years. The nearest record pertained to a dead badger approximately 100m to the south in 2014. The nearest badger sett recorded was approximately 160m west of the Site.

Field Survey Results

2.5.7 Two badger setts were identified adjacent to the Site, with a large amount of foraging activity noted, particularly on the southern boundary. Badger footprints were noted within mud in the south and two latrines were present in the north of the Site.

2.5.8 The first badger sett was located on the southern boundary and is likely to be a subsidiarysett with two well used entrances and one partially used. One of the entrances was located within the arable field itself, but the direction of the entrance was towards the field boundary.

2.5.9 A probablemain sett was identified outside the red line boundary in the west of the Site and comprised ten well used entrances and two partially used. The sett was within an area of oak trees and the closest entrance was approximately 2m from the fenceline.

Evaluation

2.5.10 Badgers are present within the Site and although this is a widespread animal of low conservation concern, the setts are protected from damage and disturbance. Therefore, they have been taken forward within this assessment.

Bats

2.5.11 The assessment of the suitability of the site for foraging and roosting bats was based on current guidance set out by the Bat Conservation Trust[10].

2.5.12 *Trees:* an inspection of trees on site was carried out from the ground, using binoculars, to record any signs of use of the tree by bat species. A ladder, powerful torch and a video fibrescope were available. Features such as frost cracks, rot cavities, flush cuts, split or decaying limbs (including hazard beams), loose bark and dense plates of ivy were inspected and recorded. Any signs of staining (from urine or fur rubbing) and scratch marks below potential access points were noted, and a search was made for droppings underneath these features.

2.5.13 *Habitat:* the habitats within the site were appraised for their suitability for use by foraging and commuting bats. In particular, the connectivity of the habitats on site to those lying beyond was taken into account. Vegetated linear features are typically important for many species to navigate around the landscape, while the presence of woodland, scrub, gardens, grassland and wetland features increases a site's foraging

[10] Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1.

resource value to bats. The potential for noise or lighting disturbance which may affect commuting links was also recorded.

Limitations

2.5.14 Bats are very small creatures, capable of roosting within extremely small spaces and it is possible that these animals, or their signs, might have been missed during the survey if they are normally present opportunistically or in small numbers for a short period of time each year.

2.5.15 Trees were surveyed from the ground where accessible, but given the size of many of the trees on Site, a full inspection could not be carried out from ground level. Therefore, features may be missed which are obscured from view.

Desk Study Information

2.5.16 One bat record was identified within the SEDN data search; a soprano pipistrelle was recorded approximately 200m east of the Site in 2014.

2.5.17 COFNOD returned 12 records of bats within 2km of the Site from the last 20 years. Species recorded included Daubenton's *Myotis daubentonii*, whiskered *Myotis mystacinus*, noctule *Nyctalus noctula,* common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared Plecotus auritus bats.

2.5.18 Three bat licences were identified using the MAGIC database:

- 2015-8455-EPS-MIT (27/05/2015-31/05/2020), allowing for the destruction of a resting place for brown long-eared, common pipistrelle and Natterer's bats. This was recorded approximately 1.7km to the east of Site.
- 2015-8455-EPS-MIT-1 (08/09/2015-31/05/2020), an update of the above licence.
- EPSM2012-4662 (06/08/2012-31/10/2012), allowing for the destruction of a breeding site and destruction of a resting place for soprano pipistrelle bats. This was recorded approximately 900m north east of the Site.

Field Survey Results

Habitat

2.5.19 The arable fields offer little foraging opportunities for bats given the lack of diversity and intensive management. The hedgerows are likely to offer some opportunities for commuting and foraging, however, they were species poor and generally managed to a low height. Additionally, the hedgerow network was of low value due to the large gaps and low connectivity across the Site. Overall, the Site is considered to be of Low suitability for commuting and foraging bats under the BCT guidance due to the monoculture crop and gappy and isolated hedgerows.

2.5.20 The habitat off-site to the south and west which includes wooded riparian habitat, mature trees, rough grassland and gorse scrub, is considered much higher value for bats.

Trees

2.5.21 A total of 16 trees were identified within the fields or boundary hedgerows. From the ground, 6 of these appeared to have Low suitability for roosting bats, with no obvious roosting opportunities seen. A further 2 were classed as Low/Moderate, as a very small number of features were seen (such as lifted bark or small dead branches) but it was not possible to observe from the ground if these were suitable roosting features. 4 trees had moderate potential and 1 tree was classed as Moderate/High as it was partly dead but could not be fully seen from the ground. 1 tree was classed as having High suitability as it had a large central split and was partly dead.

Photograph 3 Showing Mature Tree with Dead Limbs

Evaluation

2.5.22 The Site is considered to be of limited 'Site' importance only for foraging and commuting bats, although the adjacent offsite habitat is considered to be of greater 'Local' importance. In terms of roosting, the Site is considered to be of Local value given that there are several large oak trees which offer roosting opportunities, however, it should be noted that given the lack of suitable foraging and commuting habitat this vale may be reduced.

Dormouse

Methodology

2.5.23 Any hedgerows, scrub and woodlands were assessed during the walkover for their suitability to support dormice *Muscardinus avellanarius*. Particular consideration was paid to the abundance of food sources within them, density for nesting and overnight shelter and the strength of connectivity to other suitable habitats leading off site. In addition, any direct sightings, nests or feeding signs during the site visit were also recorded. Where hazel *Corylus avellana* was recorded on site, a search for gnawed hazelnuts was conducted.

Limitations

2.5.24 No fruiting hazel was found within the Site, therefore, a nut search could not be conducted.

Desk Study Information

2.5.25 No dormice were identified within the SEDN data search or within Clarkson & Woods' in-house records.

2.5.26 COFNOD returned one dormouse record approximately 1.8km west of the Site, observed in 2005.

Field Survey Results

2.5.27 The hedgerows were species poor, gappy and isolated, providing very little suitable habitat for this species. The valley to the south and west of the Site was more optimal, with higher diversity and connectivity.

Evaluation

2.5.28 Given the poor habitat within the Site and lack of records of dormice in this part of Shropshire, it is considered highly unlikely that this species is present within the Site.

Great Crested Newts

Methods

2.5.29 All waterbodies within 500m of the Site were identified using Ordnance Survey maps and aerial imagery. Waterbodies within the site ownership and on publically accessible land were assessed during the field survey for their suitability to support amphibian species where access was possible and where no barriers to newt movement to the site were noted.

2.5.30 Where suitable water bodies were identified on accessible land a Habitat Suitability Index (HSI) score was calculated for each one following the methodology described by Oldham et al[11]. HSI scores give a relative indication of the likelihood that a water body would support breeding great crested newts. Factors which increase these scores include the presence of other ponds nearby, water quality, pond size, absence of fish/waterfowl, vegetation cover and shading.

2.5.31 Terrestrial habitats were also assessed for their suitability for foraging and sheltering great crested newts. This species requires habitats such as grassland, scrub, woodland and hedgerows for dispersal and hibernation. Further hibernation features include buried rubble and logs, or mammal burrows.

Limitations

2.5.32 Several of the ponds identified on OS maps were inaccessible due to a very dense mature maize crop being present.

Desk Study Information

2.5.33 One field record of great crested newts was identified within the SEDN data search, 1.9km south east of Site in 2013.

2.5.34 Two records of great crested newts was identified within the COFNOD data search, one approximately 210m west of the Site in 2019 and one 1km west in 2005.

2.5.35 Four ponds within 2km were found to contain great crested newt DNA after being tested within the Natural England great crested newt surveys for District Licensing. One pond approximately 1.3km north in 2017, one pond approximately 1.3m north at an unknown date, one pond approximately 440m east in 2018 and another approximately 570m east in 2018.

2.5.36 The Site is covered under Natural England's great crested newt district licence option scheme for Shropshire. The Site is shown to be in the amber zone risk area, which are modelled to contain main population centres for GCN and comprise important connecting habitat that aids natural dispersal.

2.5.37 Additionally a great crested newt class survey license return was submitted in 2014 with a positive record of great crested newts just to the north of the farm buildings, approximately 560m north east of the Site.

2.5.38 One great crested newt mitigation license was identified 2km east of the Site; 2015-7436-EPS-MIT (12/03/2015-30/06/2020), allowing damage to a resting place.

2.5.39 The LPA ecologist has highlighted great crested newts within her pre-app consultation response, as the Site lies within an area where great crested newts are known to be present. She has recommended that all ponds within 500m of the Site are assessed for their suitability to support breeding great crested newts and where they are suitable, a presence/absence survey for this species may be needed.

[11] Oldham. R.S., Keeble L., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

Field Survey Results

2.5.40 The Site is isolated by the presence of Grindley Brook to the north, Red Brook to the west and south and the Llangollen Canal to the east. A small area to the north-east is not cut off by a watercourse, however, the A41 is present here, which is a large, busy road. The roads and watercourses are considered a partial barrier to great crested newt movement. Although it has been suggested in the pre-app that all ponds within 500m of the Site should be visited, these features would fragment a meta-population of great crested newts as regular dispersal across these features would not occur. Therefore, if a population is present, it would be within the periphery of these barriers.

2.5.41 A total of 12 ponds were identified within the survey area bordered by the roads and rivers and these were accessed and assessed where possible. Those ponds beyond potential dispersal barriers were not included within the assessment. Where ponds could be accessed, these were depressions in fields which had been cultivated, or were slurry lagoons associated with the dairy buildings. The ponds are described in the Habitats section above, and a Habitat Suitability Index assessment indicated that they are all of "Poor" quality for breeding great crested newts, due to the small pond sizes of many, annual drying, poor water quality, poor terrestrial habitat and absence of macrophytes.

2.5.42 The habitat within the Site was considered poor for great crested newts, with intensively managed arable crop or monoculture ryegrass, very small field margins and gappy, isolated and species poor hedgerows.

2.5.43 It is acknowledged, however, that great crested newts were recorded on the farm in 2014 within Pond 12. This pond could not be accessed due to the dense maize crop so an assessment was not made. Historical aerial photographs show that all ponds were present in June 2018 and held water, however, it appears that much of the Site comprised ryegrass. It is possible that the dry spring this year resulted in the ponds being dry and so has enabled the farmer to plough and crop within the ponds. The notable difference in terms of Pond 12 compared with the other ponds on the Site is that it appears to have been present for a long time; it was present in 1999 when the other ponds within the red line boundary were absent (these appeared by 2018). At this time, it also appears that Ponds 9-11 comprised a single pond but were converted to 3 agricultural lagoons by 2018. Before they were converted, they may have provided suitable habitat to support a meta-population.

Evaluation

2.5.44 The Site no longer provides suitable habitat for great crested newts, with the ponds which could be accessed having been ploughed and planted up. It is assumed that those in the dense crop which could not be accessed are in the same state.

2.5.45 However, great crested newts were identified as being present in 2014 in the north of the Site and a small population may still be present within the off-site habitats or field boundaries. However, there is no suitable breeding habitat at present for this population. Although it is considered that the Site is of Site value for great crested newts, a precautionary approach has been outlined in Section 3 given the previously recorded presence.

Reptiles

Methods

2.5.46 Features on site were assessed for their potential to provide suitable habitats for use by reptile species. These include rough, tussocky grassland, scrub, disturbed land or refugia such as wood piles, rubble or compost heaps. Where present, suitable existing refugia were inspected for sheltering reptiles.

Limitations

2.5.47 There was a large amount of disturbance on the Site, with several of the fields having been recently cut.

2.5.48 The weather was cool and cloudy and was not suitable for basking reptiles. Additionally, the survey was conducted late in the active reptile season.

Desk Study Information

2.5.49 No records of reptiles were returned from the SEDN or COFNOD data searches or within Clarkson & Woods' in-house records within 2km of the Site in the last 10 years.

Field Survey Results

2.5.50 The arable fields did not offer any suitable habitat for reptiles. The field margins were extremely narrow (no more than 1m) and the hedgerows defunct and isolated, which resulted in this habitat being of very low suitability. Additionally, the ponds were cropped and comprised no marginal or aquatic habitat which reptile species such as grass snake may utilise. It is therefore considered unlikely that reptiles are present within the Site boundary.

2.5.51 The off-site habitat, however, was particularly suitable for reptiles, with a tussocky grass and scrub south facing slope on the southern boundary and tussocky grassland and riparian habitat on the western boundary. It is considered highly likely that reptiles are present within this habitat.

Photograph Showing Scrub and Tussocky Grassland Off-Site Habitat

Evaluation

2.5.52 The Site itself was of Site value for reptiles due to the lack of suitable habitat. It seems highly likely that reptiles are present within the surrounding area and as such colonisation of suitable habitat on the Site would be anticipated over time.

Birds

Methodology

2.5.53 Any birds seen or heard during the survey were noted. The site's potential to support bird species of particular conservation concern (i.e. Schedule 1, NERC S41 and Red List species) was assessed, taking into consideration the bird species assemblage observed during the survey, the habitats present on and around the site, the context of the site in the wider landscape and the results of the desk study.

Limitations

2.5.54 The survey was carried out outside of the breeding season, therefore, nesting behaviour could not be recorded and birds which would usually be easily identified by song may have been missed. However, flocks of birds were seen foraging and some information on the suitability of the Site for wintering birds could be obtained.

Desk Study Information

2.5.55 The MAGIC website shows that part of the Site is within the Countryside Stewardship targeting are for curlew *Numenius arquata*, lapwing *Vanellus vanellus* and within the RSPB Bird Conservation Targeting Project area for tree sparrow *Passer montanus.*

2.5.56 Within the SEDN and COFNOD data searches, there have been a number of birds recorded within 2km of the Site which are either listed as red or amber on the BTO's Birds of Conservation Concern list. Table 3 below gives an overview of these species.

Table 3: Bird Species identified in the Desk Study within 2km of the Site

Species	Latin	Conservation Status	Number of records
Kingfisher	*Alcedo atthis*	Amber Bird of Conservation Concern.	2 records (confirmed breeding)
Skylark	*Alauda arvensis*	Red Bird of Conservation Concern.	1 record (possible breeding)
Mallard	*Anas platyrhynchos*	Amber Bird of Conservation Concern.	4 records (Confirmed breeding and wintering record)
Swift	*Apus apus*	Amber Bird of Conservation Concern.	1 record (possible breeding)
Lesser redpoll	*Carduelis cabaret*	Red Bird of Conservation Concern.	1 record (wintering record)
Black-headed gull	*Chroicocephalus ridibundus*	Amber Bird of Conservation Concern.	3 records (wintering record and non-breeding summer record)
Stock dove	*Columba oenas*	Amber Bird of Conservation Concern.	3 record (probable breeding and wintering record)
House martin	*Delichon urbicum*	Amber Bird of Conservation Concern.	2 record (confirmed breeding)
Lesser spotted woodpecker	*Dendrocopos minor*	Red Bird of Conservation Concern.	1 record (wintering record)
Reed bunting	*Emberiza schoeniclus*	Amber Bird of Conservation Concern.	3 record (probably breeding and wintering record)
Kestrel	*Falco tinnunculus*	Amber Bird of Conservation Concern.	4 records (confirmed breeding and wintering record)
Oystercatcher	*Haematopus ostralegus*	Amber Bird of Conservation Concern.	1 record (probable breeding)
Herring gull	*Larus argentatus*	Red Bird of Conservation Concern.	1 record (wintering record)
Red kite	*Milvus milvus*	Amber Bird of Conservation Concern.	1 record (wintering record)
Yellow wagtail	*Motacilla flava*	Red Bird of Conservation Concern.	1 record (possible breeding)
House sparrow	*Passer domesticus*	Red Bird of Conservation Concern.	6 records (confirmed breeding and wintering record)
Tree sparrow	*Passer montanus*	Red Bird of Conservation Concern.	3 records (confirmed breeding and wintering record)
Willow warbler	*Phylloscopus trochilus*	Amber Bird of Conservation Concern.	2 records (confirmed breeding)
Dunnock	*Prunella modularis*	Amber Bird of Conservation Concern.	4 records (probable breeding and wintering record)
Bullfinch	*Pyrrhula pyrrhula*	Amber Bird of Conservation Concern.	2 records (wintering record)
Starling	*Sturnus vulgaris*	Red Bird of Conservation Concern.	1 records (confirmed breeding and wintering record)
Whitethroat	*Sylvia communis*	Amber Bird of Conservation Concern.	2 records (probable breeding)
Redwing	*Turdus iliacus*	Red Bird of Conservation Concern.	2 records (wintering record)
Song thrush	*Turdus philomelos*	Red Bird of Conservation Concern.	5 records (confirmed breeding and wintering record)
Fieldfare	*Turdus pilaris*	Red Bird of Conservation Concern.	2 records (wintering record)
Mistle thrush	*Turdus viscivorus*	Amber Bird of Conservation Concern.	3 records (possible breeding and wintering record)
Barn owl	*Tyto alba*	Amber Bird of Conservation Concern.	13 records (confirmed breeding and wintering record)
Teal	*Anas crecca*	Amber Bird of Conservation Concern.	1 record (wintering record)
Snipe	*Gallinago gallinago*	Amber Bird of Conservation Concern.	1 record (wintering record)
Grasshopper warbler	*Locustella naevia*	Red Bird of Conservation Concern.	1 record (possible breeding)
Grey wagtail	*Motacilla cinerea*	Amber Bird of Conservation Concern.	1 record (confirmed breeding)
Wheatear	*Oenanthe oenanthe*	Amber Bird of Conservation Concern.	1 record (non-breeding summer record)
Sand martin	*Riparia riparia*	Amber Bird of Conservation Concern.	1 record (possible breeding)
Lapwing	*Vanellus vanellus*	Red Bird of Conservation Concern.	3 records (probable breeding and wintering record)
Curlew	*Numenius arquata*	Red Bird of Conservation Concern.	1 record
Grey partridge	*Perdix perdix*	Red Bird of Conservation Concern.	1 record
Woodcock	*Scolopax rusticola*	Red Bird of Conservation Concern.	3 records
Lesser black-backed gull	*Larus fuscus*	Amber Bird of Conservation Concern.	1 record
Meadow pipit	*Anthus pratensis*	Amber Bird of Conservation Concern.	1 record

Field Survey Results

2.5.57 Notable bird species recorded on Site during the survey are listed within the table below.

Table 4: Bird Species Recorded During the Field Survey

Species	Latin	Conservation Status
Linnet	*Linaria cannabina*	Red Bird of Conservation Concern.
Skylark (flock of 5)	*Alauda arvensis*	Red Bird of Conservation Concern. Species of Principal Importance
House sparrow (flock of 10)	*Passer domesticus*	Red Bird of Conservation Concern. Species of Principal Importance
Reed bunting	*Emberiza schoeniclus*	Amber Bird of Conservation Concern. Species of Principal Importance
Starling (flock of 60)	*Sturnus vulgaris*	Red Bird of Conservation Concern. Species of Principal Importance

2.5.58 Additionally, more widespread birds were noted including those associated with open fields and farmland such as two swallows *Hirundo rustica* foraging over the fields and a flock of around 20 pied wagtails *Motacilla alba*.

2.5.59 The hedgerows offered some suitable habitat for nesting birds as did the mature trees on the Site. The arable fields comprised predominantly maize, which is a poor habitat for ground nesting birds and offers little suitability for summer or winter foraging as there is no spilt seed. Furthermore no weeds were recorded within the fields which may provide a foraging resource. Lapwing are the only ground nesting species which may make use of spring sown maize, however, no lapwing were seen on the Site (although the survey was conducted after the breeding season was over). Information about crop management was obtained from the farmer and the maize is sown between late March and early May, with the land being ploughed and slurry/AD digestate spread before the crop is planted. This would occur at the beginning of the lapwing nesting season (this species starts laying in late March to early June), so it is likely that there would be too much disturbance at this key time. Additionally, lapwings require a mosaic of habitats in order to forage as well as nest, and the Site offers very limited foraging opportunities.

2.5.60 Historic photographs appear to show ryegrass more widely sown on the Site, however, the crop at present is predominately maize. It may be that ryegrass is included within the crop rotation. Consultation with the farmer has also indicated that wheat is also sown within the crop rotation, however, it is likely that maize is prioritised over wheat as the late harvest means that autumn sown wheat cannot be combined with a maize crop.

Photograph 4 Showing Harvested Maize Crop with Low Foraging Opportunities for Birds

2.5.61 The ryegrass fields were autumn sown and so less suitable for ground nesting birds. It is likely that they are cut too regularly to be suitable for birds such as skylarks; additionally, they did not have the structure (from dead material or encroaching plant species) which more established silage fields have to allow nesting.

2.5.62 Although several notable bird species were recorded, these birds are likely to range over a large area and the habitat within the Site was not particularly suitable for foraging wintering birds.

Evaluation

2.5.63 The Site is considered to be of Site Importance for wintering and breeding birds.

Invertebrates

Methods

2.5.64 Any notable invertebrates identified during the survey were recorded. The habitat was also assessed for its suitability for notable invertebrates, including the presence of specific species known to be foodplants or larval plants or habitats which may be favoured by invertebrates (such as bare ground, deadwood or grass tussocks). The habitat structure was also considered, such as mosaics, brownfield or unmanaged areas.

Limitations

2.5.65 The survey was conducted within a period of heavy rain (although it was not raining during the survey) and late in the season for invertebrates.

Desk Study Information

2.5.66 A large diversity of invertebrates have been recorded within 2km of the Site in the last 10 years, including a large abundance of spiders, shieldbugs, dragonflies and butterflies. No notable species were identified which are relevant to the habitats within the Site boundary.

Field Survey Results

2.5.67 No notable invertebrates were seen during the survey, although it was not conducted at an optimal time of year or optimal weather.

2.5.68 The habitats suitable for invertebrates were extremely limited, with the majority of the Site comprising monoculture arable crop. The hedgerows were species poor and gappy and the ponds were no longer present. The mature trees may offer some suitable habitat, particularly on the boundary of the Site where they are connected to further more optimal habitats.

2.5.69 The tussocky grassland and riparian habitat off-site to the south and west is likely to provide important invertebrate habitat.

Evaluation

2.5.70 The Site itself was considered to be of Site value for invertebrates.

Other Protected Species and Species of Conservation Concern

Methods

2.5.71 During the survey the Site was assessed for the presence or suitability of habitat for other Species of Principal Importance under the NERC Act (such as toad *Bufo bufo*, hedgehog *Erinaceus europaeus*, hare *Lepus europaeus*, harvest mouse *Micromys minutus*, polecat *Mustela putorius*) as well as notable plants.

Limitations

2.5.72 The survey was conducted late in the season for many flowering plants.

Desk Study Information

2.5.73 There is a toad crossing approximately 450m north east of the Site according to Froglife.

2.5.74 No records of harvest mice or toads were made in the SEDN or COFNOD data searches.

2.5.75 Two records of polecat were identified within the SEDN data search; both within 1km of the Site.

2.5.76 One record of brown hare was made to SEDN in 2017, within 1km of the Site.

2.5.77 COFNOD returned four records of hare, in approximately 2005, between 600m and 1.8km west and south west of the Site.

2.5.78 One record of hedgehog was made in 2017, approximately 200m east of the Site.

2.5.79 No invasive species have been recorded in the last 10 years within 2km of the Site.

Field Survey Results

2.5.80 The Site was generally too intensively managed for the species listed above, with very little habitat available such as field margins, hedgerows or foraging opportunities within the fields. No signs or habitat was identified which may support other notable mammals.

2.5.81 No invasive species were identified during the survey.

Evaluation

2.5.82 The Site is considered to be of Site value for other notable species.

2.6 Summary of Ecological Importance

2.6.1 The following habitats or species are considered to be Important Ecological Features and will form the basis of the Assessment of Effects in Section 3:

- Hedgerows
- Mature Trees
- Ponds
- Grassland (to be created)
- Off-Site Habitats
- Badgers (due to legislative protection)
- Roosting bats
- Great Crested Newts (precautionary approach)

3 ASSESSMENT OF EFFECTS

3.1 Methodology

3.1.1 Continuing from the valuation of Important Ecological Features (IEFs), this section lists each IEF in turn together with a characterisation of any potential impacts upon them likely to arise from the proposals. This takes into consideration any measures inherent to the designed scheme which seek to avoid such impacts altogether. Next, any agreed mitigation measures chosen to reduce likely impacts are then set out, along with the mechanism(s) through which these would be secured.

3.1.2 Residual effects, being those effects which would likely still arise despite any avoidance measures or agreed mitigation efforts, are subsequently discussed. Residual effects are determined to be either significant or not significant and any significant residual effects are given a geographical scale at which they might be felt. This assessment methodology is in accordance with that set out in the CIEEM Guidelines for Ecological Impact Assessment, 2018.

3.1.3 Where residual effects are identified compensatory measures may be proposed to make up for the loss or permanent damage to an IEF, as far as possible. Monitoring or management schemes which may be necessary to ensure the long-term achievement of all intended mitigation and compensation are discussed.

3.1.4 Where potential for cumulative impacts upon IEFs in association with other proposed or ongoing local development are identified these are described as appropriate for the affected IEF. The Zone of Influence for each IEF, together with their level of ecological importance will be of relevance when considering the scope of a cumulative impact assessment.

3.1.5 Ecological enhancement measures that will be incorporated into the development are given in line with the National Planning Policy Framework.

3.2 Summary of Development Proposals

3.2.1 The proposals comprise the construction of a photovoltaic solar farm. Panels will be fixed onto posts which are driven into the ground and connected via underground wiring to inverters. Each field will be surrounded with deer-proof fencing.

3.2.2 Inverters will be constructed in each field, with a DNO substation and customer substation constructed at the Site entrance.

3.2.3 The ponds identified on OS maps have been retained within the design, as have footpaths which run through the Site.

3.3 Designated Sites

Bubney Moor

Potential Impacts

3.3.1 Given that the Proposed Development is adjacent to a downwards slope at the base of which are the riparian habitats associated with Bubney Moor, there is potential for run-off, pollution events and silt deposition which may impact this habitat. Given that there is rough grassland, trees and scrub on this slope, any events such as this are unlikely to enter the watercourse. Given that the Site is currently intensively managed with large amounts of mud, tire ruts and standing water within the fields at the time of the survey, the construction activities are unlikely to be significantly different to the present agricultural activities. Furthermore, maize crops are known to result in silt run-off due to the late season harvest and exposure of bare soil over winter. However, the construction period will be much longer than the short periods of ploughing, sowing and harvesting which currently take place on the Site and should construction occur during extremely wet periods, there is the risk of run-off and silt deposition.

3.3.2 There are long term beneficial impacts associated with the conversion of the Site to pasture and cessation of intensive agricultural practices.

Mitigation, Compensation, Enhancement and Monitoring

3.3.3 A Construction Environmental Management Plan: Biodiversity (CEMP: Biodiversity) will be prepared to detail how the habitats within and surrounding the Site will be protected during the construction phase. The CEMP

will include details of appropriate fencing to restrict access in to key ecological areas, information on any timing restrictions and measures to prevent damage to sensitive ecological habitats. Typically the preparation of a CEMP will be a conditional requirement of the planning permission.

3.3.4 The CEMP will cover protection of the off-site habitats through the establishment of a buffer of at least 10m from the boundary to the south and west. Pollution prevention controls will also be put in place as well as measures to avoid run-off and silt, particularly during periods of wet weather during construction. Silt fencing may be required depending on the timing of construction to ensure that this habitat is not damaged.

3.3.5 The 10m buffer will comprise tussocky grassland and will extend the off-site habitat and so will provide an enhancement. Additionally, the cessation of intensive farming and sowing of a diverse permanent grassland will also benefit the off-site habitats.

Residual Effects

3.3.6 Providing the CEMP is adhered to, no residual effects are anticipated. In the long term the proposals will result in beneficial impacts to off-site habitats through removal of intensive farming and regular ploughing which disturbs the ground and exposes bare soil to regular run-off.

3.4 Habitats

3.4.1 The CEMP: Biodiversity will also protect the retained habitats on site during construction.

3.4.2 A Landscape and Ecological Management Plan (LEMP) has been prepared for the operational site that covers how retained habitats and newly planted areas should be managed so as to maximise their biodiversity value and achieve the objectives of ecological mitigation and compensation.

3.4.3 The hedgerows were species poor and several were defunct, however, they are a priority habitat within the Local BAP.

3.4.4 Mature oak trees were present on the Site, both within hedgerows and in fields. These offer value for a range of wildlife.

3.4.5 The ponds within the Site were no longer present or severely degraded as they had been ploughed and cropped. They are currently of little ecological value, however, there is scope to enhance these features.

Potential Impacts

3.4.6 The hedgerows and associated hedgerow trees and pond habitats may be affected by direct damage from construction vehicles, as well as damage from storage of materials. Runoff, pollution events and dust deposition may also detrimentally affect these habitats during construction.

3.4.7 No trees will require removal to facilitate construction of the solar farm.

3.4.8 A small amount of defunct, species poor hedgerow (up to 7m) will require removal to provide site access.

3.4.9 The cable route which joins the Site to the substation to the north will follow existing tracks where possible and utilise gaps in vegetation. However, the route has the potential to impact on hedgerows, trees and arable fields and also potentially protected species.

Mitigation, Compensation, Enhancement and Monitoring

3.4.10 A CEMP: Biodiversity will be prepared for the Site detailing measures to prevent damage to the hedgerow, tree and pond habitats. This will either be a standalone document detailing protection of ecological features during construction, or it will form part of a more standard Construction Environmental Management Plan (CEMP), which would additionally include non-ecological measures such as traffic, parking, details of the compound etc. It will include the installation of security or temporary fencing prior to construction commencing. No vehicles will enter the area outside the security fencing and no construction materials will be stored within this buffer. The fencing will be installed at least 5m from hedgerows and ponds.

3.4.11 Additional measures within the CEMP will include pollution prevention provisions so that hedgerow and pond habitat is protected from accidental pollution, runoff and dust deposition during construction. Trees both within the hedgerow network and within the fields will be protected using Heras type fencing in accordance with British Standard 5837 – Trees in Relation to Design, Demolition and Construction.

3.4.12 The hedgerows will be enhanced by allowing them to grow taller (to at least 3m, full summer height) and planting up gaps using native and locally appropriate species. This will include hawthorn, elder, holly and dogwood and is set out in detail within the LEMP. At least 1,780m of new native hedgerow planting is proposed which connects into the wider landscape; this will more than mitigate for the loss of 7m of hedgerow at the site entrance.

3.4.13 The ponds will be restored by allowing them to regenerate within the Site; the cessation of intensive agriculture will likely be sufficient to allow them to establish as they are currently subject to ploughing, seeding and harvesting. However, in order to ensure that they hold water, they will be deepened during construction. The ponds will be subject to monitoring, as set out in the LEMP, to ensure that they establish successfully.

3.4.14 The cable route will be walked by an ecologist prior to being installed. A Method Statement will be prepared as part of the CEMP and where required, an Ecological Clerk of Works (ECoW) will be present when installing the cable in order to ensure that no habitats are damaged or protected species affected.

3.4.15 The arable fields will be seeded subsequent to the completion of construction using an appropriate seed mix containing native, UK sourced grasses and wildflowers. The seed mix will be discussed and agreed with an ecologist and the seed supplier as it is essential that only low growing plants are selected to ensure there are no problems with shading in the future. Seeding and subsequent management of the grassland is set out in detail within the LEMP. This will focus on conservation grazing or cutting, with the sward being allowed to flower and set seed during the summer and a late summer/early autumn haycut being taken.

Residual Effects

3.4.16 The effects on habitats are mainly positive given the current intensive management of the Site. By restoring the ponds, creating permanent diverse grassland and strengthening and diversifying the hedgerows, there is a significant positive gain in biodiversity on the Site.

3.5 Protected Species and Species of Conservation Concern

Badgers

3.5.1 Badgers are present within the Site and both and outlier and a main sett are present ion the Site boundary. A large amount of foraging activity was identified, particularly on the southern boundary.

Potential Impacts

3.5.2 Badger setts may be damaged or destroyed during construction activities due to vehicle movement, piling activities or fence installation, which could also harm or disturb badgers occupying the setts at the time. Badgers may also become trapped in excavated trenches or pits overnight if they are left uncovered.

Mitigation, Compensation, Enhancement and Monitoring

3.5.3 A buffer of at least 10m will be allowed between the badger setts and construction zone. No vehicles will be driven within this area and no construction materials stored within the buffer. The buffer areas will be delineated with Heras or security fencing by an ECoW and signs installed informing of the presence of the sett and buffer.

3.5.4 As badgers can dig new setts in a short amount of time and given the activity on the Site was high, a pre-construction badger survey will also be conducted by a suitably experienced ecologist in order to determine if any new setts have been excavated within 3 months of construction. If new sett entrances are found, these will also need adequate buffers during the construction period, or if within the construction area will need closure under licence from Natural England within the licensable period (July – November).

3.5.5 During construction, any trenches will be covered overnight to ensure badgers and other mammals or amphibians to not become trapped within them. If this is not possible, a plank will be used at an angle of no more than 45° to ensure there is a means of escape.

3.5.6 The deer-proof fence installed around the Site will not be impermeable to badgers, as gaps will occur beneath the fence where undulations in the ground are; badgers will easily widen these gaps for access, as has been seen on many other solar farms. No specific badger gates or gaps are considered necessary.

3.5.7 Post construction, the establishment of a more diverse grassland and hedgerows may offer an enhanced foraging opportunities for badgers.

Residual Effects

3.5.8 Post construction, there is likely to be a positive residual effect for badgers due to the creation of permanent pasture (and associated increase in invertebrates).

Bats

3.5.9 The Site was considered to be of Local value to roosting bats given that several mature oak trees were identified which had suitable roosting features, however, the foraging and commuting habitat was poor which may reduce the roosting value of the Site.

Potential Impacts

3.5.10 Trees may be damaged during construction which may affect roosting bats should they be present. This would constitute an offence under the Conservation of Habitats and Species Regulations 2017 (as amended).

Mitigation, Compensation, Enhancement and Monitoring

3.5.11 The CEMP will comprise measures to protect the trees and hedgerows on the Site during construction, as well as the retained habitats off-site which are likely to be utilised by foraging and commuting bats. This will ensure that trees and hedgerow habitat will be protected and retained for the use by bats both during construction and operation.

3.5.12 Should any trees on the Site require removal or de-limbing, this will first be discussed with a suitably qualified ecologist. Further survey may be required to ensure bat roosts are not present; this will entail a visit to the Site by the ecologist to check the tree for features which may be suitable for roosting bats. Should no features be identified, works can go ahead. However, if there are suitable features either a tree climbing inspection or emergence survey will be required (emergence surveys can be conducted between May and August inclusive). Where bat roosts are found, a licence from Natural England must be obtained or order to damage/destroy the roost.

3.5.13 No artificial lighting will be required during construction or operation of the Site. Should construction activities occur during the winter months and it is necessary to install lighting, this will be discussed with an ecologist. Depending on timing, steps may need to be taken to ensure that lighting does not impact on the boundary habitats such as the preparation of a sensitive Lighting Strategy and/or a toolbox talk to contractors and operatives on Site.

3.5.14 The arable land will be seeded and managed under the LEMP in order to increase its diversity and so this will become a more valuable foraging habitat for bat species. Although bats may be deterred by the presence of panels (some research has shown that smooth surfaces can result in a confusing habitat for navigating bats[12]), the increased invertebrate abundance in the fields is likely to also increase the abundance of bats at the field edges. On balance, it seems likely that the enhanced foraging habitat within and surrounding the array will be beneficial for bats, even when the potentially adverse impacts of arrays upon bats are considered.

3.5.15 A total of 10 bat boxes will be installed on mature trees within the site in order to increase roosting opportunities; details of the boxes are given in the LEMP and the positioning agreed on Site with the input of an ecologist. The boxes will be monitored subsequent to the completion of construction to gain new bat records for the area; details of monitoring will be set out within the LEMP.

3.5.16 In order to enhance the Site for bats, any gaps in hedgerows will be infilled using local, native species. The hedgerows will be allowed to grow to a height of at least 3m (taller where this does not impact on shading of the panels).

Residual Effects

3.5.17 There is currently some uncertainty around how bats use solar farms due to the relatively new creation of these features, although studies are ongoing. The arable land is currently intensively managed but will be converted to a more diverse grassland, which is likely to be an important habitat for invertebrates. This will

[12] Greif, S., S. Zsebok, D. Schmeider & B. M. Siemers (2018) Acoustic Mirrors as Sensory Traps for Bats. Science 357; 1045-1047

increase the foraging resources on Site for local bats. The trees will be retained and protected, therefore, impacts on roosting bats will be avoided.

Great Crested Newts

3.5.18 No ponds within the Site or the surrounding area (where there were no barriers to newt dispersal) were identified as being currently suitable for great crested newts, although 4 of the 12 ponds could not be accessed due to the presence of a dense maize crop. The terrestrial habitats were of poor quality, with intensively managed arable monocultures and gappy, species poor and isolated hedgerows. However, there is a record of the presence of great crested newts within the farm from 2014, in addition to other records nearby.

Potential Impacts

3.5.19 No suitable breeding habitat was identified, however, great crested newts spend the majority of their life within terrestrial habitats and it is possible that low numbers could still be present within the hedgerow or off site habitats. Therefore, there is the chance that GCN could venture into the construction area, resulting in injury and death, which would be an offence under the Conservation of Habitats and Species Regulations 2017 (as amended). This is considered very unlikely, given the lack of suitable habitat and the distance of the confirmed breeding pond (over 600m from the red line boundary) however, there is some uncertainty given that several of the ponds within the Site boundary could not be accessed.

Mitigation, Compensation, Enhancement and Monitoring

3.5.20 Although it is considered that the risk of killing or injuring great crested newts is extremely low, a precautionary approach will be taken given the historical presence of this species. All ponds will be retained within the proposals with 5 ponds being enhanced. Heras-type fencing will be installed around the ponds during construction, at least 10m from the edge of the pond.

3.5.21 A further pre-construction visit will be conducted in spring in order to assess the ponds as it appears that they change year on year depending on rainfall and crop rotation. Ideally, this survey would be carried out between 15th April and the end of June at the same time (this being the GCN eDNA survey window) so that any ponds which are suitable for great crested newts can be sampled for great crested newt eDNA. It is considered unlikely that a positive sample would be returned given the results of the pond assessments in 2020, however, should a positive sample be identified then further mitigation will be required. Depending on the results of the surveys this may encompass a payment under the District Licensing scheme, a revised RAMS, or a licensed approach.

3.5.22 Five of the ponds within the Site will be retained and enhanced through deepening and allowing them to regenerate. These ponds appear to be the most significant waterbodies which are shown on OS maps. Should great crested newts still be present within the Site, it is considered likely that these ponds will be used and enhancement would boost and stabilise the population on the Site. Additionally, the diverse, permanent pasture with conservation management will offer ideal foraging opportunities for great crested newts.

3.5.23 The retained ponds within the Site will be monitored for the presence of great crested newts in year 3 of the Sites operation. This will comprise an eDNA survey of water samples collected from the ponds. Should the samples be negative, a further survey will be conducted in year 10.

Residual Effects

3.5.24 In the long-term, the operational Site will not result in any adverse impacts on great crested newts and there will be a significant positive effect given that the ponds are to be retained and restored. Additionally, the more diverse permanent grassland will be provide a much enhanced foraging habitat and the infilled, more diverse hedgerows good opportunities for foraging and shelter.

Other Species

3.5.25 A small section of hedgerow at the site entrance requires removal (up to 7m); if this requires removal during the nesting bird season (March to August inclusive), a check of the habitat no more that 48hrs prior to works will be conducted by an experienced ecologist to ensure that no active nests are impacted by the works.

3.5.26 As well as those features which were considered ecologically important, the Site will be enhanced for other species as well, as set out within the LEMP. This is discussed further below.

3.5.27 A ground nesting bird area (measuring 3.4ha) will be created with grassland being allowed to grow to 20-50cm in order to attract nesting skylarks, which are a priority species and included within the Local BAP.

3.5.28 Species will be included within the seed mix to be sown within the arable fields to support both dingy skipper and grayling (both species of principal importance and included within the Local BAP).

3.5.29 An area of the Site on the southern boundary will be managed for arable plants, with annual ploughing in the spring and then the land being left for plants to colonise naturally.

3.5.30 A total of 18 bird boxes will be installed on the Site including two barn owl boxes and a cluster of boxes suitable for tree sparrow.

3.5.31 A total of 10 bat boxes will be installed on suitable trees within and adjacent to the Site.

3.5.32 A total of 20 dormouse boxes will be installed within the habitat to the west of the Site and a check included as part of the monitoring in order to allow the opportunity to gain new records for this species, which has a patchy distribution in the north of Shropshire.

3.5.33 Monitoring of the Site will be conducted in years 1, 2, 3, 5, 10 and then every 5 years until decommissioning. This will include botanical surveys as well as checks of all habitat boxes. Additionally a breeding bird survey will be carried out in year 5. Great crested newt surveys will also be conducted, as outlined above.

3.6 Decommissioning

3.6.1 The solar array will be decommissioned after 40 years and returned to agricultural land. It is not known what the ecological value of the Site will be at this point, but if the LEMP is followed it may offer suitable habitat for a range of species.

3.6.2 Prior to decommissioning, a full ecological survey will be conducted; this is likely to comprise an extended Phase 1 survey followed by species specific surveys (for example, great crested newt surveys, bird surveys, badger survey etc.). A full mitigation plan will be prepared and submitted to the LPA prior to decommissioning.

3.7 Cumulative Effects

3.7.1 No forthcoming or recently approved applications for solar farms were identified.

3.7.2 Hadley Solar Farm is located 700m to the south and is a smaller 6.56MW site which was completed in 2015. It is also situated on the border of the Red Brook watercourse, however, any impacts on this watercourse during construction would now have ceased, and therefore, no cumulative effects are anticipated.

3.7.3 Fields Farm Solar Farm is situated 1.5km to the north and was constructed in 2017. This is a smaller site (5MW) and no cumulative effects have been identified.

4 CONCLUSIONS

4.1.1 Several ecologically important features have been identified which may be impacted by the Proposed Development. These comprised hedgerows, mature trees, off-site habitats, badgers, roosting bats and great crested newts. Avoidance and mitigation measures have been proposed to ensure that these adverse impacts are reduced as far as possible.

4.1.2 Hedgerows and mature trees will be protected through installing fencing with an appropriate buffer during construction. The buffer adjacent to the hedgerows will be retained post-construction in order to enhance this habitat. Other enhancements include planting of new hedgerows, the infilling of gaps in the hedgerow network with locally appropriate species and allowance of the hedgerows to achieve a height of at least 3m.

4.1.3 Badger setts will be protected during construction by creating a fenced buffer to ensure no damage or disturbance occurs. The Site is likely to be enhanced for badgers post-construction due to the establishment of a diverse grassland.

4.1.4 Several mature trees had potential roosting features for bats, although the lack of connecting hedgerows may devalue these features. Trees will be protected under the CEMP to ensure no damage occurs during construction works.

4.1.5 Although no suitable habitat for breeding great crested newts was identified, there is a historical record from the farm. A precautionary approach will be taken and the Site revisited in the spring, with eDNA samples taken from any suitable waterbodies. Should a positive sample be identified, either a RAMS will be prepared or the District Licensing route sought (depending on the location of the pond). This will ensure that any impacts can be fully mitigated. Post construction, the Site will be greatly enhanced for great crested newts, with the ponds protected and deepened and a diverse grassland established. Gaps in the hedgerow will be infilled and species diversity increased.

4.1.6 Both a CEMP and a LEMP will be prepared for the Site which will ensure protection of ecological features during construction but also that there is a significant net gain in biodiversity on the Site post construction.

4.1.7 The scheme is in line with Planning Policy CS17 as it will create an enhancement for local wildlife through creation of a more diverse meadow habitat, enhancement of ponds and planting of hedgerow.

APPENDIX A: WILDLIFE LEGISLATION & SPECIES INFORMATION

BADGERS

Badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended) against damage or destruction of a sett, or disturbance, death or injury to the badgers. The Act defines a sett as "any structure or place which displays signs indicating current use by a badger". The definition of current use is subject to considerable debate. Natural England have produced guidance on the definition of current use. (*Badgers and Development – A guide to best practice and development . Natural England 2011*). Given the ambiguity surrounding the definition in all circumstances we would recommend an assessment of current use is always undertaken by a qualified ecologist. Natural Resources Wales (NRW) have a slightly different definition of current use. Please see the NRW website for further information. Penalties for offences against badgers or their setts include fines of up to £5,000 and/or up to six months in prison.

Disturbance of badgers could be caused by any digging activity or scrub clearance within 30 metres of an occupied sett and therefore every case needs to be assessed individually. Felling of trees close to a badger sett may also cause disturbance in some situations. Some activities such as pile driving may cause disturbance at even greater distances, and should be discussed with Natural England or NRW.

Licences are issued by Natural England (or NRW in Wales) to allow the disturbance of badgers, and the destruction of their setts in certain circumstances, in relation to development. Full planning permission must be obtained before a licence application will be considered. Although licences can be applied for at any time of year, disturbance of badgers or exclusion of badgers from a sett can only take place between 1 July and 30 November, to avoid the breeding season when dependant young may be underground. This restriction may be relaxed in some cases where a sett is seasonal and badgers can be shown to be absent from a sett at that time of year.

This report contains information of a confidential nature relating to the location of badger setts. Public access to this data should be restricted to those who have a legitimate need to assess the information and to know the exact situation of the setts rather than simply that badgers are present.

BATS

All 17 species of bat known to breed in England and Wales, and their roost sites, are protected under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a bat, or to deliberately disturb a bat such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of bats in their resting places, and damage to or obstruction of resting places are also offences under the Wildlife and Countryside Act 1981 (as amended). Under UK law a bat roost is "any structure or place which any wild [bat]...uses for shelter or protection". As bats tend to reuse the same roosts, legal opinion is that the roost is protected whether or not the bats are present at the time. Penalties for offences against bats or their roosts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of or alteration to roost sites, or which could result in killing of or injury to bats, need to take place under licence. Works which could disturb bats may also be licensable, though this needs to be assessed on a case by case basis, as bats' sensitivity to disturbance varies depending on normal background levels, and the definition of disturbance offences under the Habitats Regulations is complex. In practice this means that works involving modification or loss of roosts (typically in buildings, trees or underground sites) or significant disturbance to bats in roosts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of bats in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

GREAT CRESTED NEWTS

Great crested newts are protected in England and Wales under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a great crested newt, or to deliberately disturb a great crested newt such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place for great crested newts. Intentional or reckless disturbance of great crested newts in places of shelter (ponds or terrestrial refuges), and damage to or obstruction of places of shelter are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against great crested newts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of ponds or terrestrial habitat, or which could result in killing of or injury to great crested newts, need to take place under licence. Works which could disturb great crested newts may also be licensable, though this is rarely the case unless loss of great crested newt habitat is also proposed, and should be assessed on a case by case basis. In practice this means that works involving any removal of or significant modification to ponds or terrestrial

habitats (typically rough grassland, scrub, hedgerow bases and woodland) supporting great crested newts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of great crested newts in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

PLANNING POLICY IN RELATION TO BIODIVERSITY - ENGLAND

The National Planning Policy Framework (NPPF), was published in March 2012 and revised in July 2018. Additional guidance can be found online at http://planningguidance.planningportal.gov.uk/blog/guidance/. The NPPF simplifies and collates a number of previous planning documents and outlines the government's objective towards biodiversity.

The NPPF identifies ways in which the planning system should contribute to and enhance the natural and local environment (Paragraph 170), including:

- (a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- (b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- (d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- (e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- (f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. protecting and enhancing valued landscapes, geological conservation interests and soils;

It also emphasises the importance of conserving biodiversity and areas covered by landscape designations (Paragraph 172):

Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads.

When determining planning applications, the NPPF states that local planning authorities should aim to conserve and enhance biodiversity (Paragraph 175) by applying principles including:

- (a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- (b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- (c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons[6] and a suitable compensation strategy exists; and
- (d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

The following should be given the same protection as habitats sites:

- (a) potential Special Protection Areas and possible Special Areas of Conservation;
- (b) listed or proposed Ramsar sites7; and
- (c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

There is a general presumption in favour of sustainable development within the NPPF. It is noted in Paragraph 177 that this presumption does not apply where the plan or project is likely to have a significant effect on a habitat site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving

biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them".

ECOLOGICAL ENHANCEMENTS

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity can include restoring or enhancing a population or habitat"".

In England, the National Planning Policy Framework (NPPF), issued in July 2018, states that the planning system should contribute to "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*. It also states that "*opportunities to incorporate biodiversity in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity*".

UK BIODIVERSITY ACTION PLANS

The UK Biodiversity Action Plan (UK BAP) 2011 is a policy first published in 1994 to protect biodiversity and stems from the 1992 Rio Biodiversity Earth Summit. The policy is continuously revised to combine new and existing conservation initiatives to conserve and enhance species and habitats, promote public awareness and contribute to international conservation efforts. Each plan details the status, threats and unique conservation strategies for the species or habitat concerned, to encourage spread and promote population numbers.

Species or habitats identified as priorities under the UK Biodiversity Action Plan receive some status in the planning process through their identification as Species/Habitats of Principal Importance in England and Wales, under the Natural Environment and Rural Communities (NERC) Act 2006 (as amended).

Current planning guidance in England, the National Planning Policy Framework, does not specifically refer to Species or Habitats of Principal Importance, though it includes guidance for conservation of biodiversity in general. Supplementary guidance is available online at http://planningguidance.planningportal.gov.uk/blog/guidance/ and this guidance indicates that it is '*useful to consider*' the potential effects of a development on the habitats or species on the Natural Environment and Rural Communities Act 2006 section 41 list.

THE HEDGEROWS REGULATIONS

In England and Wales the Hedgerows Regulations (1997) as amended confer a level of protection on hedgerows (though hedgerows within or bordering domestic gardens are excluded), particularly those hedgerows classified as 'Important' under the legislation. The Regulations require those wishing to remove hedgerows to submit a Hedgerow Removal Notice to the Local Planning Authority (LPA), which will then determine whether the hedgerow affected is classified as 'Important' under the Regulations. If it is, the LPA will either approve the proposed hedgerow removal, or issue a retention notice. It is an offence to remove or destroy a hedgerow which is subject to a retention notice, or to remove one without a removal notice.

Routine management of hedgerows, removal of hedgerows for development which has been granted planning consent, and certain other situations are allowed under the Regulations, which also specifically exclude hedgerows within or bordering domestic gardens. Determination of whether a hedgerow should be classified as 'Important' is based on a number of criteria including assessment of its likely historic value (e.g. old parish boundary or part of an ancient monument), ecological value (e.g. presence of protected species, and/or diversity of tree/shrub species in the hedgerow), and landscape value (e.g. associated with a public footpath, or being associated with hedgebanks, ditches, hedgerow trees etc).

Ancient and species-rich hedgerows are listed as a priority habitat in the UK Biodiversity Action Plan (2011)

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