

ECOLOGICAL IMPACT ASSESSMENT
OLD WOOD ENERGY PARK, WYSALL, NOTTS.

carried out by



commissioned by

EXAGEN DEVELOPMENT LIMITED

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ECOLOGICAL IMPACT ASSESSMENT

OLD WOOD ENERGY PARK, WYSALL, NOTTS.

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The information, data and advice which has been prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions. This report and its contents remain the property of Clarkson and Woods Ltd. until payment has been made in full.



EXECUTIVE SUMMARY

- Clarkson and Woods Ltd. was commissioned by Exagen Development Limited to carry out an Ecological Impact Assessment of two parcels of land west of Wysall village, Nottinghamshire, NG12 5QT (Ordnance Survey Grid Reference SK 596 270 for the southern parcel and SK 593 280 for the northern parcel). Old Wood Energy Park includes the construction and operation of a ground mounted solar photovoltaic array (solar farm) across the majority of the site, together with a Battery Energy Storage System (BESS), substation and point of connection to the grid in the southern parcel of land. The Development is split over two parcels of land and connected by a buried cable located in the public highway and totalling approximately 100 ha. The northern parcel will hereafter be referred to as Old Wood North and the southern parcel will be referred to as Old Wood South.
- The following surveys have been undertaken:
 - Extended Phase 1 Habitats Survey – 28/01/2022
 - Wintering Bird Scoping Survey (WBS) – 24/02/2022
 - Further Wintering Bird Surveys – 14-15/12/2022, 18-19/01/2023, 14/02/2023
 - Breeding Bird Surveys (BBS) – 19-20/04/2022, 16-17/05/2022, 13-15/06/2022, 11-12/07/2022 (outlined within a separate report)
 - eDNA sampling for great crested newt (GCN) – 07/06/2022 and 19/06/2022
 - Water Vole surveys of Kingston Brook – 24/04/2023 and 14/08/2023
 - MoRPh survey of Kingston Brook – 27/09/2023
- This report sets out the results of these surveys, identifies any potential constraints associated with the construction of the Development, and provides recommendations for avoidance, mitigation and enhancement measures to reduce impacts on species or habitats which may arise as a result of the Development, and to provide a net gain for biodiversity within the Site.
- Old Wood North comprised seven and a half arable fields, with winter wheat present at the time of the original walkover survey. Bunny Old Wood Site of Importance for Nature Conservation (SINC) and area of ancient woodland was directly adjacent to the northern boundary, and Intake Wood, Costock SINC lay adjacent to the boundary to the



west. Old Wood South comprised four arable fields, one field of uncut modified grass (Field 13), and one field to the south of the parcel of modified grassland heavily grazed by sheep (Field 9). Several plantation woodland blocks were present along boundaries of both parcels. Wide arable margins were present both along the northern boundary of Old Wood North (Field 4) and the eastern and southern boundaries of Old Wood South Field 4. See Figures 4 and 5 for field locations.

- Four ponds were present within the Site boundary, as well as a further 11 ponds located within 250m of the boundaries of both parcels. One of the on-site ponds was later assessed as being dry on a repeat visit. Dry ditches were present along a low number of hedgerows across the Site, and a wet ditch was present running along the eastern boundary of Old Wood South (Field 11). Additionally, Kingston Brook ran east to west within Old Wood South (Field 9).
- The hedgerows were a mix of species-rich and species-poor, with many being gappy or defunct, as well as generally heavily managed with repeated flail cuts. Only two hedgerows consistently contained mature standard trees but noting that individual mature standard trees were nevertheless present within other hedgerows. A total of approximately 31m of hedgerow will be cleared between both parcels in order to create new field access routes or to widen existing field access points, affecting H2 and H4 in Old Wood North and H23 and H24 within Old Wood South. All other hedgerows, trees and boundary features are to be protected and retained as they are.
- A scoping WBS was undertaken in February 2023, with a further three surveys being carried out over the 2022-2023 winter survey season (Dec 22 – March 23). The surveyors reported a moderate diversity of widespread species, mainly noted using the hedgerows and boundary features within the Site. On one occasion, a large flock of skylark *Alauda arvensis* were noted foraging within the arable fields of Old Wood North. Additionally, four BBS were undertaken between April and July 2022, with the majority of bird species also found to be associated with the hedgerows within the Site. The results of the bird surveys indicate that, overall, the arable fields are likely to support a low diversity of species, however ground nesting birds such as skylark depend on this habitat for breeding throughout the late spring/summer. Across the four surveys, a total of eight skylark breeding territories were estimated to be present across both parcels. Therefore, a total of at least 2.39ha of new grassland will need to be provided as skylark mitigation habitat within Old Wood North.



- Habitat Suitability Index assessments for GCN were undertaken in June 2022 for the eight ponds (on-site and off-site) which held water and had access permission granted. Water samples were also collected and laboratory tested for great crested newt eDNA in order to confirm species presence. Four samples returned positive results confirming GCN presence (Ponds 3, 9, 10 and 13), with the remaining four returning negative results, confirming absence of GCN in these ponds (Ponds 1, 4, 12 and 12a), although this may change over time. Species presence is assumed in all unsampled ponds and appropriate undeveloped buffers have been included within the development design to reflect this.
- Two water vole surveys of Kingston Brook were undertaken in April and August 2023. No signs of the species were found in either of the surveys, however the watercourse remains suitable. Additionally, Kingston Brook was subject to a River Condition Assessment using the Modular River Physical (MoRPh) field survey methodology in September 2023, for the purposes of the Biodiversity Net Gain assessment.
- A Construction Environmental Management Plan (CEMP) (Ecology) will be prepared to detail how retained habitats, and the species associated with these habitats, will be protected during construction. A Landscape Ecological Management Plan (LEMP) will be prepared, laying out method statements to deal with management and monitoring of new and retained habitats post-construction and during the operational lifetime of the solar array. These reports are typically prepared as part of conditional requirements of the planning permission.
- A suite of ecological enhancement measures have also been recommended which ensure that the scheme will have a net positive impact upon biodiversity within the local area. The provision of locally appropriate ecological enhancements also ensures that the scheme is consistent with the requirements of the NPPF.
- A Biodiversity Impact Assessment score has been calculated using the DEFRA Statutory Metric Calculation Tool, in order to evaluate the biodiversity net gain provided by the project. The scheme proposals will result in a gain of 81.94% for area-based habitat units, a gain of 66.24% for linear-based habitat units and a gain of 14.40% for watercourse habitats, primarily achieved through change of land-use.
- Provided the avoidance and mitigation measures outlined in the report are adhered to, the development would be considered in line with relevant local and national planning policy, and the implementation of the recommended ecological enhancements would provide a substantial positive, permanent contribution to biodiversity within the Site.



1 INTRODUCTION

- 1.1.1 Clarkson and Woods Ltd. was commissioned by Exagen Development Limited to carry out an Ecological Impact Assessment on land to the west of Wysall, Nottinghamshire, hereafter referred to as 'the Site'.
- 1.1.2 This Impact Assessment discusses the likely effects of the 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 28th January 2022., as well as further species-specific surveys for breeding birds, wintering birds, water voles and great crested newt carried out by Clarkson and Woods Ltd during 2022 and 2023.
- 1.1.3 The assessment has been prepared by Rebecca Sandey, an Associate 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 conduct¹.
- 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 Old Wood Energy Park proposal includes the construction and operation of a ground mounted solar photovoltaic array (solar farm) across the majority of the site, together with a Battery Energy Storage System (BESS), substation and point of connection to the grid. The Development is split over two parcels of land and connected by a buried cable located under the public highway.
- 1.3.2 The land proposed to accommodate Old Wood Energy Park is comprised of 13.5 mixed use agricultural fields split across two separate parcels (Old Wood North and Old Wood South). 11.5 of the fields were in arable rotation at the time of survey, with the remaining two fields comprising modified grassland.
- 1.3.3 The Development is set within open countryside, located to the northwest and west of Wysall in Nottinghamshire. The approximate centre of the Site was at Ordnance Survey Grid Reference SK 593 280 (Old Wood North) and SK 596 270 (Old Wood South), and the location of the Site is shown in Figure 1.

¹ Code of Professional Conduct. CIEEM, January 2019.



1.3.4 The Site is approximately 100 hectares (ha) in size, including the cable route connecting the two parcels. An aerial photo of the Site and surrounding area is provided in Figure 2.

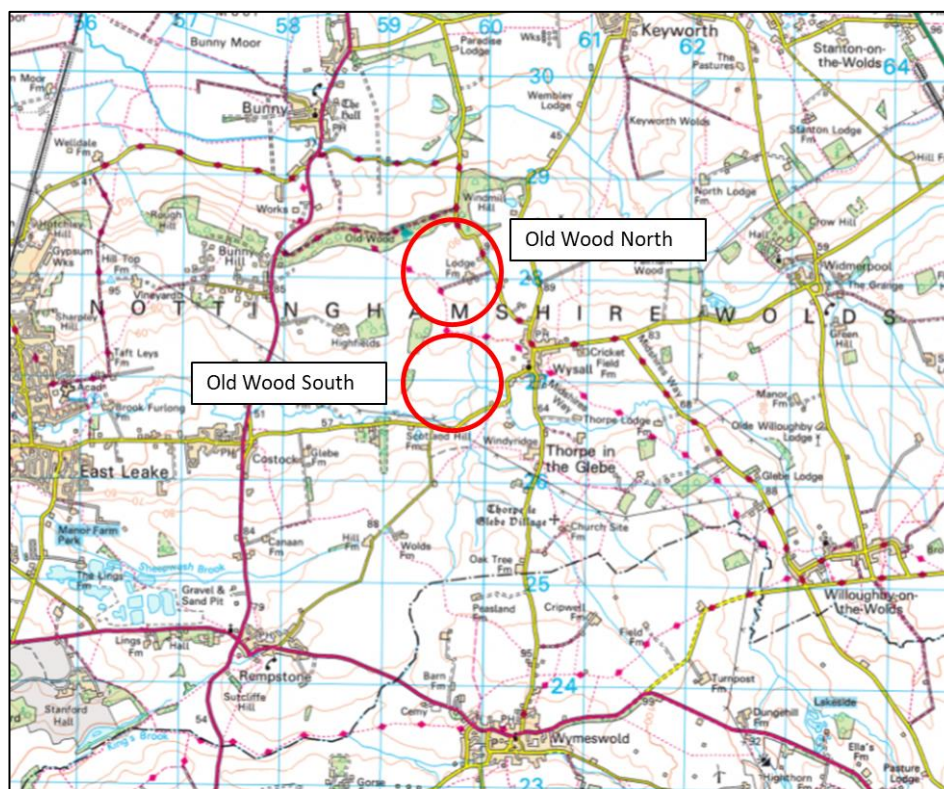


Figure 1: Ordnance Survey map showing location of both Site parcels (©2023 Bing Maps)

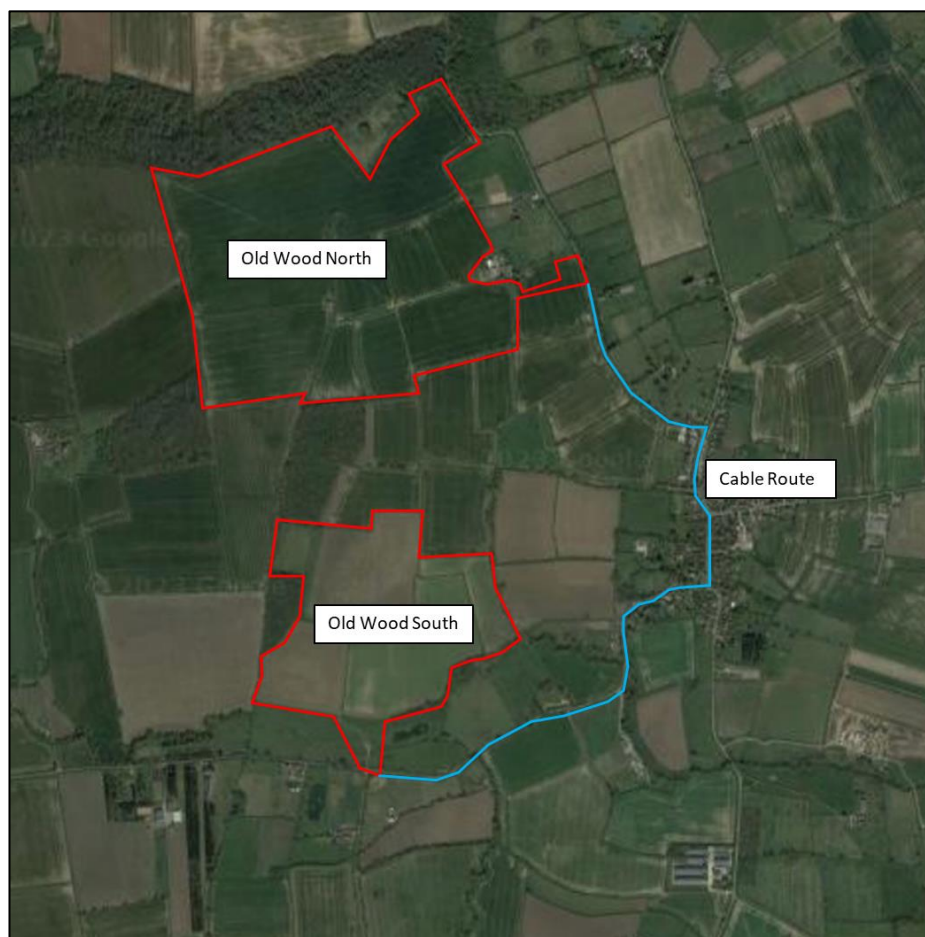


Figure 2: Aerial photograph of Site boundary and cable route (©2023 Google)



1.4 Development Proposals

- 1.4.1 The proposed works comprise the installation of a photovoltaic (PV) solar array with associated infrastructure including inverter buildings and access. Inverters will be constructed on concrete pads, measuring approximately 6m by 3m and there will be 17 of these within Old Wood North and seven within Old Wood South. Panels will be built in east/west rows and attached to metal frames which are driven into the ground, to form south-facing strings of panels.
- 1.4.2 All trees, ponds, hedgerows and ditches will be retained wherever possible, with existing agricultural access routes being utilised during both the construction and operational phases of the development. Two small stretches of hedgerow will be cleared within Old Wood North and a further two stretches of hedgerow removed in Old Wood South in order to create new access within both parcels. In total, approximately 30m of hedgerow will be removed to facilitate the Development. A new, prefabricated bridge will be installed over Kingston Brook in order that HGVs are able to safely access the Site.
- 1.4.3 The BESS, substation and POC elements of the Development are located within the southern part of Old Wood South and provide the mechanism for connecting the Development to the electricity grid network via the existing 132kV line which crosses the Site. A cable route connecting both parcels will be located along existing roads as shown in Figure 2 and will not impact neighbouring habitats. It will be located under the bound surface of the highway and will not affect the road verges.
- 1.4.4 Development proposals are shown in Figure 8. Any changes to the proposed 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 Conduct² 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 Development⁴. 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 The impact assessment will consider impacts arising during the construction and operational phases of the scheme. The Zone of Influence (Zoi) of the development will vary according to the impact of ecological feature being assessed. For most ecological features, the ZOI will be the Site itself, but it may also be greater for populations of species which utilise wider territories, such as birds. Ponds within 250m of the Site are also included within the ZOI of the Site.
- 1.6.2 Pre-application consultation advice was received from Rushcliffe Borough Council on 30th September 2022 (Ref: 22/00709/ADVICE), stating that the development Site lies within an area highlighted by Natural England as being of medium risk to GCN and that should grassland or shrubs be impacted, mitigation measures to safeguard against risks to the species should be set out within an ecological impact assessment.
- 1.6.3 A Biodiversity Net Gain assessment was also required as part of the pre-application advice, with the gains implemented and maintained through the preparation of a Landscape and Ecological Management Plan (to be secured by a planning condition) to be agreed by the local planning authority.

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.



- 1.6.4 Other recommendations included the development and implementation of a wildlife sensitive lighting scheme, if appropriate, new wildlife habitats such as grassland and hedgerows to be created, retention and enhancing existing hedgerows and trees, Sustainable urban Drainage Schemes to be designed to provide ecological benefits, and the adoption of good practice construction methods.
- 1.6.5 Due to feedback from the Nottinghamshire Wildlife Trust submitted to Rushcliffe Borough Council on 12th April 2024, landscaping for the scheme was updated in order to incorporate wider grassland margins along the western boundary of the Site (Figure 8 refers). This involved reducing the overall array footprint slightly and addition of more species-rich grassland seeding, with the aim of strengthening wildlife corridors throughout the Site and with connectivity to habitats outside the Site boundary.

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 The specific surveys carried out were chosen on the basis of the likelihood, in our considered opinion, of each protected species or Species of Conservation Concern being present on or within the vicinity of the Site. This is informed by the Site's geographic location and the habitat types present on and around the Site. The following species-specific baseline surveys were undertaken: badger, bats, otter, water vole, great crested newts, breeding and wintering birds, and other species of conservation concern including non-native invasive species.
- 2.1.3 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 to be best representative of 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 is 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 only.
- 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.

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



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 Nottinghamshire Biological and Geological Records Centre (NBGRC) was consulted for records of protected species and species of conservation concern within 1km of the Site, with an extended search for bird records within 2km. NBGRC was also asked to provide details of locally designated and non-statutory sites for nature conservation within 1km of the Site.
- 2.3.3 Clarkson and Woods' own database of ecological records derived from past survey work was also consulted for further locally relevant data.
- 2.3.4 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.
- 2.3.5 The Rushcliffe Local Plan Part 1: Core Strategy (adopted Dec 2014) and Rushcliffe Local Plan Part 2: Land and Planning Policies (adopted Oct 2019) were consulted for details of planning policies relevant to designated sites, protected species and habitats, and general ecological and environmental protection.
- 2.3.6 The Nottinghamshire Local Biodiversity Action Plan (LBAP) was consulted for information on conservation priority species and habitats which may require further consideration and weight within Ecological Impact Assessments.
- 2.3.7 The Rushcliffe Borough Council document 'Solar Farm Development Planning Guidance, November 2022' was consulted for information on general character of the local area, and to confirm which Local Plan policies are relevant for solar developments.
- 2.3.8 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.
- 2.3.9 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.

Limitations

- 2.3.10 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.
- 2.3.11 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 Development site that have not been identified within the desk study.

Desk Study Findings

Designated Sites

Statutory Designated Sites

- 2.3.12 No internationally designated sites lie within 5km, and no nationally designated sites lie within 2km of the Site.
- 2.3.13 One local statutorily designated site for nature conservation was identified within the desk study within 2km of the Site and is summarised in Table 1

Table 1: Summary of Statutory Designated Sites for Nature Conservation

Site Name	Size, Distance and Direction from Site	Reason for Designation	Importance
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Keyworth Meadow Local Nature Reserve (LNR)	1.6km to north-east of Old Wood North	Comprises 1ha of flower-rich grassland, with additional wetland flora associated with bordering brook. Ponds support GCN & turtle dove recorded until 2012	County
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Non-statutory Designated Sites

2.3.14 10 local non-statutory designated Local Wildlife Sites (LWS) were identified within the desk study and are summarised in Table 2. A plan of LWS within 1km of the Site is presented in Appendix B.

Table 2: Summary of Local and Non-statutory Designated Sites for Nature Conservation

Site Name	Size, Distance and Direction from Site	Reason for Designation	Importance
Keyworth Meadow Site of Importance for Nature Conservation (SINC)	1.4ha, 1.6km northwest of Site.	SINC in middle of largely arable farmland. Comprises mainly flowery grassland, dominated by Meadow Foxtail, Timothy with Pignut, Cuckoo-flower <i>Cardamine pratensis</i> and 3 species of buttercup <i>Ranunculus</i> spp.. The steeper slopes and the old, drier meanders are clothed with Elder <i>Sambucus nigra</i> and Hawthorn <i>Crataegus monogyna</i> scrub whilst wetter areas have Meadowsweet <i>Filipendula ulmaria</i> , Flag Iris <i>Iris pseudacorus</i> , sedges and rushes including Hairy Wood-rush <i>Luzula campestris</i> .	County
Bunny Old Wood LWS	32.4ha, directly north of Old Wood North	Broadleaf ancient woodland dominated by Ash <i>Fraxinus excelsior</i> with Wych Elm <i>Ulmus glabra</i> and occasional Pedunculate Oak <i>Quercus robur</i> . Also, Bluebell <i>Hyacinthoides non-scripta</i> , Greater Stitchwort <i>Stellaria holostea</i> and Dog's Mercury <i>Mercurialis perennis</i> . Ideal for invertebrate and amphibian habitat.	County
Costock Road LWS	1.3ha, immediately south of Old Wood South	Species-rich hedgerows on either side of Costock Road support a number of notable species. Buckthorn <i>Rhamnus cathartica</i> , Dogwood <i>Cornus sanguinea</i> and Hazel grow abundantly with Field Maple, Small-leaved Lime <i>Tilia cordata</i> and Crab Apple. Also, Pedunculate Oak and Ash. Verges have characteristics of unimproved sward including Salad Burnet, Common Bird's-foot-trefoil and Common Knapweed.	County
Intake Wood, Costock LWS	5.9ha, immediately west of Old Wood North	Woodland with noteworthy ground flora	County
Windmill Hill Wood LWS	8ha, 250m northeast of Old Wood North	Comprises mature deciduous woodland. Canopy consists of Sycamore <i>Acer pseudoplatanus</i> , Ash, Pedunculate Oak and Wych Elm with an understory containing Hawthorn and Elder <i>Sambucus nigra</i> with some Holly <i>Ilex aquifolium</i> and Field Maple <i>Acer campestre</i> . Ground cover includes Bluebell, Wood Sedge <i>Carex sylvatica</i> , Enchanter's Nightshade <i>Circaea lutetiana</i> , and Dog's Mercury.	County
Wysall West Grassland LWS	3ha, 400m east of Old Wood North	Sward predominantly semi-improved, with abundance of perennial Rye-grass <i>Lolium perenne</i> , White Clover <i>Trifolium repens</i> and Red Clover <i>T. pratense</i> . Perimeter of pasture has remnants of more species-rich grassland, with frequent/abundant Meadow Vetchling <i>Lathyrus pratensis</i> , Meadow Buttercup <i>R. acris</i> and Common Knapweed <i>Centaurea nigra</i> with occasional Lady's Bedstraw.	County
Marblaegis Mine, Bunny LWS	2.7ha, 450m northwest of Old Wood North.	Old gypsum mine. Vegetated old spoil heaps supports calcareous grassland with many characteristic species including Rough Hawkbit <i>Leontodon hispidus</i> , Wild Carrot <i>Daucus carota</i> , Fairy Flax <i>Linum catharticum</i> , Tor-grass <i>Brachypodium pinnatum</i> Lady's Bedstraw, Eyebright <i>Euphrasia</i> agg.. Lower part supports scattered Hawthorn and Dog Rose <i>Rosa canina</i> scrub, surrounded by both coarse and species-rich grassland.	County



Site Name	Size, Distance and Direction from Site	Reason for Designation	Importance
Keyworth Road Grasslands pLWS	2.4ha, 680m east of Old Wood North	Grassland with notable species present	County
Bunny Park Ponds LWS	2.6ha, 1km north of Old Wood North	Comprises deciduous woodland with two ponds on western edge. The Fairham Brook runs through site, as does the old, derelict boundary wall of Bunny Park. Ancient woodland indicator species present including Dog's Mercury, Wood Speedwell <i>Veronica montana</i> , Hairy Brome <i>Bromopsis ramosa</i> and Creeping-jenny <i>Lysimachia nummularia</i> in wetter areas.	County
New Wood, Bunny LWS	14ha, 1.1km west of Old Wood North	Ancient deciduous woodland with ash-dominated canopy, along with Pedunculate Oak. Under canopy consists of hawthorn, holly, blackthorn and honeysuckle.	County

Local BAP

2.3.15 Habitats and species listed on Nottinghamshire Local Biodiversity Action Plan⁶ which are relevant to the Site include:

2.3.16 Habitats

- Farmland: arable farmland, arable field margins and improved grassland
- Ditches
- Eutrophic and mesotrophic standing waters
- Rivers and streams
- Hedgerows: including ancient and/or species-rich hedgerows
- Woodland

2.3.17 Species

- Barn owl
- Bats
- Dormouse
- Harvest mouse
- Hedgehog
- Nightjar
- Otter
- Slow worm
- Water vole
- Willow tit
- Dingy skipper
- Grizzled skipper
- White-clawed crayfish

Planning Policy

2.3.18 The following policies presented in Table 3 have been identified within the Rushcliffe Local Plan Part 1: Core Strategy and Part 2: Land and Planning Policies and are considered relevant to the Site.

⁶ Nottinghamshire Local Biodiversity Action Plan, Nottinghamshire Biodiversity Action Group (<http://nottsbag.org.uk/lbap/species-and-habitats-of-conservation-concern/>)



Table 3: Relevant Local Planning Policy taken from Rushcliffe Local Plan

Policy	Relevant Content
<p>Rushcliffe Local Plan Part 1: Core Strategy</p> <p>Policy 16: Green Infrastructure, Landscape, Parks and Open Space</p>	<p>(1) A strategic approach to the delivery, protection and enhancement of Green Infrastructure will be taken, through the establishment of a network of primary Green Infrastructure corridors and assets, together with corridors and assets of a more local level which will be defined through Local Development Documents.</p> <p>(2) The approach will require that:</p> <ul style="list-style-type: none"> a) existing and potential Green Infrastructure corridors and assets are protected and enhanced. b) where new development has an adverse impact on Green Infrastructure corridors or assets, alternative scheme designs that have no or little impact should be considered before mitigation is provided (either on site or off site as appropriate). The need for and benefit of the development will be weighed against the harm caused; c) developments proposed through the Core Strategy should enhance the Strategic Green Infrastructure network (either on-site or off-site or through contributions as appropriate). Non-strategic sites will be assessed through the Local Plan Part 2 (Land and Planning Policies); d) links to and between the Green Infrastructure network will be promoted to increase access, especially in areas of identified deficit, for recreational and non-motorised commuting purposes, and to allow for the migration of species; and <p>(3) New or enhanced Green Infrastructure corridors and assets should be as inclusive as possible, multifunctional and look to make provision for the following, where appropriate:</p> <ul style="list-style-type: none"> b) connections to the wider Green Infrastructure network and the countryside; e) biodiversity opportunities
<p>Rushcliffe Local Plan Part 1: Core Strategy</p> <p>Policy 17: Biodiversity</p>	<p>(1) The biodiversity of Rushcliffe will be increased over the Core Strategy period by:</p> <ul style="list-style-type: none"> a) protecting, restoring, expanding and enhancing existing areas of biodiversity interest, including areas and networks of priority habitats and species listed in the UK and Nottinghamshire Local Biodiversity Action Plans; b) ensuring that fragmentation of the Green Infrastructure network is avoided wherever possible and improvements to the network benefit biodiversity, including at a landscape scale, through the incorporation of existing habitats and the creation of new habitats; c) seeking to ensure new development provides new biodiversity features, and improves existing biodiversity features wherever appropriate; d) supporting the need for the appropriate management and maintenance of existing and created habitats through the use of planning conditions, planning obligations and management agreements; and e) ensuring that where harm to biodiversity is unavoidable, and it has been demonstrated that no alternative sites or scheme designs are suitable, development should as a minimum firstly mitigate and if not possible compensate at a level equivalent to the biodiversity value of the habitat lost. <p>(2) Designated national and local sites of biological or geological importance for nature conservation will be protected in line with the established national hierarchy of designations and the designation of further protected sites will be pursued.</p> <p>(3) Development on or affecting other, non-designated sites or wildlife corridors with biodiversity value will only be permitted where it can be demonstrated that there is an overriding need for the development and that adequate mitigation measures are put in place.</p>
<p>Rushcliffe Local Plan Part 2: Land and Planning Policies</p> <p>Policy 1: Development Requirements</p>	<p>Planning permission for new development, changes of use, conversions or extensions will be granted provided that, where relevant, the following criteria are met:</p> <ul style="list-style-type: none"> (1) there is no significant adverse effect upon the amenity, particularly residential amenity of adjoining properties or the surrounding area, by reason of the type and levels of activity on the site, or traffic generated;



Policy	Relevant Content
	<p>(2) a suitable means of access can be provided to the development without detriment to the amenity of adjacent properties or highway safety and the provision of parking is in accordance with advice provided by the Highways Authority;</p> <p>(3) sufficient space is provided within the site to accommodate the proposal together with ancillary amenity and circulation space;</p> <p>(4) the scale, density, height, massing, design, layout and materials of the proposal is sympathetic to the character and appearance of the neighbouring buildings and the surrounding area. It should not lead to an over intensive form of development, be overbearing in relation to neighbouring properties, nor lead to undue overshadowing or loss of privacy;</p> <p>(5) noise attenuation is achieved and light pollution is minimised;</p> <p>(6) there is no significant adverse effects on important wildlife interests and where possible, the application demonstrates net gains in biodiversity;</p> <p>(7) there is no significant adverse effects on landscape character;</p> <p>(8) the amenity of occupiers or users of the proposed development would not be detrimentally affected by existing nearby uses;</p> <p>(9) there is no significant adverse effect on any historic sites and their settings including listed buildings, buildings of local interest, conservation areas, scheduled ancient monuments, and historic parks and gardens;</p> <p>(10) it can be demonstrated that wherever possible, development is designed to minimise the opportunities for criminal activities;</p> <p>(11) the use of appropriate renewable energy technologies will be encouraged within new development and the design, layout and materials of the proposal should promote a high degree of energy efficiency; and</p> <p>(12) development should have regard to the best and most versatile agricultural classification of the land, with a preference for the use of lower quality over higher quality agricultural land. Development should also aim to minimise soil disturbance as far as possible.</p>
<p>Rushcliffe Local Plan Part 2: Land and Planning Policies</p> <p>Policy 34: Green Infrastructure and Open Space Assets</p>	<p>(1) The following Green Infrastructure assets will be protected from development which adversely affects their green infrastructure function (or their contribution to a wider network) unless the need for the asset is proven to no longer exist and the benefits of development, in that location, outweigh the adverse effects on the asset:</p> <ul style="list-style-type: none"> • Amenity Space and Semi-Natural Green Space; • Grantham Canal, Rivers, Streams, Lakes, Ponds and Wetlands; • Nature Conservation Sites, Geological Sites and Priority Habitats; • Woodlands and Traditional Orchards. <p>(2) Development that protects, enhances, or widens their Green Infrastructure importance will be supported, provided it does not adversely affect their primary functions.</p> <p>(3) Where a proposal would result in the loss of Green Infrastructure which is needed or will be needed in the future, this loss should be replaced by equivalent or better provision in terms of its usefulness, attractiveness, quantity and quality in a suitable location. Replacement Green Infrastructure should, where possible, improve the performance of the network and widen its function.</p> <p>(4) Planning permission will not be granted for development which would adversely affect access to open spaces and opportunities should be sought to protect or enhance the rights of way network and, where applicable, its open environment.</p>
<p>Rushcliffe Local Plan Part 2: Land and Planning Policies</p> <p>Policy 36: Designated Nature Conservation Sites</p>	<p><u>Locally Designated Sites</u></p> <p>(3) Development likely to have a significant adverse effect on a site of local nature conservation value will not be permitted unless it can be clearly demonstrated that there are reasons for the proposal which outweigh the need to safeguard the essential nature conservation value of the site. Locally designated sites include:</p> <ul style="list-style-type: none"> • Local Wildlife Sites • Local Geological Sites • Local Nature Reserves



Policy	Relevant Content
	<ul style="list-style-type: none"> Irreplaceable Habitats <p>(4) Proposals that are likely to have a significant impact on such sites will be assessed according to the following criteria:</p> <p>a) Whether works are necessary for management of the site in the interests of conservation;</p> <p>b) Whether adequate buffer strips and other mitigation has been incorporated into the proposals to protect species and habitats for which the Local Site has been designated; and</p> <p>c) The development t would be expected to result in no overall loss of habitat and, where possible, achieve net gains in habitat. As a last resort, any compensation could be expected to include of-setting habitats adjacent to or within the vicinity of any losses proposed.</p>
<p>Rushcliffe Local Plan Part 2: Land and Planning Policies</p> <p>Policy 37: Trees and Woodlands</p>	<p>(1) Adverse impacts on mature tree(s) must be avoided, mitigated or, if removal of the tree(s) is justified, it should be replaced. Any replacement must follow the principle of the 'right tree in the right place'.</p> <p>(2) Planning permission will not be granted for development which would adversely affect an area of ancient, semi-natural woodland or an ancient or veteran tree, unless the need for, and public benefits of, the development in that location clearly outweigh the loss.</p> <p>(3) Wherever tree planting would provide the most appropriate net-gains in biodiversity, the planting of additional locally native trees should be included in new developments. To ensure tree planting is resilient to climate change and diseases a wide range of species should be included on each site.</p>
<p>Rushcliffe Local Plan Part 2: Land and Planning Policies</p> <p>Policy 38: Non-Designated Biodiversity Assets and the Wider Ecological Network</p>	<p>(1) Where appropriate, all developments will be expected to preserve, restore and re-create priority habitats and the protection and recovery of priority species in order to achieve net gains in biodiversity.</p> <p>(2) Development that significantly affect a priority habitat or species should avoid, mitigate or as a last resort compensate any loss or effects.</p> <p>(3) In order to ensure Rushcliffe's ecological network is preserved and enhanced, development within Biodiversity Opportunity Areas should:</p> <p>a) retain and sympathetically incorporate locally valued and important habitats, including wildlife corridors and stepping stones; and</p> <p>b) be designed in order to minimise disturbance to habitats and species.</p> <p>(4) Outside of the Biodiversity Opportunity Areas developments should, where appropriate, seek to achieve net gains in biodiversity and improvements to the ecological network through the creation, protection and enhancement of habitats, and the incorporation of features that benefit biodiversity.</p>

2.3.19 In addition, the 'Solar Farm Development Planning Guidance, November 2022' document identified the Site as being within the Nottinghamshire Wolds area of the district. Guidelines and Recommendations set out within the document are:

- Enhance the broad-leaved character of existing woodlands;
- Identify opportunities for new woodland planting on suitable sites;
- Conserve the sparsely settled rural character of the landscape;
- Conserve the traditional built form character and pattern of rural settlements;
- Conserve all areas of permanent pasture particularly where present close to villages and along streams;
- Promote measures for conserving and enhancing the historic features such as ridge and furrow;
- Conserve the historic pattern of hedgerows along rural lanes;
- Conserve the semi-irregular small to medium scale field pattern around villages and medium to large scale field pattern throughout remainder of the area;
- Restore the traditional pastoral character and diversity of scarp grasslands;
- Promote measures to enhance the semi-natural appearance of scarp woodland;



- Conserve the balance of woodland and farmland on scarp hills;
- Conserve the riparian character of stream corridors through retention and replanting of streamside trees and scrub;
- Conserve willow pollards where present along stream corridors;
- Conserve the character of village side pastoral landscapes; and
- Promote measures for achieving a better integration of new and existing development in the countryside.

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)⁷. The survey was completed by Eleanor Weir MCIEEM on 28th January 2022. Eleanor has 19 years' experience undertaking ecological surveys and has a BSc in relevant subjects. Eleanor holds current Natural England licences for bats (2015-12689), great crested newts (2020-44458), dormice (2016-20824) and barn owl (CL29/00162).
- 2.4.2 Botanical names follow Stace (1997)⁸ for higher plants and Edwards (1999)⁹ for bryophytes.
- 2.4.3 In order to carry out a Biodiversity Net Gain assessment of the Site, each habitat type and linear habitat feature (i.e. hedgerows) recorded during the Phase 1 Habitat Survey was translated and mapped according to the UK Habitat Classification (UKHab) nomenclature¹⁰, which will be referred to henceforth.
- 2.4.4 The results of the Ecological Habitats Survey are included in map form in Figures 4 and 5. Habitats are mapped following the codes and conventions described within the UKHab Classification system and Target Notes (Table 5) 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.
- 2.4.5 The watercourse was subject to a River Condition Assessment (RCA) using the Modular River Physical (MoRPh) field survey methodology and River Type desk-based exercise, for the purposes of BNG Assessment^{11,12}. Five contiguous MoRPh surveys (MoRPh5 collectively) were completed along the length of the watercourse in accordance with the standard methodology¹³. The MoRPh survey was undertaken on 27th September 2023 by Peter Timms MCIEEM. Peter has been trained and is certified for conducting MoRPh field surveys and River Type studies for River Condition Assessments.

Habitat Assessment Limitations

- 2.4.6 Although the survey was conducted in January, which is outside the optimal time for a Phase 1 habitat survey (April to October inclusive), it was possible to adequately classify and assess the nature conservation value of the habitats involved due to the evidently low distinctiveness of the habitats present (predominantly arable fields and modified grassland). Although particular groups of species such as flowering herbs and spring ephemerals may have been under-recorded or missed, considering the habitats recorded on the Site, any noteworthy species were unlikely to have been missed. An extensive species list was not collected, but species characteristic of the recorded habitats were recorded.

⁷ Nature Conservancy Council. (1990 - 2010 edition). *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit*, Joint Nature Conservation Committee

⁸ Stace, C. (1997). *New Flora of the British Isles Second Edition*. Cambridge University Press

⁹ Edwards, S.R. (1999). *English Names for British Bryophytes*. BBS, Cardiff

¹⁰ UKHab Ltd (2023). *UK Habitat Classification Version 2.0* (at <http://ukhab.org>)

¹¹ Modular River Survey Team (2022) River Condition Assessment for Biodiversity Metric 3.0 [online]. Available from: <https://modularriversurvey.org/>

¹² Panks et al (2022) Biodiversity Metric 3.1: Auditing and accounting for biodiversity – Technical Supplement Part 1c. Natural England

¹³ Shuker, L.J et al (2017) MoRPh: a citizen science tool for monitoring and appraising physical habitat changes in rivers. *Water and Environment Journal*, 31(3): 418-424.

- 2.4.7 Survey of the habitats present within the Sites were completed in January 2022. The methodology followed, at the time, was of the Phase 1 Habitat Classification, prior to UK Habitat Classification System (system used to inform the Metric) becoming commonplace. As such, habitat classification (translation from Phase 1 to UK Hab) and condition assessments were undertaken retrospectively rather than in the field. This is not considered to be a significant limitation considering the comprehensive survey notes / data and photographs collected for each habitat features at the Sites. When a precautionary approach has been taken, this was specified in the report.

Arable – Cereal Crops

Desk Study Information

- 2.4.8 Arable farmland is designated as a priority habitat within the Nottinghamshire LBAP⁶.

Field Survey Results

- 2.4.9 At the time of survey, all arable fields in Old Wood North were sown with winter wheat which was beginning to green up. The arable fields in Old Wood South had been recently ploughed but were not obviously sown with any crops at that point.
- 2.4.10 The field margins were found to be narrow (<2m wide) in most places and comprised a species-poor sward dominated by Yorkshire fog *Holcus lanatus*, rough meadow grass *Poa trivialis* and Cock's foot *Dactylis glomerata*. Wider field margins were present along the northern boundary of Field 4 (Old Wood North) as well as the western edge of Old Wood South (Field 12) which are described under the 'Modified Grassland' subheading below.



Photograph 1: Typical arable field within Old Wood North

Evaluation

- 2.4.11 Although of low floristic diversity with limited value to most wildlife, the arable land is likely to offer suitable habitat for farmland birds and is considered to be of **Site** Importance.

Modified Grassland

Field Survey Results

- 2.4.12 Two fields within Old Wood South, along with an approximately 30m wide strip within Field 12 of Old Wood South comprised Modified Grassland. Species within the 30m strip included perennial ryegrass *Lolium perenne*, tufted hairgrass *Deschampsia cespitosa*, Yorkshire fog, and occasional soft rush *Juncus effusus*. Additionally, a larger than average arable margin approximately 15m in width was present along the northern boundary of Field 4 in Old Wood North, bordering the adjacent woodland. This was dominated by a variety of grasses, with frequent scrub, all cut to ground level at the time of survey.

- 2.4.13 Field 9 within Old Wood South was dominated by rough meadow-grass, with tufted hairgrass and creeping thistle *Cirsium arvense* occurring in small abundances. This field was sheep grazed, with a short sward. Ridge and furrows within the field were present, and Kingston Brook intersected the grassland, running east to west. Both Field 9 and the 30m strip of grassland were species poor, with fewer than 6-8 vascular plants present per m².



Photograph 2: Ridge and furrow grassland within Field 9 of Old Wood South

- 2.4.14 Field 13 within Old Wood South was dominated by Yorkshire fog, with perennial ryegrass, Cock's-foot, red fescue *Festuca rubra* and timothy *Phleum pratense* grasses present. Other species noted included white clover *Trifolium repens* and creeping buttercup *Ranunculus repens*. This field was considered to be slightly more species rich than the other two areas of modified grassland, with approximately 6-8 vascular plants present per m².

Evaluation

- 2.4.15 The areas of modified grassland within the two fields and additional grassland strip were all low in species diversity, however, may provide foraging opportunities for a restricted range of species as well as refuge from surrounding arable habitats, and therefore are considered to offer **Site** Importance.

Ponds

Desk Study Information

- 2.4.16 Eutrophic and mesotrophic standing waters are included as priority habitats within the Nottinghamshire LBAP.

Field Survey Results

- 2.4.17 There were four ponds on Site: P1, P4 and P15 in Old Wood North, and P10 in Old Wood South (Figure 3). A further 11 ponds were noted to be within 250m of the Site boundary.
- 2.4.18 Of these ponds, seven were inspected during the walkover survey and described below. Five were found to potentially offer suitability for amphibian species such as great crested newt. GCN suitability is discussed further below in Section 2.5.
- 2.4.19 Figure 3 gives indicative pond locations within both parcels, as well as their respective distance from the Site boundary.

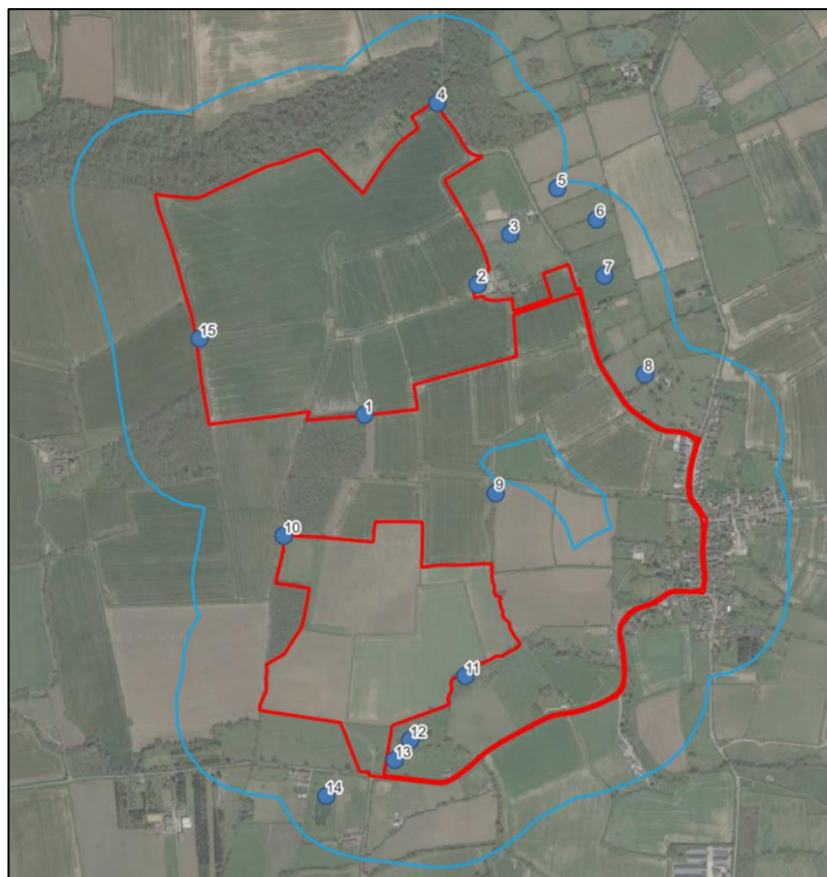


Figure 3: Location of on and off-site ponds and the blue line indicating 250m from the Site redline boundary

- 2.4.20 Within Old Wood North, Pond 1 was located on the boundary of Field 6, just on-site. The water was noted to be very clear, with a depth of around 30cm. Some aquatic vegetation was present, and it was noted that this pond is completely shaded and probably never or very rarely dries.
- 2.4.21 Pond 2 just off Site had become degraded due to piles of composted grain and other material, which had polluted the water, with only a small amount remaining. This pond was surrounded by common nettle *Urtica dioica*, indicative of increased nutrient loads.



Photograph 3: Pond 2 directly adjacent to Old Wood North

- 2.4.22 Pond 3 was located in a neighbouring garden east of the Old Wood North boundary and was surrounded by willow *Salix* sp. And largely filled with pond sedge *Carex riparia*. The banks were shallow and sloping, and the pond was just over half covered by shading trees and vegetation, with moderately low water levels.
- 2.4.23 Pond 4 was located on a small, wooded bank adjacent to a road, just within the Old Wood North boundary. It was completely shaded, with no aquatic vegetation present.
- 2.4.24 Pond 15 was located on-site within Old Wood North and was a former pond which had been succeeded by scrub and with water no longer present.
- 2.4.25 Within Old Wood South, Pond 10 was on-site, was approximately 5m in diameter with shallow water, and was completely shaded by surrounding scrub, with no aquatic vegetation present.
- 2.4.26 Pond 12 was located in off-site woodland and was also completely shaded and filled with leaves and branches. No aquatic vegetation was noted, and the water was at least 20cm in depth.
- 2.4.27 Pond 14 was a large off-site pond with waterfowl presence obvious. This pond was approximately 95% unshaded by vegetation and it was noted that sheep grazing occurred along the pond banks, causing some damage.



Photograph 4: Pond 10 within Old Wood South

Evaluation

- 2.4.28 Although varying in quality and value to wildlife, ponds are designated as priority habitats (where eligible) and listed within the Nottinghamshire LBAP. Ponds are considered to be of **Local** Importance.

Watercourse and Ditches

Desk Study Information

- 2.4.29 Watercourses are designated as a priority habitat within the Nottinghamshire LBAP⁶, and constitute a Habitat of Principal Importance under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act).

Field Survey Results

- 2.4.30 Kingston Brook flows through the southern parcel of the Site (see Figure 5). The watercourse was approximately 2m in width and the flow was moderate and went from east to west through Field 9 of Old Wood South. The banks were moderately steep and shallow and typically vegetated with ruderal vegetation, and were extensively poached by grazing livestock. An existing farm track crossed over the watercourse, and this was culverted underneath. The crossing over the brook was stone and earth construction and used mainly for access for farm machinery.



Photograph 5: Kingston Brook in January 2022

- 2.4.31 A MoRPh5 survey and River Type assessment was conducted on the watercourse. Using this assessment, the watercourse at the Site was recorded as being in 'Fairly Poor' condition according to the BNG Metric. The condition score is heavily influenced by the moderate level of artificial reinforcement, as well as the extent of managed bank top ground cover (agriculturally grazed grassland) within the riparian zone. The lack of structural diversity amongst the bank top and bankside vegetation as well as the presence of invasive non-native species (Himalayan balsam *Impatiens glandulifera*) also contributes to the low condition score of the watercourse.
- 2.4.32 A wet ditch ran along the western boundary of Old Wood South, associated with hedgerows H31 and H34. This was dry in most places, but areas of standing water were noted where pipes drained off the land. Other parts of the ditch were damp. The ditch was mostly overshadowed by scrub from the base of the associated hedgerows. The grassland adjacent to the ditch running along the eastern boundary of Field 13 was managed within the riparian zone of this feature, presenting major bankside encroachment along much of its length.
- 2.4.33 All other agricultural ditches recorded during the walkover survey were noted to be dry.



Photograph 6: Example of wet part of ditch running along the western boundary of Old Wood South



Evaluation

- 2.4.34 Both Kingston Brook and the ditches are designated as a priority habitat within the Nottinghamshire LBAP, and therefore both are considered to be of **Local** importance.

Hedgerows and Trees

Desk Study Information

- 2.4.35 Native hedgerows are recognised as priority habitat within the Nottinghamshire LBAP and a Habitat of Principal Importance under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act).

Field Survey Results

- 2.4.36 An extensive network of hedgerows was present within and around both the North and South parcels of the Site. These were often species-poor and defunct, however did include few species-rich hedgerows. Table 4 outlines hedgerow information for both Old Wood North and Old Wood South.
- 2.4.37 Overall, hedgerows were dominated by hawthorn *Crataegus monogyna*, with many being species-poor and gappy or defunct. Many showed signs of regular management and were under 3m in height.

Table 4: Hedgerow Information for Northern and Southern Parcels

Site Parcel	Hedgerow Ref	Species Present	Hedgerow Type (UKHab)	Dimensions	Additional Information
North	H1	Hawthorn, hazel, ash	Native hedgerow	2m height 1.5m width	Gappy and defunct. Occasional standard tree
North	H2	Hawthorn, ash, elder, hazel, dog rose	Species-rich native hedgerow	2m height 1.5m width	Intact and evidence of regular flailing
North	H3	Hawthorn, elder, dog rose, ash	Native hedgerow	3m height 1m width	Intact. Occasional standard tree
North	H4	Hawthorn, elder, dog rose	Native hedgerow	2m height 1.5m width	Intact
North	H5	Hawthorn, dog rose, elder	Native hedgerow	2m height 1m width	Intact
North	H6	Hawthorn, dog-rose	Native hedgerow	1.5m height 1m width	Intact with standard trees
North	H7	Hawthorn, elder, elm sp	Native hedgerow	2.5m height 1.5m width	Intact
North	H8	Hawthorn, elder, dog rose, one ash standard	Native hedgerow – associated with ditch	2m height 1.5m width	Intact with dry ditch present on one side. Occasional standard tree
North	H9	Hawthorn, blackthorn, elder	Native hedgerow – associated with ditch	2-4m height 1.5-3m width	Defunct with dry ditch present on one side and scrub locally abundant
North	H10	Hawthorn, elder, dog rose, one ash standard	Native hedgerow	3m height 1.5m width	Intact



Site Parcel	Hedgerow Ref	Species Present	Hedgerow Type (UKHab)	Dimensions	Additional Information
North	H11	Hawthorn, blackthorn, ash, elder, elm sp, pedunculate oak standards	Species-rich native hedgerow	2m height 3m+ width	Intact and scrubby at northern end of hedgerow. Some parts of the hedge are especially wide
North	H12	Hawthorn	Native hedgerow	5m height 3m width	Intact
North	H13	Hawthorn	Native hedgerow	No dimensions recorded	Defunct and very gappy
North	H14	Hawthorn	Native hedgerow	4m height Width not recorded	Intact
North	H15	Hawthorn, blackthorn, dog rose, field maple, pedunculate oak and ash standards	Species-rich native hedgerow	4m height 3m width	Intact double width hedgerow
North	H16	Hawthorn, blackthorn, dog rose, pedunculate oak, ash	Species-rich native hedgerow	No dimensions recorded	Intact
North	H17	Hawthorn, dog rose, pedunculate oak	Native hedgerow	No dimensions recorded	Intact
North	H18	Hawthorn, dog rose, ash	Native hedgerow – associated with ditch	No dimensions recorded	Intact. Dry ditch present. Occasional standard tree
North	H19	Hawthorn, dog rose, ash	Native hedgerow	No dimensions recorded	Intact
North	H20	Hawthorn, hazel, ash, blackthorn, elder, willow sp	Species-rich native hedgerow – associated with ditch	No dimensions recorded	Intact with dry ditch present
North	H21	Hawthorn, hazel, ash, blackthorn, elder, willow sp	Species-rich native hedgerow	No dimensions recorded	Intact
North	H22	Hawthorn, blackthorn, ash	Native hedgerow	No dimensions recorded	Intact
South	H23	Hawthorn	Native hedgerow	No dimensions recorded	Intact



Site Parcel	Hedgerow Ref	Species Present	Hedgerow Type (UKHab)	Dimensions	Additional Information
South	H24	Hawthorn, elder, ash	Native hedgerow	1.5m height 1m width	Intact
South	H25	Hawthorn, ash	Native hedgerow	5m+ height Width not recorded	Intact
South	H26	Hawthorn, elder, ash	Native hedgerow	1.5m height 1m width	Defunct
South	H27	Hawthorn, blackthorn, field maple, ash, dog rose	Species-rich native hedgerow	2-3m height 2-4m width	Intact with dry ditch under hedge
South	H28	Hawthorn, ash, field maple	Native hedgerow with trees	1.5m height Width not recorded	Defunct and very gappy. Occasional standard tree
South	H29	Hawthorn	Native hedgerow	2m height 1m width	Defunct and very gappy
South	H30	Hawthorn	Native hedgerow	2m height 1m width	Defunct and very gappy
South	H31	Hawthorn	Native hedgerow	2m height 1m width	Intact with ditch present. Mostly dry but with some wet patches
South	H32	Hawthorn	Native hedgerow	2m height Width not recorded	Defunct
South	H33	Hawthorn	Native hedgerow	2m height Width not recorded	Intact
South	H34	Blackthorn, hawthorn, pedunculate oak, ash, field maple, dog rose	Species-rich native hedgerow	No dimensions recorded	Intact with wet ditch at base of hedge. Occasional standard tree
South	H35	Pedunculate oak, ash, blackthorn	Native hedgerow with trees	No dimensions recorded	Intact hedgerow with regular standard trees

2.4.38 Only four of the hedgerows within the northern parcel had corresponding agricultural ditches associated with them (H8, H9, H18 and H20), all of which were dry. Within the southern parcel, a wet agricultural ditch ran along the western boundary of the Site, alongside hedgerows H31 and H34. Another dry ditch was present alongside H27.

2.4.39 Standard trees were present in a small number of hedgerows but only singularly or as a pair, meaning that only two hedgerows were assessed as being a hedgerow with regular trees (Old Wood South H35 and Old Wood North H6). Standard trees with potential for roosting bats are discussed below in Section 2.5.



Photograph 7: Typical managed hedgerow in Old Wood South

- 2.4.40 With the exception of a small (0.042ha) patch of woodland located in the very north-eastern corner of Field 4 in Old Wood North, no woodland was located within the survey area. Old Wood North also lay immediately south of Bunny Old Wood LWS, a stretch of mixed ancient woodland, and Wysall Rough Plantation and Long Rough Plantation bordered Old Wood South to the west, as shown in Figures 4 and 5.

Evaluation

- 2.4.41 Due to the extent of the hedgerow network, the connective linkages they provide and their inclusion within the Nottinghamshire LBAP, hedgerows and trees were considered to be of **Local** Importance.

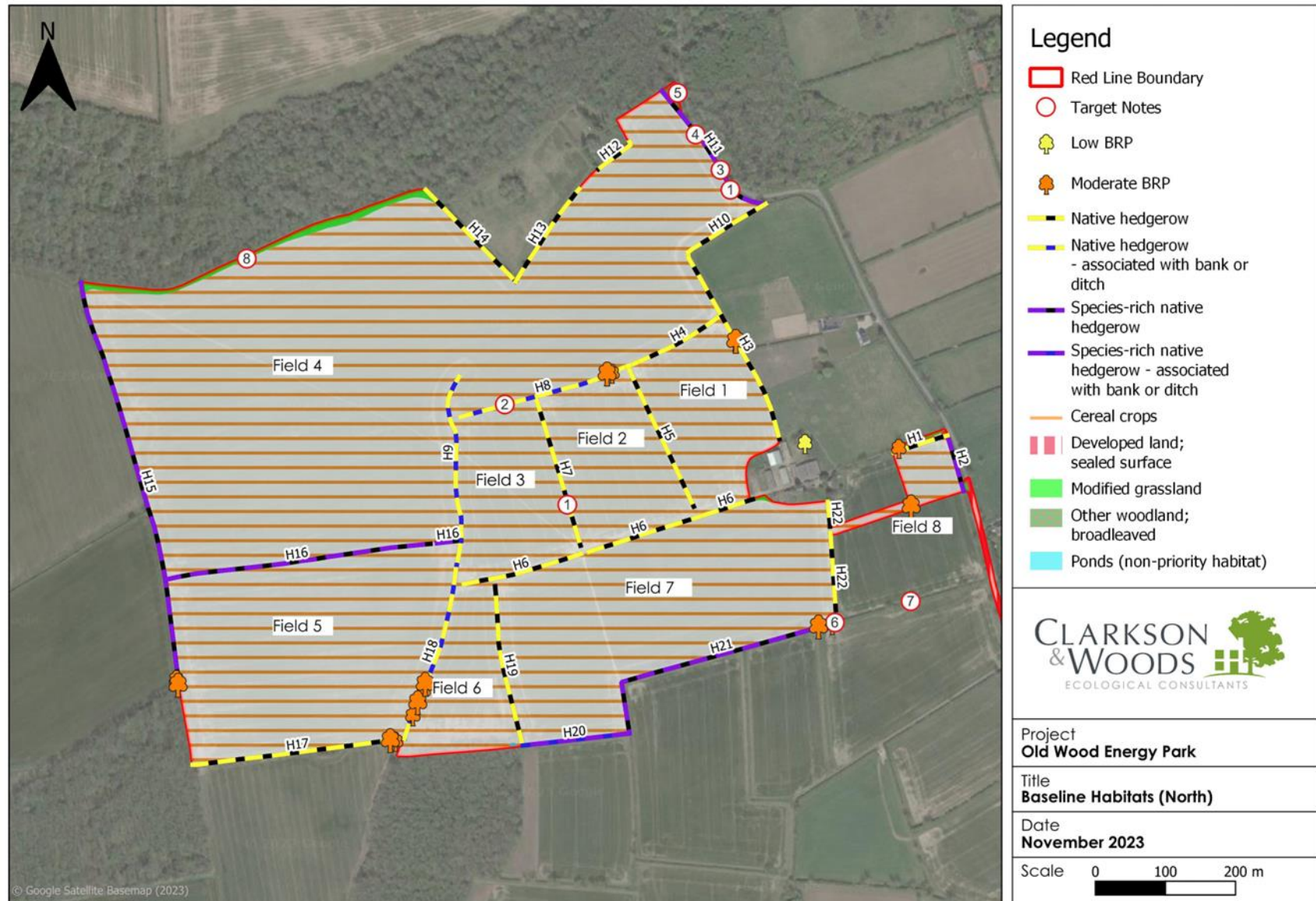


Figure 4: Old Wood North habitat map

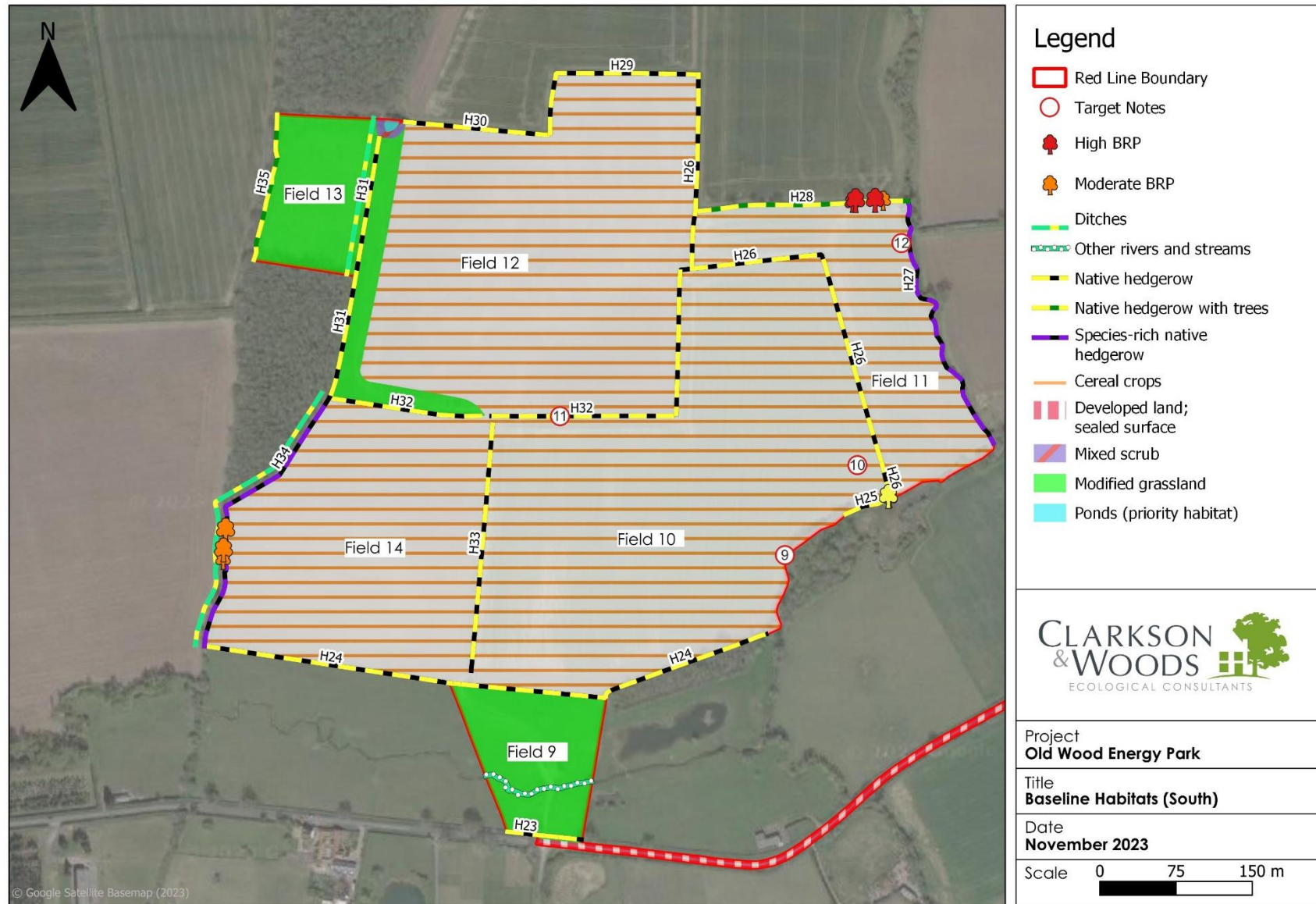


Figure 5: Old Wood South habitat map

**Table 5: Target Notes**

No.	Description
TN1	Badger latrine with fresh dung present
TN2	Badger latrine with fresh dung present, foraging snuffle holes and a mammal path along hedgeline
TN3	Badger sett, probably outlier. Two partially used entrances; one facing south-west and one facing north-west
TN4	Badger sett, former outlier. One disused and partially blocked entrance
TN5	Badger sett, probably outlier. One well used entrance facing east. Two large and well used latrines also present nearby
TN6	Badger sett, possibly an annex to the sett at TN7. One partially used entrance facing west, and two partially used entrances facing north
TN7	Badger sett, likely main. Comprising eight well used entrances, two partially used entrances and one disused entrance
TN8	Wider than usual arable margin adjacent to woodland. Approximately 15m in width, dominated by grasses and frequent bramble scrub cut to ground level
TN9	Badger sett, probably subsidiary. Two partially used entrances and two disused entrances
TN10	Brown hare observed in field
TN11	Badger sett, likely subsidiary. Two well used entrances, two partially used entrances and three disused entrances
TN12	Snipe flushed from arable margin

2.5 Protected Species Survey and Species of Conservation Concern

Badger

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 Outlying¹⁴. 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.

Limitations

- 2.5.3 No specific limitations were experienced when surveying for badgers.

¹⁴ Lewns, P., Clarkson, T. & Lewns, D. (2019). *Badger Survey and Mitigation Guidelines (The Mammal Society Mitigation Guidance Series)*. Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London. (as yet unpublished)



Desk Study Information

- 2.5.4 NBGRC returned five records of badger setts and several instances of roadkill within 1km of the Site, since 2013. The closest sett identified was approximately 600 east of Old Wood South however all locations returned by NBGRC are sensitive and approximate. Additionally, a further two records were identified over 1km from the Site.

Field Survey Results

- 2.5.5 A total of seven badger setts were identified within the initial walkover survey. Figures 4 and 5 show the approximate locations of the badger setts, and Table 5 provides further details of each sett. It was estimated that there were three outlier setts, one annex sett, two subsidiary setts, and one large main sett. The majority of these setts were identified within Old Wood North.
- 2.5.6 Additionally, several badger latrines and evidence of foraging were identified (Table 5 refers), particularly within Old Wood North.
- 2.5.7 The arable land offered suitable foraging habitat throughout both parcels of the Site, and the presence of several blocks of adjacent woodland offered potential suitable foraging and sheltering habitat.

Evaluation

- 2.5.8 The Site is considered to be of **Site** level importance to badgers due to the species' presence within and adjacent to the hedgerows throughout the Site.

Bats

Methodology

- 2.5.9 The assessment of the suitability of the Site for foraging and roosting bats was based on the contemporary guidance set out by the Bat Conservation Trust¹⁵ at the time of survey.
- 2.5.10 *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 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.
- 2.5.11 *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 resource value to bats. The potential for noise or lighting disturbance which may affect commuting links was also recorded.

Limitations

- 2.5.12 Bats are very small creatures, capable of secreting themselves away into 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.
- 2.5.13 Not all features in trees suitable for use by bats are visible from the ground and there can be no external evidence of use of features by bats; consequently, it is only possible to make a best effort when carrying out such a survey.

Desk Study Information

- 2.5.14 NBGRC returned records of 10 bat roosts within 2km of the Site since 2013, including brown long-eared *Plecotus auritus* and common pipistrelle *Pipistrellus pipistrellus*. The closest roost was a brown long-eared roost, located approximately 500m east of the Site within Wysall, recorded in 2015.

¹⁵ 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.



- 2.5.15 NBGRC also returned 66 individual records of bat within 2km of the Site, species included brown long-eared, common pipistrelle, soprano pipistrelle *Pipistrellus pygmaeus*, *Myotis* sp., Noctule *Nyctalus noctule*, barbastelle *Barbastella barbastellus*. The closest record was a common pipistrelle 20m south from Site in 2015, found during a walked transect survey.
- 2.5.16 Three European Protected Species Licences were recorded within a 2km radius of the Site, which are detailed in Table 6 below.

Table 5: Natural England Bat Mitigation Licences Granted within Surrounding 2km

Licence reference	Species	Date To-From	Impact	Distance and direction from Site
EPSM2011-3665	Common pipistrelle	31/10/2011-29/02/2012	Destruction of a resting place	550m east of both parcels
EPSM2013-5427	Common pipistrelle	15/02/2013-30/09/2016	Destruction of a resting place	750m east of Old Wood North
EPSM2012-4949	Brown long-eared	16/10/2012-31/08/2015	Destruction of a breeding site and destruction of a resting place	1.3km west of Old Wood North

Field Survey Results

Habitat

- 2.5.17 The arable habitats on Site offered sub-optimal foraging potential, however the presence of one on-site pond containing unpolluted water, several off-site ponds, and a small number of on-site wet ditches provided suitable invertebrate foraging resources.
- 2.5.18 The Site was well-connected within the surrounding landscape by a network of mature but often gappy hedgerows, providing moderate suitability for commuting opportunities throughout the wider area. Several small blocks of adjacent woodland provided additional sheltering and foraging opportunities.
- 2.5.19 Overall, the habitats and features within both parcels of the Site provided habitat for both commuting and foraging bats, as well as connectivity throughout the surrounding landscape.

Trees

- 2.5.20 Figures 4 and 5 identify trees on Site which were assessed as having low, moderate and/or high bat roosting potential (BRP). 13 such trees were recorded within both parcels of the Site, most of which offered moderate BRP.
- 2.5.21 Potential roosting features of the highlighted trees included knot holes, rot holes, splits, callus rolls, hollow limbs and splits.



Photograph 8: Example of tree offering Moderate BRP within Old Wood North

Evaluation

- 2.5.22 The roosting and commuting bat populations using the Site are considered to be of **Local** level importance, due to the moderate abundance of trees offering roosting potential, and the presence of commuting habitat throughout both parcels of the Site.

Offer

Methodology

- 2.5.23 A search was made along the banks of water courses and water bodies and their adjacent habitats for otter *Lutra lutra* signs including spraints, tracks, castling, and rolling. The banks of any water courses were searched for the presence or potential for holts or other sheltering areas.

Limitations

- 2.5.24 Otters have no defined breeding season and the breeding holt is kept deliberately obscure by the female so locating one can be difficult and time consuming.

Desk Study Information

- 2.5.25 NBGRC returned no records of otter within 1km of the Site within the last 10 years. However, following population recoveries this species is now largely ubiquitous within river catchments across England.

Field Survey Results

- 2.5.26 No signs of otter were noted within the initial walkover survey or in subsequent water vole surveys carried out in 2023, however Kingston Brook remains moderately suitable for otter commuting between holt/couch sites and foraging grounds.

Evaluation

- 2.5.27 If they are present within the Site, otters are considered to be of **Local** importance.



Water Vole

Methodology

- 2.5.28 The banks of Kingston Brook were searched for water vole *Arvicola amphibius* signs including latrines, burrow entrances, feeding stations, 'runways' and footprints during the initial walkover survey in January 2022. Surveys and field recording followed the protocol set out within the Water Vole Mitigation Handbook¹⁶
- 2.5.29 Subsequently, two separate water vole surveys were undertaken on 24th April 2023 and 14th August 2023 by Eleanor Weir MCIEEM, and her assistant Bob Richardson. This was undertaken following methodology described within the Water Vole Mitigation Handbook and covered the entire course of the brook which crossed Field 1 within Old Wood South, as well as approximately 100m both up and down stream.

Limitations

- 2.5.30 Due to excessively wet weather in the days and weeks preceding the first water vole survey on 24th April 2023, water levels within Kingston Brook were noticeably higher, and flow significantly faster, than during the 2022 walkover survey. This could have potentially reduced any obvious signs of water vole; however, it is expected that if a population of the species were to be present, evidence would be found regardless.
- 2.5.31 Although water levels had dropped considerably by the second survey on 14th August 2023, the channel of the brook was largely filled with vegetation, impairing visibility into the water and making searching for signs more difficult.

Desk Study Information

- 2.5.32 NBGRC returned no records of water vole within 1km of the Site within the last 10 years.

Field Survey Results

- 2.5.33 No evidence of water vole were found during the initial walkover visit in January 2022. The banks of Kingston Brook varied from shallow sloping banks to vertical steep banks, mostly unshaded, with a variety of bankside vegetation present. Several small drainage inlets into the brook were present.

April 2023 Survey

- 2.5.34 The weather on the day of the survey was partly cloudy with a light breeze and an average temperature of 10°C.
- 2.5.35 Vegetation was abundant, with common nettle, grasses, willowherbs and broadleaved dock *Rumex obtusifolius* present, as well as occasional hard rush *Juncus inflexus* and soft rush *Juncus effusus*. There was frequent emergent and marginal vegetation along the banks of the channel included sedges and grasses, but much was submerged under the high water level.
- 2.5.36 No evidence or signs of water vole were noted.
- 2.5.37 Evidence of field vole *Microtus agrestis* or bank vole *Myodes glareolus* was abundant, particularly within longer vegetation to the east of the Site. This included holes, runs, feeding signs and individual voles observed within and around the banks of the brook.

August 2023 Survey

- 2.5.38 The weather on the day of the survey was mostly cloudy with a gentle breeze and an average temperature of 19°C.
- 2.5.39 As noted above, the water levels had dropped significantly within the latter part of the summer, and the channel of the brook was mostly covered with vegetation including bur-reed *Sparganium* sp., grasses, sedges, water mint *Mentha aquatica*, great willowherb *Epilobium hirsutum* and common nettle.
- 2.5.40 Again, no evidence of water vole was found within this survey.

¹⁶ Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London.



Photograph 9: Kingston Brook in April 2023



Photograph 10: Kingston Brook in August 2023



Figure 6: Extent of water vole survey (orange line) both within and outside of Site boundary. Blue line showing Kingston Brook

Evaluation

- 2.5.41 Due to the absence of evidence of water voles at the Site recorded during targeted surveys, this species is considered likely absent and the Site is of **Negligible** importance to this species.

Dormice

Methodology

- 2.5.42 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

- 2.5.43 No limitations were experienced.



Desk Study Information

- 2.5.44 NBGRC returned no records of dormice within 1km of the Site within the last 10 years.
- 2.5.45 No European Protected Species (EPS) Licences were applied for within a 2km radius of the Site.
- 2.5.46 Dormice are believed to have become extinct in Nottinghamshire in the mid-20th century¹⁷, although were reintroduced to three woodland sites beginning in 2013. These reintroduction sites are at Treswell Wood, Eaton Wood and Gamston Wood, which are located near Retford in the north of the county, and approximately 50km from the Site.

Field Survey Results

- 2.5.47 The Site provided an extensive and mature hedgerow network with a mix of both species-rich and species-poor hedgerows, dominated by hawthorn. Hazel was present exclusively within Old Wood North in H1, H2 and H20.
- 2.5.48 Most hedgerows were intact; however, a moderate number were defunct or gappy in places, presenting fewer opportunities for dormouse dispersal throughout the Site. Several blocks of woodland were present adjacent to the Site, to the west of Old Wood South and to the North of Old Wood North, presenting dispersal opportunities throughout the wider landscape.
- 2.5.49 The hedgerows on Site were considered to be suitable for the species due to their maturity and connectivity within the wider landscape, however a nut search was not undertaken due to the lack of hazel, and no obvious signs of dormice were noted.

Evaluation

- 2.5.50 Although suitable habitat is present, dormice are considered likely to be absent from this part of Nottinghamshire and the Site is thus of **Negligible** importance.

Amphibians

Methods

- 2.5.51 All waterbodies within 250m of the Site were identified using Ordnance Survey maps and aerial imagery. Waterbodies within the Site ownership and on publicly accessible land were assessed during the field survey for their suitability to support amphibian species where access was possible.
- 2.5.52 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 al¹⁸. 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.
- 2.5.53 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.
- 2.5.54 Great crested newt eDNA surveys for Ponds 1, 3, 4, 9, 10, 12 and 14 were undertaken by Rebecca Sandey ACIEEM, and assisted by Molly Brown on 7th June 2022. A subsequent survey for Pond 13 was undertaken by Dave Allen who holds a Natural England licence for the survey of great crested newt licence (2015-17946-CLS-CLS) and assisted by Bob Richardson on 19th June 2022.

Limitations

- 2.5.55 A number of ponds were not surveyed or sampled due to access permission not being granted. The eight ponds sampled were Ponds 1, 3, 4, 9, 10, 12, 13 and 14 (all on site). Access was not granted for Ponds 5 (230m from Site), 6 (160m from Site), 7 (82m from Site) and 8 (100m from the Site's cable route) so they were unsampled.

¹⁷ <https://nottsdormousegroup.uk/nottinghamshires-dormice/>

¹⁸ 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.



2.5.56 Pond 2 (on Site) adjacent to Old Wood North was so polluted and full of manure that it was considered unsafe to sample, although it was also assumed that this pond held no suitability for GCN due to the state of the water present. Pond 15 (on Site) within Old Wood North was not sampled as it was a dry, former pond, possibly never holding water anymore. Pond 11 (adjacent to Old Wood South) was dry at the time of the eDNA survey and therefore was not sampled.

2.5.57 Pond 13 was not identified during the original Site walkover survey, with Clarkson and Woods being made aware of it by the landowner of Pond 12. This was sampled at a different time to the rest of the ponds, though still within the GCN eDNA sampling period.

Desk Study Information

2.5.58 NBGRC returned no records of either GCN or toads within 1km of the Site. Defra's Magic returned no GCN licence applications within 1km of the Site.

2.5.59 There were no toad crossing points in a 1km radius from the Site.

Field Survey Results

2.5.60 The habitat within the Site was considered sub-optimal within the fields for GCN and other amphibians due to the presence of extensive arable land and narrow field margins. The field margins, hedgerows and woodland blocks represented good terrestrial habitat for GCN and may act as commuting features. The wider margins of modified grassland within Field 4 in Old Wood North, along the western boundary of Field 12 in Old Wood South, and the uncut modified grassland within Field 13 provide suitable habitat for GCN and other amphibians during their terrestrial phase.

2.5.61 Four ponds were present on Site: Pond 1, Pond 4 and Pond 14 in Old Wood North, and Pond 10 in Old Wood South. A further 11 ponds were present within 250m of the Site boundaries.

2.5.62 Ponds 11 and 14 were dry, and Pond 2 was a slurry pit and therefore water samples were not able to be taken from these features.

2.5.63 Pond descriptions are given above in Section 2.4.

2.5.64 Table 6 below outlines the Habitat Suitability Index (HSI) scores of each surveyed pond and Table 7 gives the required scores needed for each pond suitability assessment.

Table 6: Pond Habitat Suitability Index Results and Descriptions

Suitability Indices	Pond 1 (on site)	Pond 3	Pond 4 (on site)	Pond 9	Pond 10 (on site)	Pond 12	Pond 13	Pond 14
Geographic Location	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Approx Pond Area	0.2	1.0	0.01	0.3	0.1	0.8	0.05	0.8
Pond Permanence	0.9	0.5	1.0	0.9	0.9	0.9	1.0	0.9
Water Quality	0.33	0.67	0.33	0.67	0.67	0.33	1.0	1.0
Perimeter Shade	0.2	1.0	0.2	0.7	1.0	1.0	1.0	1.0
Presence of Waterfowl	1.0	0.67	1.0	1.0	1.0	0.01	1.0	0.67
Presence of Fish	1.0	1.0	1.0	1.0	1.0	1.0	0.33	0.33
Pond Density in Local Area	1.0	1.0	0.9	1.0	1.0	0.85	0.85	0.7

Suitability Indices	Pond 1 (on site)	Pond 3	Pond 4 (on site)	Pond 9	Pond 10 (on site)	Pond 12	Pond 13	Pond 14
Terrestrial Habitat Quality	0.67	0.67	0.67	0.67	0.67	0.67	1.0	0.67
Macrophyte Cover	0.35	1.0	0.3	0.6	0.85	0.3	1.0	0.3
HSI Index Score	0.56 – Below Average	0.83 - Excellent	0.41 - Poor	0.74 - Good	0.71 - Good	0.46 - Poor	0.65 - Average	0.68 - Average

Table 7: Habitat Suitability Index Score and Corresponding Pond Suitability Rating

HSI Score	Pond Suitability
< 0.50	Poor
0.50 – 0.59	Below Average
0.60 – 0.69	Average
0.70 – 0.79	Good
> 0.80	Excellent



Photograph 11: Pond 1 (on site)



Photograph 12: Pond 3



Photograph 13: Pond 4 (on site)



Photograph 14: Pond 9



Photograph 15: Pond 10 (on site)



Photograph 16: Pond 13



Photograph 17: Pond 14

2.5.65 Following the eDNA surveys, four of the sampled ponds were returned as positive for GCN. These were Ponds 3, 9, 10 and 13. The remaining ponds (Ponds 1, 4, 12 and 13) were returned as negative for GCN, and it is therefore assumed that the species is absent from these waterbodies, however it is possible that they are used as breeding ponds in different years due to their proximity to ponds with positive eDNA results. Figure 7 shows the locations of all ponds within 250m of the Site, their distance from the Site boundary, whether they were sampled, and the subsequent eDNA results of this sampling.

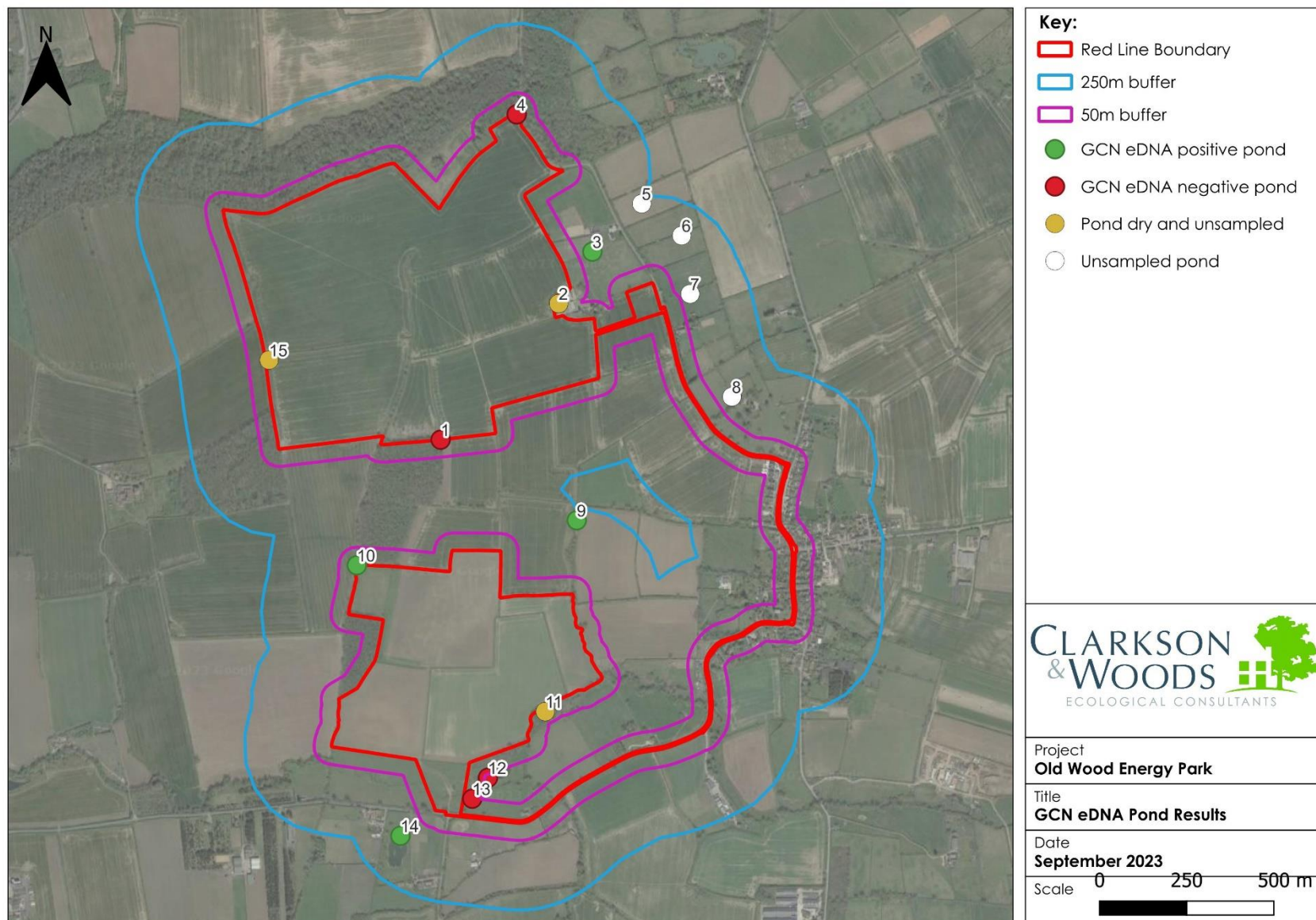


Figure 7: Great crested newt eDNA results



Evaluation

- 2.5.66 Due to the presence of GCN within four ponds on and around Site, the generally moderate density of ponds within the surrounding area, and the presence of suitable terrestrial habitat including an extensive hedgerow network, the GCN population within the Site is considered to be of **Local** level importance.

Reptiles

Methods

- 2.5.67 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, and the ground was scanned whilst walking to look for basking species.

Limitations

- 2.5.68 The initial walkover survey was undertaken in January which is outside the suitable season to survey for reptiles.

Desk Study Information

- 2.5.69 NBGRC returned no records of reptiles within 1km of the Site within the last 10 years. The only record returned was of an individual grass snake *Natrix helvetica* in 2002, approximately 1.4km north-west of Site.

Field Survey Results

- 2.5.70 The hedgerows on Site were mostly bound by narrow, species-poor field margins, which provided some sub-optimal habitat for reptiles. The arable land within the fields themselves offered little potential to support reptiles. No reptiles or signs of reptiles were noted during the walkover survey; however, this was undertaken at an unsuitable time of year.
- 2.5.71 The two areas of modified grassland along field boundaries (along the northern boundary of Field 4 in Old Wood North and along the western boundary of Field 12 in Old Wood South) offer potential habitat for reptiles, however the grassland within Old Wood South was noted to be damp due to the presence of tufted hairgrass and soft rush, which reduces its suitability.
- 2.5.72 Additionally, Field 13 within Old Wood South comprised modified grassland and may provide suitable habitat for widespread reptiles such as slow worm *Anguis fragilis*, however this habitat is not extensive and is bound by woodland and arable fields, lowering its suitability for reptiles.

Evaluation

- 2.5.73 Should reptiles be present, they are likely to be in small numbers and confined to the field margins and boundary features of the Site. It is therefore considered that reptiles within the Site are of **Site** importance to reptiles (if they are present).

Birds

Methodology

- 2.5.74 During the initial walkover survey, vegetation was surveyed for signs of use by nesting birds and 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.

Winter Bird Survey Methodology

- 2.5.75 Both parcels were subject to a wintering bird scoping survey (WBS) on 24th February 2022. This survey was undertaken by Mike Hockey MCIEEM and Ian Myatt. Mike has over 9 years' experience in nature conservation and ecological surveys, with the most recent 7 years based in ecological consultancy, with particular experience as a bird surveyor. Ian Myatt is an experienced bird surveyor with over 10 years' experience. Both surveyors have been assessed under the Clarkson and Woods QA process as competent to complete the survey. The purpose of this survey was to record all bird species seen, their abundance and distribution within the Site, and to assess the overall importance of the wintering bird assemblage present.



2.5.76 After the initial scoping survey, a further three WBS were undertaken on 14-15th December 2022, 18-19th January 2023 and 14th February 2023. The first two of these were carried out by Ian Myatt, with the third being carried out by Richard Anderton MCIEEM. Richard has over 10 years' of surveying experience and has been assessed under the Clarkson and Woods QA process as competent to complete the survey. Table 8 below shows gives the survey details of each WBS visit.

Table 8: Winter Bird Survey Timings and Weather Conditions

Date	Surveyor(s)	Start Time	Sunrise Time	Cloud (Eighths), Wind (Beaufort Scale: 0-12), Temperature (°C) & Precipitation
24/02/2022 Scoping survey	Mike Hockey Ian Myatt	10:00 – 12:00	07:02	Cloud: 4-5/8; Wind: 3/12; Temp: 3-4°C; Precipitation: Dry
14/12/2022 and 15/12/2022	Ian Myatt	08:30 – 11:30 and 08:30 – 10:40	08:10	Cloud: 8/8; Wind: 0/8; Temp: -5°C; Precipitation: Dry Cloud: 0/8; Wind: 0/8; Temp: -5°C; Precipitation: Dry
18/01/2023 and 19/01/2023	Ian Myatt	08:15 – 11:10 and 08:20 – 10:15	08:07	Cloud: 1/8; Wind: 1-2/8; Temp: 2°C; Precipitation: Dry Cloud: 3/8; Wind: 1/8; Temp: 0°C; Precipitation: Dry
14/02/2023	Richard Anderton	08:30 – 14:30	07:24	Cloud: 2/8; Wind: 1/8; Temp: 2-9°C; Precipitation: Dry

2.5.77 The surveys followed BTO guidelines, where the observer systematically walked through the Site, ensuring that all areas of the Site were visited to within 50m. The location and behaviour of all birds and flocks of birds seen were noted on large-scale survey maps, which were later collated onto master maps for interpretation, as well as any birds noted offsite where access was permitted.

Breeding Bird Survey Methodology

2.5.78 Four breeding bird surveys (BBS) were carried out on 19-20th April 2022, 16-17th May 2022, 13-15th June 2022 and 11-12th July 2022. All of these surveys were carried out by Ian Myatt, with the purpose of the surveys being to record all bird species within the Site, along with their behaviour, to assess their abundance and breeding status within the Site.

2.5.79 As with the WBS, all BBS followed BTO guidelines, and the same route was taken as in the scoping WBS.

Limitations

2.5.80 The surveys offer only 'snapshots' in time of the Site. A lack of signs of any particular species does not confirm its absence, merely that there was no indication of its presence during the survey.

2.5.81 Nocturnal bird surveys were not undertaken and as such the activity on Site of birds such as owls cannot be determined. In lieu of survey data, a judgement has been made based on the results of the data search and the presumed value of the habitats on Site to such species.

Desk Study Information

2.5.82 NBGRC returned records of 51 Schedule 1, Section 41, red- and amber-listed species within 1km of the Site since 2013, which are listed in Table 9 below, along with their conservation status. Key to conservation status symbology is listed within Table 10.



Table 9: Bird Species identified during Desk Study

Species	Latin	Species	Latin
Barn Owl 1	<i>Tyto alba</i>	Brambling 1	<i>Fringilla montifringilla</i>
Black-Headed Gull	<i>Chroicocephalus ridibundus</i>	<u>Bullfinch</u>	<i>Pyrrhula pyrrhula</i>
<u>Cuckoo</u>	<i>Cuculus canorus</i>	Common Redstart	<i>Phoenicurus phoenicurus</i>
Common whitethroat	<i>Sylvia communis</i>	<u>Dunnock</u>	<i>Prunella modularis</i>
Fieldfare 1	<i>Turdus pilaris</i>	Greenfinch	<i>Chloris chloris</i>
Grey partridge	<i>Perdix perdix</i>	Grey wagtail	<i>Motacilla cinerea</i>
Greylag goose	<i>Anser anser</i>	<u>Hen harrier 1</u>	<i>Circus cyaneus</i>
<u>Herring gull</u>	<i>Larus argentatus</i>	Hobby 1	<i>Falco subuteo</i>
House martin	<i>Delichon urbicum</i>	<u>House sparrow</u>	<i>Passer domesticus</i>
Kestrel	<i>Falco tinnunculus</i>	<u>Lapwing</u>	<i>Vanellus vanellus</i>
Lesser black-backed gull	<i>Larus fuscus</i>	<u>Linnet</u>	<i>Linaria cannabina</i>
<u>Marsh tit</u>	<i>Poecile palustris</i>	Meadow pipit	<i>Anthus pratensis</i>
Mistle thrush	<i>Turdus viscivorus</i>	Peregrine	<i>Falco peregrinus</i>
Quail 1	<i>Coturnix coturnix</i>	Redwing	<i>Turdus iliacus</i>
<u>Reed bunting</u>	<i>Emberiza schoeniclus</i>	<u>Ring ouzel</u>	<i>Turdus torquatus</i>
Rook	<i>Corvus frugilegus</i>	Shelduck	<i>Tadorna tadorna</i>
Short-eared owl	<i>Asio flammeus</i>	<u>Skylark</u>	<i>Alauda arvensis</i>
Snipe	<i>Gallinago gallinaga</i>	<u>Song thrush</u>	<i>Turdus philomelos</i>
Sparrowhawk	<i>Accipiter nisus</i>	Spotted flycatcher	<i>Muscicapa striata</i>
<u>Starling</u>	<i>Sturnus vulgaris</i>	Stock dove	<i>Columba oenas</i>
Swift	<i>Apus apus</i>	Tawny owl	<i>Strix aluco</i>
<u>Tree sparrow</u>	<i>Passer montanus</i>	Willow warbler	<i>Phylloscopus trochilus</i>
Teal	<i>Anas crecca</i>	Wigeon	<i>Anas penelope</i>
Wheatear	<i>Oenanthe oenanthe</i>	Woodcock	<i>Scolopax rusticola</i>
Wren	<i>Troglodytes troglodytes</i>	<u>Yellow wagtail</u>	<i>Motacilla flava</i>
<u>Yellowhammer</u>	<i>Emberiza citrinella</i>		

**Table 10: Key for Styling in Table 9 above**

Style	Meaning
Bold Number 1	Listed under Schedule 1 species under the Wildlife and Countryside Act 1981 (as amended)
<u>Underlined text</u>	Listed under Section 41 of the NERC Act 2006 (Species of Principal Importance - SPIs) or UK Biodiversity Action Plan species
Red fill	'Red listed' species according to BTO/RSPB Birds of Conservation Concern 2015
Orange fill	'Amber listed' species according to BTO/RSPB Birds of Conservation Concern 2015

Field Survey Results*Initial Site Walkover Survey*

- 2.5.83 Bird species recorded on Site during the survey are summarised in Table 11 below.
- 2.5.84 The arable habitat covering most of the Site offered sub-optimal foraging habitat for a range of bird species but may be suitable for ground nesting birds at certain times of the year.
- 2.5.85 The trees, hedgerows and adjacent woodland blocks were assessed as likely to provide suitable nesting and foraging habitat for a range of species associated with these habitats, such as yellowhammer *Emberiza citronella*, linnet *Linaria cannabina* and starling *Sturnus vulgaris*.
- 2.5.86 Species listed in red are 'Red listed' according to BTO/RSPB Birds of Conservation Concern 2015. Species listed in amber are 'Amber listed' according to BTO/RSPB Birds of Conservation Concern 2015.

Table 11: Bird Species Recorded During the Field Survey

Species	Latin	Species	Latin
Cuckoo	<i>Cuculus canorus</i>	Black-headed Gull	<i>Chroicocephalus ridibundus</i>
Starling	<i>Sturnus vulgaris</i>	Bullfinch	<i>Pyrrhula pyrrhula</i>
Swift	<i>Apus apus</i>	Common Redstart	<i>Phoenicurus phoenicurus</i>
Corn bunting	<i>Emberiza calandra</i>	Shelduck	<i>Tadorna tadorna</i>
Fieldfare	<i>Turdus pilaris</i>	Snipe	<i>Gallinago gallinago</i>
Greenfinch	<i>Carduelis chloris</i>	Common Whitethroat	<i>Sylvia communis</i>
Grey partridge	<i>Perdix perdix</i>	Duncock	<i>Prunella modularis</i>
Herring Gull	<i>Larus argentatus</i>	Teal	<i>Anas crecca</i>
House Martin	<i>Delichon urbicum</i>	Wigeon	<i>Mareca penelope</i>
House Sparrow	<i>Passer domesticus</i>	Grey Wagtail	<i>Motacilla cinerea</i>
Linnet	<i>Linaria cannabina</i>	Greylag goose	<i>Anser anser</i>
Marsh Tit	<i>Poecile palustris</i>	Kestrel	<i>Falco tinnunculus</i>
Mistle Thrush	<i>Turdus viscivorus</i>	Lesser Black Backed Gull	<i>Larus fuscus</i>
Ring Ouzel	<i>Turdus torquatus</i>	Meadow Pipit	<i>Anthus pratensis</i>
<u>Skylark</u>	<i>Alauda arvensis</i>	Quail	<i>Coturnix coturnix</i>



Species	Latin	Species	Latin
<u>Tree sparrow</u>	<i>Passer montanus</i>	Redwing	<i>Turdus iliacus</i>
Turtle dove	<i>Streptopelia turtur</i>	<u>Reed bunting</u>	<i>Emberiza schoeniclus</i>
Whinchat	<i>Saxicola rubetra</i>	Short-eared owl	<i>Asio flammeus</i>
Willow Tit	<i>Poecile montanus</i>	<u>Song Thrush</u>	<i>Turdus philomelos</i>
Woodcock	<i>Scolopax rusticola</i>	Sparrowhawk	<i>Accipiter nisus</i>
Yellow Wagtail	<i>Motacilla flava</i>	Stock Dove	<i>Columba oenas</i>
<u>Yellowhammer</u>	<i>Emberiza citrinella</i>	Tawny Owl	<i>Strix aluco</i>
		Treecreeper	<i>Certhia familiaris</i>
		Willow Warbler	<i>Phylloscopus trochilus</i>

Winter Bird Survey Results

2.5.87 Table 12 below displays the abundance of each species across the Site, with 54 species being recorded across the four WBS, many of which were either amber or red listed birds of conservation concern.

Table 12: Abundance of Each Bird Species Recorded During the Four WBS

Common Name	Latin Name	Count				Total of Each Species
		Visit 1	Visit 2	Visit 3	Visit 4	
Black-headed Gull	<i>Chroicocephalus ridibundus</i>		1			1
Blackbird	<i>Turdus merula</i>	11	20	17	12	60
Blue Tit	<i>Cyanistes caeruleus</i>	5	17	28	39	89
<u>Bullfinch</u>	<i>Pyrrhula pyrrhula</i>	2	1			3
Buzzard	<i>Buteo buteo</i>	1		3	1	5
Canada Goose	<i>Branta canadensis</i>	18			2	20
Carrion Crow	<i>Corvus corone</i>	13	4	14	2	33
Chaffinch	<i>Fringilla coelebs</i>	57		2	11	70
Collared Dove	<i>Streptopelia decaocto</i>				1	1
<u>Duncock</u>	<i>Prunella modularis</i>	3	5	1	4	13
Feral Pigeon	<i>Columba livia</i>		20	12		32
Fieldfare	<i>Turdus pilaris</i>	60	57	3	24	124
Goldcrest	<i>Regulus regulus</i>			1		1
Goldfinch	<i>Carduelis carduelis</i>	2	6	7	33	48



Common Name	Latin Name	Count				Total of Each Species
		Visit 1	Visit 2	Visit 3	Visit 4	
Great Spotted Woodpecker	<i>Dendrocopos major</i>		1	1	1	3
Great Tit	<i>Parus major</i>	12	13	17	13	55
Green Woodpecker	<i>Picus viridis</i>	1		1	2	4
Greenfinch	<i>Chloris chloris</i>	1	4			5
Greylag Goose	<i>Anser anser</i>	2				2
Grey Partridge	<i>Perdix perdix</i>		2			2
Grey Wagtail	<i>Motacilla cinerea</i>			3		3
Jackdaw	<i>Corvus monedula</i>	5	12	33	46	96
Jay	<i>Garrulus glandarius</i>				1	1
Lapwing	<i>Vanellus vanellus</i>	7	164		6	177
Lesser black-backed gull	<i>Larus fuscus</i>	2				2
Linnet	<i>Carduelis cannabina</i>	5		10	1	13
Little Egret	<i>Egretta garzetta</i>			1		1
Long-tailed tit	<i>Aegithalos caudatus</i>			3		3
Magpie	<i>Pica pica</i>		9	2	2	13
Mallard	<i>Anas platyrhynchos</i>	6			2	8
Marsh tit	<i>Poecile palustris</i>				1	1
Meadow Pipit	<i>Anthus pratensis</i>			14	18	32
Mute Swan	<i>Cygnus olor</i>		2			2
Nuthatch	<i>Sitta europaea</i>	1		2		3
Peregrine	<i>Falco peregrinus</i>			1		1
Pheasant	<i>Phasianus colchicus</i>	4	15	1	15	35
Pied Wagtail	<i>Motacilla alba</i>				1	1
Raven	<i>Corvus corax</i>			1		1
Red-legged Partridge	<i>Alectoris rufa</i>	12	4	23	19	58
Redwing	<i>Turdus iliacus</i>		26	27	52	105
Reed bunting	<i>Emberiza schoeniclus</i>	1				1
Robin	<i>Erithacus rubecula</i>	10	14	9	18	51



Common Name	Latin Name	Count				Total of Each Species
		Visit 1	Visit 2	Visit 3	Visit 4	
Rook	<i>Corvus frugilegus</i>			4		4
Siskin	<i>Spinus spinus</i>	10				10
Skylark	<i>Alauda arvensis</i>	8			34	42
Snipe	<i>Gallinago gallinago</i>		4	1		5
Song Thrush	<i>Turdus philomelos</i>	4	3	3	1	11
Starling	<i>Sturnus vulgaris</i>			40	4	44
Stock Dove	<i>Columba oenas</i>	5		1	1	7
Treecreeper	<i>Certhia familiaris</i>	1				1
Woodcock	<i>Scolopax rusticola</i>		3		2	5
Woodpigeon	<i>Columba palumbus</i>	53	40	108	397	598
Wren	<i>Troglodytes troglodytes</i>	6	18	2	5	31
Yellowhammer	<i>Emberiza citrinella</i>	21	1	6	2	30
Total Count of Individuals		358	462	406	784	2,010
Total Number of Species		30	27	35	34	

- 2.5.88 Of the 54 species recorded, 15 were amber listed birds of conservation concern and 12 were red listed. Of these 27, fieldfare are also a schedule 1 species under the WCA and seven others were species of principal importance (SPI). A variety of different species were noted, including species typical of woodland and hedgerow, farmland specialists, gulls, birds of prey, and corvids.
- 2.5.89 Notable species from the surveys include a large flock of lapwing noted within the second WBS. These were recorded flying over the Site, with a small number foraging in Field 14 within Old Wood South. In the fourth WBS, a large flock of skylark were recorded across multiple fields within Old Wood North, which is not indicative of breeding territories, however their presence reinforces that the arable land within the Site is of foraging importance for this species. Woodcock were noted on two separate occasions; within the second and the fourth visit. In each instance, they were flushed from adjacent woodland or hedgerows bounding the Site.
- 2.5.90 The majority of species were noted either within the hedgerows or adjacent woodland, with exceptions primarily being birds which were flying over the Site. Occasional birds were using the fields for foraging, such as corvids, redwings, linnet, meadow pipits, red-legged partridge, a single woodcock and the large flock of skylark within the fourth survey in Old Wood North, which were recorded over several of the arable fields.
- 2.5.91 In addition to the species noted on Site, Pond 12 supported wetland species such as greylag goose, Canada goose, wigeon *Mareca penelope*, tufted duck *Aythya fuligula* and grey heron *Ardea cinerea*, which were either not noted within the Site or were noted but in small numbers (in the case of Canada goose and greylag goose).
- 2.5.92 Although the abundance of wintering thrushes seen within the WBS was moderate to low considering the size of the Site, the presence of large skylark flocks shows that the arable fields are an important source of winter foraging. The hedgerow network is also important to a wide diversity and abundance of birds throughout the winter.



Breeding Bird Survey Results

- 2.5.93 The Site is likely to support a moderate diversity of breeding birds, with 54 species recorded across the four surveys. These included eight red-listed and 14 amber-listed species of conservation concern, of which 10 of are also Species of Principal Importance.
- 2.5.94 The boundary hedgerows were used by the greatest number of species, most of which are commonly occurring, resident farmland birds. It was noted that the species-rich hedgerows supported more individual birds, however all hedgerows were widely used by a moderate diversity and abundance of birds throughout all surveys. The off-site woodland habitats supported a few additional species and Pond 12 was noted to support wetland species recorded nowhere else on Site.
- 2.5.95 The arable fields supported a relatively low abundance and diversity of birds. The only species of conservation concern reliant on the open fields were skylark, lapwing and grey partridge. Grey partridge and lapwing were recorded in low numbers, however skylark were abundant and approximately eight skylark territories were recorded within both parcels of the Site.
- 2.5.96 Full results of the BBS have been presented in a separate report¹⁹.

Evaluation

- 2.5.97 Due to the moderate abundance and diversity observed within both the WBS and BBS, it is likely that the Site offers **Local** importance to both wintering and breeding birds.

Invertebrates

Methods

- 2.5.98 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

- 2.5.99 The walkover survey was undertaken during January, which is unsuitable for many invertebrates, and therefore it is possible that some notable species may have been missed, however it is unlikely that the Site provides extensive habitat for a range of invertebrate species.

Desk Study Information

- 2.5.100 NBGRC returned five individual records of invertebrates within 1km of the Site in the past 10 years, including a white-letter hairstreak *Satyrion w-album* and purple hairstreak *Favonius quercus*. The closest record was a white-letter hairstreak in 2015 found 100m north of Site at Bunny Old Wood LNR.

Field Survey Results

- 2.5.101 The damp ditches and Kingston Brook offered suitable habitat for aquatic invertebrates apart from white clawed crayfish *Austropotamobius pallipes*, and the presence of a moderate number of mature trees offered potential for saprophytic invertebrate species, however the extensive arable nature of the Site reduced its potential to support a large diversity of invertebrates. Overall, the Site presented sub-optimal habitat for a range of invertebrate species.

Evaluation

- 2.5.102 The Site is likely to provide **Site** importance to invertebrates.

Other Protected Species and Species of Conservation Concern

Methods

- 2.5.103 Field signs indicating the presence of other species of conservation concern, such as brown hare *Lepus europaeus*, harvest mice *Micromys minutus* and hedgehogs *Erinaceus europaeus* (Species of Principle

¹⁹ Clarkson and Woods (September 2023), Breeding Bird Survey Report, Old Wood Energy Park, Wysall, Notts_v2.0



Importance under the NERC Act 2006) were noted where found. Habitats were also assessed for their potential to support such species.

- 2.5.104 Invasive species, such as Japanese knotweed *Fallopia japonica* and Himalayan balsam were searched for and recorded where found.

Limitations

- 2.5.105 No limitations were experienced.

Desk Study Information

- 2.5.106 NBGRC returned one record of brown hare and four records of hedgehog within 1km of the Site within the last 10 years. The brown hare was recorded approximately 900m to the west of Old Wood North in 2015, whereas the nearest hedgehog record was approximately 450m east of Old Wood South in 2018 in a residential garden.
- 2.5.107 NBGRC returned one record of Himalayan balsam along Kingston Brook approximately 680m south-east of Old Wood South, in 2013.

Field Survey Results

- 2.5.108 Hedgehogs may be present on Site, particularly given the adjacent woodland and continual hedgerows, however the arable habitat is sub-optimal for the species, as is the confirmed presence of badger.
- 2.5.109 A single brown hare was observed within Old Wood South within the initial walkover survey, and several more were noted within the WBS and BBS, confirming their presence within the arable fields on Site.
- 2.5.110 Scattered stands of Himalayan balsam were recorded along the Kingston Brook watercourse during the MoRPh survey, although this was not noted in previous surveys along the brook.

Evaluation

- 2.5.111 Other species of conservation concern were considered to be of **Site** importance within the Site.
- 2.5.112 Himalayan balsam is of **Negligible** importance to biodiversity but is considered further within this report due to the need to ensure legal compliance which needs to be considered as part of the development proposals.

2.6 Summary of Ecological Importance

- 2.6.1 Table 13 below gives all the identified ecological features on Site and their individual assessment of importance. Those coloured green are considered to be Important Ecological Features and will form the basis of the Assessment of Effects in Section 3. Those coloured yellow will be included on the basis of their specific legal protection or applicable planning policies.

Table 13: Ecological Importance

Feature	Importance
Designated Sites	
Keyworth Meadow LNR	County
Keyworth Meadow SINC	County
Bunny Old Wood SINC	County
Marblaegis Mine SINC	County
Bunny Park Ponds SINC	County
Wysall West Grassland SINC	County
Windmill Hill Wood SINC	County



Feature	Importance
New Wood Bunny SINC	County
Costack Road SINC	County
Habitats	
Arable – Cereal Crops	Site
Modified Grassland	Site
Ponds	Local
Watercourses and Ditches	Local
Hedgerows and Trees	Local
Species	
Badgers	Site
Bats (commuting and roosting)	Local
Otters	Local
Water vole	Negligible
Dormice	Negligible
Great crested newt	Local
Reptiles	Site (if present)
Birds (Wintering)	Local
Birds (Breeding)	Local
Invertebrates	Site
Other Species of Conservation Concern	Site (if present)
Himalayan Balsam	Negligible – included to ensure legal compliance



KEY

CONSTRAINTS/ FEATURES

- Site Boundary
- Existing Overhead Power Lines
- Public Right of Way
- Existing vegetation with RPA retained and maintained to existing levels
- Existing vegetation to be removed
- Existing watercourse
- Existing Road/ Access Track
- HARD LANDSCAPE PROPOSALS
 - Deer Fence
 - Palisade Fence
 - Solar Panel Tables
 - Access Track
 - Central inverter
 - Battery Storage Containers
 - Battery Storage Inverter
 - Auxiliary Transformer
 - Solar Connection Infrastructure
 - CCTV / Lighting Post
 - Grid connection cable route

SOFT LANDSCAPE PROPOSALS

- Proposed New Hedgerow Planting
Generally maintained at c. 3m height
- Proposed Copse Planting
Including scattered small scale individual trees amongst matrix of tree and understorey shrub planting
- Proposed Woodland Planting
Including scattered large scale individual trees amongst matrix of tree and understorey shrub planting
- Proposed Native Large Scale Tree Planting
(Field Maple & English Oak)
- Proposed Native Small Scale Tree Planting
(Hazel & Hawthorn)
- Proposed Willow Tree Planting Along Watercourse
- Grazing Seed Mix to Fenced Solar Panel Areas
e.g. Emorsgate EG26 – Standard Old Fashioned Grazing Mixture or similar sown at 4g/m2
- Wildflower Meadow Mix
e.g. EM2 Standard General Purpose Meadow Mixture or similar sown at 4g/m2
- Wet Meadow Grassland
e.g. Emorsgate EM6 – Meadow Mixture for Wetlands or similar sown at 4g/m2
- Proposed Skylark Mitigation Plot
Retained arable land managed for nesting skylark

PROPOSED PLANTING SCHEDULE

PROPOSED TREE PLANTING

Species	Common Name	Girth (cm)	Height (cm)	Form	Root condition
Acer campestre	Field Maple	6-8	250-300	2x; Light Standard; Clear Stem 150-175cm; 3 breaks	B
Corylus avellana	Hazel	-	200-250	2x; Feathered; 5 breaks	B
Crataegus monogyna	Hawthorn	-	200-250	2x; Feathered; 5 breaks	B
Quercus robur	English Oak	6-8	250-300	2x; Light Standard; Clear Stem 150-175cm; 3 breaks	B
Salix fragilis	Crack willow	6-8	250-300	2x; Light Standard; Clear Stem 150-175cm; 3 breaks	B

PROPOSED WOODLAND PLANTING

Trees to be planted at 1.8m centres (0.3/m2), shrubs to be planted at 1.2m centres (0.7/m2)

Species	Common Name	Mix (%)	Height (cm)	Form	Age/ Times transplanted	Root condition
Trees (40%)						
Acer campestre	Field Maple	3	120-150	2x; Feathered; 3 breaks	2x	B
Acer campestre	Field Maple	2	150-175	2x; Feathered; 3 breaks	2x	B
Acer campestre	Field Maple	1	200-250	2x; Feathered; 5 breaks	2x	B
Corylus avellana	Hazel	3	120-150	2x; Feathered; 3 breaks	2x	B
Corylus avellana	Hazel	2	150-175	2x; Feathered; 3 breaks	2x	B
Corylus avellana	Hazel	1	200-250	2x; Feathered; 5 breaks	2x	B
Malus sylvestris	Crab Apple	3	120-150	2x; Feathered; 4 breaks	2x	B
Malus sylvestris	Crab Apple	2	150-175	2x; Feathered; 4 breaks	2x	B
Malus sylvestris	Crab Apple	1	200-250	2x; Feathered; 5 breaks	2x	B
Crataegus monogyna	Hawthorn	2	120-150	2x; Feathered; 3 breaks	2x	B
Crataegus monogyna	Hawthorn	1	150-175	2x; Feathered; 4 breaks	2x	B
Crataegus monogyna	Hawthorn	1	200-250	2x; Feathered; 5 breaks	2x	B
Quercus robur	English Oak	8	120-150	2x; Feathered; 2 breaks	2x	B
Quercus robur	English Oak	6	150-175	2x; Feathered; 3 breaks	2x	B
Quercus robur	English Oak	4	200-250	2x; Feathered; 5 breaks	2x	B
Shrubs (60%)						
Acer campestre	Field Maple	7.5	60-80	Transplant	1+1	B
Corylus avellana	Hazel	10	60-80	Transplant; Branched; 2 breaks	1+1	B
Crataegus monogyna	Hawthorn	25	60-80	Transplant	1+1	B
Prunus spinosa	Blackthorn	10	60-80	Transplant; Branched; 2 breaks	1+1	B
Sambucus nigra	Elder	7.5	60-80	Transplant; Branched; 3 breaks	1+1	B

PROPOSED COPSE PLANTING

Trees to be planted at 2m centres, shrubs to be planted at 1m centres

Species	Common Name	Mix (%)	Height (cm)	Form	Age/ Times transplanted	Root condition
Trees (40%)						
Acer campestre	Field Maple	6.5	120-150	2x; Feathered; 3 breaks	2x	B
Acer campestre	Field Maple	2.5	150-175	2x; Feathered; 3 breaks	2x	B
Acer campestre	Field Maple	1	200-250	2x; Feathered; 5 breaks	2x	B
Betula pubescens	Downy Birch	7	120-150	2x; Feathered; 2 breaks	2x	B
Betula pubescens	Downy Birch	5	150-175	2x; Feathered; 3 breaks	2x	B
Betula pubescens	Downy Birch	3	200-250	2x; Feathered; 5 breaks	2x	B
Corylus avellana	Hazel	6.5	120-150	2x; Feathered; 3 breaks	2x	B
Corylus avellana	Hazel	2.5	150-175	2x; Feathered; 3 breaks	2x	B
Corylus avellana	Hazel	1	200-250	2x; Feathered; 5 breaks	2x	B
Malus sylvestris	Crab Apple	2	120-150	2x; Feathered; 4 breaks	2x	B
Malus sylvestris	Crab Apple	1	150-175	2x; Feathered; 4 breaks	2x	B
Malus sylvestris	Crab Apple	1	200-250	2x; Feathered; 5 breaks	2x	B
Shrubs (60%)						
Acer campestre	Field Maple	5	60-80	Transplant	1+1	B
Corylus avellana	Hazel	10	60-80	Transplant; Branched; 2 breaks	1+1	B
Crataegus monogyna	Hawthorn	25	60-80	Transplant	1+1	B
Prunus spinosa	Blackthorn	10	60-80	Transplant; Branched; 2 breaks	1+1	B
Sambucus nigra	Elder	10	60-80	Transplant; Branched; 3 breaks	1+1	B

PROPOSED HEDGEROW PLANTING

To be planted at 5 per linear metre in double staggered rows, rows will be 40cm apart or as appropriate where infilling gaps in existing hedgerows

Species	Common Name	Mix (%)	Height (cm)	Form	Age/ Times transplanted	Root Condition
Acer campestre	Field Maple	20	60-80	Transplant	1+1	B
Corylus avellana	Hazel	10	60-80	Transplant	1+1	B
Crataegus monogyna	Hawthorn	40	60-80	Transplant	1+1	B
Prunus spinosa	Blackthorn	20	60-80	Transplant	1+1	B
Sambucus nigra	Elder	10	60-80	Transplant	1+1	B



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 Development includes for the construction and operation of a renewable energy park including a ground mounted solar photovoltaic array (solar farm) across all of Old Wood North and part of Old Wood South, which will also host the BESS, substation and Point of Connection to the grid (PoC) (Figure 8 outlines landscaping proposals). Panels will be fixed onto mounting frames supported on posts which are driven into the ground. Ancillary infrastructure includes inverters and transformers, access track, buried cables, fencing and CCTV cameras. The proposals include the permanent removal of almost all arable land within both parcels (94.5ha). The only retained arable land will be within Field 8, which will be retained as it is. Two small stretches of hedgerow will be permanently removed from H2 (10m loss) and H4 (5m loss) in Old Wood North, and two small stretches being also removed from H23 (14m loss) and H24 (3m loss) in Old Wood South. This totals 31m of hedgerow removal overall throughout the entire Site, which will facilitate new access into fields or widening of existing field entrances. Additionally, a new prefabricated crossing over Kingston Brook is proposed, to accommodate heavy goods vehicles both during construction and throughout operation of the Site.
- 3.2.2 Landscaping proposals include seeding approximately 66.4ha inside of the array security fencing with a specific grazing grassland mix, such as Emorsgate EG26 – Standard Old Fashioned Grazing Mixture (or similar). Also, seeding approximately 24ha of unpanelled land outside the security fencing with a wildflower meadow mix, such as Emorsgate EM2 – Standard General Purpose Meadow Mixture (or similar), and seeding approximately 1.5ha within Field 9 of Old Wood South with a wet meadow grassland mix, such as Emorsgate EM8 – Meadow Mixture for Wetlands (or similar). Areas outside the security fencing will be managed with a late summer haycut, encouraging a diversity of flowering species to develop within the sward. Additionally, 1.12ha of native copse planting with small-scale trees and 2.4ha of native woodland planting with large-scale trees will be undertaken within both parcels of Site in various places. Exact species to be included within this planting will be specified within a Landscape Ecological Management Plan (LEMP) to be prepared for the Site.
- 3.2.3 The eastern half of Field 7 will be set aside as skylark mitigation land (approximately 3.62ha) and will form part of the abovementioned wildflower meadow. Specific management requirements will be detailed within LEMP to be prepared for the Site, however in summary long-term management of this grassland will ensure that sward height is between 20 and 50cm between April and August to allow repeated nesting attempts. No cuts will be made between these months, however, but with a haycut to be taken in late summer. Arisings



will be removed to support wildflower establishment, and grazing may also be used to facilitate the creation of suitable skylark nesting habitat and species-rich grassland.

- 3.2.4 Within the northern parcel, approximately 2.54km of new species-rich, native hedgerow will be planted, as well as gaps in extant hedgerows being infilled with both small-scale and large-scale standard trees. All newly planted hedgerows will include standard trees except for the hedgerow to the west of the new skylark habitat, as the species require long, uncluttered sightlines in order to nest. The hedgerows which will be infilled with new, native species in order to close up gapping and enhance the condition of existing features include: H1 (Field 8); H3 and H6 (Field 1); H9, H10, H13 and H14 (Field 4), H17 (Field 5); and H20 and H21 (Field 7) in Old Wood North; and H24 and H26 (Field 10); H27 and H28 (Field 11); H29, H30 and H32 (Field 12) in Old Wood South.
- 3.2.5 A Public Right of Way runs through Old Wood North, located between the panel security fencing, with the Development being screened from view by new hedgerow planting.

Inherent Avoidance and Design Measures

- 3.2.6 The scheme has been sensitively designed with ongoing input from ecologists in order to avoid impacts on any existing hedgerows, trees, ditches, ponds or woodland within both parcels of the Site, with minimum buffers set out for each ecologically important feature. These will adhere to the following minimum buffer distances:
- Ponds with negative GCN results – 10m
 - Ponds with positive GCN results and unsurveyed ponds – 50m
 - Woodland – 15m
 - Ditches and Streams – 10m
 - Badger Setts – 10m – 30m depending on sett importance
 - Species-poor hedgerows with no trees or ditches - 5m
 - Species-rich hedgerows OR hedgerows containing ditches OR hedgerows containing trees with Low bat roosting potential - 8m
 - Hedgerows containing trees with Moderate bat roosting potential – 10m
 - Hedgerows containing trees with High bat roosting potential – 12m
- 3.2.7 Construction and maintenance roads have utilised existing field gaps and gateways as much as possible, thereby minimising hedgerow loss, which is limited to 7m from H2 (Field 8) and 5m from H4 (Field 1) within Old Wood North, and 15m from H23 (Field 9) and 2-3m from H24 (Field 10) within Old Wood South.
- 3.2.8 The landscaping proposals have been designed to incorporate appropriate seed mixes within each of the proposed habitats, as well as designing habitat mosaics within the unpanelled areas, creating valuable habitats for a variety of species.
- 3.2.9 The newest version of the landscaping plans (Ref: P21-2533_EN_06E, dated 10/10/2024) have been amended to incorporate a wider unpanelled corridor along the western boundary of the Site (both Old Wood South and North) to improve habitat connectivity. This is intended to enable wildlife associated with the proposed areas of new species-rich grassland habitats without panels to have improved access between habitats throughout the Site, as well as strengthening biodiversity corridors between habitats present within and outside of the Site boundary.



3.3 Designated Sites

Statutory and non-statutory Designated Sites

Potential Impacts

- 3.3.1 There is one Local Nature Reserve within 2km of the Site. Keyworth Meadow LNR has been designated for its flower-rich grassland, and additional wetland flora associated with the bordering brook. Ponds are present within this LNR and they have been found to support GCN. Additionally, records of turtle dove *Streptopelia turtur* were noted until 2012.
- 3.3.2 Additionally, eight Local Wildlife Sites (LWS), one potential LWS and one Site of Importance for Nature Conservation (SINC) were present within 2km of the Site. These were designated for a variety of reasons, including ancient woodland, species-rich grassland, species-rich hedgerow and an old gypsum mine supporting calcareous grassland.
- 3.3.3 No direct impacts on these designated sites are anticipated. However, it is possible that the Development could result in indirect negative impacts on these habitats through the deposition of construction materials or pollution (in the form of dust, sediments or contaminants) finding its way into adjacent waterbodies and surrounding land.
- 3.3.4 The construction phase of the development will be temporary and short-term, with the majority of construction within the larger parcel involving poles being mounted into the ground without the need for any excavations. Excavations will be limited to tracks and a small number of inverter bases, substation and battery storage units. Development within Old Wood North has been designed to be a minimum of 15m from adjacent woodland, although in most cases, the Development will be over 30m from these features.

Mitigation, Compensation, Enhancement and Monitoring

- 3.3.5 A Construction Environmental Management Plan focussed on ecology (CEMP – Ecology) will be prepared for the construction phase of the scheme, detailing measures protecting all habitats within and surrounding the Site, including the LNR, SINC, LWS and pLWS. The CEMP (Ecology) will include details of appropriate fencing to restrict access into key ecological areas, information on any timing/seasonal restrictions (for example, traffic movements during drought, dusty or particularly wet conditions), and measures including application of COSHH regulations, to prevent discharge of pollution to waterbodies, watercourses and sensitive neighbouring habitats. The CEMP (Ecology) will also prescribe measures to minimise dust deposition and traffic overrun on surrounding road verges, including ensuring that loads leaving Site are securely covered. Typically, preparation of a CEMP will be a conditional requirement of the planning permission.

Residual Effects

- 3.3.6 As long as good practice measures and boundary buffers (See *Inherent Avoidance and Design Measures* Section) are adopted to prevent damage to neighbouring sites, it is not expected that the Development will have any negative residual impacts on the habitats associated with the one LNR or 10 non-statutory designated sites.

3.4 Habitats

- 3.4.1 As above, a CEMP (Ecology) will be prepared to detail how the habitats within and surrounding the Site should be protected during the construction phase. This will include measures to protect hedgerows, ponds, watercourses and woodland within and adjacent to the Site.
- 3.4.2 A Landscape and Environmental Management Plan (LEMP) will be prepared for the operational site and will cover 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. The LEMP should also set out any measures necessary to ensure protected species are appropriately accommodated within the operational site. Typically, preparation of a LEMP will be a conditional requirement of the planning permission.



Ponds

- 3.4.3 There were three ponds holding water (Ponds 1, 4 and 10), and one dry pond (Pond 15) within the Site, and a further 11 ponds located off-site within 250m of the Site boundary. All areas of eutrophic and mesotrophic standing water are designated as priority habitats within the Nottinghamshire LBAP. Any potential impacts on great crested newts are discussed separately in the 'Great crested newts' subheading in Section 3.5 below.

Potential Impacts

- 3.4.4 Ponds 1, 4 and 10 are not due to be infilled or directly impacted through the development proposals, however in the absence of mitigation, they have the potential to be adversely impacted during the construction phase of the development. The potential impacts to all waterbodies are predominantly through an increase in run-off and sedimentation, as well as potential physical damage to the banks of the ponds by construction machinery.

Mitigation, Compensation, Enhancement and Monitoring

- 3.4.5 The on-Site ponds will be protected from damage and accidental pollution / run-off during construction by maintaining an undeveloped, naturally-vegetated no works buffer of at least 10m. The undeveloped buffer from Pond 10 will be increased to 50m due to the presence of GCN. The buffer will be demarcated by perimeter security fencing, temporary fencing or stock-proof fencing installed at the commencement of construction.
- 3.4.6 Works compounds will not be sited within 20m of any ponds (on or off-Site) or other watercourses, and contingency measures for unforeseen incidents such as spillages will be set in place prior to the commencement of construction works. This will be prescribed as part of the CEMP (Ecology).

Residual Effects

- 3.4.7 With the control measures detailed within the CEMP (Ecology), it is not anticipated that there will be adverse impacts upon the ponds (both on and off-site) during Site construction. During Site operation, no adverse impacts upon ponds are anticipated.

Watercourses and Ditches

- 3.4.8 Kingston Brook runs through Field 1 of Old Wood South. Additionally, a wet ditch is present along the western boundary of Old Wood South, associated with hedgerows H31 and H34. A number of dry agricultural ditches were also found to be present throughout the hedgerow network of both parcels.

Potential Impacts

- 3.4.9 A new prefabricated bridge for vehicular use will be lowered over the brook and secured appropriately through footings on either side of the bank, allowing the crossing of heavy goods vehicles both during the construction phase, and throughout the operational life of the Development. This is being implemented as the current bridge has been deemed unsuitable for extensive heavy goods vehicle crossing. This will disturb the banks of the brook and result in a minor loss of bank top habitat and will potentially lead to increased run-off and physical damage caused by debris, however this is considered to be a less impactful option than culverting the brook and adding a new crossing.
- 3.4.10 The brook and other on-site ditches have the potential to be adversely impacted during the construction phase of the development, predominantly through an increase in run-off and sedimentation, as well as potential physical damage to the banks of the features by construction machinery.

Mitigation, Compensation, Enhancement and Monitoring

- 3.4.11 Kingston Brook will be protected from damage and accidental pollution / runoff during construction by maintaining an undeveloped, naturally vegetated no works buffer along the course of the feature, apart from the proposed new crossing itself. The buffer will be demarcated by perimeter security fencing, temporary fencing or stock proof fencing installed at the commencement of construction, at least 10m from the banks of the brook, details of which will be provided within the CEMP (Ecology). The only other development planned within Field 9 where the brook is situated, is the installation of a single buried cable from the proposed substation to the existing tower just north of the brook. The watercourse will be unaffected by this.



3.4.12 Works compounds will not be sited within at least 20m of the brook or any ditches, and contingency measures for unforeseen incidents such as spillages will be set in place prior to the commencement of construction works. This will be prescribed as part of the CEMP (Ecology).

3.4.13 The removal of grazing from around the span of Kingston Brook will likely enhance the bankside habitat due to lack of poaching and will constitute mitigation for the removal of a small section of the watercourse for a new access bridge.

Residual Effects

3.4.14 If the design remains free span and specifications within the CEMP (Ecology) are followed, it is anticipated that impacts on Kingston Brook will be negligible and not significant. It is also expected that the reduction of intensive grass cutting along the ditches, and the complete removal of grazing along Kingston Brook will enhance the riparian zone for these watercourses and will result in a slight positive residual effect.

Hedgerows and Trees

3.4.15 A network of hedgerows was present throughout both parcels of the Site, with standard trees present in a low number of these features. Several hedgerows had dry or wet ditches associated with them. Hedgerows are a Habitat of Principal Importance under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act) and are afforded some protection under the Hedgerows Regulations (1997).

3.4.16 The Development will result in the loss of four small lengths of hedgerow: one stretch of 10m from species-rich H2 and another stretch of 4m from species-poor H4, (14m) both within Old Wood North, and one stretch of 14m from species-poor H23 and a final stretch of 3m from species-poor H24, (17m) both within Old Wood South. All other hedgerows are to remain intact, with existing field access points to be utilised. Any potential impacts upon protected species are considered in the relevant subheading in Section 3.5 below.

3.4.17 The two small losses within Old Wood North are to facilitate a new entranceway into the northern Site parcel from existing Bradmore road to the east. The 14m loss within H23 in Old Wood South is to facilitate the new entranceway into the southern parcel of the Site and to allow suitable visibility splays for HGVs to exit the Site once in operation. Finally, the loss from H24 in Old Wood South is to facilitate a minor widening of an existing field access point, again to allow entry to HGVs.

Potential Impacts

3.4.18 Without appropriate mitigation, hedgerows, their associated ditches (where applicable) and mature standard trees within them, have the potential to be adversely impacted during the construction phase of the Development. Apart from the total of 31m of cumulative hedgerow loss across both Old Wood North and South, noted above for new access tracks and widening, no other loss of hedgerows or trees is expected to occur within either parcel of the Site.

3.4.19 There is however the potential for hedgerows and their associated trees and ditches to become damaged or degraded during construction. As with waterbodies, the agricultural ditches associated with some hedgerows have the potential to be damaged through an increase in run-off and sedimentation.

Mitigation, Compensation, Enhancement and Monitoring

3.4.20 Perimeter security fencing will be installed at the commencement of construction and will be sited at the following minimum distances from each hedgerow type:

- Species poor hedgerows with no trees or ditches – 5m minimum
- Species rich hedgerows OR hedgerows with ditches OR hedgerows containing trees with Low bat roosting potential – 8m minimum
- Hedgerows containing trees with Moderate bat roosting potential – 10m minimum
- Hedgerows containing trees with High bat roosting potential – 12 minimum



- 3.4.21 All security fencing will be maintained throughout the construction phase. Buffer zones will be put in place around retained in-hedgerow trees, as specified within the Tree Retention and Removal Plan²⁰ for the Site, and if this is different from the above specifications, the widest buffer width will be adhered to.
- 3.4.22 Gaps in existing hedgerows in both parcels (namely H1, H3, H6, H9, H10, H13, H14, H17 H20 and H21 in Old Wood North; and H24, H26, H27, H28, H29, H30 and H32 in Old Wood South)) will be infilled with large scale legacy tree planting (for example, oak) in order to strengthen the hedgerow network, improve connectivity and to aid screening of the Site. The creation and ongoing management of hedgerows will be prescribed as part of a Landscape and Ecological Management Plan (LEMP) prepared for the Site.
- 3.4.23 Approximately 2.54km of new native species-rich hedgerow will be planted within Old Wood North to screen the solar panels from view of the public right of way which will run through the centre of the parcel. This will include 2.36km of hedgerows with standard trees included. These new features will connect into the wider hedgerow network. In addition, 1.12ha of copse planting with small scale trees and 2.4ha of woodland planting with large scale trees will be incorporated throughout both parcels both in order to assist with screening and to extend existing adjacent areas of woodland, creating habitat corridors throughout the Site.
- 3.4.24 Rotational maintenance of all hedgerows to at a height of at least 3m is considered particularly important for the provision of resources and encouraging use by native British wildlife.

Residual Effects

- 3.4.25 There will be a lag between the removal of 31m of hedgerow to facilitate new access tracks, and the establishment of the new hedgerows within the Site, which will temporarily reduce the foraging and sheltering opportunities currently provided by this feature. This is not expected to result in significant negative effects however, due to the small length of hedgerow which is to be removed across the entire Site.
- 3.4.26 It should be noted that although the Site will have approximately 2.54km of new hedgerow planting, this will all be situated within Old Wood North only.
- 3.4.27 Although hedgerow removal will be permanent the sections are relatively small and will not result in fragmentation of the hedgerows from the wider network.
- 3.4.28 It is anticipated that with the implementation of protection measures and favourable management, the hedgerows can be maintained throughout construction and that no residual negative effects will be present. It is considered likely that with additional hedgerow and copse and woodland planting, the Development may result in a slight positive residual effect within the Site.

3.5 Protected Species and Species of Conservation Concern

Badgers

- 3.5.1 At least seven badger setts were present within the two parcels of Site, identified during the initial ecological walkover survey, with evidence of foraging as well as several latrines found. These were limited to hedgerows, woodland and boundary features. The arable land within the fields also offers suitable foraging for badgers.

Potential Impacts

- 3.5.2 All setts are located within hedgerows, predominantly within and adjacent to Old Wood North, the largest of which is a main sett adjacent to the western boundary of Old Wood North. All badger setts are due to be retained and unaffected by the Development. Wide buffers of at least 5m are to be established along all hedgerows throughout the Site and demarcated by security or temporary fencing. It is likely that disturbance activities will be far enough away to avoid any adverse impacts on the features, however wider buffers are required to ensure no damage or distance to setts, as set out immediately below.

Mitigation, Compensation, Enhancement and Monitoring

- 3.5.3 Badger setts are protected from damage and destruction under the Badgers Act 1992 (as amended), detailed in Appendix A. The badger setts would require protection during construction through the establishment of a buffer of a minimum of 10m between setts and working areas. Subsidiary setts should have a 20m buffer, and main setts should have a 30m buffer. These buffers would be demarcated using Heras-

²⁰ Barton Hyett Associates (November 2023), Willoughby (5598) Tree Retention and Removal Plan, Ref: BHA_5598_02



type fencing to avoid any damage to the setts and will avoid damage to the setts during the construction phase.

- 3.5.4 The CEMP (Ecology) to be prepared for the Site will outline measures to be taken to reduce the probability of incidental mortality of badgers during the construction phase.
- 3.5.5 A further badger survey will be conducted approximately one month prior to the commencement of works in order to ensure no new setts have been excavated since the completion of the Extended Phase 1 survey in 2022, and to check that any existing setts are still in use.
- 3.5.6 Post construction, both parcels of the Site will remain suitable for commuting and foraging badgers, particularly where species rich grassland is seeded, and native copse and woodland planting is undertaken outside array security fencing on existing arable land. It is likely that natural undulations in the ground will be sufficient to enable badgers (and other small mammals such as brown hares) to pass underneath Site fencing and use the grassland for foraging. However, should the security fencing used be a style that may prevent badgers from accessing the Site (i.e. rigid fencing that fits tightly to the ground), gaps of approximately 10cm will be provided to encourage badgers to excavate beneath the fence whilst ensuring that the fence remains livestock-proof.

Residual Effects

- 3.5.7 Assuming that the measures set out within the CEMP (Ecology) are adhered to, it is not expected that there will be any negative residual impacts on badgers using the Site.

Bats

- 3.5.8 The Site provided habitats for potential roosting, foraging and commuting bats with several mature trees identified with BRP. The Site and immediate surroundings comprised a network of hedgerows, dry and wet ditches, ponds and areas of woodland.

Potential Impacts

Roosting Bats

- 3.5.9 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).

Foraging and Commuting Bats

- 3.5.10 The effects of solar array development on foraging/commuting bats is poorly understood. There is evidence that smooth surfaces may confuse bats by reflecting calls away from them, so these solid surfaces may not be detectable, causing collision²¹. However, other research undertaken under naturalistic conditions indicated that bats were able to quickly learn the difference between water and smooth surfaces in the wild and modify their behaviour²². A recently published study²³ claims that solar PV developments may significantly negatively impact foraging and commuting bats. However, a study involving Clarkson & Woods²⁴, found that there was no statistically significant difference between bat activity recorded within solar farms when compared to similar undeveloped sites. It is clear that more research is needed before the impact of solar farms on foraging/commuting bats can be determined.
- 3.5.11 The proposals will result in a loss of approximately 94.5ha of arable land in order to accommodate the solar park, however this will be reseeded with grassland, which offers higher suitability for bat foraging, and therefore the loss of the original arable land is not considered to be negative. Additionally, the development will result in the cumulative loss of approximately 10m of species-rich hedgerow and 21m of species-poor hedgerow, however this is not considered significant given the size and scope of the scheme. This is unlikely to disrupt commuting flightlines however the loss of these areas of hedgerow will lead to a very small loss of foraging habitat.

²¹ Grief *et al.* (2017). Acoustic mirrors as sensory traps for bats. *SCIENCE*; 357(6355): 1045-1047

²² Russo, D., Cistrone, L., and Jones, G. (2012) Sensory ecology of water detection by bats: a field experiment. *PLoS ONE*. **7**(10): e48144

²³ Tinsley, E., Froidevaux, J. S. P., Zsebők, S., Szabadi, K. L. and Jones, G. (2023) Renewable energies and biodiversity: Impact of ground-mounted solar photovoltaic sites on bat activity. *Journal of Applied Ecology*

²⁴ http://www.clarksonwoods.co.uk/projects/projects_solarresearch.html



Lighting Impacts

- 3.5.12 Minimal requirements for artificial lighting are expected to be required during the operation of the development, with only emergency, motion-activated lighting around key electrical areas proposed. However, where construction takes place during winter, artificial lighting may be required within the construction zone due to the shorter day lengths. If this is the case, light may spill onto hedgerows, woodland etc. in discrete areas. However, as bats are in hibernation during the winter months, they are unlikely to be affected by this activity. Any lighting required will be directed away from hedgerows. Therefore, it is anticipated that fragmentation of habitat for bats as a result of light spill will not occur.

Mitigation, Compensation, Enhancement and Monitoring

Roosting Bats

- 3.5.13 The layout proposals have been carefully designed to ensure that any trees with BRP are sufficiently protected from impacts. A minimum buffer of 8m for hedgerows containing trees with low BRP, 10m for hedgerows containing trees with moderate BRP and 12m for hedgerows containing trees with high BRP is included within the scheme. All hedgerow buffers specified above will be superseded by root protection areas outlined within the Tree Retention and Removal Plans (Barton Hyett Associates, 02/11/2023, Drawing no: BHA_5598_02, sheets 1-6) The trees will therefore remain unaffected by the development of the solar array.
- 3.5.14 The CEMP (Ecology) will comprise measures to protect the trees, watercourses, woodland and hedgerows on the Site during construction, as well as the retained habitats off-site which are likely to be used by foraging and commuting bats. This will ensure that these features are protected and retained for use by bats both during construction and operation.
- 3.5.15 Should any trees on or directly adjacent the Site require removal or de-limbing, this will first be discussed with a suitably qualified ecologist. Further surveys may be required to ensure bat roosts are not present; this would 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.

Foraging and Commuting Bats

- 3.5.16 Buffer zones between the arrays and all of the hedgerows / woodland / watercourses have been incorporated into the design. These will be 5m minimum for hedgerows (as described in the 'Hedgerows and Trees' section above), 15m minimum for woodlands, 10m minimum for GCN negative ponds and 8m minimum for ditches and streams. Therefore, habitats considered to be of the highest importance for foraging / commuting bats will be retained and protected in full and will not be directly impacted by the development. No further surveys to ascertain the baseline use of the Site by foraging / commuting bats are recommended, as impacts will be avoided.
- 3.5.17 Approximately 2.54km of new native, species-rich hedgerows are to be planted at the Site in order to screen the development from the public right of way running through Old Wood North. This will increase hedgerow connectivity within the Site, improving the accessibility for bats to navigate across the Site, as well as increasing foraging opportunities. 2.36km of these hedgerows will also be managed to have standard trees establish within them.
- 3.5.18 Gaps in hedgerows H1, H3, H6, H9, H10, H13, H14, H17, H20 and H21 in Old Wood North, and H24, H26, H27, H28, H29, H30 and H32 within Old Wood South will be planted with local, native species including a high number of large-scale trees which are due to be incorporated within the landscaping for the scheme (Figure 8 refers). Additionally, several areas of small-scale tree copse planting and large-scale tree woodland planting will be undertaken within both Site parcels, which will increase connectivity with extant adjacent woodland, and provide screening for the Site.
- 3.5.19 The land within the Site will be seeded with three different, native wildflower seed mixes, creating grassland habitats in place of the lost arable habitat, improving foraging opportunities for bat.
- 3.5.20 Several areas between the security fence and the boundary hedgerows will be seeded with Emorsgate EM2 – Standard General-Purpose Meadow Mixture (or similar) and managed as tussocky grassland through a

late-summer haycut. It is anticipated that once established the grassland buffers will support a good range of invertebrates including various species of noctuid moths and important prey species for bats. The management requirements of all newly created habitats will be set out within the LEMP.

- 3.5.21 It should be noted the density of panels within the Site footprint is moderately low, especially along the boundaries adjacent to offsite woodland in Old Wood North. Wide unpanelled corridors are also present within both parcels of the Development.

Lighting Impacts

- 3.5.22 Should construction activities occur during the winter months and it is necessary to install lighting, this will be discussed with an ecologist; although winter lighting would largely avoid impacts due to coinciding with a period of inactivity (hibernation). Equally, should permanent lighting be required during the operational phase of the solar farm, this will also 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.

Roost Enhancement

- 3.5.23 A number of bat boxes will be installed on mature trees within the Site in order to increase roosting opportunities. Further details of the boxes will be given within the LEMP produced for the Site; however, Figure 9 gives indicative locations for 15 bat boxes to be installed within both parcels during the construction phase of the Site.
- 3.5.24 The boxes will be regularly monitored subsequent to the completion of construction to evaluate the effectiveness of the enhancement and provide new bat records for the area. Details of monitoring and box specifications will be set out within the LEMP.

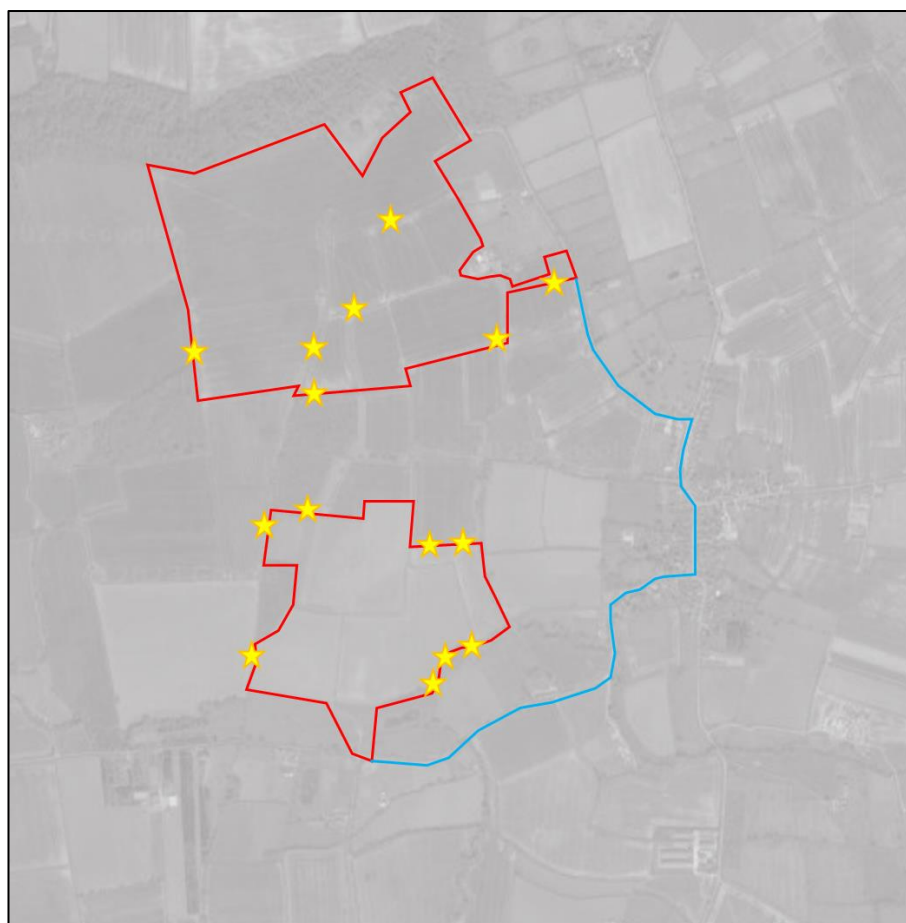


Figure 9: Suggested location of bat boxes

Residual Effects

- 3.5.25 There is currently some uncertainty around how bats use solar farms due to the relative novelty of this kind of development, although studies are ongoing. The arable habitat is currently intensively managed but will be



converted to a more diverse grassland, which is likely to be an important habitat for invertebrates, increasing its potential for foraging bats. The trees will be retained and protected, therefore impacts on roosting bats will be avoided. The planting of additional hedgerows and other tree planting will increase connectivity and foraging resources for commuting bats; however, this will likely be felt in the long-term once the hedgerows have become established.

- 3.5.26 Overall, it is anticipated that there will be no negative residual effects on roosting, foraging and commuting bats and, given the proposed landscaping and planting throughout, the Site is likely to provide a reasonable positive impact on bats in the long-term where new habitats are used.

Otter

- 3.5.27 No signs of otter were identified either within the initial walkover survey or within the targeted otter and water vole survey of Kingston Brook. Additionally, NBGRC returned no records of this species within 1km of the Site in the last 10 years. However, following population recoveries it is possible that Kingston Brook is used to some extent for otters moving around the landscape. It is noted that habitats within Kingston Brook are deemed moderately suitable for water vole and may be utilised as a commuting route for otter.

Potential Impacts

- 3.5.28 The proposed access track for Old Wood South will be routed over Kingston Brook by incorporating a new prefabricated bridge as the track presently crossing over the brook will not be suitable for heavy goods vehicles throughout construction and operation of the Site. The current track crossing will be retained. Any work to the brook may have the potential to impede otter movement along the brook or degrade habitat quality.
- 3.5.29 The bridge will however be free span with no fragmentation impacts, and it is therefore likely that otters will be able to pass beneath or freely over the top of the crossing. There is also very little risk of otters colliding with traffic passing over the new crossing, as this species is most active at night within England which will coincide with when construction and operational activities will typically not occur. It should also be noted that construction traffic will be very low during the operational period. No lighting is proposed and there is likely to be only light traffic usage of this bridge, mainly during maintenance of the Site. It will not be used at night and bankside vegetation will continue to be able to grow underneath it once installed. The bridge will be approximately 7m wide and will be positioned at a height of approximately 2m above the water, allowing continued movement of otter underneath in times of flooding when the water is higher.

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- 3.5.30 The bridge will remain free span in order that the brook will remain unfragmented for otter dispersal.
- 3.5.31 A minimum 10m buffer zone has been established between any stretch of unaffected brook and the development of the new access track, avoiding unnecessary impacts on the feature during the construction phase of the Development. Following construction (short term) the bridge will be infrequently used by vehicles, with disturbance levels negligible.
- 3.5.32 Measures to avoid degrading the watercourse as a result of construction activities will be set out within a CEMP (Ecology) prepared for the scheme, as described in section 3.4 above. No specific mitigation for otters is recommended, as impacts on this species can be avoided.

Residual Effects

- 3.5.33 Assuming pollution prevention measures to be set out within the CEMP (Ecology) are followed, it is not anticipated that there will be any negative residual effects on otters.

Great Crested Newts

- 3.5.34 There were four ponds on Site and a further 11 ponds within the surrounding 250m of the Site boundary of both parcels. Two of these ponds were dry (Ponds 11 and 15), and one was considered too dangerous to survey due to the amount of slurry present (Pond 2). The fields provided sub-optimal foraging habitat; however, the extensive hedgerow network and adjacent woodland blocks may provide suitable terrestrial habitat for the species. Ponds 1, 3, 4, 9, 10, 12, 13 and 14 were subject to HSI assessments and eDNA sampling as these were the ponds for which access was granted. The eDNA samples returned positive records for crested newts within four of these ponds: Ponds 3, 9, 10 and 14.



Potential Impacts

- 3.5.35 Great crested newts may be found up to 250m from ponds (and up to 500m from ponds in exceptional circumstances²⁵); however, studies by Jehle ²⁶and Cresswell & Whitworth ²⁷have demonstrated that the habitat within 50m of the pond is the most important to GCN and supports the majority of a great crested newt population within its terrestrial phase. This is reflected within the core, intermediate and distant habitat zones as defined by Natural England.
- 3.5.36 One on-site pond tested positive for GCN (Pond 10), and construction within 50m of this pond has the highest potential to injure or kill the species, and to damage their breeding location.
- 3.5.37 Although GCN may commute across agricultural fields to reach breeding ponds, they are unlikely to forage, shelter or hibernate within these habitats due to lack of cover from dense vegetation, and likely low populations of invertebrates for foraging. The fields are currently subject to regular disturbance through ploughing and seeding which would result in higher risks to GCN than low impact construction. They are however likely to forage and shelter within the hedgerows, adjacent woodland and field margins. These more suitable habitats are due to be retained and will be protected from damage during construction, apart from the removal of four short sections of hedgerow throughout both parcels of the Site, which carries a small risk of killing or injuring of great crested newts. No ponds will be directly damaged or removed as a result of the proposals.
- 3.5.38 The construction of the BESS in the southeastern part of Old Wood South will result in a small area (approximately 1.3ha) of permanent loss of arable habitat which could be used by GCN. It is noted that at present, the habitat proposed as the BESS area is currently suboptimal and generally unsuitable for GCN foraging anyway, as it comprises intensively farmed arable land. The nearest ponds to this area are Pond 11, which was dry at the time of survey, and Ponds 12 and 13, which both returned negative results for GCN eDNA.
- 3.5.39 It is considered unlikely that the population of GCN within Pond 14 would be impacted by the construction of the BESS due to the presence of Kingston Brook which runs between the majority of Old Wood South and Pond 14. Equally, Pond 10 lies approximately 480m away from the proposed BESS area and it is considered that the GCN population within this pond are unlikely utilise suboptimal habitat at that distance, and therefore the BESS does not constitute a significant potential impact on GCN populations within or using the Site. Figure 10 shows a 250m buffer from the BESS land, with no positive ponds within this distance. Additionally, despite the loss of arable land to hardstanding for the BESS, overall, the operational Site will likely result in maintaining, if not enhancing, the favourable conservation status of GCN across the Site and in the surrounding area.

²⁵ Great Crested Newt Mitigation Guidelines. 2001. Natural England

²⁶ Jehle R (2000) The terrestrial summer habitat of radio- tracked great crested newts (*Triturus cristatus*) and marbled newts (*T. marmoratus*). *Herpetological Journal* 10: 137-142

²⁷ Cresswell W and Whitworth R (2004) An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt *Triturus cristatus*. English Nature Research Report 576. English Nature, Peterborough

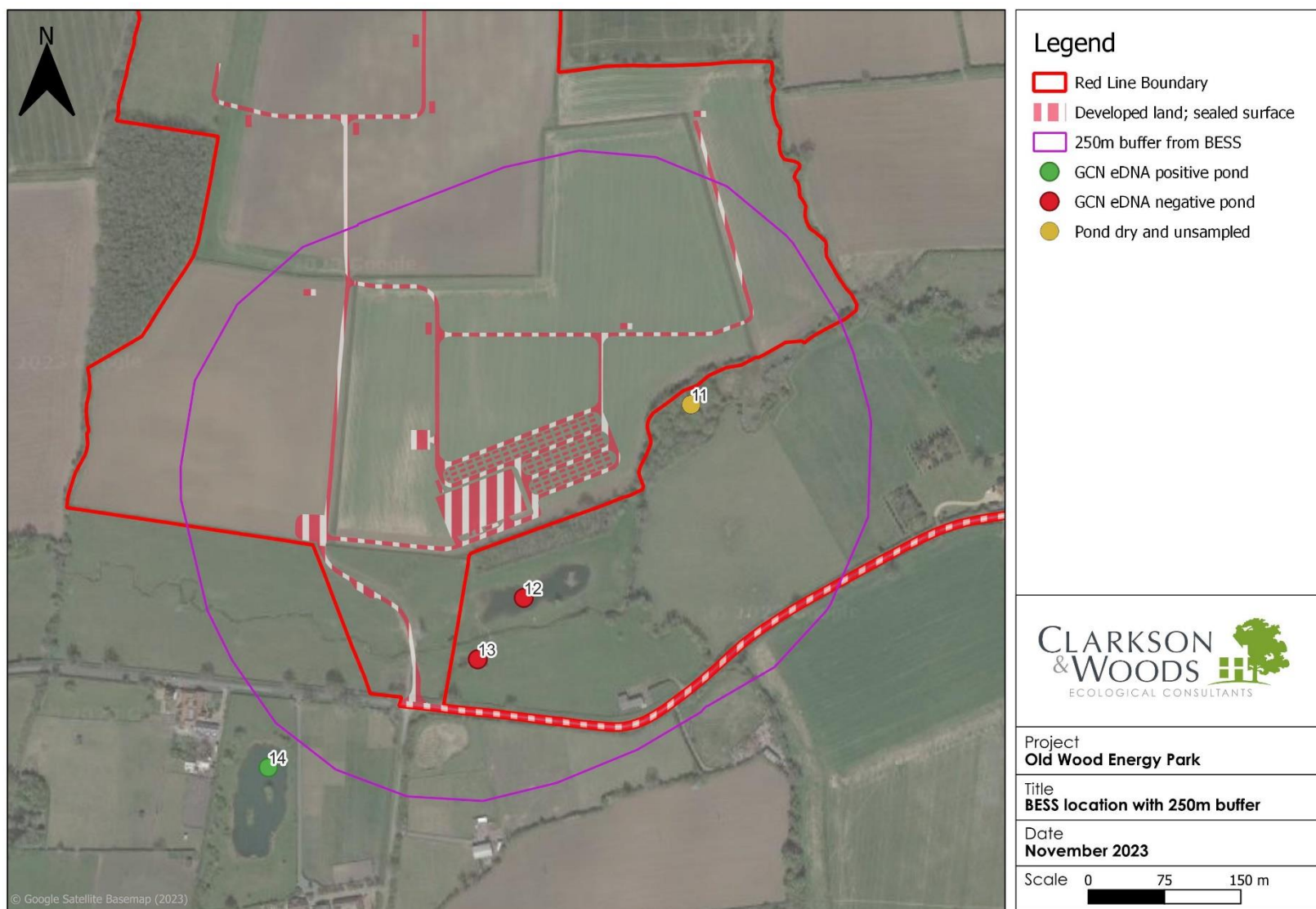


Figure 10: BESS location and ponds within 250m



Mitigation, Compensation, Enhancement and Monitoring

- 3.5.40 Clearance of the four hedgerow sections should be undertaken using a precautionary approach, which will be specified within the CEMP (Ecology) under a non-licensed risk avoidance method statement. This will include a pre-removal check of the feature by a suitably experienced ecologist in order to locate and remove any amphibians which may be present. In the highly unlikely event that a GCN is encountered during the removal of hedgerows, the attendant ecologist will advise of the necessary course of action. A licence from Natural England may be required in order to permit works to continue.
- 3.5.41 Only one pond within the Site returned positive eDNA for GCN (Pond 10), and the remaining three positive ponds were located over 50m from the Site boundary, with their immediate surrounding habitat remaining unaffected. The proposals have been amended to account for the positive GCN eDNA result from Pond 10, with no construction due to be undertaken within 50m of this feature.
- 3.5.42 The Development has been designed with minimum construction buffers of 50m from every GCN positive pond (on and off-site) and 10m from every GCN negative pond (on and off-site), as well as assuming that all ponds which were not subject to an eDNA sampling survey hold great crested newt presence.
- 3.5.43 All ponds, where access was possible, within 250m of the two parcels were tested for GCN eDNA and the scheme design amended appropriately once the laboratory results were returned. One pond lies within 250m of the proposed cable route (Pond 8); however, the cable will be routed beneath an existing road and therefore will not affect the existing pond or supporting terrestrial habitat.
- 3.5.44 Biodiversity protection zones will be erected around all hedgerows and boundary features during the construction phase, which will be outlined within the CEMP (Ecology).
- 3.5.45 Planting of additional hedgerows within Old Wood North will increase hibernation and terrestrial foraging habitat for GCN, as well as the seeding of species-rich wildflower seed throughout the Site and incorporation of small-scale tree copse planting, increasing the foraging potential of the grassland from the current modified grassland.
- 3.5.46 Landscaping and ongoing management of new and existing habitats will be set out within the LEMP in order to increase its value to wildlife.
- 3.5.47 It is recommended that a hibernaculum is created within suitable retained or newly planted habitat (such as grassland margins) to increase hibernation potential for amphibians. Suggested locations should be informed by an ecologist.

Residual Effects

- 3.5.48 If the CEMP (Ecology) and LEMP are adhered to, it is not anticipated that there will be any negative residual effects on GCN or other amphibians on Site or within the Site vicinity. Indeed, the operational Site may provide enhanced habitats for GCN and other amphibians. Such beneficial effects are however unlikely to be considered significant to the conservation status of local amphibian populations.

Reptiles

- 3.5.49 No incidental signs of reptile presence were noted on Site and only one record of a grass snake within 1km has been recorded in the past 10 years. However, the hedgerows and narrow field boundaries provide some suitable foraging and sheltering opportunities for widespread reptiles, such as slow-worm, although this is sub-optimal.

Potential Impacts

- 3.5.50 During the construction phase, four small lengths (approximately 31m in total) of hedgerow will be removed from within H2 and H4 in Old Wood North, and H23 and H24 in Old Wood South. Also, 2.3ha of modified grassland within Fields 12 and 13 of Old Wood South which may have the potential to injure or kill any reptiles that may be utilising this feature for sheltering; however, this is considered highly unlikely.
- 3.5.51 General disruption and damage to the hedgerows and associated field margins may present a low risk of individual reptiles being injured or killed during the construction phase in the absence of adequate mitigation.



Mitigation, Compensation, Enhancement and Monitoring

- 3.5.52 Clearance of the four hedgerow stretches and areas of modified grassland should be undertaken using a precautionary approach, which will be specified within the CEMP (Ecology). This will include a pre-removal check of the feature by a suitably experienced ecologist in order to locate and remove any reptiles which may be present. Depending on the timing of feature removal works, it may be necessary to remove the short sections of hedgerow under an Ecological Clerk of Works (ECoW). This will be outlined further within the CEMP (Ecology).
- 3.5.53 Enhancements to the Site include the planting of approximately 2.54km of new species-rich hedgerow within Old Wood North, as well as new copse and woodland planting within both parcels. There will also be a total of 91.9ha of new grassland planted across the Site both within and outside of the array security fencing.
- 3.5.54 A small number of habitat piles will be installed throughout the Site in order to enhance it for reptile hibernation. These will be outlined further within the LEMP.
- 3.5.55 It is likely that the habitat within the Site will offer greater terrestrial value to reptiles once operational, than it does pre-development, due to the expansive arable nature of the existing fields.

Residual Effects

- 3.5.56 Providing the measures set out above are adhered to, there is not expected to be any negative residual effects on reptiles should they be present, with the new planting enhancements even providing a slight positive residual effect through the increase in suitable foraging and sheltering habitat.

Birds

- 3.5.57 The initial walkover survey confirmed that the Site was suitable for both nesting and foraging birds, with the four WBS highlighting use of the Site by a moderate diversity and abundance of widespread species, some being farmland specialists. The four BBS found that the Site supports a moderate diversity of breeding birds, with most of these utilising the hedgerows and boundary features, with the only Bird of Conservation Concern recorded in high numbers within the fields including ground-nesting skylark. Skylarks were recorded in moderate numbers across the Site during both the WBS and BBS. This species was considered to have a stable breeding population, with approximately eight territories noted within both parcels across all BBS visits. Figure 11 below shows the skylark territory map of both parcels with all eight territories annotated, as well as off-site skylarks recorded during all BBS. As noted previously, all BBS data has been included within the existing, separate BBS report.²⁸

²⁸ Clarkson and Woods (September 2023), Breeding Bird Survey Report, Old Wood Energy Park, Wysall, Notts_v2.0

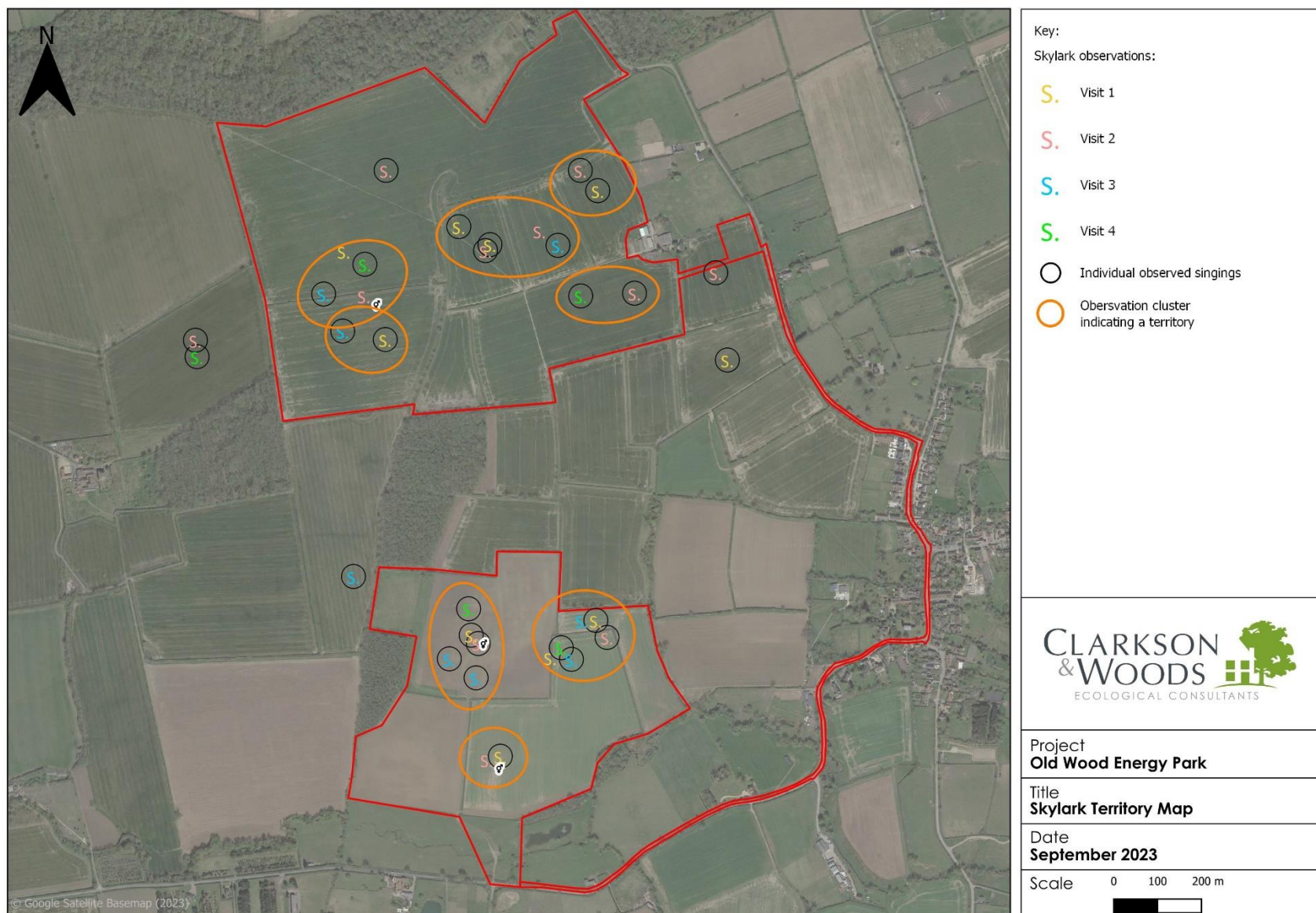


Figure 11: Skylark territory map



Potential Impacts

- 3.5.58 It is possible that, without effective protection and mitigation measures, the retained hedgerows, trees, woodland and associated boundary features would be damaged during the construction phase of the Development due to direct damage, run-off and dust from construction traffic.
- 3.5.59 Additionally, the clearance of approximately 31m of hedgerow (between H2 and H4 in Old Wood North, and H23 and H24 in Old Wood South) may risk disturbance, injury or death to any birds which are using the feature for nesting, depending on the time of year for removal.
- 3.5.60 The removal of 94.89ha of arable land will reduce the amount of possible breeding habitat of ground nesting birds that specialise in open farmland. Although skylark have been observed foraging within solar arrays, it can be reasonably assumed that the majority of skylark nesting territories will be displaced from the Site, since fields with solar panels are likely to be incompatible with skylark nesting requirements, notably open sightlines. Since it is located reasonably close to the edge of the Site, it is considered that the territory indicated within the northeastern corner of Old Wood South can be absorbed into adjacent neighbouring habitat which is also under similar arable cultivation. This absorption is considered likely to come about due to the increase in foraging success conferred onto territories adjacent to the solar site by the reversion from arable to permanent grassland which supports a greater abundance of soft-bodied invertebrates upon which parent birds feed their young. Therefore, the carrying capacity within arable fields immediately surrounding the solar site can be predicted to increase in this instance. Additionally, the territory in the southeast of Old Wood North will not be affected by the erection of solar panels as it lies within the area of Field 7 which is not proposed for development. It is therefore estimated that an estimated six breeding skylark territories will be lost due to the construction and operation of the Development.

Mitigation, Compensation, Enhancement and Monitoring

- 3.5.61 There will be partial on-site mitigation for a relatively small proportion of the remaining displaced skylark territories in Old Wood North, with much of Field 8 (approximately 3.62ha) being left undeveloped and seeded with Emorsgate EM2 – Standard General-Purpose Meadow Mixture (or similar). This will be appropriately managed as a varied grassland sward (between 20-50cm in height), including grazing or cuts at appropriate times of year to create suitable sward height during the skylark breeding season, as well as a late summer haycut in order to provide long-term suitable habitat for breeding skylarks and specie-rich grassland.
- 3.5.62 Hedgerow removal should be carried out outside of the bird nesting season (March – August inclusive) or be preceded, no more than 48 hours before proposed works, by an inspection for nesting birds by a suitably experienced ecologist. In order to work around the reptile and GCN hibernation period, it is recommended that this work be undertaken in either September or October, although above-ground clearance could occur over winter, providing that the hedgerow base is removed April – October.
- 3.5.63 As previously mentioned, biodiversity protection buffers will be demarcated prior to the construction phase commencing, in order to protect all retained trees, woodland and hedgerows from damage throughout construction and to minimise disruption to bird nesting on Site. All biodiversity protection buffer fencing will need erecting prior to any ground works. This will be outlined further within the CEMP (Ecology).
- 3.5.64 Landscaping plans include extensive grassland seeding with a variety of different seed mixes, including Emorsgate EG26 – Standard Old Fashioned Grazing Mixture within the security fencing, Emorsgate EM2 – Standard General-Purpose Meadow Mixture outside the security fencing, and Emorsgate EM8 – Meadow Mixture for Wetlands in Field 9 of Old Wood South. Additionally, 1.12ha of small-scale tree copse planting and 2.4ha of large-scale tree woodland planting which will eventually grow into a woodland belt, as well as approximately 2.54km of new native, species-rich hedgerow.
- 3.5.65 The new planting across the Site will provide new opportunities for local bird breeding populations and foraging year-round, therefore providing an enhancement for several species. New landscape planting will be managed sensitively and detailed fully within the LEMP.
- 3.5.66 Finally, at least 15 bird boxes for crevice-nesting species should be installed on suitably mature, retained trees within both parcels during the construction phase. Figure 12 gives indicative locations of these, with exact locations, box specifications, and monitoring outlined within the LEMP.

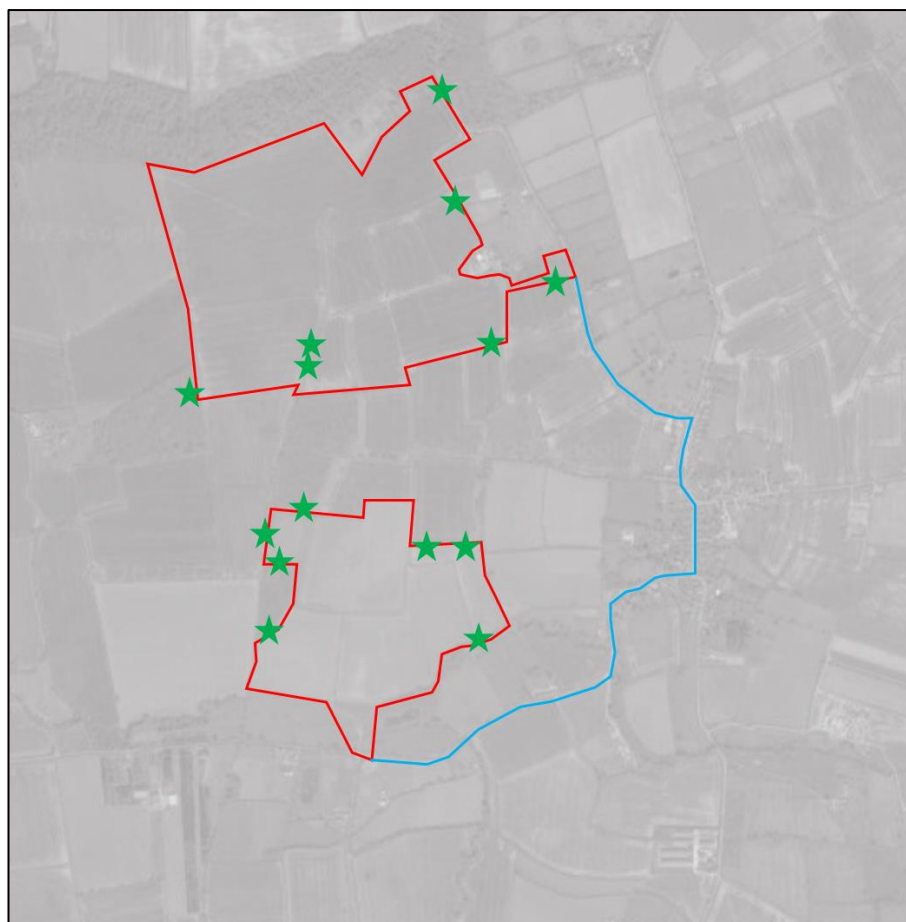


Figure 12: Suggested location of bird boxes

Residual Effects

- 3.5.67 The loss of 94.89ha of nesting habitat (arable land) for skylark will not be entirely mitigated for within the proposals; however, the seeding of species-rich grassland within the Site will likely provide a positive effect on foraging habitat for all bird species. It should also be noted that there are a maximum of eight skylark territories within the Site, six of which are estimated to be displaced, which is considered likely to be a small proportion of local population, especially due to the large extent of similar suitable habitat within the wider landscape. Consequently, while an adverse residual effect on skylark is predicted, it is likely only significant at a Site level.
- 3.5.68 As long as the CEMP (Ecology) and LEMP are adhered to, and the skylark mitigation area of 3.62ha within Old Wood North is implemented and managed appropriately, it is not anticipated that there will be any negative residual effects for other breeding or wintering birds on Site, with the abundance of new planting likely to result in a slight positive residual impact for foraging birds during the breeding season.

Other Species of Conservation Concern

- 3.5.69 Several sightings of brown hare were made during the site visits, and there are records of hedgehog in the vicinity of the Site. The Site is considered suitable for both species due to the presence of extensive hedgerow networks, adjacent woodland and arable fields. Other SpoCC may include harvest mice.

Potential Impacts

- 3.5.70 The removal of arable habitat is unlikely to result in any adverse impact on hedgehogs but may lead to a reduction of foraging opportunities for brown hare if not fully mitigated.

Mitigation, Compensation, Enhancement and Monitoring

- 3.5.71 As noted above, the removal of four small sections of H2 and H4 in Old Wood North and H23 and H24 in Old Wood South will be preceded by a fingertip search by an ecologist for amphibians and reptiles, who will also search for signs of hedgehogs within the survey. The recommended timing of this hedgerow removal is



between September and October, which avoids the hedgehog hibernation period as well as the breeding bird season. The methodology for this removal will be laid out within the CEMP (Ecology).

- 3.5.72 The LEMP will outline the proposed landscaping and new planting within the Site, enhancing it for wildlife, which includes a number of species of conservation concern including both hedgehog and brown hare.

Residual Effects

- 3.5.73 As long as the CEMP (Ecology) and LEMP are adhered to, it is not anticipated that there will be any negative residual effects on other species of conservation concern.

Himalayan Balsam

- 3.5.74 Scattered stands of Himalayan balsam were recorded along the Kingston Brook watercourse where it flows through the Site.

Potential Impacts

- 3.5.75 Himalayan balsam is listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended). Site clearance and construction activities could cause this species to spread, through the inadvertent movement of seeds onto other sites via machinery, footwear, vehicles etc.. Mobilisation of seeds into the watercourse given the buoyancy of seeds could also enable them to establish at other areas downstream. Where Schedule 9 species spread onto additional areas of land, this would constitute an offence under this legislation.

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- 3.5.76 Prior to commencing work, stands of Himalayan balsam should be identified and a minimum 8m buffer zone demarcated by a temporary cordon or other suitable barrier should be erected. In the event it is not possible for all development activities, vehicles and materials to keep out of this 8m exclusion zone, then the Himalayan balsam within the Site should be controlled by an authorised and experienced contractor prior to commencement of the development in order to avoid offences relating to its spread in the wild.
- 3.5.77 An appropriate method statement including a Toolbox Talk will be provided within the CEMP (Ecology) to detail how construction related activities will not result in the spread of this invasive species.

Residual Effects

- 3.5.78 As long as the CEMP (Ecology) is adhered to, it is not anticipated that Himalayan Balsam will result in any negative residual effects within the Development.

3.6 Cumulative Effects

22/00303/FUL – Land to the Northeast of Highfields Farm, Bunny Hill, Costock

- 3.6.1 An application for a 49.9wm solar photovoltaic energy park has been permitted (subject to conditions) by Rushcliffe District Council (Ref: 22/00303/FUL – Land to Northeast of Highfields Farm, Bunny Hill, Costock, Nottinghamshire). This site is approximately 81.5ha in size and sits directly adjacent to the Development to the west. The Ecological Assessment Report V4 (Avian Ecology, November 2022) states that, using the Natural England Biodiversity Metric 3.1, the development would result in a habitat unit gain of 122.35% and a hedgerow unit gain of 33.75% due to the seeding of species-rich meadow grassland on previously arable land, and new native hedgerow planting proposed.
- 3.6.2 Two ponds were present within the application site boundary, with both scoring 'Good' within a HSI assessment but returning negative results for GCN eDNA. A third, off-site pond also returned a negative result for GCN eDNA.
- 3.6.3 Within the proposal, no targeted water vole surveys were undertaken, although the report states that Kingston Brook is located along the southern boundary of the application site.
- 3.6.4 Three BBS were undertaken as part of the impact assessment, with 11 skylark territories being estimated throughout the site and no specific mitigation is proposed for the species. Considering the proximity of this project to the proposed Scheme, it is considered likely that a modest increase in the previously identified residual adverse displacement effect of skylark territories may occur, causing it to be felt at a Local, rather than Site scale.



23/01073/SREIA – Field Farm Wysall Road, Costock

An EIA screening opinion request for a 49.9mw solar photovoltaic energy park has been submitted and validated by Rushcliffe District Council for consideration (Ref: 23/01073/SREIA – Field Farm Wysall Road, Costock, Nottinghamshire, LE12 6XQ). This site is approximately 1.5km south and south-west of Old Wood South and covers an approximate area of 70ha. 23/01840/SCREIA – Land North of Stragglethorpe Road, Stragglethorpe

- 3.6.5 A second, smaller solar photovoltaic energy park and BESS EIA screening opinion request has been submitted to Rushcliffe Borough Council for consideration (Ref: 23/01840/SCREIA – Land North of Stragglethorpe Road, Stragglethorpe, Nottinghamshire), and was validated on 3rd October 2023. The proposed development within this application site lies 10km north-east, covers approximately 48ha and would provide approximately 20mw of energy. No ecology reports are available for this development however due to the size of the site and distance of the site away from the Proposed Development of Old Wood Energy Park, it is unlikely that there will be any negative cumulative effects experienced from this development.

3.7 Decommissioning

- 3.7.1 The solar array will be decommissioned at the end of lifespan of development panels 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 seems likely that the habitat within the area will be considerably more ecologically diverse than at present due to the enhancement of all fields from arable land to grassland, and protected species may be present within the area.
- 3.7.2 Pre-decommissioning ecological surveys will be required in line with guidance, legislation and planning policy available at the point of decommissioning, to ascertain the nature of ecological impacts and what, if any, mitigation measures will be required. 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 decommissioning plan will be prepared and submitted to the LPA prior to decommissioning. It is expected that this will be a condition of the planning permission.

3.8 Biodiversity Impact Assessment Calculator

- 3.8.1 In line with NPPF planning guidance, a Biodiversity Impact Assessment (BIA) score has been calculated for the Site, using the DEFRA Statutory Biodiversity Metric. The metric has been used to calculate the biodiversity values of habitat within the application Site, both before and after development. All calculations are included within the Statutory Biodiversity Metric which has been submitted along with this application (v2.0, 14/10/2024).
- 3.8.2 The biodiversity value of the existing Site is based on the majority of land within the boundary being covered by arable crops, with several small areas of modified grassland in either poor or moderate condition. According to the calculator, the habitat biodiversity value of the existing Site is 205.57 Habitat Units. 22 hedgerows were present within Old Wood North, and a further 13 were present within Old Wood South. Of these hedgerows, only six were species rich with the rest being species poor. According to the Statutory Biodiversity Metric calculator, the hedgerow biodiversity value of the existing Site is 68.91 Hedgerow Units. There was a small stretch of Kingston Brook running through Old Wood South which was assessed as being in fairly poor condition, as well as two stretches of ditches also running through Old Wood South which have a watercourse BNG value of 2.34.
- 3.8.3 The Proposed Development will result in the loss of 94.89ha arable land, 7.15ha of modified grassland for the majority of the site development, and the loss of approximately 10m from H2, 4m from H4 (both in Old Wood North), 14m from H23 and 3m from H24 (both in Old Wood South) in order to accommodate the new access routes into the Site parcels. However, the development will offset this loss by incorporating new species-rich wildflower meadow grassland outside of the solar security fencing, wet meadow planting within Field 9 and a grazing grassland mixture within the security fencing. Several new sections of copse and woodland planting will also take place throughout both parcels. Additionally, approximately 2.54km of new, species-rich hedgerow, and enhancement within hedges (H1, H3, H6, H9, H10, H13, H14, H17, H20 and H21 in Old Wood North; and H24, H26, H27, H28, H29, H30 and H32 in Old Wood South) will be undertaken where these features are defunct or gappy. This will result in a gain of 168.44 Habitat Units, or an overall net gain of 81.94%. The proposal will result in a gain of 45.65 Hedgerow Units, or an overall net gain of 66.24%. Due to the addition



of a prefabricated bridge over the Kingston Brook in order to accommodate heavy goods vehicles throughout construction and within the operational life of the solar site, there would be a slight loss of river units. However, the reduction of agricultural cultivation adjacent to the ditches and complete removal of grazing along the Brook is due to support a gain of 0.34 watercourse units, leading to an overall gain of 14.40% within the BNG metric.

- 3.8.4 It should be noted that the calculations have been made on the assumption that the additional species-rich wildflower meadow grassland outside of the security fencing will be managed for wildlife and cut infrequently, increasing its value for biodiversity from arable planting. It is also assumed that, although the newly seeded modified grassland has been assumed as unlikely to reach the necessary 8-10 species per m², it has been classed as 'fairly poor' due to the quality of the new seed mix to be sown, making it likely to be of a higher biodiversity value than modified grassland in 'poor' condition. Rating the modified grassland as 'fairly poor' is a conservative effort in case the grassland cannot get to the required 8-10 species needed to be rated in higher habitat condition.

3.9 Summary of Assessment of Effects

- 3.9.1 The assessment of effects is summarised in Table 14 overleaf, which also outlines the proposed method to secure any relevant mitigation associated with reducing impacts.



Table 14: Summary of Assessment of Effects

Feature	Importance	Mitigation/Compensation Proposed	Residual Effect and Significance	Proposed Mechanism to Secure	Monitoring Required?
Designated Sites					
All LNR and SINC	County	<ul style="list-style-type: none"> Protective fencing around sensitive habitats on Site Application of COSHH regulations Measures to prevent Site vehicles depositing dust and other waste within adjacent fields or woodland 	No negative residual effects	CEMP (Ecology)	Yes – monitoring throughout construction phase
Habitats					
Ponds	Local	<ul style="list-style-type: none"> Protective fencing around all ponds and an undeveloped buffer of at least 10m, but increasing to 50m for ponds supporting GCN Works compounds being located at least 20m from any waterbodies 	No negative residual effects	CEMP (Ecology)	Yes – monitoring throughout construction phase
Watercourses and Ditches	Local	<ul style="list-style-type: none"> Protective fencing along all watercourses and an undeveloped buffer of at least 10m Works compounds being located at least 20m from Kingston Brook and all on-site ditches Removal of grazing from riparian zone of Kingston Brook 	Slight positive residual effects,	CEMP (Ecology)	Yes – monitoring throughout construction phase
Hedgerows and Trees	Local	<ul style="list-style-type: none"> Protective fencing and permanent buffer zones of between 5m and 15m Infill planting of gappy hedgerows with native trees Addition of 1.12ha of copse planting 	Slight positive residual effects	CEMP (Ecology) LEMP	Yes – monitoring throughout construction phase



Feature	Importance	Mitigation/Compensation Proposed	Residual Effect and Significance	Proposed Mechanism to Secure	Monitoring Required?
		<ul style="list-style-type: none"> Addition of 2.4ha of woodland planting Approximately 2.54km of new hedgerow planting 			
Species					
Badgers	Site	<ul style="list-style-type: none"> Pre-construction badger check Permanent buffer zones, 10m minimum around outlying setts, 20m around subsidiary setts and 30m around main setts Gaps in security fencing if required 25.5ha of wildflower (standard meadow mix and wetland meadow mix) grassland seeded outside of array fencing 	No negative residual effects	CEMP (Ecology)	Yes – monitoring throughout construction phase
Bats	Local	<ul style="list-style-type: none"> Any tree removal / limbing to be first discussed with a suitably qualified ecologist Buffer zones around boundary habitat Infill planting of gappy hedgerows with native trees Addition of 1.12ha of copse planting Addition of 2.4ha of woodland planting Approximately 2.54km of new hedgerow planting Installation of bat boxes 	Positive residual effects	CEMP (Ecology) LEMP Further surveys of trees if necessary Lighting Strategy if necessary	Yes – monitoring during construction and operational phases
Otter	Local	<ul style="list-style-type: none"> Buffer zones of 10m around Kingston Brook and all ditches 	No negative residual effects	CEMP (Ecology)	Yes – monitoring throughout construction phase



Feature	Importance	Mitigation/Compensation Proposed	Residual Effect and Significance	Proposed Mechanism to Secure	Monitoring Required?
Great Crested Newt	Local	<ul style="list-style-type: none"> Development designed to avoid 50m buffer of all GCN positive ponds and 10m buffer of all GCN negative ponds Sensitive clearance methodology to hedgerow removal Buffer zones around boundary habitats and ponds Infill planting of gappy hedgerows with native trees Addition of 1.12ha of copse planting Addition of 2.4ha of woodland planting Approximately 2.54km of new hedgerow planting 25.5ha of wildflower grassland seeded outside of array fencing 	No negative residual effects	CEMP (Ecology) LEMP	Yes – monitoring throughout construction phase
Reptiles	Site (if present)	<ul style="list-style-type: none"> Suitable habitat clearance under ECoW Approximately 2.54km of new hedgerow planting 25.5ha of wildflower grassland seeded outside of array fencing Installation of habitat piles 	Slight positive residual effects	CEMP (Ecology) LEMP	Yes – monitoring throughout construction phase
Birds (Wintering)	Local	<ul style="list-style-type: none"> Approximately 2.54km of new hedgerow planting 25.5ha of wildflower grassland seeded outside of array fencing 	No negative residual effects	CEMP (Ecology) LEMP	None



Feature	Importance	Mitigation/Compensation Proposed	Residual Effect and Significance	Proposed Mechanism to Secure	Monitoring Required?
Birds (Breeding)	Local	<ul style="list-style-type: none">• Suitable habitat clearance under ECoW• Approximately 2.54km of new hedgerow planting• 25.5ha of wildflower grassland seeded outside of array fencing• 3.62ha of Skylark mitigation land installed within Field 7• Installation of bird boxes	Slight negative residual effects for skylark	CEMP (Ecology) LEMP	Yes – monitoring during construction and operational phases
Other Species of Conservation Concern	Site (if present)	<ul style="list-style-type: none">• Sensitive clearance methodology to hedgerow removal• Approximately 2.54km of new hedgerow planting• 25.5ha of wildflower grassland seeded outside of array fencing	No negative residual effects	CEMP (Ecology) LEMP	None
Himalayan balsam	Site	<ul style="list-style-type: none">• Construction activities to avoid inadvertent spread of balsam seeds• Removal of individual plants prior to seed setting	No negative residual effects	CEMP (Ecology)	None



4 CONCLUSIONS

- 4.1.1 The Development has the potential to result in **adverse impacts** upon a number of ecological features ranging from **Local to Site** importance. Avoidance and mitigation measures have been proposed to ensure that these adverse impacts are reduced as far as possible.
- 4.1.2 A CEMP (Ecology) will be prepared to ensure that protection measures are outlined for retained habitats during the construction phase of development and how the development will avoid committing offences against protected species, including pre-construction checks of habitats on Site.
- 4.1.3 Additionally, a LEMP will be prepared which will outline how retained and newly planted areas of grassland, hedgerows, copse and woodland will be managed in order to maximise their biodiversity value. The LEMP will set out measures necessary in order to ensure that protected species are appropriately accommodated within the Site during its operational lifetime, as well as setting out monitoring requirements for ecological enhancements and new areas of planting.
- 4.1.4 A pre-construction check of Kingston brook will be undertaken to confirm continued otter and water vole absence, and additionally, a pre-commencement badger and dormouse check will be carried out and the small stretches of hedgerow removal within H2 and H4 in Old Wood North, and H23 and H24 in Old Wood South will be undertaken with a suitably qualified and experienced ecologist present.
- 4.1.5 According to the DEFRA Statutory Biodiversity Metric, the Development will provide a net gain of 81.94% for habitats, 66.24% for hedgerows, and 14.40% for watercourses providing that the habitats provided are seeded, planted and managed correctly and in line with the landscaping plans and LEMP, in order to maximise their potential for biodiversity.
- 4.1.6 Assuming the successful implementation of the measures described above, the Development can be considered in line with planning Policies 16 and 17 of the Rushcliffe Local Plan Part 1, and Policies 1, 34, 36, 37 and 38 of the Rushcliffe Local Plan Part 2, due to the substantial net gain in biodiversity proposed within the landscaping plans, as well as the retention and protection of hedgerows, ponds, and ditches within the Site, and all habitats and designated sites adjacent to the Development.



APPENDIX A: WILDLIFE LEGISLATION & SPECIES INFORMATION

BADGER

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.

DORMOUSE

Dormice and their nests 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 dormouse, or to deliberately disturb a dormouse 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 dormice in their nests, and damage to or obstruction of nests are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against dormice or their nests 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 nest sites, or which could result in killing of or injury to dormice, need to take place under licence. Works which could disturb dormice may also be licensable, though this is rarely the case unless loss of dormouse habitat is also proposed, and should be assessed on a case by case basis. In practice this means that works involving any removal of habitat (typically woodland, hedgerows, and scrub) supporting dormice 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 dormice 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.

BIRDS

All British birds, their nests and eggs (with certain exceptions) are protected under the Wildlife & Countryside Act 1981 (as amended) which makes it an offence to: intentionally kill, injure or take a wild bird; intentionally take, damage or destroy nests which are in use or being built; intentionally take or destroy birds' eggs; or possess live or dead wild birds or eggs. A number of species receive additional protection through inclusion on Schedule 1 of the Wildlife and Countryside Act; for these it is also an offence to intentionally or recklessly disturb birds while nest building, or at a nest containing eggs or young, or to disturb the dependant young of such a bird. Penalties for offences against bird species include fines of up to £5,000 and/or up to six months in prison.

General licences for control of some bird species are issued by Natural England and Natural Resources Wales in order to prevent damage or disease, or to preserve public health or public safety, but it is not possible to obtain a licence for control of birds or removal of eggs/nests for development purposes. Consequently if nesting birds are present on a development site when works are programmed to start it is usually necessary to delay works, at least in the areas supporting nests, until any chicks have fledged and left the nest. It is usually possible, once chicks have hatched, for an experienced ecologist to predict approximately when they are likely to fledge, in order to inform programming of works on site.

OTTER

Otters and their holts 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 an otter, or to deliberately disturb an otter such that its ability to 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 otters in their holts, and damage to or obstruction of holts are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against otters or their holts include fines of up to £5,000 and/or up to six months in prison.

Any development works which are likely to involve the loss of holts, or which could result in killing of or injury to otters (which are only likely to occur extremely rarely), need to take place under licence. Works which could disturb otters may also be licensable, though this is also rarely the case as the majority of developments on watercourses and coastal areas where otters are present can be carried out in a way which avoids significant disturbance.

Where it is necessary, 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 otters in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.



WATER VOLE

Water voles *Arvicola amphibius* receive protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to: intentionally kill, injure, or take a water vole; intentionally or recklessly disturb a water vole whilst in its place of shelter; intentionally or recklessly damage, obstruct or destroy a water vole's place of shelter; or intentionally or recklessly obstruct access to a place of shelter. Penalties for offences against water voles include fines of up to £5,000 and/or up to six months in prison.

Works such as watercourse re-profiling, installing culverts, or topsoil stripping close to watercourses and ponds which could result in destruction or obstruction of burrows could be considered reckless, and/or could be considered intentional if water voles are killed or injured, unless measures are taken to minimise the risk of this occurring. Any inadvertent impacts on water voles despite these mitigation measures being in place would be considered an 'incidental result of an otherwise lawful operation' which 'could not reasonably have been avoided' and therefore not an offence.

In practice, mitigation for impacts of development on water voles generally comprise one or more of the following techniques: displacement, in which water voles are encouraged to move to suitable retained habitat by changing the management of areas affected by development; exclusion, where water vole-resistant fencing is provided between a development site and suitable retained habitat allowing animals to be trapped from the development footprint and released elsewhere on the site; and translocation, where animals are trapped from a development site and released on another suitable site nearby. Water vole mitigation proposals, particularly those involving translocation of animals, should be agreed in advance with Natural England or Natural Resources Wales.

PLANNING POLICY IN RELATION TO BIODIVERSITY

The National Planning Policy Framework (NPPF), was published in March 2012 and revised in July 2021. 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 174), 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 176):

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. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.

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 reasons⁶ and a suitable compensation strategy exists; and
- (d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate..



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 182 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 2021, 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.

PROTECTED PLANTS

All wild plants receive some protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence for any unauthorised person to intentionally uproot any wild plant. Additionally, certain rare species of plants listed on Schedule 8 of the Act are given greater protection. For these species, it is an offence to intentionally pick, uproot or destroy them, or to possess or sell them (live or dead), or anything derived from them. Penalties for offences under this legislation include fines of up to £5,000 and/or up to six months in prison.

Schedule 8 of the Act is reviewed every 5 years, but currently it includes 185 species or sub-species of vascular plants, bryophytes (mosses, liverworts and hornworts), lichens and stoneworts (see www.jncc.gov.uk for current list), all protected due to their rarity and/or restricted distributions.

Works which could result in uprooting or destruction of plants listed on Schedule 8 of the Act could result in an offence being committed, unless measures are taken to minimise the risk of this occurring. Any inadvertent impacts on Schedule 8 plants despite these mitigation measures being in place, and impacts on other plant species during development works, would be considered an 'incidental result of an otherwise lawful operation' which 'could not reasonably have been avoided' and therefore not an offence.



In practice, the mitigation measures required on the very rare occasions when Schedule 8 plants are affected by development proposals will be determined by the ecological requirements of the species concerned, and any mitigation strategy should be agreed in advance with Natural England or Natural Resources Wales.

THE HEDGEROWS REGULATIONS

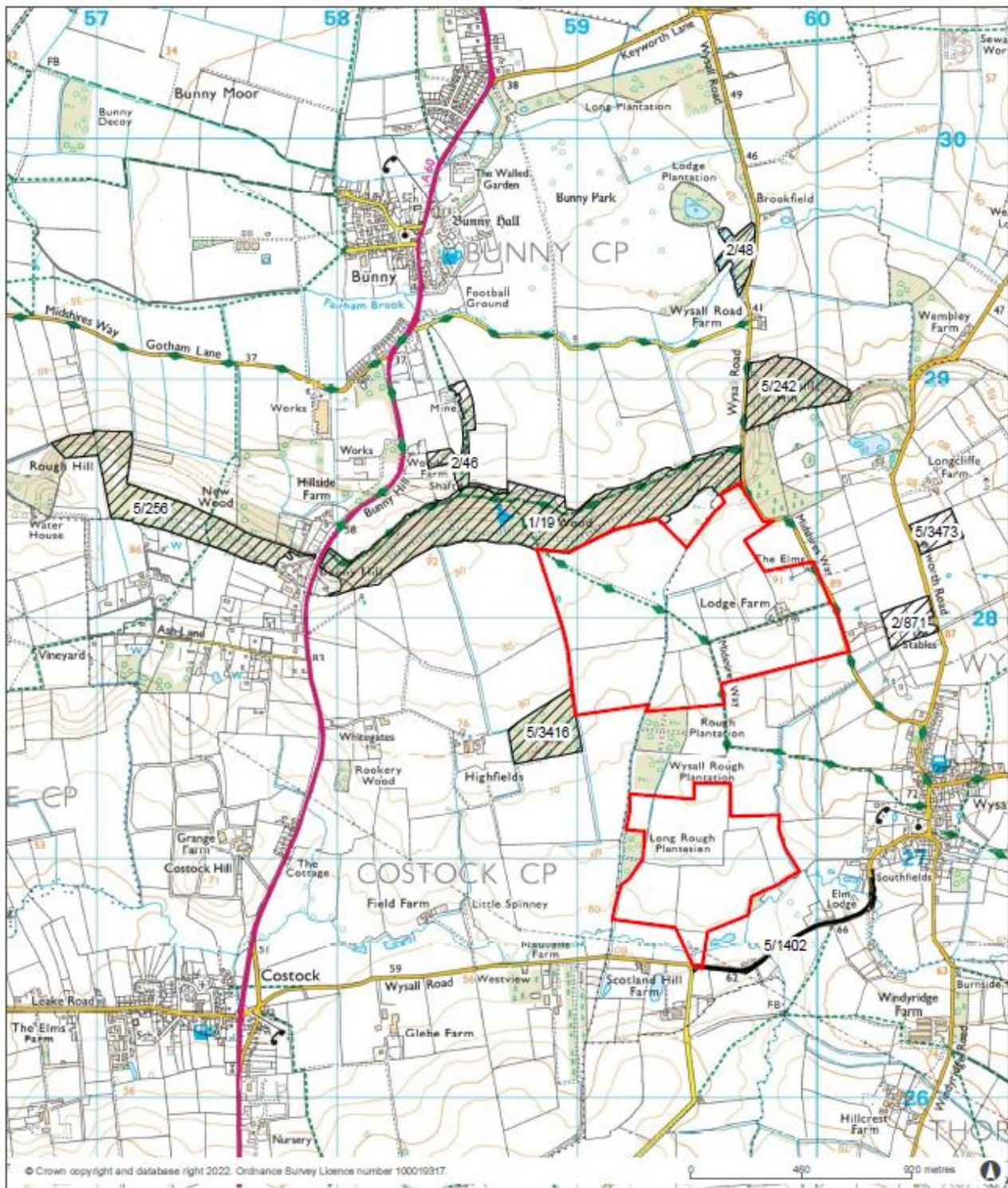
In England and Wales the Hedgerows Regulations (1997) as amended confer a level of protection on hedgerows (though hedgerows within or bordering domestic gardens are excluded), particularly those hedgerows classified as 'Important' under the legislation. The Regulations require those wishing to remove 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)



APPENDIX B: MAP OF LOCAL WILDLIFE SITES WITHIN 1KM OF OLD WOOD ENERGY PARK



Key



Local Wildlife Site



Old Wood Energy Park



Nottingham
City Council



Nottingham City Council Site Reference	LWS Name
5/256	New Wood, Bunny
5/242	Windmill Hill Wood
5/1402	Costock Road
2/871	Wysall West Grassland
2/48	Bunny Park Pond
2/46	Marblaegis Mine
1/19	Bunny Old Wood
5/3416	Intake Wood, Costock
5/3473	Keyworth Road Grasslands

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