



Technical Appendix 2: Ecological Appraisal

Longhedge Solar Farm

30/11/2022



Disclaimer

Neo Environmental Limited shall have no liability for any loss, damage, injury, claim, expense, cost or other consequence arising as a result of use or reliance upon any information contained in or omitted from this document.

Copyright © 2022

The material presented in this report is confidential. This report has been prepared for the exclusive use of Renewable Energy Systems (RES) Ltd. The report shall not be distributed or made available to any other company or person without the knowledge and written consent of RES Ltd or Neo Environmental Ltd.

Neo Environmental Ltd	
<p>Head Office - Glasgow: Wright Business Centre, 1 Lonmay Road, Glasgow. G33 4EL T 0141 773 6262 E: info@neo-environmental.co.uk</p>	
<p>Warrington Office: Cinnamon House, Crab Lane, Warrington, WA2 0XP. T: 01925 661 716 E: info@neo-environmental.co.uk</p>	<p>Rugby Office: Valiant Suites, Lumonics House, Valley Drive, Swift Valley, Rugby, Warwickshire, CV21 1TQ. T: 01788 297012 E: info@neo-environmental.co.uk</p>
<p>Ireland Office: Johnstown Business Centre, Johnstown House, Naas, Co. Kildare. T: 00 353 (0)45 844250 E: info@neo-environmental.ie</p>	<p>Northern Ireland Office: 83-85 Bridge Street, Ballymena, Co. Antrim, BT43 5EN. T: 0282 565 04 13 E: info@neo-environmental.co.uk</p>

Prepared For:

Renewable Energy Systems (RES) Ltd



Prepared By:

Louis Maloney BSc (Hons) MSc

Thomas Hill MEnv (Hons)



	Name	Date
Edited By:	Louis Maloney	23/08/2022
Checked By:	Thomas Hill	23/08/2022
	Name	Signature
Approved By	Paul Neary	

Contents

1. Executive Summary	5
2. Introduction	7
3. Consultation	11
4. Legislation and Planning Policy Context	14
5. Methodology	22
6. Baseline Conditions	29
7. Impact assessment	40
8. Cumulative Effects.....	59
9. Conclusion	61
10. Appendices.....	65

1. EXECUTIVE SUMMARY

- 1.1 An Ecological Assessment has been undertaken for a proposed 49.9MW solar farm (the “Proposed Development”). This is to assess the potential impacts on local ecology as a result of the Proposed Development. Baseline information within the ecological assessment comprises an initial desk-based assessment, an UK Habitats Classification survey, and a net gain baseline survey, which have been outlined within the relevant sections of this report. The construction of the proposed development and all associated infrastructure shall take place on lands between Hawksworth and Thoroton, circa 15.5km east of Nottingham, Nottinghamshire (the “Application Site”).
- 1.2 The desk-based assessment identified that within 15km of the Application Site boundary there are no: Special Areas of Conservation (“SACs”), Special Protection Areas (“SPAs”), possible SACs (“pSACs”), potential SPAs (“pSPAs”) or Ramsar Sites. There is one Site of Special Scientific Interest (“SSSIs”) within 5km of the Application Site. No National Nature Reserve (“NNR”) or Local Nature Reserves (“LNRs”) exist within 5km of the Proposed Development.
- 1.3 A data search was conducted in order to supplement this Ecological Assessment, with a total of 654 species records found within 2km of the Application Site. In addition to the species records, three non-statutory designated sites were identified within 2km, see **Figure 2.4**. These are Barleyholme Wood Local Wildlife Site – 2/956 (“LWS”), Orston Horse Pasture – 5/342 LWS and the River Smite – 2/900 LWS. Mitigation measures have been recommended to ensure that the Proposed Development will have **no likely significant effects** on local species and Local Wildlife Sites.
- 1.4 A total of 13 habitat types were recorded within the Ecological Study Area (“ESA”) during the Extended Phase 1 habitat survey in April 2021 and UK Habitats Classification surveys in January and July 2022. During the surveys, habitats were assessed for their potential to support protected and notable species. Overall, the Application Site is considered of **relatively low ecological interest** in terms of habitats.
- 1.5 At the time of the Extended Phase 1 habitat survey, a HSI survey was conducted for each of the three ponds located within 250m – 500m of the Proposed Development boundary. The results of the survey concluded that all three ponds returned a HSI score of 0.56 which classifies each pond as ‘below average’ suitability for GCN. On this basis a GCN survey is not required.
- 1.6 The construction of the Proposed Development will occur over land which has been identified primarily as arable land and improved agricultural grassland. Proposed structures and internal access tracks will cross cereal cropland (c1c), modified grassland

(g4), line of trees (w1g6) and hedgerow (Priority Habitat (h2a)). The extent of habitat loss in a local context where these habitats are frequent is not considered significant.

- 1.7 From the survey findings and impact assessment conducted it is considered that the Proposed Development is likely to have **no significant adverse effects** on local wildlife. Precautionary and mitigation measures have been outlined within this report to reduce potential effects.
- 1.8 Furthermore, a Biodiversity Management Plan (BMP) has been produced. This encompasses enhancement and compensation measures to ensure the proposed energy generation installation will lead to a **net gain** for local wildlife. The Biodiversity Net Gain Metric returned the following results: **net gain for biodiversity of 187.13% area-based habitat gain and 24.68% hedgerow unit gain** (see Appendix 2.2 of this report).

2. INTRODUCTION

Background

- 2.1 Neo Environmental Ltd has been appointed by Renewable Energy Systems (RES) Ltd (the “Applicant”) to complete an Ecological Assessment for a proposed 49.9MW solar farm development (the “Proposed Development”) on lands between Hawksworth and Thoroton, circa 15.5km east of Nottingham, Nottinghamshire (the “Application Site”).
- 2.2 Please see **Figure 4 of Volume 2: Planning Application Drawings** for the layout of the Proposed Development.
- 2.3 A Biodiversity Management Plan (“BMP”; **Appendix 2.1**), net gain assessment (**Appendix 2.2**), Bird Hazard Management Plan (“BHMP”; **Appendix 2.3**) and an Outline Construction Environmental Management Plan (**Volume 3, Technical Appendix 8: OCEMP**) which contains an Ecology Construction Method Statement have also been prepared for the Proposed Development. These should be read in conjunction with this Ecological Assessment.

Development Description

- 2.4 The Proposed Development will consist of the construction of a c. 49.9MW solar farm. It will involve the construction of bi-facial ground mounted solar photovoltaic (PV) panels, new access tracks, underground cabling, perimeter fencing with CCTV cameras and access gates, a temporary construction compounds, substation and all ancillary grid infrastructure and associated works.
- 2.5 The Proposed Development will result in the production of clean energy from a renewable energy resource (daylight). It will also involve additional landscaping, including new native woodland, species-rich neutral grassland and species-rich hedgerow planting and enhanced biodiversity management.

Site Description

- 2.1 The Application Site is located in a semi-rural setting on lands between the settlements of Hawksworth (0.1km west) and Thoroton (0.2km southeast), circa 15.5km east of Nottingham, Nottinghamshire. (See **Figure 1 of Volume 2: Planning Application Drawings** for further detail).
- 2.2 Centred at approximate Grid Reference E476129, N343467, the Proposed Development Site comprises nine fields covering a total area of c. 94.24hectares (ha), although only 37.7ha of this area is required to accommodate the solar arrays themselves, with the remaining area being used for ancillary infrastructure and mitigation and enhancement measures. The Proposed Development Site covers low

lying lightly undulating agricultural land with an elevation range of c. 20m to 25m AOD. Internal field boundaries comprise, hedgerows, tree lines and several linear strips of woodland shelter belt. External boundaries largely consist of mature to lower hedgerows with individual trees and some evident gaps. In terms of existing infrastructure; electricity pylons extend north-south through fields 5, 6 & 8, whilst electricity lines pass northwest to southwest through fields 4, 5, 6 & 9.

- 2.3 The Application Site will be accessed via the creation of a new entrance off the linear public highway Thoroton Road. The vegetation is set back from the road verge by a few metres and therefore visibility will not be an issue. Appropriate visibility splays are included within the CTMP.
- 2.4 The haul route will be from the A46 to the southwest of the Application Site. The vehicles will exit the A46, signposted A6097 (Mansfield), take the 4th exit at the roundabout onto Bridgford Street followed by the 1st exit at the next roundabout onto Fosse Way. Vehicles will travel along this road for approximately 1.5km to the next roundabout, where they will take the 2nd exit onto Tenman Lane. This road will be travelled on in an eastern direction for approximately 3.2km before taking a left hand turn onto Hawksworth Road and vehicles will travel along here for approximately 2km before taking a right hand turn onto Thoroton Road. Vehicles will travel in a southeast direction for approximately 0.9km before turning left into the Application Site.
- 2.5 There is one recreational route located within the Proposed Development Site (Bridleway 1 & 6 that pass through the northern fields), and several located close by (**See Figure 3 of Vol 2: Planning Drawings**). National Cycle Network (NCN) route 64 shares the minor road on the east side of the Proposed Development Site.
- 2.6 The Proposed Development Site is mostly contained within Flood Zone 1 (at little or no risk of fluvial or tidal / coastal flooding), however there are some areas of Flood Zone 2 and 3a which follow the watercourse/drains within the site and have been carefully considered during the design phase.

Scope of the Assessment

- 2.7 An Ecological Assessment of the Application Site has been completed to inform the submission of a planning application to "Rushcliffe Borough Council" for a proposed solar farm development. The aims of this report are to:
- Determine the main habitat types within and immediately adjacent to the Application Site in relation to the Proposed Development footprint;
 - Identify any actual or potential habitat or species constraints pertinent to the development of the Application Site and to identify how the Proposed Development can avoid, mitigate and, if necessary, compensate for impacts on these actual or potential constraints;

- Assess the potential impacts of the Proposed Development during the construction and operation phases;
- Provide mitigation to reduce the impacts of the activities undertaken during the various phases of the Proposed Development; and
- Identify potential opportunities for the Proposed Development to enhance and add to the biodiversity resource within the Application Site boundary.

Statement of Authority

- 2.8 The assessment has been conducted by qualified ecologists. Louis Maloney was the main senior ecologist involved in the production of report. Additionally, senior ecologist (Thomas Hill), also provided specialist input and conducted part of the fieldwork. Kevin Johnson was also involved in the fieldwork for this project. This Ecological Assessment has been carried out in line with the relevant up to date professional guidance: CIEEM's Guidelines for Ecological Impact Assessment.¹ and Ecological Report Writing².
- 2.9 Louis Maloney has four and a half years of professional ecological experience. This includes terrestrial habitat and marine ecology surveys, and the management of Environmental Impact Assessment ("EIA") and Natura Impact Statement ("NIS") reports in Ireland. He holds a BSc in Marine Science from the National University of Ireland, and an MSc in Conservation Behaviour – Marine and Terrestrial Science. Louis is in the process of applying for an Associate level membership with CIEEM.
- 2.10 Thomas Hill, who performed part of the survey work, and assisted with the reporting for this Proposed Development, has four years of experience as an ecologist in a mixture of field and office-based work. Thomas has experience in many surveys and assessments including phase 1 and UK habitat surveys, bat, badger, otter and water vole alongside other protected species surveys. He has worked on projects of varying scales, from simple residential extension developments up to national scale transport infrastructure projects. Thomas is currently working towards CIEEM membership.
- 2.11 Kevin Johnson, who carried out part of the fieldwork, is a full member of CIEEM. He has several years of experience in environmental consultancy work. Kevin has decades of experience in voluntary work for Lincolnshire Wildlife Trust, including helping to manage Linwood Warren Site of Special Scientific Interest ("SSSI"). Before changing career and becoming an environmental consultant, he was initially an Ecology and Environmental Lecturer at various Higher Education establishments and taught students how to carry out surveys. Kevin worked for a number of ecological consultancies including Penny Anderson Associates before setting up his own company.

¹ CIEEM (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine. Version 1.1.

² CIEEM (2017) Guidelines for Ecological Report Writing

3. CONSULTATION

- 3.1 A request for pre-application advice from Rushcliffe Borough Council in early 2021 was submitted. Environmental Sustainability Officer Paul Phillips provided a formal response on 17th March 2021. Mr. Phillips carefully considered the proposals in line with the Council's policy on full pre-application advice, and in doing so sought the advice of relevant internal and external consultees. In terms of biodiversity there are a number of features that have been considered.

"CDP Policy 41 states that proposals for new development will not be permitted if significant harm to biodiversity or geodiversity resulting from the development cannot be avoided, or appropriately mitigated, or, as a last resort, compensated for."

- 3.2 The Council pointed out that:

"There is one Site of Special Scientific Interest (SSSI) within 5km, namely Orston Plaster Pits SSSI, located approximately 2.5km south of the Proposed Development Site, however consideration of Local Wildlife Sites has not been supplied, but it appears the nearest are over 2km away (Barleyholme Wood; River Smite and Orston Horse Pasture) and are therefore unlikely to be impacted."

"I note the applicant has stated that UK Habitats Classification surveys and protected species surveys are planned. If there is an indication of negative impact then further surveys are likely to be required. Ecological surveys must be undertaken by a suitably qualified and experienced ecologist at an appropriate time of the year."

"PV solar farms, have the potential to negatively impact on flying species, with some reports indicating they mistake them for water bodies. Additionally shade from panels can prevent ground flora. However other reports have demonstrated a well-designed PV solar farm can provide many opportunities for enhancement if distances between panels allow the use of wildflower rich grassland underplanting and borders to fields and potential to support ground-nesting birds and brown hare's."

"A biodiversity net gain assessment, with a demonstrated gain should be provided as recommended by CIRIA (2019) Biodiversity Net Gain – Principles and Guidance for UK construction and developments, with the gains implemented and maintained in the long term and agreed by the local planning authority."

"An ecological construction method statement incorporating reasonable avoidance measures (RAMs), should be agreed and implemented, including the good practise methods below."

Other recommendations include:

"The use of external lighting (during construction and post construction) should be appropriate to avoid adverse impacts on bat populations, I note the document provided state "The design would try and minimise any lighting"

New wildlife habitats should be created where appropriate, including wildflower rich neutral grassland, hedgerows, trees and woodland, wetlands and ponds.

Any existing hedgerow / trees should be retained and enhanced, any hedge / trees removed should be replaced. Any boundary habitats should be retained and enhanced.

Where possible new trees / hedges should be planted with native species (preferably of local provenance and including fruiting species).

Sustainable Urban Drainage schemes (SUDs) where required should be designed to provide ecological benefit.”

Good practise construction methods should be adopted including:

“- Advising all workers of the potential for protected species. If protected species are found during works, work should cease until a suitable qualified ecologist has been consulted.”

- No works or storage of materials or vehicle movements should be carried out in or immediately adjacent to ecological mitigation areas or sensitive areas (including ditches).

- All work impacting on vegetation or buildings used by nesting birds should avoid the active bird nesting season, if this is not possible a search of the impacted areas should be carried out by a suitably competent person for nests immediately prior to the commencement of works. If any nests are found work should not commence until a suitably qualified ecologist has been consulted.

- Best practice should be followed during building work to ensure trenches dug during works activities that are left open overnight should be left with a sloping end or ramp to allow animal that may fall in to escape. Also, any pipes over 200mm in diameter should be capped off at night to prevent animals entering. Materials such as netting and cutting tools should not be left in the works area where they might entangle or injure animals. No stockpiles of vegetation should be left overnight and if they are left then they should be dismantled by hand prior to removal. Night working should be avoided.

- Root protection zones should be established around retained trees / hedgerows so that storage of materials and vehicles, the movement of vehicles and works are not carried out within these zones.

- Pollution prevention measures should be adopted.”

“It is recommended that consideration should be given to management of waste during and post construction and the use of recycled materials and sustainable building methods.”

3.3 The ecology points arising from the consultation have been addressed as follows:

- Consideration of the biodiversity features identified above;
- Design of layout to accord with recommendations for Biodiversity Opportunity Areas,

- Production of BMP (**Technical Appendix 2.2**) to enable net gains and show that the proposal would improve the quantity, quality and connectivity of woodland, hedgerow and grassland;
 - Assessment of net gains in **Technical Appendix 2.2: Net Gain Assessment**;
 - Production of Outline Environmental Construction Method Statement (see **Volume 3, Technical Appendix 8: OCEMP**) covering the points requested;
 - Development of a wildlife-sensitive lighting scheme to avoid adverse impacts on bats;
 - Creation of new wildflower rich neutral grassland, locally-sourced native hedgerow and tree and woodland habitats, proposed in the BMP (**Technical Appendix 2.2**) and LEMP (**Figure 1.14, Technical Appendix 1, Volume 3**);
 - Design of Sustainable Urban Drainage schemes (“SUDs”) to provide ecological benefit; and
 - Provision of Bird Hazard Management Plan (**Appendix 2.3**).
- 3.4 Nottinghamshire Wildlife Trust were consulted, Ben Driver (Senior Conservation officer (South)) recommended that the following documents should be used in order to produce a robust ecological assessment of the Proposed Development:
- Nottinghamshire Biodiversity Action Plan LBAP – Nottinghamshire Biodiversity Action Group (nottsbag.org.uk)
 - Rushcliffe Biodiversity Opportunity Map (BOM) https://nottsbag.org.uk/wp-content/uploads/2021/01/Rushcliffe-BOM-Report-2015_V3.pdf
 - Rushcliffe Nature Conservation Strategy Rushcliffe Nature Conservation Strategy - Rushcliffe Borough Council

4. LEGISLATION AND PLANNING POLICY CONTEXT

International Legislation

4.1 International legislation relevant to the Proposed Development is outlined within **Table 4-1** below.

Table 4–1: Relevant International Legislation

Directive	Main Provisions
Bern Convention	The Bern Convention ³ came into force in 1982, with the principal aims to ensure conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix III.
Bonn Convention	The Bonn Convention ⁴ came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix I of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix II), and by undertaking cooperative research activities.
Ramsar Convention	The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) ⁵ came into force in 1975. It is an international treaty for the conservation and wise use of wetlands.

National Legislation

Wildlife & Countryside Act 1981 / Conservation of Habitats and Species Regulations 2017

4.2 The Wildlife and Countryside Act 1981⁶ (as amended), formerly used to implement EU legislation, has more recently been strengthened by the Conservation of Habitats and

³ Available at: <https://www.coe.int/en/web/bern-convention>

⁴ Available at: <https://www.cms.int/en/convention-text>

⁵ Available at: <https://www.ramsar.org/about-the-convention-on-wetlands-0>

⁶ Parliament of the United Kingdom, 1981. Wildlife and Countryside Act 1981 (as amended). Available at: <http://www.legislation.gov.uk/ukpga/1981/69>

Species Regulations 2017. This consolidates and amends existing national legislation, making it an offence to:

- *“Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting*
- *Intentionally kill, injure or take any wild animal listed under Schedule 5 of the Act; intentionally damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 of the Act; disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection*
- *Pick or uproot any wild plant listed under Schedule 8 of the Act.”*

Environment Act 2021

- 4.3 This Act introduces a legally binding target on species abundance for 2030, aiming to reverse declines of key wild species. It creates a requirement for 10% net biodiversity gain as part of development projects, and for a series of Nature Recovery Strategies to cover England. The new Act makes minor amendments to the 1981 Act and 2017 Regulations (see above). It expands measures taken against illegal deforestation, enshrines a legal duty for water companies to reduce adverse impacts from storm overflow discharge, and gives statutory effect to conservation covenants. To assist in the above, it also creates an Office for Environmental Protection.
- 4.4 The Environment Act supersedes the former UK Post-2010 Biodiversity Framework and UK Biodiversity Action Plan (“BAP”). While certain provisions of the Act are only likely to enter force in 2022 and 2023, some are already current. The BMP and Net Gain Assessment at **Appendices 2.1 and 2.2** aim to demonstrate how the Proposed Development will assist in achieving the Act’s net gain targets.

Natural Environment and Rural Communities Act 2006

- 4.5 The Natural Environment and Rural Communities (“NERC”) Act⁷ places a duty on planning authorities to have due regard for biodiversity and nature conservation during operations, ensuring that biodiversity is a key consideration in the local planning process.
- 4.6 Section 41 of the NERC Act lists a number of habitats and species of principal importance for the conservation of biodiversity in England.

⁷ Available at <https://www.legislation.gov.uk/ukpga/2006/16/contents>

Hedgerows Regulations 1997

- 4.7 Under the Hedgerows Regulations 1997, certain hedgerows⁸ are classified as 'Important' based on factors such as the presence of a certain number of woody native plant species. Subject to certain exceptions, the removal of an 'Important' hedgerow is prohibited.
- 4.8 'Removal' includes uprooting all or part of the hedgerow, as well as any acts that could lead to the hedgerow's destruction. Removal is permitted under Section 6 of the Act under a small number of exemptions, including:

"for carrying out development for which planning permission has been granted or is deemed to have been granted, except development for which permission is granted by article 3 of the Town and Country Planning General Permitted Development Order 1995 in respect of development of any of the descriptions contained in Schedule 2 to that Order other than Parts 11 (development under local or private Acts or orders) and 30 (toll road facilities)."

Protection of Badgers Act

- 4.9 The Protection of Badgers Act 1992⁹ makes it illegal to kill, injure or take a badger or to intentionally or recklessly interfere with a badger sett. Sett interference includes disturbing badgers whilst they are occupying a sett or obstructing access to it.

Planning Policy

National Planning Policy Framework (2021)

- 4.10 The National Planning Policy Framework (NPPF)¹⁰ sets out the government planning policies for England and how they should be applied. With regards to ecology and biodiversity, Chapter 15 "Conserving and Enhancing the Natural Environment", paragraph 174, states that planning policies should:
- Minimise impacts on, and provide net gains in, biodiversity.
 - Recognise the wider benefits of natural capital and ecosystem services.
- 4.11 Under these aims, paragraph 175 stresses the need to plan for natural capital at a catchment or landscape scale, across local authority boundaries. Paragraph 180 sets out the principles that local planning authorities should apply when determining

⁸ Available at <https://www.legislation.gov.uk/uksi/1997/1160/contents/made>

⁹ Parliament of the United Kingdom (1992). Protection of Badgers Act 1992. Available at <http://www.legislation.gov.uk/ukpga/1992/51/contents>

¹⁰ Department for Housing, Communities and Local Government (2021). National Planning Policy Framework

planning applications. These include refusing planning permission if significant harm cannot be avoided, adequately mitigated or compensated, and requiring design to incorporate biodiversity improvement opportunities in and around developments (especially where this can secure measurable net gains for biodiversity).

Biodiversity Action Plans

- 4.12 The UK Biodiversity Action Plan (“UKBAP”; 1994)¹¹ was organised to fulfil the Rio Convention on Biological Diversity in 1992, to which the UK is a signatory. Lists of national Priority species and habitats were produced, with all having specific action plans prepared to define measures required to ensure their conservation.
- 4.13 While the UKBAP has since been superseded by the Environment Act (see above), regional and local BAPs have been produced and remain in place. The Nottinghamshire BAP¹² contains a list of Priority habitats including, among others, arable fields, cereal field margins, ditches, mixed ash dominated woodland, oak-birch woodland and planted coniferous woodland.
- 4.14 A large number of Priority species are also listed, including 272 species of beetle alone. The Nottinghamshire Priority species most relevant to the habitats within the Application Site and/or the local area of the Application Site include great crested newt, skylark, meadow pipit, linnet, stock dove, corn bunting, yellowhammer, reed bunting, kestrel, red kite, house sparrow, grey partridge, dunnock, bullfinch, turtle dove, song thrush, mistle thrush, barn owl, lapwing, marbled white butterfly, common hawk, dragonfly, goatcheese webcap and snakeskin brownie mushrooms, brown hare, hedgehog, dormouse, noctule, Leisler’s bat, soprano pipistrelle, otter, black mustard, wild cabbage, rye brome, cornflower, chamomile, Good-King-Henry and corn parsley.

Rushcliffe Local Plan

- 4.15 The *Rushcliffe Local Plan Part 1: Core Strategy*¹³ was adopted in December 2014 and is the current Local Plan for the borough in which the Application Site falls. In support of the Core Strategy, development management policies with additional details are set out in the *Local Plan Part 2: Land and Planning Policies*¹⁴, adopted in October 2019. The relevant policies set out within the Plan include the following ecological provisions.

¹¹ Available at <https://data.jncc.gov.uk/data/cb0ef1c9-2325-4d17-9f87-a5c84fe400bd/UKBAP-BiodiversityActionPlan-1994.pdf>

¹² Available at: <https://nottsba.gov.uk/lbap/lbap-introduction-and-sections-1-to-6/>

¹³ [9 Local Plan Part 1 Rushcliffe Core Strategy.pdf](#)

¹⁴ [Rushcliffe LP Part 2 Adoption version.pdf](#)

Core Strategy Policy 16: Green Infrastructure, Landscape, Parks and Open Spaces

- 4.16 Policy 16 stresses the importance of green infrastructure and open space in the borough. Among other points, it notes that developments will only be approved where *“existing and potential Green Infrastructure corridors and assets are protected and enhanced”*.

Core Strategy Policy 17: Biodiversity

- 4.17 Policy 17 has been put in place to achieve biodiversity net gain over the Core Strategy period. The Council aim to do this by:

“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.”

- 4.18 The policy also stipulates:

“Designated national and local sites of biological [...] 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.”

“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.”

Local Plan Part 2 Policy 16: Renewable Energy

- 4.19 This policy states that *“Proposals for renewable energy schemes will be granted planning permission where they are acceptable in terms of [various areas including]:*

c) ecology and biodiversity”.

Local Plan Part 2 Policy 34: Green Infrastructure and Open Space Assets

4.20 Policy 34 states:

“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.”

Local Plan Part 2 Policy 36: Designated Nature Conservation Sites

4.21 This policy covers the criteria for accepting or rejecting proposals that are likely to have a direct or indirect adverse effect on nationally and locally designated sites.

Local Plan Part 2 Policy 37: Trees and Woodlands

4.22 This policy covers adverse impacts on mature trees and justified replacement of trees. Provisions include:

“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.

“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.”

Local Plan Part 2 Policy 38: Non-Designated Biodiversity Assets and the Wider Ecological Network.

4.23 This policy states:

“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”.

4.24 Policy 38 also specifies design principles for development within Biodiversity Opportunity Areas.

4.25 The Ecological Assessment of the Proposed Development will consider each of the policies outlined above.

Guidance Documents

BS 42020:2013 Biodiversity

- 4.26 The British Standards Institute has published *BS 42020:2013 Biodiversity*¹⁵: *Code of Practice for Planning and Development* which offers a coherent methodology for biodiversity management. This document seeks to promote transparency and consistency in the quality and appropriateness of ecological information submitted with planning applications and applications for other regulatory approvals.

CIEEM Guidelines

- 4.27 CIEEM have produced guidance on Ecological Impact Assessment¹⁶ and Ecological Report Writing¹⁷.
- 4.28 Ecological Impact Assessment is a process of identifying, quantifying and evaluating potential effects from certain activities on habitats, species and ecosystems. Assessing activities related to development falls within this remit. CIEEM guidelines cover scoping the matters to be addressed, establishing the baseline, identifying ecological features of particular importance, assessing impacts on these (considering also mitigation, compensation and enhancement) and explaining the legal and policy implications.
- 4.29 CIEEM's report writing guidance covers a broader range of ecological report types. The guidance covers the structure and language appropriate to professional reporting. It also emphasises the importance of reports being in proportion to the predicted risk to ecology.
- 4.30 Whilst this Ecological Assessment is not a full Ecological Impact Assessment, CIEEM guidance for EclA and report writing still contains relevant elements that are applicable to this report.
- 4.31 Ecologists involved in this Ecological Assessment have followed CIEEM's Ecological Impact Assessment checklist¹⁸.

Natural England Guidelines

¹⁵ BS 42020:2013 Biodiversity. Code of Practice for Planning and Development

¹⁶ CIEEM (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine. Version 1.1.

¹⁷ CIEEM (2017) Guidelines for Ecological Report Writing

¹⁸ <https://cieem.net/wp-content/uploads/2019/11/EclA-Checklist.pdf>

- 4.32 Natural England have published standing advice for various protected species and habitats in England. The advice covers accepted and recommended survey, avoidance, mitigation and compensation standards for development affecting these ecological features. These advice documents have been borne in mind where relevant to the Proposed Development.

5. METHODOLOGY

Zone of Influence

- 5.1 The Zone of Influence (“Zoi”) is the area encompassing all potential adverse ecological effects from a development and is informed by the habitats present within the site and the nature of the development.
- 5.2 Due to the scale and nature of the Proposed Development at Longhedge, the Zoi outlined in **Table 5-1 below** is considered appropriate for the gathering of information to inform the desk study.

Table 5-1: Zone of Influence for Ecological Features

ECOLOGICAL FEATURE	Zone of Influence (Zoi)
International statutory designations	15km (or beyond in the case of significant hydrological influence)
National statutory designations	5km
Non-statutory designations	2km
Protected and Priority species	2km
Extended Phase 1 & UK Habitats Classification survey	50m

- 5.1 International statutory designations have been assigned a 15km Zoi and in some cases where a hydrological link exists the Zoi can be greater. International statutory designations have been assigned a larger Zoi than other ecological features due to ecological importance. The 15km threshold has been set based on guidance used widely in the UK and Ireland for the related procedure of appropriate assessment¹⁹.

, , However, owing to the benign nature of the energy generation installations, in ecology terms, adverse effects beyond the Zoi for each ecological feature listed in Table 5-1 are considered likely to be negligible. Desk Study

- 5.2 A desk-based assessment was undertaken to collate available ecological information for the Application Site and the surrounding area. This included a search of international statutory designated sites within a 15km radius of the Proposed Development and national statutory designated sites within a 5km radius of the Proposed Development, including: Special Protection Areas (“SPAs”), Special Areas of

¹⁹ Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants & Land Use Consultants (2006) Appropriate Assessment of Plans.

Conservation (“SACs”), Ramsar Sites, National Nature Reserves (NNRs) and Local Nature Reserves (“LNRs”). The description of each of these sites was obtained utilising the Multi-Agency Geographic Information for the Countryside (“MAGIC”) website²⁰.

- 5.3 Nottinghamshire Biological and Geological Records Centre (“NBGRC”) provided information regarding protected/Priority species within 2km of the Application Site boundary. During design development, the Application Site boundary has reduced since the records request was sent to NBGRC. However, given that circa 654 records were received for an area greater than required, it is considered that a robust level of baseline information has been gathered to inform the desk-based study.

Field Surveys

Habitat survey

- 5.4 Due to alterations of the Proposed Development design, a change to the Proposed Development boundary occurred during the pre-application process.
- 5.5 An Extended Phase 1 habitat survey of the Application Site was undertaken on 24th April 2021 by Kevin Johnson BSc PgD PGCE MCIEEM. In the months following this survey, an amendment to the Proposed Development boundary was made.. The additional areas within the new Proposed Development boundary were surveyed using the UK Habitats Classification system during January and July of 2022. For consistency, the results from the initial survey were translated from Extended Phase 1 to the UK Habitats Classification system. Any conversions which were not deemed accurate were double checked for accuracy during the July 2022 UK Habitats survey. The Ecological Survey Area (“ESA”) covered all land within the current Application Site and lands surrounding the Application Site boundary.
- 5.6 Survey work was carried out in accordance with the Joint Nature Conservation Committee (JNCC) guidelines (2010)²¹ in order to produce an extended phase 1 habitat map. This habitat classification method provides a standardised system to record and map semi-natural vegetation and other wildlife habitats in order to assess their potential importance for nature conservation.

Habitat Condition Survey

²⁰ Available at - <https://magic.defra.gov.uk/>

²¹ JNCC (2010). Handbook for UK Habitats Classification survey

5.7 The condition of the different habitats within the site was assessed in accordance with the Biodiversity Metric Gain 3.0 Technical Supplement²². Assessment was performed by the UK Habitats Classification surveyor - Thomas Hill in January and July 2022.

Species Scoping Survey

5.8 A species scoping survey was carried out to identify the presence of protected species, or the potential of the Application Site to support protected species. The aim of the survey was to provide an overview of the Application Site and determine any further survey work required. **Table 5-2** below outlines the relevant habitat and field signs that indicate the potential presence of protected or Priority species within the ESA.

Table 5-2: Indicative Habitats and Field Signs of Protected Species

Taxon	Indicative Habitat(s)	Field Signs (In Addition to Sightings)
Bats	Roosts – trees, buildings, bridges, caves, etc. Foraging areas – e.g. parkland, water bodies, streams, wetlands, woodland edges and hedgerow. Commuting routes – linear features (e.g.) hedgerows, water courses, tree lines).	In or on potential roost sites: droppings stuck to walls, urine spotting in roof spaces, oil from fur staining round roost entrances, feeding remains (e.g. moth wings under a feeding perch).
Badger	Found in most rural and many urban habitats.	Excavations and tracks: sett entrances, latrines, hairs, well-worn paths, prints, scratch marks on trees.
Otter	Watercourses.	Holts (or dens), prints, spraints (droppings), slide marks into watercourses, feeding signs (e.g. fish bones).
Birds	Trees, scrub, hedgerow, field margins, grassland, buildings.	Nests, droppings below nest sites (especially in buildings of trees), tree holes.
Great Crested Newt	Ponds during breeding season (spring). Can also be found in woodland, hedgerows, scrub, marshes and tussocky grassland.	Presence of eggs usually found attached to underside of leaf of aquatic plants. Cream yolk and translucent ‘egg white’.

²² Available at: <http://publications.naturalengland.org.uk/publication/5850908674228224>

Taxon	Indicative Habitat(s)	Field Signs (In Addition to Sightings)
Common reptiles	Rough grassland, log and rubble piles.	Sloughed skins.

Weather Conditions

5.9 The weather conditions at the time of the UK Habitats Classification survey can be found in **Table 5-3** below.

Table 5-3: Weather conditions at the time of survey

Survey date	Air Temperature (°C)	Wind Speed (Beaufort Scale)	Cloud Cover (Oktas)	Precipitation
11/01/2022	9	3	3	Light Rain
24/04/2022	11-9 (morning to late afternoon)	4	4	Light Rain
22/07/2022	14-15	2	6	Light Rain

HSI Assessment

5.10 The Survey Area was visited in late April to conduct HSI assessment of the three accessible offsite Ponds, see **Appendix A – Figure 2.3**. At the time of the survey, a 250m radius was followed and contained 3 ponds. Methods followed the Amphibian and Reptile Groups of the United Kingdom’s *Advice Note 5: Great Crested Newt Habitat Suitability Index*, an adaptation of the original HSI²³.

5.11 The HSI assessment includes field assessment of several variables of the pond and surrounding terrestrial habitat, along with a desk-based assessment that covers other relevant factors relating to the pond. The variables are:

- Geographic location
- Pond area (size)
- Permanence
- Water quality

²³ Oldham R.S., Keeble J., 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.

- Shade
- Waterfowl presence
- Fish presence
- Pond count within 1km
- Terrestrial habitat quality
- Macrophytes present.

5.12 The HSI is a numerical index between 0 and 1, wherein a score of 1 represents optimal habitat for GCN. Each of the above variables is assigned a numerical figure, and these are then used to calculate the tenth root of the product.

5.13 The calculated HSI score is used to define the habitat suitability of the pond on a categorical scale. It should, however, be noted that the system is not precise enough to allow the conclusion that a pond with a high score will definitely support GCN whilst those with a low score indicate that the pond will not support GCN.

5.14 A breakdown of HSI scoring can be seen in **Table 5-4** below.

Table 5-4 Relation between HSI and Pond Suitability

HSI SCORE	POND SUITABILITY FOR GCN
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

5.15 The results of the survey concluded that all three ponds returned a HSI score of 0.56 which classifies each pond as **‘below average’** suitability for GCN. On this basis a GCN survey is not required.

Limitations

5.16 Results of the assessment undertaken by Neo Environmental are representative of the time that surveying was undertaken.

5.17 The absence of records returned during the data search does not necessarily indicate absence of a species or habitat from an area; rather, that these have not been recorded or are perhaps under-recorded within the search area.

- 5.18 An Extended Phase 1 and UK Habitats Classification survey does not aim to produce a full botanical or faunal species list or provide a full protected species survey but enables competent ecologists to ascertain an understanding of the ecology of the site in order to carry out a sufficient assessment of the Proposed Development.
- 5.19 At the time of the survey, access was only permitted within the landownership boundary. Parts of the adjacent land did fall within the ownership boundary. However, areas of land in the ESA that were not within the landownership boundary were viewed from field boundaries, with the use of binoculars, where needed. Given the habitats present across the landscape, it is considered that the limited access to some areas of land directly adjacent to the Application Site has not impacted significantly upon the findings of the habitat or species scoping surveys.

Adopted Design Principles

- 2.3. Measures **incorporated** into the Proposed Development design include the following:
- Main drainage ditch buffer of 8m (No waterways seem to be defined as watercourse within the site)
 - 5m buffer from hedgerows
 - 10m OHL corridor
 - Tree buffers
 - 10m woodland buffer
 - 10cm gaps at the bottom of security fencing.

Impact Assessment

- 5.20 The impact assessment process involves:
- identifying and characterising impacts and their effects;
 - incorporating measures to avoid and mitigate negative impacts and effects;
 - assessing the significance of any residual effects after mitigation;
 - identifying appropriate compensation measures to offset significant residual effects;
 - identifying opportunities for ecological enhancement.
- 5.21 The terms 'impact' and 'effect' are used commonly throughout ecological reports. Impact is defined as a change experienced by an ecological feature, while effect is

defined as the outcome to an ecological feature from an impact. Impacts and effects can be positive, adverse or neutral.

- 5.22 Assessment of potential impacts and effects needs to consider on-site, adjacent and more distant ecological features, including habitats, species and statutory and ecological designated sites.
- 5.23 This Ecological Assessment has been concluded by experienced ecologists following CIEEM guidance²⁴.

Assessing the Magnitude of Change

- 5.24 Determining the magnitude of any likely effects requires an understanding of how the ecological features are likely to respond to the Proposed Development. This change can occur during construction or operation of the Proposed Development.
- 5.25 Effect magnitude refers to changes in the extent and integrity of an ecological receptor. A definition of ecological 'integrity' relevant across the UK states that:

"The integrity of a site is the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified".

- 5.26 Effects can be adverse, neutral or positive. Five levels of spatial sensitivity (international, national, regional, local and negligible) and five levels of temporal effect magnitude (very high, high, medium, low and negligible)²⁵ have been used.

²⁴ CIEEM (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine. Version 1.1.

²⁵ Neo Environmental (2021) Technical Appendix 2: Ecological Impact Assessment. Derril Water Solar Farm. Available at: https://publicaccess.torridge.gov.uk/online-applications/files/9A8592878D4FC23BB22044E078E568E6/pdf/1_0249_2021_FULM-ECOLOGICAL_IMPACT_ASSESSMENT-1144659.pdf

6. BASELINE CONDITIONS

Desk-based Study

Designated Sites

- 6.1 The Application Site does not lie within any statutory designated environmental sites.
- 6.2 Within 15km of the Application Site boundary there are no internationally designated sites. There is one Site of Special Scientific Interest (“SSSIs”) within 5km of the Application Site, the Orston Plaster Pits SSSI. No Local Nature Reserves (“LNRs”) and National Nature Reserve (“NNR”) are located within 5km of the Proposed Development boundary.
- 6.3 Following close inspection of the Local Wildlife Site (LWS) map provided by Nottingham City Council (see Appendix 2A – Figure 2.4), three non-statutory designated environmental sites are present within 2km of the Application Site. These are the Barleyholme Wood LWS, Orston House Pasture LWS and River Smite LWS. Each of these sites are detailed in **Table 6-1** below.
- 6.4 The Orston Plaster Pits SSSI is detailed within **Appendix 2A, Figure 2.1**. The closest non-statutory sites (LWS) to the Application Site are shown in **Appendix 2A, Figure 2.4**. The site descriptions and qualifying features are derived from Nottinghamshire Biological and Geological Record Centre (NBGRC) data search and the original site citations available from JNCC²⁶ and MAGIC²⁷.

Table 6-1: Designated Sites

Site Code	Site Name	Qualifying Features	Distance & Direction	Potential Connectivity with the Application Site
SSSI (5km)				
SK763402	Orston Plaster Pits SSSI	Pepper (Saxifrage Silaum silaus) Fairy Flax (Linum catharticum) Upright Brome (Bromopsis erecta)	2.53km south	None

²⁶ Available at <https://sac.jncc.gov.uk/>

²⁷ Available at <https://magic.defra.gov.uk/magicmap.aspx>

Site Code	Site Name	Qualifying Features	Distance & Direction	Potential Connectivity with the Application Site
		Bee Orchid (<i>Ophrys apifera</i>)		
LWS (2km)				
2/956	Barleyholme Wood	Wych Elm (<i>Ulmus glabra</i>) Pedunculate Oak (<i>Quercus robur</i>) Holly (<i>Ilex aquifolium</i>) Field Maple (<i>Acer campestre</i>) Giant Bellflower (<i>Campanula latifolia</i>) Wild Privet (<i>Ligustrum vulgare</i>) Wood Forget-me-not (<i>Myosotis sylvatica</i>)	1.75km northwest	None
3/342	Orston Horse Pasture	False Oat-grass (<i>Arrhenatherum elatius</i>) Common Birds-foot-trefoil (<i>Lotus corniculatus</i>) Rough Hawkbit (<i>Leontodon hispidus</i>) Red Clover (<i>Trifolium pratense</i>) Lady's Bedstraw (<i>Galium verum</i>)	1.54km southeast	None
2/900	River Smite	Great Willowherb (<i>Epilobium hirsutum</i>) Hemlock (<i>Conium maculatum</i>) Creeping Thistle (<i>Cirsium arvense</i>) Branched Bur-reed (<i>Sparganium erectum</i>) Reed Sweet-grass (<i>Glyceria maxima</i>) Reed Canary-grass (<i>Phalaris arundinacea</i>) Pink Water-speedwell (<i>Veronica catenata</i>) and Flowering Rush (<i>Butomus umbellatus</i>). Fennel Pondweed (<i>Potamogeton pectinatus</i>) Perfoliate Pondweed (<i>P.perfoliatus</i>)	1.52km southeast	Indirect hydrological connectivity (surface waters)

6.5 **Table 6-2** below summarises the most relevant protected, Priority and invasive non-native species recorded within the search area, and their potential to be present within the Application Site.

Table 6-2: Summary of Biological Records

Species	No. of Records	Field Signs or Sightings within ESA	Potential for Species within Application Site
MAMMALS			
American Mink (<i>Neovison vison</i>)	4	No	Yes
Badger (<i>Meles meles</i>)	18	No	Yes
Hedgehog (<i>Erinaceus europaeus</i>)	9	No	Yes
Harvest Mouse (<i>Micromys minutus</i>)	9	No	Yes
Barbastelle Bat (<i>Barbastella barbastellus</i>)	7	No	Yes
Brown Long-eared Bat (<i>Plecotus auratus</i>)	26	No	Yes
Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)	125	No	Yes
Myotis Bats (<i>Myotis</i> sp.)	9	No	Yes
Noctule Bat (<i>Nyctalus noctula</i>)	32	No	Yes
Pipistrellus Bat (<i>Pipistrellus</i> sp.)	24	No	Yes
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	28	No	Yes
Whiskered Bat (<i>Myotis mystacinus</i>)	4	No	Yes
Roe Deer (<i>Capreolus capreolus</i>)	1	Yes	Yes
Otter (<i>Lutra lutra</i>)	18	No	Yes
Brown Hare (<i>Lepus europaeus</i>)	16	Yes	Yes
HERPTILES			

Species	No. of Records	Field Signs or Sightings within ESA	Potential for Species within Application Site
Great Crested Newt (<i>Triturus cristatus</i>)	11	No	Yes
Common Frog (<i>ana temporaria</i>)	16	No	Yes
Common Toad (<i>Bufo bufo</i>)	13	No	Yes
Grass Snake (<i>Natrix Helvetica</i>)	12	No	Yes
Smooth Newt (<i>Lissotriton vulgaris</i>)	11	No	Yes
BIRDS			
Barn Owl (<i>Tyto alba</i>)	6	No	Yes
Barn Swallow (<i>Hirundo Rustica</i>)	4	No	Yes
Bullfinch (<i>Pyrrhula pyrrhula</i>)	5	No	Yes
Coal Tit (<i>Periparus ater</i>)	2	No	Yes
Common Buzzard (<i>Buteo buteo</i>)	4	No	Yes
Common Crane (<i>Grus grus</i>)	1	No	Yes
Common Kingfisher (<i>Alcedo Atthis</i>)	6	No	Yes
Common Pheasant (<i>Phasianus colchicus</i>)	1	Yes	Yes
Common Snipe (<i>Gallinago gallinago</i>)	1	No	Yes
Common Swift (<i>Apus apus</i>)	1	No	Yes
Dunlin (<i>Calidris alpina</i>)	1	No	Yes
Fieldfare (<i>Turdus pilaris</i>)	9	No	Yes
Goldcrest (<i>Regulus regulus</i>)	3	No	Yes
Great Spotted Woodpecker (<i>Dendrocopus major</i>)	6	Yes	Yes
Great White Egret (<i>Ardea alba</i>)	1	No	Yes

Species	No. of Records	Field Signs or Sightings within ESA	Potential for Species within Application Site
Green Woodpecker (<i>Picus viridis</i>)	5	No	Yes
Grey Heron (<i>Ardea cinerea</i>)	1	No	Yes
Grey Partridge (<i>Perdix perdix</i>)	3	No	Yes
Grey Wagtail (<i>Motacilla cinerea Tunstall</i>)	1	No	Yes
House Martin (<i>Delichon urbicum</i>)	3	No	Yes
House Sparrow (<i>Passer domesticus</i>)	3	No	Yes
Common Kestrel (<i>Falco tinnunculus</i>)	7	No	Yes
Northern Lapwing (<i>Vanellus vanellus</i>)	3	No	Yes
Lesser Redpoll (<i>Acanthis cabaret</i>)	2	No	Yes
Lesser Whitethroat (<i>Sylvia curruca</i>)	3	No	Yes
Linnet (<i>Linaria cannabina</i>)	1	No	Yes
Little Egret (<i>Egretta garzetta</i>)	5	No	Yes
Little Owl (<i>Athene noctua</i>)	1	No	Yes
Merlin (<i>Falco columbarius</i>)	1	No	Yes
Mistle Thrush (<i>Turdus viscivorus</i>)	2	No	Yes
Oystercatcher (<i>Haematopus Ostralegus</i>)	1	No	Yes
Peregrine Falcon (<i>Falco peregrinus</i>)	3	No	Yes
Pied Wagtail (<i>Motacilla Alba</i>)	1	No	Yes
Quail (<i>Coturnix Coturnix</i>)	1	No	Yes
Raven (<i>Corvus corax</i>)	2	No	Yes
Red Kite (<i>Milvus milvus</i>)	12	No	Yes

Species	No. of Records	Field Signs or Sightings within ESA	Potential for Species within Application Site
Red-legged Partridge (<i>Alectoris rufa</i>)	4	No	Yes
Redwing (<i>Turdus Iliacus</i>)	2	No	Yes
Reed Bunting (<i>Emberiza Schoeniclus</i>)	5	No	Yes
Reed Warbler (<i>Acrocephalus arundinaceus</i>)	2	No	Yes
Ringed Plover (<i>Charadrius Hiaticula</i>)	1	No	Yes
Rook (<i>Corvus frugilegus</i>)	1	No	Yes
Short-eared Owl (<i>Asio flammeus</i>)	1	No	Yes
Siskin (<i>Spinus spinus</i>)	2	No	Yes
Sky Lark (<i>Alauda Arvensis</i>)	6	Yes	Yes
Song Thrush (<i>Turdus Philomelos</i>)	2	No	Yes
Sparrowhawk (<i>Accipiter nisus</i>)	4	No	Yes
Spotted Flycatcher (<i>Muscicapa striata</i>)	1	No	Yes
Tawny Owl (<i>Strix aluco</i>)	1	No	Yes
Tree Sparrow (<i>Passer Montanus</i>)	7	No	Yes
Turtle Dove (<i>Streptopelia Turtur</i>)	4	No	Yes
Waxwing (<i>Bombycilla garrulus</i>)	1	No	Yes
Whinchat (<i>Saxicola rubetra</i>)	1	No	Yes
Willow Warbler (<i>Phylloscopus Trochilus</i>)	1	No	Yes
Yellow Wagtail (<i>Motacilla flava flavissima</i>)	1	No	Yes

Species	No. of Records	Field Signs or Sightings within ESA	Potential for Species within Application Site
Yellowhammer (<i>Emberiza citronella</i>)	1	No	Yes
Fish			
Bullhead (<i>Cottus gobio</i>)	6	No	Yes
European Eel (<i>Anguilla Anguilla</i>)	10	No	Yes
Spined Loach (<i>Cobitis taenia</i>)	4	No	Yes
FLORA			
Giant Hogweed (<i>Heracleum mantegazzianum</i>)	1	No	Yes
Corn flower (<i>Centaurea cyanus</i>)	3	No	Yes
Dwarf Thistle (<i>Cirsium acaule</i>)	2	No	Yes
Dwarf Spurge (<i>Euphorbia exigua</i>)	2	No	Yes
Various-leaved Fescue (<i>Festuca heterophylla</i>)	2	No	Yes
Opposite-leaved Pondweed (<i>Groenlandia densa</i>)	3	No	Yes
Tutsan (<i>Hypericum androsaemum</i>)	2	No	Yes
Round-fruited Rush (<i>Juncus compressus</i>)	3	No	Yes
Corn gromwell (<i>Lithospermum arvense</i>)	2	No	Yes
Yellow-juiced poppy (<i>Papaver lecoquii</i>)	1	No	Yes
Willow-leaved Pondweed (<i>Potamogeton x salicifolius</i>)	4	No	Yes
Large-leaved Lime (<i>Tilia platyphyllos</i>)	7	No	Yes
Common columbine (<i>Aquilegia vulgaris</i>)	2	No	Yes

Species	No. of Records	Field Signs or Sightings within ESA	Potential for Species within Application Site
Houndstongue (<i>Cynoglossum officinale</i>)	1	No	Yes
Invertebrates			
Six-belted Clearwing (<i>Bembecia ichneumoniformis</i>)	1	No	Yes
Brown Argus (<i>Aricia agestis</i>)	6	No	Yes
Common Blue (<i>Polyommatus icarus</i>)	1	No	Yes
Dark Green Fritillary (<i>Speyeria aglaja</i>)	2	No	Yes
Dingy Skipper (<i>Erynnis tages</i>)	2	No	Yes
Grizzled Skipper (<i>Pyrgus malvae</i>)	22	No	Yes
Silver-washed Fritillary (<i>Argynnis paphia</i>)	11	No	Yes
Small Heath (<i>Coenonympha pamphilus</i>)	1	No	Yes

Habitat Survey

6.6 An Extended Phase 1 habitat survey was conducted in April 2021 by a subcontracted ecologist named Kevin Johnson MCIEEM. In addition to this, UK Habitat Classification surveys were undertaken in January and July 2022 by Thomas Hill MEnv. For consistency, the results from the initial survey were translated from Extended Phase 1 to the UK Habitats Classification system. Any conversions which were not deemed accurate were double checked for accuracy during the July 2022 UK Habitats survey. In total, thirteen habitat types were identified within the ESA. Each of these are listed below, with the relevant UK Habitat Classification codes beforehand.

- h2a – Hedgerow (Priority Habitat),
- w1g6 – Line of Trees,
- h2 – Hedgerow,
- w1 – Broad Mixed and Yew Woodland,

- r1e - Canals
 - r1a – Eutrophic Standing Water,
 - c1c – Cereal Crops,
 - g4 – Modified Grassland,
 - w1g – Other Woodland-Broadleaved,
 - w2 – Coniferous Woodland,
 - w1h – Other Woodland Mixed,
 - g3c – Other Neutral Grassland,
 - u1e – Built Linear Features.
- 6.7 Suitable potential habitat within and adjacent to the survey area is present for Badger, Otter, Bats, Harvest Mouse, Hedgehog, Brown Hare, Otter, Roe Deer, amphibians, breeding and wintering birds and invertebrates.
- 6.8 The Application Site has potential to contain botanical Nottinghamshire priority species²⁸ such as Black Mustard, Wild Cabbage, Rye Brome, Cornflower, Chamomile, Good-King-Henry and Corn Parsley. However, no field signs of these species were present at the time of survey.
- 6.9 Giant Hogweed is considered as an invasive non-native species in the UK. This is the only notable non-native invasive plant species that was returned from the data search. The ecologists who conducted the Extended Phase 1 and UK Habitats Classification field surveys did not record and Giant Hogweed within the Application Site boundary.
- 6.10 Overall, the Application Site is considered to be of low intrinsic ecological value in terms of habitats. The primary habitat interest within the ESA derives from the presence of hedgerows and nearby broadleaved woodland. A map of the habitats is given as **Figure 2.2, Appendix 2A**.
- 6.11 The habitats are described in **Table 6-2** below; the target notes referred to in the figures are detailed in **Table 6-3**.

²⁸Nottinghamshire priority species - Section 9 – Appendix A - Available at: <https://nottsbag.org.uk/lbap/lbap-introduction-and-sections-1-to-6/>

Table 6-2: Summary of Biological Records

Habitat Code and Type	Description
h2a – Hedgerow (Priority Habitat)	This is the most dominant linear habitat across the site mainly comprising of Hawthorn and with a mix of Oak and/or Ash (UK Habitat secondary code 75).
w1g6 – Line of Trees	This habitat is only located along the westernmost part of the Application Site boundary. This linear habitat consists of a line of non-native conifer trees around 10m average in height. Holly is present at shrub level and ivy covering most tree trunks.
h2 – Hedgerow	This linear habitat is located along the southern part of the Application Site boundary and is comprised of occasional Hawthorn and Elder.
w1 – Broad Mixed and Yew Woodland	Three patches of this habitat exist within the Application Site. Ivy dominates the ground level along with nettle, bramble and hogweed. Dominant tree species within the three stands include ash, oak, and sycamore (UK Habitat secondary code 36).
r1e – Canals	Canals are another linear habitat present on site in the form of agricultural drainage ditches (UK Habitat secondary code 191).
r1a – Eutrophic Standing Water	This linear feature is located along the southern extent of the Application Site next to a Severn Trent sewage pumping station. The habitat appears to be densely vegetated indicating high levels of nutrients (UK Habitat secondary code 191).
c1c – Cereal Crops	This is the most dominant habitat on site, comprising of planted domesticated grass species that will likely be subject to inorganic fertilisation (standard intensive farming practice) and is of low ecological value (UK Habitat secondary code 73).
g4 – Modified Grassland	This habitat is the second-most dominant habitat within the Application Site boundary. This habitat consists of improved agricultural grassland (bright green and lush) that has been fertilised using inorganic fertilisers.
w1g – Other Woodland-Broadleaved	This habitat is located along the northern flank of the Application Site. Ivy dominates the ground level along with nettle, hogweed (along north side of stand) and bramble. Dominant tree species in the northern stand include ash, oak and willow This habitat is semi-natural as some trees are present as a result of planting (UK Habitat secondary code 37).
w2 – Coniferous Woodland	This habitat mainly comprising of conifer with a small percentage of broadleaved trees mixed in. Dominant tree species: hornbeam, silver birch, privet and pine. Nettle dominated ground level with signs of anthropogenic activity in the form of storage. (UK Habitat secondary code 36).
w1h – Other Woodland Mixed	This habitat is a plantation of mixed woodland, containing both conifer and deciduous trees such as Pine, Beech and Silver Birch (UK Habitat secondary code 36).
g3c – Other Neutral Grassland	This habitat mainly consists of False Oatgrass with dead Bracken and Bramble.

Habitat Code and Type	Description
u1e – Built Linear Features	This habitat accounts for artificial structures such as Roads (UK Habitat secondary code 111) and road island/verge (UK Habitat secondary code 431).

Table 6-3: Target Notes

Target Note	Description
1	Ash tree with low bat roost potential
2	Ash tree with low bat roost potential
3	Oak tree with low bat roost potential
4	Ash trees with low bat roost potential
5	Ash tree with low bat roost potential
6	Oak tree with low bat roost potential

7. IMPACT ASSESSMENT

Best Practice Pollution Prevention Measures

- 7.1 Standard best practice pollution prevention measures will be adhered to, which will reduce the potential for impacts on ecology during the construction stage. As these are standard requirements, they are separate to mitigation measures (outlined later in this report). For more details on standard best practice pollution prevention measures see **Technical Appendix 8: Outline Construction Environmental Management Plan**.
- 7.2 Relevant measures include but are not limited to:

Pollution Prevention

- Plant and equipment will be stored on dedicated hardstanding areas within the construction compound. This will minimise the risk of pollution caused by leakages occurring out of hours. Drip trays will be used where appropriate;
- Hydrocarbons, greases and hydraulic fluids will be stored in a secure compound area;
- All plant machinery will be properly serviced and maintained, thereby reducing risk of spillage or leakage;
- All waste produced from construction will be collected in skips with the construction site kept tidy at all times;
- Excavated soil will be stored on site or removed by a licensed waste disposal unit;
- All materials and substances used for construction will be stored in a secure compound and all chemicals will be stored in secure containers to avoid potential contamination;
- Location of spill kit to be known by all construction workers and implemented in the event of spillage or leakage;
- All other chemicals will be stored in a secure area with an accompanying COSHH Datasheet; and
- Wastewater from the temporary staff toilets and washing facilities will be discharged to sealed containment systems and disposed via licensed contractors.

Noise and Vibration

- 7.3 Operating plant noise will be kept within the standards and time periods dictated for the Application Site. Any noncomplying plant will be stopped and stood down until it can be rectified or removed from the Application Site.
- The British Standard which gives guidance on noise from construction and mineral working sites is BS 5228. This document does not specify absolute noise limits relating to construction activities; however, it does provide detailed guidance on the steps that can be taken to minimise potential noise & vibration effects. Reasonable mitigating measures are as follows: vehicles and machinery will be switched off when not in use.
 - Operation of plant, including fitting and proper maintenance of silencers and/or enclosures, avoiding excessive and unnecessary revving of engines and parking of equipment in locations which avoid possible effects on residential properties.
 - Deliveries limited to:
 - 07.00 to 19.00 Monday to Friday.
 - 08.00 to 16.00 Saturdays.
 - Public holidays will be observed unless otherwise agreed with the local planning authority.
 - When loading and unloading material, attempts shall be made not to drop material from a height.
- 7.4 Any noise complaints shall immediately be directed to the Site Manager. Depending on the nature of the complaint, remedial action may need to be undertaken.

Dust

- 7.5 In order to control, prevent and minimise dirt on the access route and emissions of dust and other airborne contaminants during the construction works, the following measures will be implemented:
- Wheel washing equipment will be available and used on-site, as required to prevent the transfer of dirt and stones onto the public highway. All drivers will be required to check that their vehicle is free of dirt, stones and dust prior to departing from the site. Wheel washing will likely be a water bowser and power spray. It will not have any cleaning additives and will drain into the temporary drainage feature at the site compound;

- During windy conditions, any dust generating activities will be avoided or minimised, where practical;
- Any soil stockpiles will be covered when left for extended periods of time;
- Driving practices which minimise dust generation will be adopted; and
- Loads into and out of the site will be covered where required.

Waste Management

- Skips are to be used for site waste/debris at all times and collected regularly or when full;
- All hydrocarbons and fluids are to be collected in leak-proof containers and removed from site for disposal or recycling; and
- All waste from construction is to be stored within the site confines and removed to a permitted waste facility.

Environmental Monitoring

- Contractor to nominate member of staff as the environmental officer with the responsibility to ensure best practice measures are implemented and adhered to, with any incidents or non-compliance issues being reported to project team; and
- Any incidents or non-compliance issues will be reported to the project team.

Monitoring Practices

- 7.6 Species and habitats within the Application Site may be sensitive to pollution/contamination of surface waters. Pollution can result from any of the following entering a body of surface or groundwater:
- Poisonous, noxious or polluting matter;
 - Waste matter (including silt, cement, concrete, oil, petroleum spirit, chemicals, solvents, sewage and other polluting matter); and
 - Other harmful activities detrimentally affecting the status of a waterbody.
- 7.7 There will be limited waste produced during the construction of the Proposed Development and the site contractor will be responsible for the monitoring and appropriate disposal of waste from the site, this requirement is identified in **Technical Appendix 8: Outline Construction Environmental Management Plan**.

7.8 **Table 7-1** details common water pollutants and their effect on the aquatic environment (Table extracted from CIRIA guidance²⁹).

Table 7-1: Common water pollutants and their effects on the aquatic environment

Common Water Pollutants	Adverse effect on aquatic environment
Silt	Reduces water quality, clogs fish gills, covers aquatic plants, impacts aquatic invertebrates, leads to a reduction in prey for species including otter and fish species, and leads to degradation of habitat
Bentonite (very fine silt)	Reduces water quality, clogs fish gills, covers aquatic plants, impacts aquatic invertebrates, leads to a reduction in prey for species including otter and fish species, and leads to degradation of habitat
Cement or concrete wash water (highly alkaline)	Changes the chemical balance, is toxic to fish and other wildlife. This can lead to direct impacts for aquatic species (including otter), or indirect through loss of prey resources
Detergent	Removed dissolved oxygen, can be toxic to fish and other wildlife present within the aquatic environment
Hydrocarbons (e.g. oil, diesel)	Suffocates aquatic life, damaging to the wildlife (e.g. birds), and to water supplies including industrial abstractions
Sewage	Reduces water quality, is toxic to aquatic wildlife including otter, and damages water supplies

7.9 The potential occurrence of these contaminants and their capability of affecting water quality has been considered during the various phases of the Proposed Development. Potential contaminants are capable of undermining water quality and impacting the qualifying species occurring within the Zol of the Proposed Development.

7.10 Operations and activities that have the potential to impact on the water environment will be regularly monitored throughout the construction of the Development. This is to ensure compliance with planning conditions and environmental regulations.

7.1 The Proposed Development will incorporate Sustainable Drainage System (“SuDS”). It has been demonstrated that the Proposed Developments impact on surface water runoff is minimal due to the small amount of impermeable infrastructure proposed. However, drainage in the form of SuDS has been proposed so the post-development site discharges surface water at the greenfield run-off rate (QBar). Such preventative measures will have the effect of controlling the movement of surface waters within and

²⁹ CIRIA (2015) *Environmental good practice on site guide, 4th edition*

from the Application Site. For further detail see **Technical Appendix 4: Flood Risk Assessment / Drainage Impact Assessment** in **Volume 3** of this application.

- 7.2 The Proposed Development will be subject to mandatory pollution prevention measures under the Control of Pollution Act 1974 (as amended)³⁰. Measures have been included within the development design to prevent dust and other pollution entering any nearby watercourses via drainage ditches within the site or through ground water contamination. The recommended **standard pollution prevention measures** can be secured through a suitably-worded planning condition requesting a Construction Environmental Management Plan (CEMP). An Outline CEMP (OCEMP) has been produced as part of this application (see **Technical Appendix 8: OCEMP** in **Volume 3** of this application).
- 7.3 With implementation of measures included in the Proposed Development design, best practice measures implemented during the Proposed Development and the management outlined above, there will be **no significant adverse effects** through groundwater contamination or hydrological connectivity between the Application Site and the river Smite LWS.
- 7.4 The Site Manager is responsible for ensuring that all monitoring is carried out according to the Environmental Monitoring Programme, summarised in **Table 7-2**.

³⁰ <https://www.legislation.gov.uk/ukpga/1974/40/part/III/crossheading/construction-sites>

Table 7-2: Environmental Monitoring

Environmental Aspect	Monitoring Location	Monitoring Frequency	Monitoring Arrangements
Site housekeeping	Entire site	Daily	Visual inspection
Surface water courses	All water courses	After periods of rain Weekly, if no rain	Visual inspection
Fuels and chemicals – appropriate storage	Entire site	Daily	Visual inspection

7.5 These records and results will be maintained by the Site Manager and will be stored on site during the construction phase, see **Technical Appendix 8: Outline Construction Environmental Management Plan**.

DESIGNATED SITES

In the Absence of Mitigation

Statutory Sites

- 7.6 No Natura 2000 sites are located within the Zol of the Application Site.
- 7.7 Other statutory designated sites have been considered within a 5km radius of the Application Site’s boundary. A desktop study revealed that there is only one Site of Special Scientific Interest (SSSI), this being the Oriston Plaster Pits SSSI. Considering that the qualifying species of the Oriston Plaster Pits SSSI are non-mobile terrestrial species, no connectivity exists, therefore this SSSI will not be considered any further in this assessment.
- 7.8 No Local Nature Reserves, Nature Reserves, National Nature Reserves, Ramsar sites, proposed Special Areas of Conservation and proposed Special Protection Areas are within the Zol of the Application Site, therefore no further assessments are required.
- 7.9 Due to the nature of the Proposed Development, there will be no significant influx of air pollutants that will affect air quality in the local area, therefore no effects on the above-named statutory sites are envisaged.

Non-statutory Sites

- 7.10 A data search was conducted in order to supplement this Ecological Assessment. This found three non-statutory Local Wildlife Sites (LWS) within 2km of the Application Site,

these being the Barleyholme Wood LWS, Orston Horse Pasture LWS and River Smite LWS, see **Appendix 2A – Figure 2.4**.

- 7.11 The Barleyholme Wood LWS and Orston Horse Pasture LWS have been designated for plant species and are considered to be terrestrial in nature, see **Table 6-1**.
- 7.12 Considering the distance from the Application Site and that the development will cause at most a negligible measure of air quality emissions and that no ecological, hydrological or ornithological connection to the Barleyholme Wood LWS and Orston Horse Pasture LWS exists, no impacts are likely to occur as a result of the Proposed Development. These LWS can therefore be screened out.
- 7.13 The River Smite LWS has been designated for terrestrial and aquatic plant species, see **Table 6-1**. This LWS is considered to both aquatic and terrestrial as its boundary encapsulates the bank of the River Smite and the river itself.
- 7.14 There is no direct hydrological connectivity between the Application Site and the River Smite LWS. Indirect hydrological connectivity in the form of surface waters is a possibility. However, given that the shortest linear distance from Application Site to the River Smite LWS is 1.52km, there is little likelihood of any significant effects occurring. In addition to this, best practice construction measures will be employed to prevent contaminated runoff.
- 7.15 It has been concluded that there will be **no significant adverse effects** on any non-statutory site as a result of the Proposed Development. Therefore, non-statutory sites have been dismissed from further assessment.
- 7.16 Due to the nature of the Proposed Development, there will be no significant influx of air pollutants that will affect air quality in the local area, therefore no effects on the above-named non-statutory sites are envisaged.

Habitats

In the Absence of Mitigation

- 7.17 The construction of the Proposed Development will occur over land which has been identified primarily as arable land and improved agricultural grassland. These habitats are generally of low ecological value and currently offer limited potential to support wildlife in this area of England.
- 7.18 The access track and the footprint of the Proposed Development within the Application Site will cross the following habitats: cereal cropland (c1c), modified grassland (g4), line of trees (w1g6) and hedgerow (priority habitat (h2a)). There will be an overall loss of 2.28ha of cereal cropland, 0.0376ha modified grassland, 9.1m of trees and 20m of hedgerow (priority habitat). None of the hedges are expected to be classified as

'Important' under the Hedgerows Regulations 1997³¹. However, to avoid damage where possible, existing gaps will be used to site new infrastructure. For visualisation of the specific habitats lost due to proposed structures such as access tracks, inverters and substation, see LEMP (Figure 1.12 within Technical Appendix 1: Volume 3). The relatively minor extent of habitat loss in a local context where these habitats are frequent is **not considered to be significant** in terms of the Application Site's intrinsic habitat interest.

- 7.19 As part of the design proposals (rather than as ecological mitigation), as a form of habitat enhancement and as a form of compensation for hedgerow loss, new native woodland shall be planted (approximately 1.2046ha) and species-rich hedgerow shall be created (approximately 2.551km); see Appendix 2.1 – BMP. However, in the absence of mitigation, the hedgerow breaks will still constitute loss of small amounts of a Priority habitat. This will lead to effects of **low to negligible spatial** and **medium-term temporal** magnitude, i.e. **negligible to minor** and **not significant** effects. These magnitudes have been assigned because the loss of hedgerow length will be much less than 10% and, although the new areas of native woodland and species-rich hedgerow will provide biodiversity benefits in the long term, it will be a number of years until they attain the equivalent value of the existing hedges and woodland that are present on site.
- 7.20 The main habitat loss will occur under the Proposed Development footprint in regard to structures such as access tracks, cable trenches, piles driven poles for the module racks and hardstanding for structures associated power conversion units and transformers.
- 7.21 With the implementation of the BMP (Appendix 2.1), where new habitats of woodland and hedgerow will be created using native species appropriate to the Application Site, providing habitat for local priority species, and thus, biodiversity value will increase. This is in line with Core Strategy Policy no. 17 of the Rushcliffe Local Plan³².
- 7.22 It is therefore considered that the minor loss of habitat from the Proposed Development **will not be significant**.

Recommended Enhancement Measures

- 7.23 The proposed wildlife enhancements designed into the Proposed Development (see Appendix 2.1: BMP and Appendix 1:12: LEMP) include the following habitat measures:
- Creation of 1.3086ha new native woodland, 2.551km of native species-rich hedgerow and 83.1181ha of species-rich neutral grassland;

³¹ Available at <https://www.legislation.gov.uk/uk/si/1997/1160/contents/made>

³² [9 Local Plan Part 1 Rushcliffe Core Strategy.pdf](#)

- Enhancement of 112m of native hedgerow with trees;
- Habitats created/enhanced will consist of planting locally important flora.
- Creation of habitat interest features for protected species (e.g., herptile hibernacula and hedgehog houses; see below).

Residual Effects

- 7.24 With the implementation of the Proposed Development's design measures, best practice measures implemented during the construction phase, and the habitat management outlined, there will be **positive effects** on habitats.
- 7.25 With the correct management in place during the 40-year lifespan of the Proposed Development, the potential of the Application Site to support wildlife is likely to be increased. The supporting **BMP** (see **Appendix 2.1**) outlines the management proposals to enhance the Application Site's ecological value, therefore increasing its potential to support local wildlife. With the implementation of these proposed enhancement measures, there will be a **net gain for biodiversity of 187.13% area-based habitat gain and 24.68% hedgerow unit gain** (see **Appendix 2.2**), in line with policies in the *Rushcliffe Local Plan*³³.

Protected and Notable Species

In the Absence of Mitigation

- 7.26 The sections below detail the potential impacts and effects in the absence of mitigation for protected and notable species. This covers the construction phase (approximately six months) and operational phase (40 years) of the Proposed Development.
- 7.27 In accordance with CIEEM guidelines³⁴, the duration of disturbance during construction is considered to be **short term** for the species groups below (except invertebrates). All groups except invertebrates live for several years in the UK. However, it is noted that short-term impacts can lead to long-term effects if e.g. they cause breeding failure in a given year. Invertebrates are assessed in line with their specific life history characteristics.

³³ [9 Local Plan Part 1 Rushcliffe Core Strategy.pdf](#)

³⁴ CIEEM (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine. Version 1.1.

Badger

- 7.28 There were no observations of badger or its field signs during the UK Habitats Classification surveys and Extended Phase 1 surveys. Arable land and improved agricultural grassland covers the majority of this site. Given the proposals for creating species-rich neutral grassland within the site, the operational phase of the Proposed Development will not lead to a significant adverse effect on the local badger population through loss of foraging habitat. The implementation of the **BMP** will also create 1.3086ha of new native woodland within the Application Site, improving foraging resources and sett-building habitat for badgers. leading to a positive effect.
- 7.29 Existing nearby woodland areas are considered suitable for sett-building. Whilst no evidence of badger was observed within the Application Site during UK Habitats Classification surveys and the Extended Phase 1 survey, they are a highly mobile species and therefore could move in from the wider local area. New setts may be built prior to construction. Therefore, in the absence of mitigation, there is the potential for the disturbance or injury of badger during the construction phase. During the construction phase, the Proposed Development can also cause undue stress if badgers are accidentally trapped within any exposed excavations left overnight, however this should be avoided if measures outlined above are incorporated.
- 7.30 During the operation phase the security fencing used around the perimeter of the Application Site could affect access to foraging areas which are part of a clan's territory. However, wire and post deer fencing used in the Application Site will have a 10cm gap at the bottom to allow continued free movement for badger (see **BMP – Appendix 2.1 and Planning Application Drawings – Vol 2 – Figure 9**). This will prevent the Proposed Development impacting access to foraging areas within the Application Site that may potentially be part of a clan's territory. This measure has been designed into the development, and therefore is not relied upon as mitigation.
- 7.31 In the absence of mitigation, there is the potential for effects of low spatial and long-term temporal magnitude. This could lead to **moderate significant effects on badger** (a nationally protected species) as a result of the Proposed Development.

Bats

- 7.32 The Application Site contains no built structures that would be suitable for roosting bats. During the Extended Phase 1 Survey and UK Habitat Classification Surveys, six trees were recorded within the Application Site as having low bat roost potential (Table 6.3 and target notes on Figure 2.2). The Application Site offers suitable habitats for commuting and foraging bats overall, with good habitat connectivity both within the site and linking it to adjacent areas. Key habitat features include hedges and woodland edges.

- 7.33 Many species of bat in England commute and forage along linear features, such as hedgerows, that feature within the Application Site boundary. However, on occasion they will cross open features; this is particularly true of species such as Leisler's bat (*Nyctalus leisleri*) that use strong echolocation.
- 7.34 It is noted that the arable land and improved agricultural grassland are sub-optimal commuting and foraging features for most bat species due to limited prey abundance. The loss of this habitat under the Proposed Development footprint will not lead to a significant reduction in foraging habitat for local bats. The areas of agricultural land lost will be replaced with species-rich neutral grassland to be grazed upon by sheep.
- 7.35 A minor loss of more suitable foraging/commuting habitat is predicted from the construction of the Proposed Development. The access track and the footprint of the proposed development within the Application Site will cross the following habitats: cereal cropland (c1c), modified grassland (g4), line of trees (w1g6) and hedgerow (priority habitat (h2a)). There will be an overall loss of 2.28ha of cereal cropland, 0.0376ha modified grassland, 9.1m of trees and 20m of hedgerow (priority habitat). No trees with bat roosting potential will be lost.
- 7.36 It can be concluded that **no significant** fragmentation of habitats will occur. The fencing could potentially disrupt commuting routes along the hedges, but the proposed fence height of up to 2.4m is unlikely to cause significant disruption.
- 7.37 Given the likely presence of foraging and commuting bats, there is potential for lighting used during construction to disturb bats. However, it is anticipated that there will be minimal need for construction lighting (if any), as the vast majority of works will be undertaken in daylight. During the winter months, some construction lighting may be needed, but bats are generally in hibernation during this period.
- 7.38 As an adopted design principle, there will be a 5m buffer between boundary hedges and the majority of the structures included in the development. A 10m buffer from woodland has also been implemented during the design. This will help **reduce the risk of collision of bats with proposed structures within the Application Site**, providing a protective corridor. The exception to this is for short sections where new drainage channels are installed, see Technical Appendix 4 – FRA-DIA . However, the wildlife-friendly design of the new drainage system will lead to a gain in linear features suitable for commuting and foraging.
- 7.39 With the implementation of the supporting **BMP (Appendix 2.1)**, which outlines measures to increase the diversity of flora species within the Application Site, faunal diversity including prey species for foraging bats will increase. Please note these measures are not provided by way of mitigation, but as an integral part of the Proposed Development design.

- 7.40 It is therefore considered that the Proposed Development will have a **negligible to positive effect** on bats that may be present in the area during construction and post-construction.

Otter

- 7.41 No signs of Otter were noted during the Extended Phase 1 habitat survey and the UK Habitats Classification Surveys. However, the data search conducted by NBGRC returned 18 counts of otter in the local area. The agricultural drainage ditches within the Application Site are considered to offer, at best, very limited opportunities for these species. When taking into account the design measures put in place (such as a 2m drainage ditch buffer) and the best practice pollution prevention measures detailed above, **it is unlikely that, in the absence of mitigation, the Proposed Development would lead to an adverse effect on Otter** in the area.

Other Mammals

- 7.42 The Application Site offers suitable sheltering / foraging habitat for Hedgehog in the form of hedgerows and adjacent woodland. However, no signs of Hedgehog were noted during the Extended Phase 1 and UK Habitats Classification Surveys. The site also offers suitable habitat for Brown Hare in the form of arable and improved agricultural grassland habitat. Furthermore, Brown Hare was sighted during the Extended Phase 1 habitat survey conducted in April 2021.
- 7.43 Hedgehog and Brown Hare are UK and England Priority species³⁵. Both are also Nottinghamshire Priority species.
- 7.44 Field signs of Roe Deer and Woodmouse were also recorded. These species are known to use habitats within the ESA.
- 7.45 The site design includes almost 7.424km of deer fencing at 2.4 metres high in order to reduce the possibility of deer becoming trapped or injured within the Application Site boundary. A deer corridor will also be maintained around the site perimeter. This will be formed of a minimum 5m gap between fences and hedgerows / woodland / other boundary features. In places, this will expand to 15m+.
- 7.46 No evidence of other protected or priority mammals was noted. It is expected that the site supports an assemblage of common small mammal species.
- 7.47 There will be negligible loss and fragmentation of the hedgerow habitats. Cereal cropland and modified grassland habitat will be lost but will mostly be replaced by species-rich neutral grassland. Impacts on Hedgehog and other mammal species

³⁵ See <https://hub.incc.gov.uk/assets/98fb6dab-13ae-470d-884b-7816afce42d4>

mentioned above are likely to be limited largely to dust, noise and vibration disturbance during the construction phase of the Proposed Development, however these will be controlled by best practice measures identified in the Outline CEMP (Technical Appendix 8 – Vol 3).

- 7.48 Post and wire deer fencing used at the Proposed Development Site will contain 10cm gaps at the bottom to allow continued hare, hedgehog, and other mammal movement (see **Appendix 2.1 – BMP**). This will prevent the Proposed Development affecting access to foraging areas within the Application Site. This measure has been designed into the development, and therefore is not relied upon as mitigation.
- 7.49 **Minor (non-significant) effects** are anticipated upon Brown Hare in the absence of mitigation.
- 7.50 Habitats will be significantly enhanced for Hedgehog and common small mammals by the creation of new native woodland and species-rich grassland as part of the proposed BMP (**Appendix 2.1**).
- 7.51 **Positive effects** are anticipated for hedgehog in the absence of mitigation.

Herptiles

- 7.52 Suitable aquatic habitats for great crested newt (“GCN”) and other amphibians do not exist within the ESA. The ditches within the ESA were observed to be agricultural drains and considered unlikely to support breeding great crested newts.
- 7.53 At the time of the first survey (Extended Phase 1) in late April 2021 there were three ponds within 250m of the Application Site boundary and had the potential to offer suitable aquatic habitat for herptile species, See **Appendix 2A – Figure 2.3**.
- 7.54 A HSI survey was undertaken. The results of the survey concluded that all three ponds returned a HSI score of 0.56 which classifies each pond as ‘**below average**’ suitability for GCN. On this basis a GCN survey is not required. Therefore, it is unlikely that GCN utilise terrestrial habitats within the site. **No further assessment of GCN is required.**
- 7.55 The Application Site contains hedgerows and woodland habitats which would offer suitable terrestrial habitat for other herptile species. Much of the site is considered unsuitable for these species due to being intensively managed for grazing or cultivated crops. While some areas of the site included hedgerows noted to be fairly heavily shaded by dense shrubs, there are pockets of suitable habitat including some hedge margins that provide some opportunities for basking.
- 7.56 In the absence of mitigation, these herptile species may be significantly affected by the Proposed Development. Adverse effects would be classed as of **moderate spatial** and **medium-term temporal** magnitude. The removal of hedgerow sections at any time of year could lead to disturbance, injury or mortality of sheltering herptiles. Any herptiles

using ditches crossed by the proposed access track and/or security fencing may also be disturbed by construction activities.

- 7.57 The operational phase would, however, lead to reduced disturbance when compared with the baseline level of intensive agricultural practices. The proposed enhancements (see **Appendix 2.2: BMP**) would also lead to **significant gains** due to the creation of new species-rich neutral grassland, hedgerow, new woodland planting and herptile hibernacula, leading to increased prey abundance and shelter opportunities within the Application Site.
- 7.58 **Positive effects** are anticipated for herptiles in the absence of mitigation.

Birds

- 7.59 Main impacts on bird species from developments include:
- Direct loss or deterioration of habitats;
 - Indirect habitat loss as a result of displacement by disturbance.
- 7.60 Breeding birds are highly susceptible to disturbance. The trees and hedgerows within the Application Site are likely to support a limited variety of nesting birds during the breeding season, as are the adjacent woodland areas.
- 7.61 There will be a buffer of 5m between boundary hedges and all proposed development as an adopted design principle. A 10m buffer from woodland has also been implemented. In some areas the buffer will be larger. In addition, construction works will be temporary (six month construction programme) and restricted to the daytime, see **Volume 3, Technical Appendix 8: OCEMP** for more details. Whilst these bird species may experience disturbance through noise and vibration during construction phase, the duration of the disturbance is not considered to have a significant effect on bird species utilising the site long term. However, due to the sensitivity of breeding birds, the construction phase may have a temporary adverse impact on breeding birds within and adjacent to the Application Site. This would result in an effect of **low** spatial and **short-term** temporal magnitude. The effect may continue beyond a single bird generation, but is expected to be sufficiently small for the local population to recover relatively soon. This effect would be **minor and not significant** for the commoner species, but could be **moderate (significant)** for Priority species and birds of conservation concern i.e, House Sparrow, Common Kestrel, Northern Lapwing, Mistle Thrush, Reed Bunting, Sky Lark, Song Thrush, Turtle Dove, Yellowhammer
- 7.62 .
- 7.63 The Proposed Development is to be constructed on land that is subject to seasonal disturbance from current agricultural activities. However, in the absence of mitigation

there is **potential for significant effects** on breeding birds if construction works are undertaken between the months of March and August inclusive.

- 7.64 Post construction, it is considered that implementation of the **BMP** (see **Appendix 2.1**) will increase the ecological value of the Application Site for many bird species and therefore **positive effects** are anticipated for all Breeding Bird species during the operational phase. The loss of cereal cropland and modified grassland habitat may have an adverse impact on some specialist farmland birds i.e. skylark and yellowhammer however, in the local context this loss is extremely limited and therefore effects are considered to be negligible.
- 7.65 Further information regarding potential hazards to bird species utilising the habitat within the Application Site boundary can be found in **Appendix 2.3: Bird Hazard Management Plan**.

Invertebrates

- 7.66 The vast majority of the Application Site (cereal cropland and modified grassland) is considered to be of very limited value to invertebrates as it is species-poor, with high levels of herbicide and fertilizer inputs. However, hedgerows, tree lines, field drains and adjacent areas of broadleaved woodland are all considered likely to support a more diverse invertebrate assemblage.
- 7.67 Impacts on these species are likely to be limited to dust and other pollution emitted during the construction phase of the Proposed Development. However, the current baseline includes periodic disturbance of a smaller, but not incomparable, magnitude from agricultural activities several times a year. **No significant effect** is anticipated during the construction phase.
- 7.68 During operation, habitats will be significantly enhanced for invertebrates by new native woodland, species-rich grassland and species rich hedgerow planting as part of the proposed **BMP (Appendix 2.1)**. Overall, these species are deemed likely to experience **significant positive effects** in the absence of mitigation.

Mitigation and Enhancement Measures and Further Survey

Badger and otter

- 7.69 No signs of badger or otter were recorded during the Extended Phase 1 and UK Habitats Classification Surveys. Given that badger and otter are highly mobile species their potential to use habitats within the site cannot be disregarded, it is recommended that a pre-construction badger and otter survey is undertaken to assess the presence of badger and/or otter immediately before construction. If required, any necessary mitigation will then be designed in accordance with relevant ecological guidance and legislative requirements.

- 7.70 During the construction process, all dug ground should be levelled and compacted wherever possible. All excavations are to be covered or closed off securely at the end of each working day to prevent the accidental trapping of badgers.
- 7.71 Enhancements designed into the Proposed Development (see **Appendix 2.1: BMP**) include the following measure for badgers:
- Creation of new native woodland, providing new sett-building habitat.
 - Measures to increase herptile numbers, providing prey for otter.

Bats

- 7.72 It is not proposed that any trees with bat roost potential (“BRP”) will be removed at the Application Site, see Table 6.3 target notes – **Appendix 2A – Figure 2.2**. If any mature tree ultimately requires removal, it will need to be surveyed by a suitably qualified ecologist for BRP prior to removal. In line with Bat Conservation Trust guidelines³⁶, further surveys will be required should this BRP check determine the tree to be of medium or high bat roosting potential. If low potential exists, soft felling techniques will be used. This technique is used to ensure that no cavities are cut through. Branches or trunk pieces with cavities are lowered carefully to the ground and left with the access hole upward facing over night to allow any bats to leave.
- 7.73 The enhancements designed into the Proposed Development (see **Appendix 2.1: BMP**) include the following measures for bats:
- Installation of bat boxes on retained trees of suitable size and location (including designs suitable for local bat species identified by the desk study);
 - Creation of new native woodland and species-rich grassland, providing new bat foraging opportunities;
 - Measures to increase invertebrate numbers, increasing potential bat prey availability.

Other Mammals

- 7.74 No further pre-commencement surveys are considered necessary in connection with other mammal species.
- 7.75 Although not relied on as mitigation, a 10cm gap will be included at the bottom of all post and wire fencing to allow the free movement of any small mammal into, out of and within the Application Site.

³⁶ Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd edition. Bat Conservation Trust, London.

- 7.76 Although not relied on as mitigation, deer fencing at 2.4 metres high in order to reduce the possibility of deer becoming trapped or injured within the Application Site boundary. A deer corridor will also be maintained around the site perimeter. This will be formed of a minimum 5m gap between fences and hedgerows / woodland / other boundary features. In places, this will expand to 15m+.
- 7.77 The enhancements designed into the Proposed Development (see **Appendix 2.1: BMP**) include the following measures for hedgehog:
- Creation of new native woodland, species-rich hedgerow and species-rich grassland habitat;
 - Provision of hedgehog houses; and
 - Measures to increase invertebrate numbers, increasing potential hedgehog prey availability.

Herptiles

- 7.78 No further surveys are needed for herptile species. However, any strimming or other removal of vegetation during the herptile active season (March to September) should be carried out in phases, towards retained habitat, see **Volume 3, Technical Appendix 8: OCEMP** for more details. The initial phase should involve cutting the vegetation to a height of 150mm, followed by a second phase of cutting down to ground level if necessary, see **Table 2-9** for more detail. This method allows any reptiles or amphibians present to move out of the area ahead of works.
- 7.79 Any amphibians or reptiles found should be moved carefully by an ecologist to suitable retained habitat in the vicinity or, if already present, to one of the herptile hibernacula to be created within the Application Site (see **Appendix 2.1: BMP**).
- 7.80 Enhancements designed into the Proposed Development include the following measures for reptiles and amphibians:
- Creation of new native woodland, species-rich hedgerow and species-rich grassland providing new shelter and foraging resources;
 - Creation of herptile hibernacula;
 - Measures to increase invertebrate numbers, increasing potential herptile prey availability.

Birds

- 7.81 As the construction phase may have a significant impact on Priority species and/or birds of conservation concern within and adjacent to the Application Site, mitigation measures have been recommended to ensure that no significant impacts occur.
- 7.82 Where works are to commence during the breeding season (March to August inclusive), pre-commencement checks of possible nesting sites should be undertaken by a suitably experienced ecologist prior to works commencing. If required, an appropriate buffer zone must be established around nesting birds until the young have fully fledged.
- 7.83 Proposed enhancements (see **Appendix 2.1: BMP**) include the following measures for birds:
- Planting of new native woodland, species-rich hedgerow and species-rich grassland, providing new nesting and foraging resources;
 - Measures to increase invertebrate numbers, increasing potential prey availability for insectivorous birds; and
 - Erection of bird boxes, including a design suitable for Rushcliffe priority species (bullfinch, house sparrow).

Invertebrates

- 7.84 No further survey or mitigation is considered necessary in connection with invertebrates.
- 7.85 The enhancements designed into the Proposed Development (see **Appendix 2.1: BMP**) include the following measures benefitting invertebrates:
- Planting of new native woodland, species-rich hedgerow and species-rich grassland increasing invertebrate habitat interest;
 - Provision of invertebrate boxes/hotels;
 - Creation of herptile hibernacula, doubling as a dead wood resource for saproxylic invertebrates.

Residual Effects

- 7.86 With the implementation of pre-commencement surveys and the proposed mitigation measures, it is considered that there will be **no significant adverse effects** upon protected or notable species during the construction phase. The **BMP** proposes a

number of habitat creation and enhancement measures centred around new native woodland, species-rich hedgerow and species-rich grassland, herptile hibernacula and bird and bat boxes. With the implementation of these, **the potential of the Application Site to support local wildlife will increase** and the Proposed Development will lead to a **significant positive effect** on a number of protected species during the operational phase.

- 7.87 Residual effects on badgers are considered to be **negligible to minor positive**.
- 7.88 Residual effects on otter are considered to be **negligible to minor positive**.
- 7.89 Residual effects upon bats are envisaged to be **negligible to minor positive**.
- 7.90 Residual effects on hedgehog and common small mammals are considered **negligible to minor positive**.
- 7.91 Residual effects on other mammals including brown hares are considered **minor (non-significant)**.
- 7.92 Residual effects upon herptiles are envisaged to be **negligible to minor positive**.
- 7.93 Residual effects upon birds are considered to be **negligible to minor positive**.
- 7.94 Residual effects upon invertebrates are considered to be **minor positive**.

8. CUMULATIVE EFFECTS

- 8.1 As well as singular effects, cumulative effects also need to be considered. The Conservation of Habitats and Species Regulations 2017 state that any plan or project that may, either alone or in combination with other plans or projects, significantly effect an international designated site should be the subject of an Appropriate Assessment.
- 8.2 Cumulative impacts can be an issue when the Proposed Development has a small impact on international sites or other sensitive ecological receptors. If other proposals have a small impact, the combined result can have a significant impact on these features.
- 8.3 There are no international Natura 2000 sites within the ZoI of the Proposed Development. For the purposes of this assessment, it is therefore confirmed that **no likely significant cumulative effects** will occur upon any international sites as a result of the Proposed Development.
- 8.4 A search of the Rushcliffe Borough Council and Newark and Sherwood Council online planning portals was undertaken to identify any projects or developments within 5km which could impact any sensitive habitats or protected/notable species, either alone or in combination with the Proposed Development. **Table 2-7** below shows the relevant developments.

Table 2-7 Developments for Cumulative Assessment

Application Reference Number	Name	Development	Status	Distance & Direction from the Site
Operational				
16/00426/NMA	Lodge Solar farm	Solar Farm and Battery Storage Facility with associated infrastructure	Application permitted (conditional)	2.039km southeast
14/01739/FUL	Elton Solar Farm	Construction of a Solar Farm and associated infrastructure	Application Permitted (conditional)	3.097km south-southeast

- 8.5 Similar minor impacts on brown hare would be predicted for the above Lodge Solar Farm and Elton Solar Farm and Church Farm Solar Farm developments as a result of

habitat loss (if the species is present). However, the effect of this loss can be minimised by appropriate landscape design in these schemes.

- 8.6 **No significant cumulative adverse effect** is therefore anticipated upon protected habitats and species / flora and fauna or designated wildlife sites (statutory and non-statutory) as a result of the Proposed Development. The Council are advised to satisfy themselves that these upcoming schemes are designed appropriately.

9. CONCLUSION

- 9.1 To minimise potential impacts on local wildlife, protective measures have been incorporated into the Proposed Development as part of the iterative design process. These include buffers from potentially sensitive ecological receptors (see **Table 2-8** below). Standard best practice pollution prevention measures for the construction stage have also been outlined and considered as part of the impact assessment, prior to mitigation. These measures are outlined in **Table 2-8**.
- 9.2 A total of 13 habitat types were recorded within the Ecological Study Area (“ESA”) during the Extended Phase 1 habitat survey in April 2021 and UK Habitats Classification surveys in January and July 2022. The main impacts during the construction phase include the direct loss of habitat under the Proposed Development footprint, and indirect loss of habitat due to noise and vibration disturbance, dust and water pollution. **The loss of these primarily intensive agricultural habitat areas is considered to be of negligible significance** to nature conservation interest within the local area.
- 9.3 The desk-based assessment identified that within 15km of the Application Site boundary there are no: Special Areas of Conservation (“SACs”), Special Protection Areas (“SPAs”), possible SACs (“pSACs”), potential SPAs (“pSPAs”) or Ramsar Sites. There is one Site of Special Scientific Interest (“SSSIs”) within 5km of the Application Site. No National Nature Reserve (“NNR”) or Local Nature Reserves (“LNRs”) exist within 5km of the Proposed Development. Three non-statutory designated sites were identified within 2km of the Proposed Development. These are Barleyholme Wood Local Wildlife Site (“LWS”), Orston Horse Pasture LWS and the River Smite LWS.
- 9.4 A data search was conducted in order to supplement this Ecological Assessment, with a total of 654 species records found.
- 9.5 Recommendations for further pre-commencement survey work have been provided within this report and in the BMP (**Appendix 2.1**) as part of the relevant mitigation measures. Please refer to **Table 2-8** below for these.
- 9.6 It is considered that the short-term disturbance during construction of the Proposed Development **will not be significant** if the recommended mitigation is undertaken. With the implementation of pre-commencement surveys and the proposed mitigation measures, it is considered that there will be **no significant adverse effects** upon protected or notable species during the construction phase.
- 9.7 The BMP propose a number of habitat creation and enhancement measures centred around new native woodland, species-rich neutral grassland, species-rich hedgerow, hibernacula, and bird, mammal and invertebrate houses/boxes. With the implementation of these, **the potential of the site to support local wildlife will increase.**

The Proposed Development is likely to lead to a **positive effect** on a number of protected or Priority species during the operational phase.

- 9.8 The Proposed Development enhances biodiversity, providing **187.13% area-based habitat gain and 24.68% hedgerow unit gain** (see Appendix 2.2: Net Gain Assessment) and strengthening existing and retained green infrastructure. This accords with national planning policy, and with Rushcliffe Local Plan Policies 16, 17 and 38 and Local Plan Part 2 Appendix E.

Table 2-8: Integral Design Measures and Standard Best Practice

Receptor	Potential Development Impacts	Phase of Development	Measures Implemented
INTEGRAL DESIGN MEASURES			
Aquatic environment	Pollution	Construction	Avoidance of all surface water areas including ponding
Habitats Designated sites	Pollution and damage / destruction	Construction	Avoidance of hedgerows, watercourses/field drains, woodland and trees 10m buffer from all woodland Limitation to less distinctive and lower-quality areas
Badger, brown hare, small mammals	Exclusion from foraging habitat	Operational	Post and wire fencing to have 10cm gap at base to allow free movement of small to medium mammals through the site
Otter	Excluded from commuting habitat	Operational	Post and wire fencing to have 10cm gap at base to allow free movement of otter through the site
Deer	Excluded from commuting habitat/foraging	Operational	Deer fencing at 2.4 metres high in order to reduce the possibility of deer becoming trapped or injured within the Application Site boundary. A deer corridor will also be maintained around the site perimeter. This will be formed of a minimum 5m gap between fences and hedgerows / woodland / other boundary features. In places, this will expand to 15m+.
STANDARD BEST PRACTICE MEASURES			
Aquatic environment	Pollution	Construction	Best practice pollution prevention measures implemented prior to and throughout the construction phase to prevent contaminants

Receptor	Potential Development Impacts	Phase of Development	Measures Implemented
			entering the aquatic environment (i.e. via surface waters to the river smite) and reduce potential groundwater contamination
Badger	Accidental trapping within fences or excavations	Construction	All excavations should be securely covered at the end of each working day An escape ramp should be provided if excavations unavoidably need to be left open
Otter	Accidental trapping within fences or excavations	Construction	All excavations should be securely covered at the end of each working day An escape ramp should be provided if excavations unavoidably need to be left open

Table 2-9: Recommended Mitigation Measures

Receptor	Potential Development Impacts	Phase of Development	Measures Implemented
MITIGATION MEASURES			
Badger	Destruction of badger setts	Pre-construction	Pre-commencement survey (Measures dependent on survey findings)
Otter	Disturbance	Pre-construction	Pre-commencement survey (Measures dependent on survey findings)
Bats	Habitat disturbance/destruction	Pre-construction	Bat Roost Potential survey of any tree to be removed (Measures dependent on survey findings)
Birds	Habitat disturbance/destruction of nesting habitat (Only if works are undertaken between	Pre-construction	Pre-construction nesting bird check (only if works are undertaken between March and August inclusive) (Measures dependent on survey findings)

Receptor	Potential Development Impacts	Phase of Development	Measures Implemented
	March and August inclusive)		
Herptiles	Habitat disturbance/destruction and minor hedgerow loss	Construction	<p>Any vegetation removal from March to September to be carried out directionally towards retained habitat, in two stages</p> <p>Careful removal of hedgerow performed with hand tools, only when air temperature is above 10°C, and not after long dry spells. Ecologist to be contacted if herptiles are found</p> <p>Construction works affecting hedgerows to be undertaken during the active season (March to September) where possible</p> <p>If such works are needed between October and February, removal will be overseen by a suitably qualified and experienced Ecological Clerk of Works</p> <p>Works in other areas (open habitats) to be undertaken from October to February where possible</p>

10. APPENDICES

Appendix 2A – Figures

- Figure 2.1 – Statutory & Non-Statutory Environmental Designations
- Figure 2.2 – UK Habitat Classification Map
- Figure 2.3 – Pond Map
- Figure 2.4 – Local Wildlife Site Map

Appendix 2.1 – Biodiversity Management Plan

Appendix 2.2 – Net Gain Assessment

Appendix 2.3 – Bird Hazard Management Plan