Rosefield Solar Farm

Environmental Statement

Volume 2
Chapter 7: Biodiversity

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning
(Applications: Prescribed Forms
and Procedure) Regulations 2009

EN010158/APP/6.2
September 2025
Rosefield Energyfarm Limited

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7. Biodiversity

7.1. Introduction

7.1.1. This chapter presents an assessment of likely significant effects arising from the construction, operation (including maintenance), and decommissioning of the Proposed Development upon biodiversity. The full description of the Proposed Development is provided within **ES Volume 1, Chapter 3: Proposed Development Description [EN010158/APP/6.1]**.

7.1.2. This chapter is supported by the following figures presented in **ES Volume 3 [EN010158/APP/6.3]**:

- **Figure 3.5: Zonal Masterplan**;
- **Figure 3.7: Indicative Cable Crossings and Cable Corridors**;
- **Figure 3.8: Indicative Location of Primary and Secondary Construction Compounds**;
- **Figure 3.9: Indicative Construction and Operational Access**;
- **Figure 7.1: Location of Statutory Designated Sites**;
- **Figure 7.2: Location of Non-statutory Designated Sites**;
- **Figure 7.3: UKHab Habitat Classification Survey Results**; and
- **Figure 7.4: Bechstein's bat Home Range and Core Sustenance Zone in relation to Rosefield Solar Farm Order Limits**.

7.1.3. This chapter is further supported by the following technical appendices presented in **ES Volume 4 [EN010158/APP/6.4]**. These present the full details of the study areas, survey methodologies, survey dates and guidance used for each survey. A summary of survey findings is provided in this chapter.

- **Appendix 7.1: Preliminary Ecological Appraisal (2022) (Confidential)**;
- **Appendix 7.2: Bat Preliminary Roost Assessment Report (2022)**;
- **Appendix 7.3: Wintering Bird Survey Report (2022)**;
- **Appendix 7.4: Breeding Bird Survey Report (2022) (Confidential)**;
- **Appendix 7.5: Great Crested Newt Habitat Suitability Index and Environmental DNA Report (2023)**;
- **Appendix 7.6: Badger Survey Report (2022) (Confidential)**;
- **Appendix 7.7: Preliminary Ecological Appraisal (2025)**;

- **Appendix 7.8: Otter and Water Vole Survey Report (2023) (Confidential)**;
- **Appendix 7.9: Preliminary Aquatic Survey Report (2023)**;
- **Appendix 7.10: Bat Activity Survey Report (2024)**;
- **Appendix 7.11: Wintering Bird Survey Report (2024)**;
- **Appendix 7.12: Breeding Bird Survey Report (2024) (Confidential)**;
- **Appendix 7.13: Arboricultural Impact Assessment**;
- **Appendix 7.14: Bat Preliminary Roost Assessment Report (2025)**;
- **Appendix 7.15: Badger Survey Report (2025) (Confidential)**;
- **Appendix 7.16: Paired Static Bat Detector Survey Report (2025)**; and
- **Appendix 7.17: Biodiversity Net Gain Assessment**.

7.1.4. This chapter is also supported by the following documents:

- **Outline Construction Environmental Management Plan (Outline CEMP) [EN010158/APP/7.2]**;
- **Outline Operational Environmental Management Plan (Outline OEMP) [EN010158/APP/7.3]**;
- **Outline Decommissioning Environmental Management Plan (Outline DEMP) [EN010158/APP/7.4]**;
- **Outline Landscape and Ecological Management Plan (Outline LEMP) [EN010158/APP/7.6]**;
- **Appendix 1: Green and Blue Infrastructure Parameters** of the **Outline LEMP [EN010158/APP/7.6]**;
- **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]**;
- **Appendix 3: Vegetation Removal Parameters** of the **Outline LEMP [EN010158/APP/7.6]**;
- **Outline Soil Management Plan (Outline SMP) [EN010158/APP/7.7]**;
- **Outline Drainage Strategy [EN010158/APP/7.11]**; and
- **Habitat Regulations Assessment: No Significant Effects Report [EN010158/APP/5.3]**.

7.1.5. This chapter should also be read in conjunction with the following assessment chapter(s):

- **Chapter 6: Air Quality [EN010158/APP/6.2]**;
- **Chapter 10: Landscape and Visual [EN010158/APP/6.2]**;

- **Chapter 11: Land and Groundwater [EN010158/APP/6.2]**;
- **Chapter 12: Soil [EN010158/APP/6.2]**;
- **Chapter 13: Noise and Vibration [EN010158/APP/6.2]**;
- **Chapter 15: Transport and Access [EN010158/APP/6.2]**;
- **Chapter 16: Water [EN010158/APP/6.2]**; and
- **Chapter 17: Cumulative Effects [EN010158/APP/6.2]**.

7.2. Legislative framework, planning policy and guidance

7.2.1. This assessment has been undertaken with regard to the following legislation, planning policy and guidance.

7.2.2. It should be noted that this chapter does not assess the compliance of the Proposed Development against relevant planning policy. Such an assessment is presented in the **Planning Statement [EN010158/APP/5.7]**.

Legislation

- The Wildlife and Countryside Act 1981 (as amended) **[Ref. 7-1]**;
- The Conservation of Habitats and Species Regulations 2017 (for England and Wales) (the Habitats Regulations). **[Ref. 7-2]**. This domestic legislation implements the European Commission Habitats Directive (92/43/EEC) **[Ref. 7-3]**;
- The Environment Act 2021 **[Ref. 7-4]**;
- Countryside and Rights of Way Act 2000 **[Ref. 7-5]**;
- The Natural Environment and Rural Communities Act 2006 **[Ref. 7-6]**;
- The Hedgerows Regulations 1997 **[Ref. 7-7]**;
- Protection of Badgers Act 1992 **[Ref. 7-8]**;
- The Wild Mammals (Protection) Act 1996 **[Ref. 7-9]**;
- Invasive Alien Species (Enforcement and Permitting) Order **[Ref. 7-10]**; and
- European Commission Birds Directive (2009/147/EC) **[Ref. 7-11]**[1].

[1] Certain UK bird species (including some wintering species) are protected at an international level under the European Commission (EC) Directive on the Conservation of Wild Birds 2009 (2009/147/EC). These species are afforded enhanced legal protection and European Union member states have a responsibility

National planning policy

- Overarching National Policy Statement for Energy (NPS EN-1) (2023) – Section 5.4 details the planning policy for biodiversity and Environmental Impact Assessment (EIA) requirements **[Ref. 7-12]**;
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2023) – Section 2.10 details the planning policy for solar photovoltaic generation in relation to biodiversity **[Ref. 7-13]**;
- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2023) – Section 2.5 details the planning policy for environmental and biodiversity net gain. Sections 2.9 and 2.10 discuss biodiversity conservation **[Ref. 7-14]**;
- National Planning Policy Framework (2024) – Section 15 specifies the requirements for conserving and enhancing the natural environment through the planning and development process to minimise impacts on habitats and biodiversity **[Ref. 7-15]**;
- A Green Future: Our 25-year plan to improve the Environment **[Ref. 7-16]**;
- Environmental Improvement Plan 2023 **[Ref. 7-17]**; and
- Biodiversity 2020: A strategy for England's wildlife and ecosystem services **[Ref. 7-18]**.

Local planning policy

- Vale of Aylesbury Local Plan (VALP) 2013 – 2033 (Adopted September 2021) **[Ref. 7-19]**, specifically:
  - Policy NE1 'Biodiversity and Geodiversity' relates to the protection of Internationally and nationally important protected sites and species.
  - Policy NE2 'River and stream corridors' relates to the protection of the functions and setting of any watercourse and its associated corridor.
  - Policy NE8 'Trees, hedgerows and woodlands' relates to the enhancement and expansion of Aylesbury Vale's tree, hedgerow and woodland resource, including native black poplars.
- Buckinghamshire and Milton Keynes Forward to 2030: Biodiversity Action Plan (2023) **[Ref. 7-20]**, specifically Objectives 1 to 7:

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to maintain populations of these species. This Directive is transposed into English law through the Conservation of Habitats and Species Regulations 2017 (as amended). As such, the requirements of the EC Birds Directive (2009/147/EC) apply despite the UK no longer being a member state of the European Union.

- 1. Retain, enhance, expand and create priority habitats everywhere, with a focus on BOAs and strategically-identified areas.
- 2. Increase the overall land area of wildlife-important habitats and of land positively managed for wildlife and high nature value habitats.
- 3. Enhance existing habitats and improve habitat condition.
- 4. Create and manage buffers around existing and new areas of priority habitat and other core and high-quality biodiversity and habitat sites following best practice guidelines.
- 5. Connect quality habitats across the landscape to enable species movement across larger areas to improve habitat and species resilience to external pressures, with a focus on connectivity within and between BOAs as well as into the wider landscape.
- 6. Improve people's connectedness with nature, so that communities across Buckinghamshire and Milton Keynes value and understand the role of nature in mental and physical wellbeing.
- 7. Ensure biodiversity is a key factor in the design of the urban environment and of new developments.

Guidance

- The Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine v1.3 (2018, updated September 2024) **[Ref. 7-21]**;
- BS 42020:2013 British Standard Institution: Biodiversity Code of Practice for Planning and Development **[Ref. 7-22]**;
- Planning Practice Guidance – Natural Environment - describes key issues to protect and enhance the natural environment, including local requirements and approach to planning. Relevant sections include natural environment, climate change, biodiversity net gain and EIA **[Ref. 7-23]**;
- UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.2 (2025) **[Ref. 7-24]**; and
- The Statutory Metric: User Guide (2024) **[Ref. 7-25]**.

7.3. Stakeholder engagement

7.3.1. **Table 7.1** provides a summary of the stakeholder engagement activities undertaken separate from the Environmental Impact Assessment (EIA) scoping, Phase One Consultation, Phase Two Consultation and Targeted Consultation process. This table also details the matters raised, how such

matters have been addressed, and where they have been addressed within the Development Consent Order (DCO) Application documentation.

7.3.2. **ES Volume 4, Appendix 5.3: EIA Scoping Opinion Response Matrix [EN010158/APP/6.4]** presents the responses received in the EIA Scoping Opinion and the Applicant's response to each matter that has been raised.

7.3.3. **Appendices A4, J1, J2 and K3** of the **Consultation Report Appendices [EN010158/APP/5.2]**, which is submitted in support of the DCO Application, sets out the feedback received during Phase One Consultation, Phase Two Consultation and Targeted Consultation and how regard has been afforded by the Applicant to each matter raised.

Table 7.1: Summary of stakeholder engagement

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
Natural England	Microsoft Teams call on 14 September 2023	The Applicant provided a high-level introduction to the Proposed Development that detailed the survey work completed to date, known constraints, current project principles and offsets embedded into the preliminary design and further survey work to be completed. (1) Natural England confirmed its intent to designate a new Site of Special Scientific Interest (SSSI), the Bernwood SSSI, to include Sheephouse Wood SSSI, Finemere Wood SSSI and Grendon and Doddershall Woods SSSI under one SSSI designation. The citation for Bernwood SSSI will also include Bechstein's bat (*Myotis bechsteinii*), a species which is currently not listed within the citations for the existing SSSI designations. The Bernwood SSSI citation will also potentially	Further discretionary advice service (DAS) meetings were held with Natural England to discuss the Bernwood SSSI designation proposals, Proposed Development evolution and the embedded mitigation design (details of meetings are provided below). (1) At the time of writing (September 2025), limited information on the proposed Bernwood SSSI designation is publicly available and the date for designation is not yet known. Therefore, the proposed Bernwood SSSI has not been specifically considered in the assessment presented in this chapter as a receptor in its own right. However, Sheephouse Wood SSSI, Finemere Wood SSSI, Grendon and Doddershall Woods SSSI, ancient woodland and Bechstein's bats (all of which would fall under the proposed Bernwood	(2,3) **Section 7.7** of this chapter presents the embedded mitigation measures relevant to biodiversity. (2,3) **Section 7.9** of this chapter presents proposed additional mitigation measures. (2,3) Mitigation measures are detailed in and secured by the **Design Commitments [EN010158/APP/5.9]**, **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3]**, **Outline DEMP [EN010158/APP/7.4]** and **Outline LEMP [EN010158/APP/7.6]**.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		include all the ancient woodland and some agricultural land between the current SSSI designations to cover core roosting, foraging and commuting bat habitat; however, this is still being confirmed by Natural England. (2) Natural England advised they would like the Solar PV modules to be set back as far as possible from the SSSI designations and High Speed 2 (HS2) mitigation planting. Natural England had concerns about Solar PV modules abutting Runt's Wood and the surrounding of woodland. Natural England confirmed that they do not have a typical standoff distance, but would recommend siting Solar PV modules away from woodland. (3) Natural England confirmed that there is a potential displacement effect to bats that will need to be	SSSI designation) have all been scoped into the assessment (see **Table 7.2** below). Therefore, the Applicant considers that the conclusions of these individual assessments can be applied to the Bernwood SSSI, should the SSSI be designated following submission of the DCO Application and before the DCO Application is determined. (2) The Applicant amended the design of the Proposed Development to include buffer distances of at least 30m from all fence lines within the Proposed Development to statutorily and locally designated wildlife sites and woodland/hedgerow along boundary of Fields D28/D29 linking Finemere Wood and Runt's Wood and 20m from HS2 mitigation planting. In addition, removal of Solar PV modules within several locations across the Site has been incorporated into the design,	(3) **Section 7.8** and **Section 7.10** of this chapter provide the assessment of likely effects of the Proposed Development to bats and statutory designated sites. **ES Volume 1, Chapter 4: Reasonable Alternatives Considered [EN010158/APP/6.1]** provides detail regarding the design evolution of the Proposed Development. (4) Cumulative effects on biodiversity are discussed in **ES Volume 2, Chapter 17: Cumulative**

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		considered, alongside the foraging risk and providing suitable buffer areas. (4) Natural England also noted that consideration would also need to be given to the HS2 mitigation planting so that the benefits of this (both for bats and invertebrates) is not compromised. Natural England's main concerns are the impacts on ecological designations, in-combination impacts with HS2, East West Rail and the Calvert waste site and Solar PV development in proximity to woodland, particularly around Parcel 1a which is known to be a key area for bats.	including Parcel 1a (Fields C1, C2 and C3). (3) This chapter includes an assessment on how the land affected by the Proposed Development is currently being used by bats for foraging, commuting and roosting, including the potential for displacement effects to foraging and commuting bats, which has fed into the mitigation design. The layout of the Proposed Development and the extents of the Order Limits have undergone several stages of design changes taking into account feedback received from Natural England, Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust and Buckinghamshire Council. (4) The assessment of cumulative effects on biodiversity includes an assessment of in- combination (inter-project) effects of the Proposed	**Effects [EN010158/APP/6.2]**.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
			Development with HS2, East West Rail, the Calvert waste site and other existing development and/or approved developments.	
Natural England	Teams call meeting on 22 February 2024	(1) The Applicant presented updates to the Zonal Masterplan design, discussed EIA Scoping Opinion comments raised by Natural England, presented an overview of the results of bat activity surveys undertaken and further survey requirements, and presented high-level mitigation proposals. The Applicant also requested an update on the proposed Bernwood SSSI designation. (1) Natural England noted that the revised masterplan progress is heading in a positive direction, in particular the removal of a number of fields that Natural England had flagged previously as being of	(1) In response to the ongoing consultation and review of survey data, the design of the Proposed Development has evolved to include appropriate mitigation measures across the Site. Solar PV modules in Parcel 1a were removed from the zonal masterplan and used as a dedicated biodiversity mitigation area.	(1) **Section 7.7** of this chapter presents the embedded mitigation measures relevant to biodiversity. (1) **Section 7.9** of this chapter presents proposed additional mitigation measures. (1) Mitigation measures are detailed in and secured by the **Design Commitments [EN010158/APP/5.9]**, **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3]**,

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		concern. However, Natural England was still concerned about the inclusion of Solar PV modules in Parcel 1a which at the time of the meeting was still included within areas for Solar PV module placement. Natural England was still progressing with the SSSI notification updates and therefore was still not able to share maps of the new SSSI boundary. No further comment was provided on scoping of surveys.		**Outline DEMP [EN010158/APP/7.4]** and **Outline LEMP [EN010158/APP/7.6]**.
Natural England	Microsoft Teams call on 04 September 2024	(1) A revised Zonal Masterplan design along with the updated landscape and mitigation proposals was presented to Natural England. Natural England raised concerns regarding changes to the current grazing regime across the study area. The Applicant advised that	(1) Management of grassland across the Site will likely be undertaken by a combination of sheep and cattle grazing. If grazing for any reason is not possible then a late summer hay cutting regime will be implemented. This is detailed within the **Outline LEMP [EN010158/APP/7.6]**.	(1,2) Habitat management proposals are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**. (2) Assessment of hydrological impacts

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		areas free of Solar PV modules are likely to be grazed by cattle as part of the operational management regime, with sheep used for areas where Solar PV modules are located. (1) The Applicant raised its preference to have some of the landscape proposals managed by sheep-grazing rather than mowing, though mowing would occur if grazing were not feasible. (2) Natural England queried the hydrological regime of the Order Limits and if the Order Limits supports areas of wetland habitat. The Applicant stated areas of damp grassland within mitigation areas will be retained, along with restoration of defunct ponds and existing watercourses, ditches and ponds being retained with appropriate buffers.	(2) No significant areas of wetland habitat have been identified within the Order Limits. Areas of the Order Limits that support areas of damp grassland within mitigation areas will be retained and managed along with pond restoration and creation proposals to provide foraging resource for bats, as detailed within the **Outline LEMP [EN010158/APP/7.6]**. There are no proposals to increase drainage of the Site, with no significant effects to hydrology regime for either surface or groundwater predicted. Solar PV modules will be maintained on steel frames over a vegetative cover, with limited amounts of concrete required. Minor amounts of attenuation will be required around some infrastructure such as the Battery Energy Storage System (BESS) and Rosefield Substation. Further detail is provided	are presented within **ES Volume 2, Chapter 16: Water [EN010158/APP/6.2]**. (3) **Section 7.7** of this chapter presents the embedded mitigation measures relevant to biodiversity. (4) Results of GLTA are presented within **ES Volume 4, Appendix 7.2: Bat Preliminary Roost Assessment Report (2022) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.14: Bat Preliminary Roost Assessment Report**

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		(3) Natural England noted mitigation and enhancement measures are beneficial. They expressed an interest in how the mitigation has been designed to provide focus on function with specifics on key areas used by commuting/foraging bats and additional targeted mitigation in the areas of higher bat activity. (4) The bat activity report (**ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**) was reviewed and the Applicant raised that Ground Level Tree Assessments (GLTA) were undertaken in 2022 based on a reduced study area. Additional GLTA surveys will be undertaken on areas not yet surveyed to ensure there is a complete data set to inform the ES. The Applicant stated that the current bat activity report is a standalone report.	within **ES Volume 2, Chapter 16: Water [EN010158/APP/6.2]**. (3) Justification for key offsets and buffer distances incorporated into the design of the Proposed Development for the benefit of bats is provided within **Section 7.7** of this chapter. (4) Updated GLTA surveys have been undertaken across the Site to include areas that were not part of the Order Limits in 2022. The results of GLTA surveys are presented within **ES Volume 4, Appendix 7.2: Bat Preliminary Roost Assessment Report (2022) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.14: Bat Preliminary Roost Assessment Report (2025) [EN010158/APP/6.4]**. (4) A formal response to Natural England's review of the bat activity report was provided to Natural	**(2025) [EN010158/APP/6.4]**. (4) **Section 7.9** of this chapter presents proposed additional mitigation measures. (2,4) Mitigation measures are detailed in and secured by the **Design Commitments [EN010158/APP/5.9]**, **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3]**, **Outline DEMP [EN010158/APP/7.4]**, **Outline LEMP [EN010158/APP/7.6]** and **Outline Drainage Strategy [EN010158/APP/7.11]**

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		(5) Natural England raised a query regarding the potential significant loss of cattle grazing across the Site to accommodate the Solar PV development which could result in the reduction of insect biomass leading to a significant reduction of bat foraging resources. (6) Natural England raised concerns that the bat activity survey results for the Order Limits were concentrated along woodland margins and hedgerows but given that open fields were not surveyed, conclusions surrounding the impact on bat activity cannot be drawn if open field data has not been collected to compare levels of activity against field margins. In response, the Applicant stated that surveys are usually focused on boundary features as this is where most bat	England by the Applicant on 04 October 2024. (5) The Proposed Development has aimed to keep as much grassland as possible to avoid a reduction of cattle grazing across the Site, and most of the Solar PV development will be located in arable fields. Details on grassland areas lost, created and enhanced are provided within **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]**, which also presents the full details of all habitat areas and lengths located within the Order Limits that are lost, created and enhanced. (6) Paired static detector surveys have been undertaken to compare levels of bat activity, in particular *Myotis* species, at boundary features and within open field habitats. This is presented within **ES Volume 4,**	(5) BNG proposals including grassland losses are presented in **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]**. (6) Paired static detector bat survey results are presented within **ES Volume 4, Appendix 7.16: Paired Static Detector Survey Report (2025) [EN010158/APP/6.4]**.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		activity is typically found, and activity was generally low. (7) Natural England stated there was no update on the progress of the proposed Bernwood SSSI designation and confirmed that all data that is available in support of the proposed Bernwood SSSI designation have been published.	**Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**. (7) Natural England has since confirmed that regarding the proposed Bernwood SSSI, the information that is publicly available is the only information it is able to share with the Applicant.	
Natural England	Microsoft Teams meeting on 11 November 2024	A review of the Applicant's response to Natural England's review of the bat activity report was undertaken. (1) Natural England raised uncertainty of the study area that had been used to date for bat surveys and sought clarity over what areas were and were not surveyed and asked the Applicant to provide a map detailing which areas were surveyed, including when they were surveyed and by which consultancy and at	(1) Study areas for bat surveys undertaken are provided within **Table 7.2** of this chapter. (1) Figures detailing the survey areas for GLTA surveys are detailed within **ES Volume 4, Appendix 7.2: Bat Preliminary Roost Assessment Report (2022) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.14: Bat Preliminary Roost Assessment Report (2025) [EN010158/APP/6.4]**. (1) Figures detailing the survey areas for bat activity surveys are presented	(1) Study areas for bat surveys undertaken are provided within **Table 7.2** of this chapter. (1) **ES Volume 4, Appendix 7.2: Bat Preliminary Roost Assessment Report (2022) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.14: Bat Preliminary Roost**

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		which stage the study area has changed. (2) Natural England clarified that the raw data from the Natural England (2024) report **[Ref. 7-26]** is not required to be mapped and interpreted within the ES, only the maps that are included within the Natural England (2024) report **[Ref. 7-26]** should be reviewed. (2) Natural England raised concern over insufficient survey effort in areas subject to cattle grazing (west of Parcel 1) as these areas have been flagged as important for foraging Bechstein bats by the Natural England (2024) report **[Ref. 7-26]**. Natural England raised that if cattle are moved around the estate regularly, then efforts should be made to survey these areas west of Parcel 1 in the 2025 season. In response, the Applicant raised that	within **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**. (1) Figures detailing the survey areas for paired static surveys are presented within **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**. (2) Given the extensive bat survey effort that has been undertaken in relation to the HS2 project, the Applicant is aware that the western area of Parcel 1 forms part of the Bernwood population of Bechstein's bats core sustenance zone and home range; therefore, the Applicant has not undertaken further bat surveys in this area. A lack of survey data for a small number of fields will not alter the conclusions regarding the importance of the core sustenance zone. The results of these surveys are used with this ES, negating the need to	**Assessment Report (2025) [EN010158/APP/6.4]**. (1) **ES Volume 4, Appendix 7.16: Paired Static Detector Survey Report (2025) [EN010158/APP/6.4]**. (1) **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**. (2) **Section 7.8** and **Section 7.10** of this chapter provides the assessment of likely effects of the Proposed Development to bats and statutory designated sites.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		efforts had been made to survey these fields; however, logistical issues such as having to fit around tenant farmers grazing routines led to difficulty reaching a compromise to accommodate ecology surveys. But also, that comparable areas with cattle grazing were surveyed and the Applicant knows from the Natural England (2024) report **[Ref. 7-26]** that areas that were not surveyed are part of the Core Sustenance Zone for Bechstein's. (3) Natural England queried if information collected on bat statics for the Proposed Development can be compared against static data from other sites to back up the statement that based on professional judgement, the levels of bat activity across the Site are considered low. In response, the Applicant raised the difficulty surrounding this due to	undertake further survey of this area of the Order Limits. This approach was subsequently agreed with Natural England at a meeting on 11 March 2025. (3) The Applicant has revised the report to remove the statement that based on professional judgement the levels of bat activity were considered low. (4) At the time of writing (September 2025), limited information on the proposed Bernwood SSSI designation is publicly available and the date for designation is not yet known. Therefore, the proposed Bernwood SSSI has not been specifically considered in the assessment presented in this chapter as a receptor in its own right. However, Sheephouse Wood SSSI, Finemere Wood SSSI, Grendon and Doddershall Woods SSSI, ancient woodland and	

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		factors including the quality of equipment used on other sites that have submitted results to Ecobat for comparison which would not allow for an accurate comparison. (4) Natural England queried if they would be able to review and comment of the draft ES prior to submission. Natural England will require an assessment of the Proposed Development in relation to the proposed Bernwood SSSI designation and a pre-emptive impact assessment based on the proposed Bernwood SSSI designation based on the publicly available information.	Bechstein's bats (all of which would fall under the proposed Bernwood SSSI designation) have all been scoped into the assessment (see **Table 7.2** below). Therefore, the Applicant considers that the conclusions of these individual assessments can be applied to the Bernwood SSSI, should the SSSI be designated following submission of the DCO Application and before the DCO Application is determined. (4) The Applicant issued a pre-submission draft of the ES chapter to Natural England for review and comment on 25 July 2025. However, due to time constraints, the Applicant has been unable to take on board any of the comments received prior to submitting the DCO Application, but is committed to continuing consultation with Natural England prior to and during the DCO Examination.	

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
Natural England	Microsoft Teams meeting on 11 March 2025	(1) The Applicant presented to Natural England updates to Zonal Masterplan and Outline Landscape and Ecological Enhancement and Mitigation Plan along with early planting proposals, grazing proposals and survey updates. (1) The main change to the overall Zonal Masterplan was a large reduction of the study area between Parcel 1 and 2 where the Interconnecting Cable Corridor is proposed and removal of Satellite Collector Compound within Field B10. Updates to landscape plans included increasing the number of ponds proposed to be created, early planting proposals and increased buffer around Field D29 and partially Field D28.	(1,2,3,4) The Applicant has amended the design of the Proposed Development to include buffer distances of at least 30m from fence lines within the Proposed Development to woodland/hedgerow along the boundary of Fields D28/D29 linking Finemere Wood and Runt's Wood. Setbacks from hedgerows in Fields B3, B6, B7, B8 and B10 that link Shrubs Wood, Sheephouse Wood and Decoypond Wood have also been increased from 10m to 15m with a mosaic of species-rich grassland and arable field margins proposed along with strengthening of the existing hedgerows to provide a wide corridor link (30m between fence lines and 40m between the edges of the closest solar panels) between these woodlands, helping to reduce potential displacement effects from Solar PV to foraging and commuting bats and ensure the connectivity between these	(1,2,3,4) Mitigation measures are detailed in and secured by the **Design Commitments [EN010158/APP/5.9]**, **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3]**, **Outline DEMP [EN010158/APP/7.4]** and **Outline LEMP [EN010158/APP/7.6]**.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		(2) Natural England raised ongoing concerns regarding the study area around Shrubs Wood in Fields B6 and B7 and requested the removal of Solar PV development in these fields to avoid the isolation of this woodland block and maintain connectivity. Natural England would like this addressed within the ES and justification provided for the proposed mitigation and enhancement proposals that have been tailored between Shrubs Wood and Sheephouse Wood to ensure connectivity. (3) In response, the Applicant confirmed this was noted within the PEIR response and was considered when undertaking revisions to the design of the Proposed Development. As the Proposed Development has been scaled back across the study area between	woodlands is maintained, as detailed within **Section 7.7** of this chapter. (3) The Applicant provided a response to Natural England PEIR Section 42 response on 30 June 2025. (5) Natural England has confirmed that regarding the proposed Bernwood SSSI, the information that is publicly available is the only information it is able to share with the Applicant. (5) The Applicant to agree ES timetable, what stage of the ES drafting it would be appropriate for Natural England to review the ES and to ensure it fits with Natural England timescales. (5) The Applicant issued a pre-submission draft of the ES chapter to Natural England for review and comment on 25 July 2025. However, due to time constraints, the Applicant has been unable to take on board any	

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		Phase One Consultation and Phase Two Consultation, there is no further scope to remove additional fields from Solar PV development without impacting generating capacity. (4) Natural England requested an increase in hedgerow buffers in key locations where bat commuting activity is high; this included queries regarding width of Solar PV modules and how removal of Solar PV modules would impact potential increases to buffers. The Applicant advised that as operation is not proposed to commence until 2031, the Proposed Development is not at the stage where Solar PV module design has been finalised. (5) The proposed Bernwood SSSI designation is still progressing and Natural England is awaiting confirmation if the boundary of the	of the comments received prior to submitting the DCO Application, but is committed to continuing consultation with Natural England prior to and during the DCO Examination.	

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		proposed Bernwood SSSI can be provided to the Applicant.		
Natural England	Microsoft Teams on 31 March 2025	The Applicant provided an introduction to the Proposed Development for Natural England members, a summary of GCN survey works and progress updates with mitigation plans and proposals. The Applicant has discussed the District Level Licensing approach with NatureSpace; their cost model is not yet appropriate for large scale developments such as solar farms. Given the retention of ponds and creation of new habitat, the Proposed Development may seek to utilise the traditional mitigation licence route as opposed to District Level Licensing. This would require population class estimate surveys and a ghost licence would need to be submitted in support of the DCO	Works with the potential to affect GCN would be carried out either under the Buckinghamshire District Level Licensing scheme through NatureSpace Partnership or under a European Protected Species mitigation licence from Natural England. The licensable works would encompass clearance, and construction/decommissioning works required within the intermediate and distant habitat zones of ponds (likely up to 250m) within the Order Limits. Both licensing options are still under consideration by the Applicant, to be confirmed prior to construction. The Applicant provided the Zonal Masterplan, Ecological Mitigation and Enhancement Plan along with **ES Volume 4, Appendix 7.5: Great**	**Section 7.9** of this chapter presents proposed additional mitigation measures relating to GCN. Mitigation measures are detailed in and secured by the **Design Commitments [EN010158/APP/5.9]**, **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3]**, **Outline DEMP [EN010158/APP/7.4]** and **Outline LEMP [EN010158/APP/7.6]**.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		Application to obtain a letter of no impediment from Natural England.	**Crested Newt Habitat Suitability Index and Environmental DNA Report (2023) [EN010158/APP/6.4]** for Natural England to review and provide feedback.	
Natural England	Microsoft Teams on 15 July 2025	(1) The Applicant provided an overview of the Biodiversity ES chapter to Natural England ahead of Natural England undertaking its review. (2) The Applicant provided a summary of the paired static receptor surveys noting that there was a significantly greater level of bat activity recorded along hedgerows compared to open field locations. The results of the surveys provide confidence that the mitigation that has been incorporated into the design of the Proposed Development, retaining and enhancing the boundary features to	(1) The Applicant issued a pre-submission draft of the ES chapter to Natural England for review and comment on 25 July 2025. However, due to time constraints, the Applicant has been unable to take on board any of the comments received prior to submitting the DCO Application, but is committed to continuing consultation with Natural England prior to and during the DCO Examination. (2) Full results of the paired static surveys are presented within **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**.	(2) **ES Volume 4, Appendix 7.16: Paired Static Detector Survey Report (2025) [EN010158/APP/6.4]**. (3,4) Mitigation measures and management of habitats are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		help maintain and improve connectivity across the Site. (3) The Applicant provided an update on mitigation proposals including increasing buffers from hedgerows that link Shrubs Wood, Sheephouse Wood and Decoypond Wood. (3) Natural England asked how mitigation areas had been determined. (4) Natural England asked if management of the Site was presented within the ES and if a general management regime was proposed across the whole Site with all areas treated with the same management.	(3) The Applicant confirmed mitigation areas were chosen based on where key locations for commuting and foraging bats had been identified through survey work and to link up woodland blocks (such as Parcel 1a and south of Parcel 2) but also where constraints to solar infrastructure meant that it wouldn't be possible to build in those locations meaning these areas could be used for dedicated ecology mitigation. The Applicant also advised that in key areas identified for commuting and foraging bats, offsets from hedgerows and woodland had been increased where possible, including along fields linking Finemere Wood and Runts Wood, hedgerows that link Shrubs Wood, Sheephouse Wood and Decoypond Wood and also along the Claydon Brook in most fields from 10m to 20m to the fence line, plus 5m to the fence line.	

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
			(4) The Applicant confirmed habitat management proposals are detailed within the **Outline LEMP [EN010158/APP/7.6]**. Proposed management is high level at this stage and will be refined at detailed design.	
Natural England	Site visit on 05 August 2025	Site visit undertaken with Natural England to look at proposed mitigation areas and links between woodland blocks in Parcels 1, 1a and 2.	Better understanding for Natural England of the existing biodiversity baseline conditions on-site and proposed mitigation measures. Discussions held informed measures included within the **Outline LEMP [EN010158/APP/7.6]**.	Mitigation measures are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.
Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust	Microsoft Teams call on 3 November 2023	Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust expressed concern about the proximity of the Order Limits to ecological receptors, noting areas proposed for biodiversity mitigation did not reflect potential for reconnecting woodlands. The Applicant noted these were initial areas and the	Further meetings were held with Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust to discuss the Proposed Development's evolution, including the embedded mitigation design (details of meetings are provided below). In response to the ongoing consultation and review of survey	**Section 7.7** of this chapter presents the embedded mitigation measures relevant to biodiversity. **Section 7.9** of this chapter presents

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		design of the Proposed Development would be revised to include larger mitigation areas and bigger offsets from woodlands and hedgerow at a more detailed design stage.	data, the design of the Proposed Development has evolved to include appropriate mitigation measures across the Site. The Applicant amended the design of the Proposed Development to include buffer distances of at least 30m from all fence lines within the Proposed Development to statutorily and locally designated wildlife sites and to woodland/hedgerow along the boundary of Fields D28/D29 linking Finemere Wood and Runt's Wood. and at least 20m from HS2 mitigation planting and other woodland areas to allow for high quality habitat creation to occur within these buffer areas. In addition, Solar PV modules have been removed from key locations including Parcel 1a, Knowl Hill (Field B17), half of Field B9, and the southern part of Parcel 2 (Fields D27 and D30 to D37). Setbacks from hedgerows in Fields	proposed additional mitigation measures. Mitigation measures are detailed in and secured by the **Design Commitments [EN010158/APP/5.9]**, **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3]**, **Outline DEMP [EN010158/APP/7.4]** and **Outline LEMP [EN010158/APP/7.6]**.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
			B3, B6, B7, B8 and B10 that link Shrubs Wood, Sheephouse Wood and Decoypond Wood have also been increased from 10m to 15m with a mosaic of species-rich grassland and arable field margins proposed along with strengthening of the existing hedgerows to provide a wide corridor link between these woodlands, helping to reduce potential displacement effects from Solar PV to foraging and commuting bats and ensure the connectivity between these woodlands is maintained.	
Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust	Microsoft Teams call meeting on 21 May 2024	Meeting held to discuss updates to the Zonal Masterplan design and Outline LEMP. Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust advised they would likely be objecting to the proposals.	(1) Additional targeted surveys GLTA for bat roosts, badger, UK Habitat and Hedgerow Regulations assessments and paired static bat detector surveys) have been undertaken to inform the biodiversity baseline. (2) A preliminary assessment for habitats suitable to support notable	(1,2) **Section 7.5** of this chapter presents the surveys that have been undertaken to inform the baseline. (2,3,4,6,7,8,9,10) **Section 7.7** of this chapter presents the

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		(1) An update on ecology surveys undertaken post-scoping was provided by the Applicant. (2) The Applicant provided justification as to why invertebrate surveys, in particular for black hairstreak butterfly (*Satyrium pruni*), were not proposed to be undertaken pre-DCO submission. Preliminary assessments have shown habitat within the Order Limits is suitable to support notable and protected invertebrate species and therefore their presence within the Order Limits was assumed. Mitigation was proposed to be incorporated into the design of the Proposed Development e.g., retention of woodland and hedgerows (other than for access) to ensure no loss of habitats suitable to support invertebrate species. (3) An overview of key offsets was provided to Berkshire,	and protected invertebrate species was undertaken as part of the preliminary ecological appraisal surveys (see **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal (2022) (Confidential)** and **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**). Blackthorn (*Prunus spinosa*), the food source for black hairstreak butterfly was recorded abundantly across the Site within hedgerows and woodland areas. Surveys undertaken by Natural England in support of the Bernwood SSSI designation also confirmed the presence of black hairstreak butterfly in the areas surround the Order Limits **[Ref. 7-27]**. Therefore, the Applicant can safely assume presence without the need for survey, this approach was agreed with Natural England. Areas of woodland that support Blackthorn within the Order Limits will be retained	embedded mitigation measures relevant to biodiversity. (2,4) **Section 7.9** of this chapter presents proposed additional mitigation measures. (2,3,4,6,7,8,9,10) Mitigation measures are detailed in and secured by the **Design Commitments [EN010158/APP/5.9]**, **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3]**, **Outline DEMP [EN010158/APP/7.4]** and **Outline LEMP [EN010158/APP/7.6]**.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		Buckinghamshire and Oxfordshire Wildlife Trust, who requested justification for buffer distances be included within the impact assessment. Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust was offered the opportunity to attend a site visit. (4) Mitigation and enhancement currently being proposed/considered was discussed and input from Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust into mitigation and enhancements was welcomed by the Applicant. (5) Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust advised biodiversity net gain (BNG) needs to be realistic as to what is achievable within the Order Limits, with justification provided along with detail	entirely, whilst hedgerows that support Blackthorn will be mostly retained in their entirety, although limited removals are required to facilitate access routes and/or underground cabling. Targeted surveys of sections of hedgerow that will require removal will be undertaken pre-construction to assess for the presence of black hairstreak butterfly eggs, with section of hedgerow that support black hairstreak eggs translocated to other areas within the Order Limits. There is not expected to be an overall loss of suitable habitat for invertebrate species, as hedgerows will be replanted and enhanced following completion of works and other habitat creation works secured through the **Outline LEMP [EN010158/APP/7.6]**. The Applicant is also in consultation with Natural England and local butterfly experts to ensure that mitigation proposals include habitat	(5) BNG proposals are presented in **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]** and **Outline LEMP [EN010158/APP/7.6]**. (2,3,4,6,7,8,9,10) Justification for key offsets and buffer distances is provided within **Section 7.7** of this chapter. (2,3,4,6,7,8,9,10) The biodiversity design is presented within and secured by the **Outline LEMP [EN010158/APP/7.6]**.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		of the proposed management and species mixes. (6) The Applicant advised it is keen to work with Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust on the Bernwood Biodiversity Opportunity Area. Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust advocated for habitat creation to be managed and maintained in perpetuity after decommissioning. The Applicant advised there is only control over the land for 40 years during the operation (including maintenance) phase. (7) Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust commented Solar PV development in Fields D29 and D28 south of Runt's Wood would likely result in isolation of woodland blocks in between. They noted buffers to provide connectivity	creation targeted to support notable and protected invertebrate species and ensure ecological connectivity is maintained for all species, secured through the **Outline LEMP [EN010158/APP/7.6]**. (5,6) The **Outline LEMP [EN010158/APP/7.6]** details how a minimum 10% net gain in biodiversity will be achieved using the latest version of the Statutory Biodiversity Metric. The biodiversity design will be realistic and cognisant of local biodiversity priorities already identified for the areas and in consultation with Natural England, Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust and Buckinghamshire Council. These measures will focus on compensating adverse effects on habitats and species already known, and to improve the Site for species that could feasibly colonise the Site in	

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		for wildlife were located between Solar PV modules and the woodland edge, but would ideally want Solar PV modules removed for that section. (8) Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust commented that the areas dedicated to ecological mitigation were looking promising and the design is heading in the right direction including the removal of fields within Parcel 1a from Solar PV development; however, they would like to see more mitigation areas throughout the Site. (9) Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust noted that there is limited mitigation proposed in the northern area of the Site, which is of lesser ecological importance. They would welcome additional mitigation in this location and for wider buffers adjacent to	the future given the surrounding landscape. (6) Ecological mitigation and enhancement areas would be handed over to the relevant landowners following decommissioning. Consultation with appropriate stakeholders and the landowner would be undertaken in advance of the decommissioning phase to discuss opportunities the landowner may wish to be undertaken to maintain and manage the ecological mitigation and enhancement beyond the lifespan of the Proposed Development, as appropriate. (3,4,6,7,8,9,10) In response to the ongoing consultation and review of survey data, the design of the Proposed Development has evolved to remove certain areas from development across the Site	

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		watercourses, given it is a key bat commuting area which the Proposed Development can help to link into the wider local landscape. (10) Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust advised that the connections between Shrubs Wood and Sheephouse Wood are also key for bats, and that the mitigation areas located between these two woodland blocks need to be as large and diverse as possible.	specifically for the use in dedicated biodiversity mitigation areas. (3,4,6,7,8,9,10) The Applicant amended the design of the Proposed Development to include buffer distances of at least 30m from fence lines within the Proposed Development to woodland/hedgerow along the boundary of Fields D28/D29 linking Finemere Wood and Runt's Wood. Setbacks from hedgerows in Fields B3, B6, B7, B8 and B10 that link Shrubs Wood, Sheephouse Wood and Decoypond Wood have also been increased from 10m to 15m with a mosaic of species-rich grassland and arable field margins proposed along with strengthening of the existing hedgerows to provide a wide corridor link between these woodlands, helping to reduce potential displacement effects from Solar PV to foraging and commuting bats and ensure the	

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
			connectivity between these woodlands is maintained.	
Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust	Microsoft Teams on 31 March 2025	(1) The Applicant delivered a presentation of the Proposed Development updates to Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust regarding layout, mitigation and grazing proposals. (2) Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust noted it was positive to see an increased buffer between Fields D28 and D29 to increase connectivity; however, they still requested the removal of Solar PV development from these fields. It was also noted it was positive to see further amendments to the identified areas of concern. (3) Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust noted that they were keen to ensure woodland connectivity is maintained and to see	(1,2) Setbacks from woodland and hedgerows have been embedded into the design of the Proposed Development. A mosaic of species-rich grassland and arable field margins are proposed along with strengthening of the existing hedgerows. These will provide a wide corridor link between woodlands, helping to reduce potential displacement effects from Solar PV to foraging and commuting bats and ensure the connectivity between these woodlands is maintained. (3) Monitoring of bat activity would be undertaken during the operation (including maintenance) phase to confirm the effectiveness of the embedded mitigation and further the evidence base regards effect of Solar PV modules on bats. This is detailed in	(1,2) Mitigation measures are detailed in and secured by the **Design Commitments [EN010158/APP/5.9]**, **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3]**, **Outline DEMP [EN010158/APP/7.4]** and **Outline LEMP [EN010158/APP/7.6]**. (3) Monitoring of bat activity during the operation (including maintenance) phase of the Proposed Development and mitigation measures

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		how the proposed mitigation measures work to reduce impacts on bats.	and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**.	are detailed in and secured by the **Outline OEMP [EN010158/APP/7.3]**, and **Outline LEMP [EN010158/APP/7.6]**.
Buckinghamshire Council	Via email 7 August 2024	The Buckinghamshire Council Ecology department was contacted to discuss the Proposed Development. An initial meeting was scheduled to be held in early September 2024 to discuss the survey work completed to date, known constraints, current project principles and offsets embedded into the preliminary design and further survey work to be completed. See below for details of the meeting that occurred 09 September 2024.	N/A	N/A
Buckinghamshire Council	Microsoft Teams on 09	(1) Buckinghamshire Council queried what the BNG aims for the Proposed Development are. In response, the	(1) The biodiversity design principles are presented within and secured by the **Outline LEMP**	(1) BNG proposals detailing minimum 10% BNG commitments are

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	September 2024	Applicant advised that BNG calculations had not been undertaken at that time; however, the aim is to achieve 10% BNG as a minimum. (2) Buckinghamshire Council stated that any sections of hedgerows that would need to be removed should have targeted surveys for black hairstreak butterfly undertaken and any sections identified as supporting black hairstreak eggs would require translocation. The Applicant advised that this would be considered as part of the mitigation measures detailed within the ES. (3) Buckinghamshire Council advised that there are significant numbers of veteran and ancient trees across the Site that are suitable to support bat roosts, including Bechstein's bats, and they would expect these trees to be retained. The Applicant confirmed	**[EN010158/APP/7.6]**. This outlines how a minimum 10% net gain in biodiversity will be achieved based on **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]**. (1) The biodiversity design principles set out within the **Outline LEMP [EN010158/APP/7.6]** will be realistic and cognisant of local biodiversity priorities already identified for the area and has considered the consultation feedback from consultees. The detailed Landscape and Ecological Management Plan will be produced in consultation with Natural England, Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust and Buckinghamshire Council. These measures focus on compensating	presented in **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]**. (1,2,3,4,5,6,7) Mitigation measures including BNG proposals are detailed in and secured by the **Design Commitments [EN010158/APP/5.9]**, **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3]**, **Outline DEMP [EN010158/APP/7.4]** and **Outline LEMP [EN010158/APP/7.6]**. (4,5,6) **Sections 7.4**, **7.5**, **7.7**, **7.8**, **7.9 and 7.10** of this chapter

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		these trees will be retained where possible, with appropriate buffers of likely 15m unless arboriculture surveys suggest larger. (4) The Applicant outlined that for great crested newts (GCN), a District Level Licence or European Protected Species licence from Natural England will both be considered. (5) Hazel dormouse (*Muscardinus avellanarius*) has been scoped out of the survey effort and assessment as there is a lack of records within the area and woodlands will be retained and limited hedgerow removal will occur. (6) The study area has taken skylark (*Alauda arvensis*) territories as a proxy for all ground nesting bird species to estimate the area of ground nesting bird habitat that will need to be incorporated into the	adverse effects on habitats and species already known, and to improve the Site for species that could feasibly colonise the Site in the future given the surrounding landscape. BNG calculations which are based upon the biodiversity design principles set out within the **Outline LEMP [EN010158/APP/7.6]** and are presented in **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]**. (2) Targeted surveys of sections of hedgerow that will require removal will be undertaken pre-construction to assess for the presence of black hairstreak and brown hairstreak (*Thecla betulae*) butterfly eggs, with sections of hedgerows that support black hairstreak and brown hairstreak eggs translocated to other areas within the Order Limits.	present the assessment for GCN, hazel dormice, ground nesting birds and wintering birds.

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		design of the Proposed Development. Provisions to support wintering bird species will also be incorporated into the design of the Proposed Development through inclusion of bird seed mixes within field margins. (7) The Applicant advised that some footpaths have been amended and diverted to establish buffers for the Proposed Development. Security lighting will be directional, infra-red and on demand to reduce impact on nocturnal species. Fencing will be around the inside of each solar field enabling large mammals such as deer to move across the landscape between field boundaries and fencing. Other mammals such as badgers will likely push underneath the fence at low points as the fence will not be buried and will be able to access to forage beneath panels.	(3) Offsets from tree Root Protection Areas of ancient and veteran trees to the principal components of the Proposed Development will be applied as far as reasonably practicable. (4,5,6) The ES includes an assessment of the potential impacts to GCN, hazel dormouse, ground nesting birds and wintering birds from the Proposed Development. (7) The lighting design would limit impact on sensitive receptors by directing lighting downward and away from the Order Limits and existing vegetation. During operation (including maintenance), no part of the Proposed Development would be continuously lit; manually operated and motion detection lighting would be utilised for operational and security purposes. Passive infra-red detectors (PID) would be implemented around Solar PV modules, and lighting sensors	

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		.	implemented around the Rosefield Substation and BESS compound. (7) Use of lighting only when necessary and directing lighting downward, away from boundaries and vegetation, would reduce impact to bats and other nocturnal species such as badgers and otter (*Lutra lutra*). (7) Fencing that would enclose the Solar PV modules would incorporate clearances above ground, or mammal gates, to permit the passage of small mammal species such as hare and badger. Larger species such as deer will be able to move across the landscape along retained habitat buffers.	
Buckinghamshire Council	Microsoft Teams on 15 April 2025	(1) The Application delivered a presentation of the Proposed Development updates provided to Buckinghamshire Council regarding layout, mitigation and grazing	(1) Management of grassland within the Order Limits will be undertaken by a combination of sheep (under panels) and cattle grazing (areas not under panels) or cutting if grazing is not	(1,5) Habitat management proposals are detailed in and secured by the **Outline**

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		proposals, and additional survey works undertaken. (2) Buckinghamshire Council raised concern over lack of breeding bird surveys and wintering bird surveys within areas proposed for the Interconnecting Cable Corridors and Grid Connection Cable Corridor. Buckinghamshire Council typically request a 2:1 ratio for mitigation where ground nesting bird habitat is affected. (3) The Applicant advised that the works associated with the Interconnecting Cable Corridors would be short term and a temporary impact. Breeding and wintering bird survey for the Proposed Development span two years, the Applicant considers there to be sufficient data on the bird assemblage present against which to assess the short-term impacts of the	possible, as detailed within the **Outline LEMP [EN010158/APP/7.6]**. (1) Additional targeted surveys (UK Habitat and condition assessment survey, GLTA and badger surveys) have been undertaken to inform the biodiversity baseline upon which the assessment presented in this chapter is based. (2,3) Mitigation for ground nesting birds includes the creation/enhancement of *c*.95 ha of grassland within dedicated biodiversity mitigation areas. Details on grassland areas lost and created are provided within **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]**. (4) Monitoring of bat activity would be undertaken during the operation (including maintenance) phase to understand the effectiveness of the	**LEMP [EN010158/APP/7.6]**. (1,2) **Section 7.5** of this chapter presents the surveys that have been undertaken to inform the baseline. (3,5) **Section 7.7** of this chapter presents the embedded mitigation measures relevant to biodiversity. (3,5) **Section 7.9** of this chapter presents proposed additional mitigation measures. (3,4,5) Mitigation measures are detailed in and secured by the **Design Commitments [EN010158/APP/5.9]**, **Outline CEMP**

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		Interconnecting Cable Corridors. On completion of Interconnecting Cable Corridor works, these areas would be available for breeding and wintering birds to use again as land would be returned to agricultural use and hedgerow gaps replanted. Mitigation measures outlined within and secured by the **Outline CEMP [EN010158/APP/7.2]**, would ensure vegetation removal is either undertaken at the correct time of year to avoid the nesting bird season or the Interconnecting Cable Corridors would be subject to nesting bird checks prior to construction works occurring if undertaken during the breeding bird season. The Applicant advised that a calculation for ground nesting bird mitigation habitat had been undertaken using skylark as a proxy for all ground nesting birds, using the number of breeding skylark territories. It is	embedded mitigation and the effect of Solar PV modules on bats. This is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**. (1,5) Updated GLTAs have been undertaken across the Site to include areas that were not part of the Order Limits in 2022. The results of GLTA surveys are presented within **ES Volume 4, Appendix 7.2: Bat Preliminary Roost Assessment Report (2022) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.14: Bat Preliminary Roost Assessment Report (2025) [EN010158/APP/6.4]**. (5) In the first instance, trees with potential to support roosting bats would be retained and protected by appropriate buffers equal to the root protection zone. This would ensure the trees remain healthy and that bats can still roost and forage along the wide	**[EN010158/APP/7.2], Outline OEMP [EN010158/APP/7.3], Outline DEMP [EN010158/APP/7.4]** and **Outline LEMP [EN010158/APP/7.6]**. Vegetation removal is detailed within **Appendix 3: Vegetation Removal Parameters** of the **Outline LEMP [EN010158/APP/7.6]**. (4) Monitoring requirements are detailed within **Section 7.12** of this chapter. Monitoring of bat activity and of habitats created and enhanced to achieve BNG during the operation (including

Consultee	Date of engagement	Summary of matters raised	Outcome of engagement	Where this matter is addressed in the DCO Application documentation
		estimated that if managed correctly, the mitigation areas could support up to 0.5 skylark territories per hectare (ha) and this has been used to estimate the number of hectares of ground nesting bird mitigation required. (4) Buckinghamshire Council queried intentions for post-construction monitoring. The Applicant advised intentions for post development monitoring will include monitoring to ensure compliance with the BNG assessment and also monitoring to measure the efficacy of the proposed mitigation measures for bats. (5) Buckinghamshire Council asked how tree roost provision was to be protected.	buffer either side of hedgerows. In addition, buffers to woodland, and leaving all woodland in situ, will protect the woodland roosting resource. Should trees with bat roost potential require removal to facilitate access or cable routes, they will be subject to climbing and/or emergency surveys pre-construction. If bats are found, a European Protected Species licence will be applied for and mitigation agreed with Natural England at the pre-construction stage.	maintenance) phase of the Proposed Development are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**. (1,5) Results of GLTA surveys are detailed within **ES Volume 4, Appendix 7.2: Bat Preliminary Roost Assessment Report (2022) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.14: Bat Preliminary Roost Assessment Report (2025) [EN010158/APP/6.4]**.

7.4. Approach to identifying the scope of the assessment

Study area

7.4.1. All designated sites, sensitive habitats and species of importance that occur within the relevant ecological Zone of Influence (ZoI) of the Proposed Development are considered in this assessment. The extent of the ZoI varies according to the ecological receptor in question and with regards to the precautionary principle. The CIEEM Guidelines **[Ref. 7-21]** define the Zone of Influence as: *"…the area over which biodiversity features may be affected by biophysical changes as a result of the proposed project and associated activities"*.

7.4.2. In defining study and survey areas, consideration has been afforded to the geographic location, nature and scale of the Proposed Development. Further justification on these extents is included in the relevant technical appendices (see **ES Volume 4, Appendices 7.1** to **7.17 [EN010158/APP/6.4]**). The study area includes the area within the Order Limits (as displayed in **ES Volume 3, Figure 1.2: Order Limits [EN010158/APP/6.3]**) and appropriate ZoI, which varies per receptor, as detailed in **Table 7.2**. Where there are gaps in survey areas due to access restrictions, this is detailed within each of the survey report appendices.

7.4.3. The surveys undertaken prior to March 2025 (**ES Volume 4, Appendices 7.1** to **7.13 [EN010158/APP/6.4]**) were based on earlier versions of the Order Limits, as noted by the Planning Inspectorate within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**. Since the Order Limits have been updated, further surveys have been undertaken to encompass the additional areas (Interconnecting Cable Corridors and Grid Connection Cable Corridor) ensuring full coverage of survey data against which to assess the impacts of the Proposed Development.

7.4.4. The above approach complies with **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, within which the Planning Inspectorate stated that the ES should be informed by a programme of appropriate field surveys for the area within the Proposed Development's ZoI. This is expected to include the whole Site. Furthermore, a single preliminary ecological appraisal should also be prepared for the ES that includes updated desk-based records for the whole extent of the Order Limits. The ES should include habitat surveys which cover the whole Order Limits for the Proposed Development. Lastly, where possible, a set of consolidated survey reports should then be appended to the ES. This ES chapter provides all of the above requirements.

Table 7.2: Biodiversity study/survey areas

Receptor	Study/survey area
Statutory designated sites	A background data search for statutory designated sites has been completed within the Order Limits and up to 2km from the Order Limits, extended to 10km for Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites.
Non-statutory designated sites	A background data search for non-statutory designated sites has been completed within the Order Limits and up to 2km from the Order Limits.
Ancient woodland	A background data search for ancient woodland has been completed within the Order Limits and up to 2km from the Order Limits.
Protected or notable species data search	A background data search for records of protected or notable species has been completed within the Order Limits and up to 2km from the Order Limits.
Habitats and assessment of potential habitat for protected species	The survey area for the preliminary ecological appraisal of habitats, river condition assessment and assessment of potential for protected species encompasses the Order Limits.
Trees	The survey area for the arboricultural impact assessment comprises all trees within the Order Limits.
Hedgerows	The survey area for hedgerow surveys (ecological component of the Hedgerows Regulations 1997) encompasses the Order Limits.
Rare and notable arable (non-crop) plants	Notable arable plant surveys have been undertaken at targeted areas within the Order Limits.
Invasive species	The survey area for invasive species comprises the Order Limits.
Terrestrial and aquatic invertebrates	The survey area for terrestrial and aquatic invertebrates comprises the Order Limits.
Fish	The survey area for fish comprises the Order Limits.
Amphibians	The survey area for amphibians comprises the ponds and terrestrial habitat within the Order Limits and ponds within 500m of the Order Limits.

Receptor	Study/survey area
Reptiles	The survey area for reptiles comprises the Order Limits.
Bats	The survey area for bat activity surveys is Parcel 1, Parcel 1a, Parcel 2, and Parcel 3 (see **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]**). The survey area for preliminary GLTA for bat roosts comprises the Order Limits. In addition, the following areas of woodlands outside of the Order Limits have also been subject to GLTA: Shrubs Wood, Decoypond Wood, woodland block north west of Decoypond Wood, Sheephouse Wood, Romer Wood, Balmore Wood and Runt's Wood.
Water voles and otters	The survey area for otter and water vole (*Arvicola amphibius*) is the watercourses and ponds located within Parcel 1, Parcel 1a, Parcel 2, and Parcel 3 (see **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]**) and up to a 200m buffer from the Parcel boundaries where access allowed.
Badgers	The survey area for badgers comprises the Order Limits and a 30m buffer from the Order Limits where access allowed.
Breeding birds	The survey area for breeding bird surveys is Parcel 1, Parcel 1a, Parcel 2, and Parcel 3 (see **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]**).
Wintering birds	The survey area for wintering bird surveys is Parcel 1, Parcel 1a and Parcel 2 (see **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]**). Parcel 3 was surveyed in 2021-2022 (excluding Fields E20, E21, E22 and E23 which were subsequently added to the Order Limits). It was not possible to undertake wintering bird surveys within Parcel 3 in 2023-2024 due to access restrictions.

Scope of the assessment

7.4.5. The scope of this assessment has been established throughout the EIA process and design of the Proposed Development. Further information can be found in **ES Volume 1, Chapter 5: Approach to the EIA [EN010158/APP/6.1]**.

7.4.6. This section provides an update to the scope of the assessment from that presented in **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]** and re-iterates/updates the evidence base for scoping receptors/matters in or out following further iterative assessment.

Receptors/matters scoped into the assessment

7.4.7. **Table 7.3** presents the receptors/matters that are scoped into the assessment reported within this ES, together with appropriate justification.

Table 7.3: Receptors/matters scoped into the assessment

Receptor/matter	Phase	Justification
Statutory designated sites: Sheephouse Wood SSSI Finemere Wood SSSI Grendon and Doddershall Woods SSSI Ham Home-cum-Hamgreen Woods SSSI	Construction, operation (including maintenance) and decommissioning	These receptors are scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**. Furthermore, **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]** stated that the ES should include an assessment of the direct and indirect effects of the Proposed Development on SSSIs and their features and identify appropriate mitigation measures to avoid, minimise or reduce any potential adverse significant effects. This should include consideration of the ecological network with other woodland blocks. Potential effects from habitat fragmentation and from loss of supporting habitat should therefore be scoped into the assessment for all SSSIs identified within **Paragraph 6.2.8** of **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**, unless otherwise agreed with relevant consultation bodies.
Non-statutory designated sites within/adjacent to the Order Limits: Bernwood Biodiversity Opportunity Area Greatsea Wood Local Wildlife Site (LWS)	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. Specifically in relation to Bernwood Biodiversity Opportunity Area, the Planning Inspectorate noted that there is potential for changes to be made to the extent of some SSSIs in this area and that there are nationally and regionally important

Receptor/matter	Phase	Justification
Shrub Woods LWS Decoypond Wood LWS Romer Wood LWS Runts Wood LWS Finemere Wildlife Trust Reserve (WTR) Home Wood, Middle Claydon LWS Balmore Wood LWS		populations of bats within this Biodiversity Opportunity Area. The Planning Inspectorate considers that there is potential for significant effects to occur and that the Bernwood Biodiversity Opportunity Area and the potential effects on the coherence of the ecological network associated with it should be assessed as a receptor and scoped into the assessment. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Other non-statutory designated sites within 2km of the Order Limits	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Ancient woodland within/adjacent to the Order Limits	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was

Receptor/matter	Phase	Justification
		insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. Within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate also stated that the ES should consider the potential for areas of nationally important ancient woodland to be present within designated sites that are valued at lower than national importance to ensure that an appropriate value is assigned to these habitats. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Other ancient woodland sites within 2km of the Order Limits	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Hedgerows and hedgerow trees	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. Furthermore, the Applicant recognised that several

Receptor/matter	Phase	Justification
		sections of hedgerow will need to be removed to facilitate installation of underground cable, highways access and Internal Access Corridors. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Individual ancient and veteran trees	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. Within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate also noted that several target notes in the preliminary ecological appraisal identify the presence of standard trees within hedgerows and woodlands but do not indicate whether they have potential to be veteran or ancient trees. The ES should be supported by appropriate baseline data, including field survey, to identify the presence and condition of existing veteran and ancient trees, including hedgerow trees. Effects on ancient and veteran trees should be addressed in the ES, where there is potential for significant effects to occur. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Individual trees and lines of trees	Construction, operation (including	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was

Receptor/matter	Phase	Justification
	maintenance) and decommissioning	insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Cereal and non-cereal crops	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Lowland mixed deciduous woodland and other woodland	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Arable field margins	Construction, operation (including	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion**

Receptor/matter	Phase	Justification
	maintenance) and decommissioning	**[EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Ponds, watercourses and ditches	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Mixed scrub **Bramble scrub** **Other neutral grassland** **Modified grassland**	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Notable arable flora	Construction, operation	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**.

Receptor/matter	Phase	Justification
	(including maintenance) and decommissioning	However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Black hairstreak and brown hairstreak butterfly	Construction, operation (including maintenance) and decommissioning	Invertebrates (including black hairstreak and brown hairstreak butterfly) were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly)	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.

Receptor/matter	Phase	Justification
Great crested newt	Construction, operation (including maintenance) and decommissioning	Amphibians (including GCN) were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on this receptor for all phases of the Proposed Development. Within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate also noted that the District Level Licensing approach includes strategic area assessment and the identification of risk zones and strategic opportunity area maps. The ES should include information to demonstrate whether the Proposed Development is located within a risk zone for GCN. If the Applicant enters into the District Level Licensing scheme, Natural England will undertake an impact assessment and inform the Applicant whether their scheme is within one of the amber risk zones and therefore whether the Proposed Development is likely to have a significant effect on GCN. The outcome of this assessment will be documented in an Impact Assessment and Conservation Payment Certificate. This can be used to provide additional detail to inform the findings in the ES, including information on the Proposed Development's impacts on GCN and any appropriate compensation required. Given the current limited knowledge of the location of GCN and this potential mitigation, the Planning Inspectorate did not agree that this matter can be scoped out of the assessment at that stage. GCN have been recorded as present within ponds located within the Order Limits, with suitable terrestrial habitat also present within the Order Limits. Suitable ponds and terrestrial habitat are also located within 250m of the Order Limits. This receptor is therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.

Receptor/matter	Phase	Justification
Reptiles	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Ground nesting birds	Construction, operation (including maintenance) and decommissioning	These receptors are scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**.
Non-ground nesting birds	Construction, operation (including maintenance) and decommissioning	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Barn owl, red kite, hobby and peregrine falcon (listed in Schedule 1 of	Construction, operation (including	These receptors were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion**

Receptor/matter	Phase	Justification
the Wildlife and Countryside Act 1981 (as amended))	maintenance) and decommissioning	**[EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. Barn owl (*Tyto alba)*, red kite (*Milvus milvus*), hobby (*Falco subbuteo*) and peregrine falcon (*Falco peregrinus*) were recorded holding breeding territories or potential breeding territories within the Order Limits. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Wintering birds	Construction, operation (including maintenance) and decommissioning	These receptors are scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**.
Bechstein's and barbastelle bats (foraging, commuting and roosting)	Construction, operation (including maintenance) and decommissioning	Foraging and commuting bats, which includes Bechstein's bat, barbastelle bat (*Barbastella barbastellus*), are scoped into the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010158/APP/6.4]**. The Site supports a bat assemblage of national importance, including Habitats Directive Annex II **[Ref. 7-3]** listed Bechstein's bat and barbastelle bat. The Bernwood Bechstein's bat population is unique for several reasons. It is located at the edge of the species range and is geographically isolated. Genetic structuring between the south western and northern populations of Bechstein's bat has been identified, within which the Bernwood population is genetically unique **[Ref. 7-26]**. The loss of this population would reduce the genetic variation of the species

Receptor/matter	Phase	Justification
		nationally. A report by Wright *et al* (2018) **[Ref. 7-28]** states "*The identification of a population showing signs of inbreeding and low genetic diversity is of concern. This is particularly relevant to populations on the extreme edges of the British range for instance the Bernwood population, in Buckinghamshire. Such populations are likely to be more sensitive to the continual expansion of built developments and other threats that cause habitat fragmentation and loss*". Several sections of hedgerows will need to be removed for access and cable installation, causing fragmentation of bat commuting and foraging habitat. Furthermore, recent research on bats and solar farms in the UK (in 2023) **[Ref. 7-29, Ref. 7-30** and **Ref. 7-31]** indicates that habitat change from the installation of Solar PV modules may potentially affect bats during the operation phase. Research has concluded that although common bat species that are successfully adapted to anthropogenic environments were detected on solar farms, species of conservation concern (e.g. *Myotis* spp. and barbastelle bat) do not use solar farms frequently **[Ref. 7-30]**. The potential effects of noise and lighting could also cause disturbance to bats during construction, operation (including maintenance) and decommissioning. Furthermore, the Planning Inspectorate states within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]** that the ES should assess the effects of lighting disturbance on bats and other nocturnal species for all phases of the Proposed Development. Roosting Bechstein's bat and barbastelle bat were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on these

Receptor/matter	Phase	Justification
		receptors for all phases of the Proposed Development. Roosting Bechstein's bat and barbastelle bat are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Foraging and commuting bat assemblage (excluding Bechstein's and barbastelle bats)	Construction, operation (including maintenance) and decommissioning	This receptor is scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**.
Roosting bats (excluding Bechstein's and barbastelle bats)	Construction, operation (including maintenance) and decommissioning	Roosting bats were proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considers there was insufficient evidence provided to scope out effects on these receptors for all phases of the Proposed Development. A significant number of trees within and adjacent to the Order Limits have been assessed as having potential to support roosting bats. Several trees will need to be removed for access and cable installation, potentially resulting in the loss of roosting habitat. Furthermore, the Planning Inspectorate states within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010158/APP/6.4]** that the ES should assess the effects of lighting disturbance on bats and other nocturnal species for all phases of the Proposed Development. These receptors are therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.

Receptor/matter	Phase	Justification
Hazel dormouse	Construction, operation (including maintenance) and decommissioning	This receptor was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there is insufficient evidence provided to scope out effects on this receptor for all phases of the Proposed Development. This receptor is therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Otter	Construction, operation (including maintenance) and decommissioning	This receptor was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on this receptor for all phases of the Proposed Development. The Planning Inspectorate also noted that presence of otter has been identified during the Applicant's site surveys and that details of the cable corridor routes, which could include watercourse crossings, had not yet been confirmed. The Planning Inspectorate stated the ES should be supported by appropriate field surveys for otter of the entire area within the Order Limits. This receptor is therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Water vole	Construction, operation (including	This receptor was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was

Receptor/matter	Phase	Justification
	maintenance) and decommissioning	insufficient evidence provided to scope out effects on this receptor for all phases of the Proposed Development. This receptor is therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.
Badger	Construction, operation (including maintenance) and decommissioning	This receptor was proposed to be scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. However, as set out in **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that it considered there was insufficient evidence provided to scope out effects on this receptor for all phases of the Proposed Development. The Planning Inspectorate also noted that at the time of EIA scoping, no details had been provided on what the draft Environmental Management Plans would contain. In addition, there was no indication on the Concept Masterplan contained in Appendix B of **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]** where buffers and other protection measures would be. The Planning Inspectorate also considered that there is potential for significant effects on badgers to occur during operation from the installation of fencing and lighting and that no details had been provided to demonstrate how the Proposed Development design would address these matters. This receptor is therefore scoped into the assessment for the construction, operation (including maintenance) and decommissioning phases.

Receptors/matters scoped out of the assessment

7.4.8. **Table 7.4** presents the receptors/matters that are scoped out of the assessment that are therefore not considered as part of this ES, together with appropriate justification.

Table 7.4: Receptors/matters scoped out of the assessment

Receptor/matter	Phase	Justification
Invasive non-native species	Construction, operation (including maintenance) and decommissioning	These receptors are scoped out of the assessment, as detailed within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]** and confirmed within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**. However, within **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**, the Planning Inspectorate stated that the presence of invasive species had not yet been determined for the remainder of the Site and therefore the Planning Inspectorate did not agree that invasive species could be scoped out of the assessment of those areas at that stage. The Applicant can confirm that no invasive species were identified within the Order Limits during the preliminary ecological appraisal survey and have not been identified during subsequent surveys (see **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**). Therefore, the Applicant does not consider invasive species to be present within the Order Limits. However, there is always a risk that invasive species could be introduced via construction traffic or new planting. Biosecurity measures will be undertaken as appropriate. Such measures are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2], Outline LEMP [EN010158/APP/7.6], Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]**. These receptors are therefore scoped out of the assessment for the construction, operation (including maintenance) and decommissioning phases.
Reedbed	Construction, operation (including maintenance) and decommissioning	Reedbed habitat was not specifically included for consideration within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]** as at the time of the EIA Scoping Report submission, the area of the Site that supports reedbed habitat had not been subject to survey. One small discrete area of reedbed was recorded within the Interconnecting Cable Corridor between Parcel 2 and Parcel 3. The embedded design

Receptor/matter	Phase	Justification
		principles have included for the retention of this habitat, as detailed within **Design Commitments [EN010158/APP/5.9]**. As a result, there will be no direct loss of reedbed habitat, and it is not envisaged that construction, operation (including maintenance) or decommissioning activities are likely to have a direct adverse impact on the reedbed. The **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3], Outline LEMP [EN010158/APP/7.6]** and **Outline DEMP [EN010158/APP/7.4]** details and secures measures to protect the reedbed from habitat degradation. This receptor is therefore scoped out of the assessment for the construction, operation (including maintenance) and decommissioning phases.
Fish and aquatic invertebrates	Construction, operation (including maintenance) and decommissioning	These receptors were not specifically included for consideration within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. No ponds, ditches or watercourses will be lost to the Proposed Development. There will be a minimum 10m offset buffer from ponds, ditches and watercourses, as detailed within **Design Commitments [EN010158/APP/5.9]**. Mitigation measures to protect watercourses (e.g. from pollution) are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]**. Aquatic invertebrate and fish species are therefore considered unlikely to be affected during construction, operation (including maintenance) or decommissioning and are therefore scoped out of the assessment.
Brown hare, hedgehogs (and other mammals such as deer)	Construction, operation (including maintenance) and decommissioning	These receptors were not specifically included for consideration within **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]**. Field margins will remain as open corridors for large animals such as deer to disperse across the Site and small gaps at the base of fences will allow brown hares (*Lepus*

Receptor/matter	Phase	Justification
		europaeus) and hedgehogs (*Erinaceus europaeus*) access into fields for foraging, as secured in the **Design Commitments [EN010158/APP/5.9]**. These receptors have therefore been scoped out of the assessment for the construction, operation (including maintenance) and decommissioning phases.

7.5. Environmental baseline

Establishing baseline conditions

Data sources to inform the EIA baseline characterisation

7.5.1. The following data sources have been used to understand the existing biodiversity baseline conditions and add local context where appropriate:

- Multi-Agency Geographic Information Centre for the location (and details) of international and national statutory designated sites, ancient woodland and notable habitats **[Ref. 7-32]**;
- A data records search was requested from Buckinghamshire and Milton Keynes Environmental Records Centre in 2023, which included a search for nationally designated sites (both statutory and non-statutory) and protected species records. The search was updated in 2025 for nationally designated sites (both statutory and non-statutory) to take account of the updated Order Limits;
- Buckinghamshire Bird Reports **[Ref. 7-33** and **Ref. 7-34]**;
- Natural England (2023). Bernwood Area Invertebrate Surveys 2017-2021 NERR129 **[Ref. 7-35]**;
- Natural England (2023). Bernwood Invertebrate Surveys 2021. Saproxylic and Hymenoptera focused surveys in Ham Home-cum-Hamgreen Woods SSSI and Grendon and Doddershall Woods SSSI, Buckinghamshire **[Ref. 7-36]**;
- Natural England (2024). A Survey of the Black Hairstreak Butterfly in North Buckinghamshire. The results of surveys of the distribution of Black Hairstreak, *Satyrium pruni* in a complex of woodlands in the Bernwood Area **[Ref. 7-27]**; and
- Natural England (2024). The Bernwood population of Bechstein's Bats. A Non-Technical Summary (NECR558) **[Ref. 7-26]**.

Site visits/surveys

7.5.2. The following site visits/surveys have been undertaken to understand the existing biodiversity baseline conditions (full details on the 'survey areas' for data collection are presented in **Table 7.2** above):

- Preliminary ecological appraisal undertaken in September 2021 and February 2022 (see **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal (2022) (Confidential) [EN010158/APP/6.4]**);
- Bat preliminary roost assessment undertaken in March 2022 (see **ES Volume 4, Appendix 7.2: Bat Preliminary Roost Assessment Report (2022) [EN010158/APP/6.4]**);

- Wintering bird surveys undertaken October 2021-March 2022 (see **ES Volume 4, Appendix 7.3: Wintering Bird Survey Report (2022) [EN010158/APP/6.4]**);
- Breeding bird surveys undertaken March-June 2022 (see **ES Volume 4, Appendix 7.4: Breeding Bird Survey Report (2022) (Confidential) [EN010158/APP/6.4]**);
- GCN environmental DNA survey undertaken in May 2022 and April 2023 (see **ES Volume 4, Appendix 7.5: Great Crested Newt Habitat Suitability Index and Environmental DNA Report (2023) [EN010158/APP/6.4]**);
- Badger survey undertaken December 2021-March 2022 (see **ES Volume 4, Appendix 7.6: Badger Survey Report (2022) (Confidential) [EN010158/APP/6.4]**);
- Preliminary ecological appraisal undertaken in June, July, August, October 2023 and January and May 2024 (see **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**);
- Hedgerows Regulations survey undertaken in June, July, August and October 2023, January and May 2024 and April 2025 (see **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**);
- Arable (non-crop) plant survey undertaken in June 2023 (see **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**);
- Otter and water vole surveys undertaken in June and August 2023 (see **ES Volume 4, Appendix 7.8: Otter and Water Vole Survey Report (2023) (Confidential) [EN010158/APP/6.4]**);
- Aquatic preliminary surveys undertaken in June 2023 (see **ES Volume 4, Appendix 7.9: Preliminary Aquatic Survey Report (2023) [EN010158/APP/6.4]**);
- Bat activity surveys undertaken July 2022-September 2023 (see **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**);
- Wintering bird surveys undertaken November 2023-February 2024 (see **ES Volume 4, Appendix 7.11: Wintering Bird Survey Report (2024) [EN010158/APP/6.4]**);
- Breeding bird surveys undertaken March-July 2024 (see **ES Volume 4, Appendix 7.12: Breeding Bird Survey Report (2024) (Confidential) [EN010158/APP/6.4]**);

- Arboriculture surveys undertaken April-June 2024 (see **ES Volume 4, Appendix 7.13: Arboricultural Impact Assessment [EN010158/APP/6.4]**);
- Bat Preliminary Roost Assessment surveys undertaken in November-December 2024, January 2025 and April 2025 (see **ES Volume 4, Appendix 7.14: Bat Preliminary Roost Assessment Report (2025) [EN010158/APP/6.4]**);
- Badger survey undertaken in November-December 2024, January 2025 and April 2025 (see **ES Volume 4, Appendix 7.15: Badger Survey Report (2025) (Confidential) [EN010158/APP/6.4]**);
- Paired static detector surveys undertaken in October 2024 and May 2025 (see **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**);
- River condition assessment survey undertaken in September 2023 and April 2025 (see **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]**);
- Site visit with local *Lepidoptera* specialists undertaken in November 2024; discussions held have informed measures included within the **Outline LEMP [EN010158/APP/7.6]**; and
- Site visit with Natural England undertaken in August 2025; discussions held have informed measures included within the **Outline LEMP [EN010158/APP/7.6]**.

Existing baseline

7.5.3. The full details of the baseline conditions are presented in **ES Volume 4, Appendices 7.1 - 7.16 [EN010158/APP/6.4]**. The following section presents a summary of the baseline conditions for the receptors/matters scoped into the assessment, as detailed within **Table 7.3** above.

Statutory designated sites

7.5.4. There are no nationally protected statutory designated nature conservation sites within the Order Limits. There are three nationally protected statutory designated nature conservation sites within 2km of the Order Limits:

- Sheephouse Wood SSSI – directly adjacent to Parcel 1 and 1a;
- Finemere Wood SSSI – directly adjacent to Parcel 2; and
- Grendon and Doddershall Woods SSSI – 1.36km south west of Parcel 1a.

7.5.5. Sheephouse Wood SSSI is a large, well-structured block of ancient pedunculate oak woodland. The Site has a characteristically diverse woodland flora, a typical range of breeding birds and is of particular

interest for its invertebrate fauna which includes white admiral (*Limenitis Camilla*), purple hairstreak (*Thecla quercus*) and also the nationally rare black hairstreak.

7.5.6. Finemere Wood SSSI is a large ancient pedunculate woodland supporting rich communities of native plants, birds, insects and other animals. In particular the wood contains populations of some local butterflies, including wood white (*Leptidea sinapis*) and black hairstreak.

7.5.7. Grendon and Doddershall Woods SSSI constitute an important tract of broadleaved woodland of a kind formerly far more extensive on the clays of north Buckinghamshire. The wood supports a range of butterfly species including purple emperor (*Apatura iris*), brown and black hairstreaks and wood white.

7.5.8. Ham Home-cum-Hamgreen Woods SSSI is an area of woodland representing a fragment of the formerly extensive Bernwood Forest. The varied stand structure of the wood supports a rich herbaceous flora and invertebrate population including the largest breeding colony in the country of the nationally rare black hairstreak butterfly, along with other notable butterfly species such as wood white and white-letter hairstreak (*Strymonidia w-album*).

7.5.9. In addition, whilst recognising that Ham Home-cum-Hamgreen Woods SSSI is located 3.2km south west of the Order Limits and therefore outside of the study area, the Applicant is aware that Natural England is in the process of designating a new landscape scale Bernwood SSSI that encompasses the above existing SSSIs and also extended to include neighbouring areas of ancient woodland. However, as stated in **Table 7.1**, at the time of writing (September 2025), limited information on the proposed Bernwood SSSI designation is publicly available and the date for designation is not yet known. Therefore, the proposed Bernwood SSSI has not been specifically considered in the assessment presented in this chapter as a receptor in its own right. However, Sheephouse Wood SSSI, Finemere Wood SSSI, Grendon and Doddershall Woods SSSI, ancient woodland and Bechstein's bats (all of which would fall under the proposed Bernwood SSSI designation) have all been scoped into the assessment (see **Table 7.2** above). Therefore, the Applicant considers that the conclusions of these individual assessments can be applied to the Bernwood SSSI, should the SSSI be designated following submission of the DCO Application and before the DCO Application is determined.

7.5.10. The locations of these sites are detailed in **ES Volume 3, Figure 7.1: Location of Statutory Designated Sites [EN010158/APP/6.3]**. All citations for the SSSIs are provided within **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal (2022) (Confidential) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

7.5.11. The above statutory designated sites are considered to be of **National** importance.

Non-statutory designated sites within/adjacent to the Order Limits

7.5.12. Two non-statutory designated sites are located within the Order Limits; Romer Wood LWS and Greatsea Wood LWS located within the Internal Access Corridor to the north of Parcel 1a. The area of these woodlands that are located within the Order Limits are the existing access tracks.

7.5.13. Non-statutory designated sites located outside of the Order Limits but directly adjacent (all of which are ancient woodland) are:

- Shrub Woods LWS – directly adjacent to Parcel 1;
- Decoypond Wood LWS – directly adjacent to Parcel 1;
- Runts Wood LWS – directly adjacent to Parcel 2;
- Finemere WTR – south of Parcel 2; and
- Home Wood, Middle Claydon LWS – adjacent to Interconnecting Cable Corridor.

7.5.14. Balmore Wood LWS is located approximately 95m west of Parcel 2.

7.5.15. An additional landscape scale non-statutory designation is located within the Order Limits, this being Bernwood Biodiversity Opportunity Area, which overlaps with Parcel 1, 1a and 2 and the Interconnecting Cable Corridors, as detailed in **ES Volume 3, Figure 7.2: Location of Non-statutory Designated Sites [EN010158/APP/6.3]**. Biodiversity Opportunity Areas are specific locations identified as having the greatest potential for improving biodiversity, often serving as buffers or connecting existing protected areas. They are areas where habitat creation and restoration efforts can be focused to maximize their positive conservation impact, potentially leading to a more efficient approach to wildlife conservation.

7.5.16. The locations of these sites are detailed in **ES Volume 3, Figure 7.2: Location of Non-statutory Designated Sites [EN010158/APP/6.3]**. Citations for the non-statutory designated sites are provided within **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal (2022) (Confidential) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

7.5.17. The Applicant is aware that Natural England is in the process of designating a new landscape scale Bernwood SSSI that would encompass all these areas of ancient woodland that are also classified as non-statutory designated sites. See **Table 7.1** and **Paragraph 7.5.9** above.

7.5.18. The above non-statutory designated sites are considered to be of **County** importance.

Other non-statutory designated sites within 2km of the Order Limits

7.5.19. In addition to the non-statutory designated sites within/adjacent to the Order Limits, 20 additional non-statutory designated sites lie within 2km of the Order Limits. The locations of these sites are detailed in **ES Volume 3, Figure 7.2: Location of Non-statutory Designated Sites [EN010158/APP/6.3]**. Citations for the non-statutory designated sites are provided within **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal (2022) (Confidential) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

7.5.20. The above non-statutory designated sites are considered to be of **County** importance. The Proposed Development will ensure the retention of these sites in full and there no relevant links or impact pathways have been identified between these sites and the Proposed Development. Therefore, these sites are not considered further in this assessment.

Ancient woodland within/adjacent to the Order Limits

7.5.21. Two areas of ancient woodland are located within the Order Limits, Romer Wood and Greatsea Wood. No other areas of ancient woodland are located within the Order Limits. Multiple areas of ancient woodland are located directly adjacent to the Order Limits in several locations. These comprise ancient and semi-natural woodland and ancient replanted woodland parcels, located within Shrubs Wood, Sheephouse Wood, Home Wood, Romer Wood, Decoypond Wood, Finemere Wood and Runt's Wood. Balmore Wood is located approximately 95m west of Parcel 2. All of these ancient woodland sites are also designated as non-statutory designated sites.

7.5.22. The Applicant is aware that Natural England is in the process of designating a new landscape scale Bernwood SSSI that encompasses these areas of ancient woodland. See **Table 7.1** and **Paragraph 7.5.9** above.

7.5.23. These areas of ancient woodland are considered to be of **County** importance.

Other ancient woodland sites within 2km of the Order Limits

7.5.24. In addition to the ancient woodland within/adjacent to the Order Limits, multiple areas of ancient woodland lie within 2km of the Order Limits.

7.5.25. These areas of ancient woodland are considered to be of **County** importance. The Proposed Development will ensure the retention of these

ancient woodland sites in full and no relevant links or impact pathways have been identified between these sites and the Proposed Development. Therefore, these sites are not considered further in this assessment.

Hedgerows and hedgerow trees, individual ancient and veteran trees, individual trees and lines of trees

7.5.26. The majority of fields across the Site were bounded by hedgerows with several of the hedgerows supporting mature trees and dry ditches. 48 hedgerows within the Order Limits were classified as 'important' under The Hedgerows Regulations 1997, Part 2, 'wildlife and landscape criteria for important hedgerow selection' **[Ref. 7-7]**. The hedgerow resource is considered to be of **County** importance.

7.5.27. Further details regarding hedgerows are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

7.5.28. Multiple individual mature trees and lines of mature trees were recorded across the Site, of which several were classified as ancient and/or veteran trees. Ancient and veteran trees are considered to be of **County** importance. Individual trees and lines of trees are considered to be of **Local** importance.

7.5.29. Further details regarding individual trees and lines of trees are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

7.5.30. Further details regarding ancient and veteran trees are provided in **ES Volume 4, Appendix 7.13: Arboricultural Impact Assessment [EN010158/APP/6.4]**.

Cereal and non-cereal crops

7.5.31. Within Parcel 1, Parcel 1a, Parcel 2 and south of Parcel 3, the majority of the fields comprised arable cropland cereal crop, with a few fields comprising non-cereal crops. Several arable cropland fields were also recorded within the Interconnecting Cable Corridors. Locations of cereal and non-cereal crops are presented in **ES Volume 3, Figure 7.3: UKHab Habitat Classification Survey Results [EN010158/APP/6.3]**.

7.5.32. Cereal and non-cereal crops are considered to be of **Local** importance.

7.5.33. Further details regarding cereal and non-cereal crops are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

Lowland mixed deciduous woodland and other woodland

7.5.34. Within Parcel 1, Parcel 2, Parcel 3 and the Grid Connection Cable Corridor and Interconnecting Cable Corridors, small copses of woodland were recorded; however, these were limited in extent, with larger areas of woodland recorded along the Order Limits. The majority of the woodland areas was recorded as other woodland; broad-leaved with smaller number of areas recorded as lowland mixed deciduous woodland. Locations of lowland mixed deciduous woodland and other woodland are presented in **ES Volume 3, Figure 7.3: UKHab Habitat Classification Survey Results [EN010158/APP/6.3]**.

7.5.35. Lowland mixed deciduous woodland and other woodland is considered to be of **County** importance.

7.5.36. Further details regarding lowland mixed deciduous woodland and other woodland are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

Arable field margins

7.5.37. The majority of cropland fields supported grassland margins ranging approximately 1-3m in width. No species-rich or priority arable field margins were identified within the Order Limits. Locations of arable field margins are presented in **ES Volume 3, Figure 7.3: UKHab Habitat Classification Survey Results [EN010158/APP/6.3]**.

7.5.38. Arable field margins are considered to be of **Local** importance.

7.5.39. Further details regarding arable field margins are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

Ponds, watercourses and ditches

7.5.40. A number of ponds and ditches were recorded within the Order Limits, including several that at the time of survey were dry. Claydon Brook was recorded along the northern boundary of Parcel 3, with a tributary branch located along the eastern boundary of Parcel 3. A small watercourse was recorded on the northern boundary of Parcel 1a and the northeast corner of Parcel 1. Locations of ponds, watercourses and ditches are presented in **ES Volume 3, Figure 7.3: UKHab Habitat Classification Survey Results [EN010158/APP/6.3]**.

7.5.41. Ponds, watercourses and ditches are considered to be of **Local** importance.

7.5.42. Further details regarding ponds, watercourses and ditches are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

Mixed scrub, bramble scrub, other neutral grassland and modified grassland

7.5.43. Several grassland fields were recorded within Parcel 1 (predominantly to the west), Parcel 1a (predominantly to the south and west) and Parcel 2 (predominantly to the south) and south of Parcel 3 (predominantly to the north), and along the Grid Connection Cable Corridor and Interconnecting Cable Corridor. The majority of these fields comprised modified grassland with several currently grazed by stock. Smaller areas of other neutral grassland were recorded throughout the Order Limits, primarily to the west and south of Parcel 1 and north of Parcel 1a and south of Parcel 2 which included areas recently planted as part of HS2 mitigation.

7.5.44. Small amount of mixed scrub habitat and Bramble scrub was recorded within Parcel 1, Parcel 2 and Parcel 3, Interconnecting Cable Corridors, Grid Connection Cable Corridor and the National Grid East Claydon Substation, typically surrounding ponds and along field edges and grassland edges. Locations of mixed scrub, bramble scrub, other neutral grassland and modified grassland are presented in **ES Volume 3, Figure 7.3: UKHab Habitat Classification Survey Results [EN010158/APP/6.3]**.

7.5.45. Mixed scrub, bramble scrub, other neutral grassland and modified grassland are considered to be of **Local** importance.

7.5.46. Further details regarding mixed scrub, bramble scrub, other neutral grassland and modified grassland are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

Notable arable flora

7.5.47. No notable arable flora were identified within the Order Limits during targeted surveys and have not been identified during subsequent surveys (see **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**).

7.5.48. Therefore, notable arable flora are not considered further in this assessment.

Black hairstreak and brown hairstreak butterfly

7.5.49. The background desk study identified records within the Order Limits for black hairstreak and brown hairstreak butterfly.

7.5.50. During the preliminary ecological appraisal surveys undertaken in 2023, 2024 and 2025, the food source for black and brown hairstreak caterpillars, Blackthorn (*Prunus spinosa*), was recorded abundantly across the Site within hedgerows and woodland areas.

7.5.51. Natural England has released several reports in support of the proposed Bernwood SSSI designation **[Ref. 7-27**, **Ref. 7-35** and **Ref. 7-36]**, invertebrate surveys undertaken within the Bernwood area have highlighted that the woodland areas, scrub and hedgerow habitats support a diverse range of important invertebrate species, including black hairstreak and brown hairstreak butterfly. The woodlands and hedgerows in the area make a significant contribution towards the maintenance of the local meta-population and colonies of black hairstreak and brown hairstreak butterfly, which are considered important in a national context.

7.5.52. Black hairstreak and brown hairstreak butterfly are considered to be of **National** importance.

7.5.53. Further details are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly)

7.5.54. The background desk study identified 141 records of protected or otherwise notable invertebrates (excluding black hairstreak and brown hairstreak butterfly) within 2km of the Order Limits. Of particular note are, wood white, white admiral, white-letter hairstreak and purple emperor, all of which are dependent of woodland and hedgerow habitats.

7.5.55. The majority of the habitats present within the Order Limits were considered likely to support a common assemblage of invertebrate species, typical of arable field margins, hedgerows, woodland and scrub and grassland habitats.

7.5.56. The terrestrial invertebrate population (excluding black hairstreak and brown hairstreak butterfly) is considered to be of **Local** importance.

7.5.57. Further details are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

Great crested newt

7.5.58. No records of GCN were identified within the Order Limits. However, the background desk study identified records of GCN within 2km of the Order Limits. A total of eight GCN Natural England class survey licence returns between 2016-2017 were identified within Parcel 1, indicating that GCN were present.

7.5.59. The GCN Habitat Suitability Index and environmental DNA surveys undertaken in 2022 and 2023 identified 12 ponds within the Site and within 500m from the Order Limits that had a confirmed positive presence of GCN environmental DNA, confirming presence.

7.5.60. The areas of woodland, grassland margins and hedgerows within the Order Limits were considered suitable to provide foraging, refuge and hibernation opportunities for GCN. GCN are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) **[Ref. 7-1]** and Schedule 2 of the Habitats Regulations **[Ref. 7-2]** and is included within Section 41 of the Natural Environment and Rural Communities Act 2006 **[Ref. 7-6]**. The Order Limits falls within the District Level Licensing red and amber impact risk zones, where there is a very high chance of encountering GCN, with red areas considered most important areas for GCN.

7.5.61. The GCN population is therefore considered to be of **County** importance.

7.5.62. Further details of survey results and location of ponds are provided in **ES Volume 4, Appendix 7.5: Great Crested Newt Habitat Suitability Index and Environmental DNA Report (2023) [EN010158/APP/6.4]**.

Reptiles

7.5.63. No records of reptiles were identified within the Order Limits. However, the background desk study identified records of grass snake (*Natrix helvetica*), common lizard (*Zootoca vivipara*) and slow-worm (*Anguis fragilis*) within 2km of the Order Limits.

7.5.64. Within the Order Limits, most of the land comprised arable and modified grassland fields, which are considered sub-optimal to support reptiles; however, smaller areas of rough grassland and scrub habitats were considered suitable sheltering and foraging habitat to support common reptile species however these were limited in extent.

7.5.65. The reptile population is therefore considered to be of **Local** importance.

7.5.66. Further details are provided in **ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal (2022) (Confidential) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

Ground nesting birds

7.5.67. The background desk study identified records of grey partridge (*Perdix perdix*), skylark and yellow wagtail (*Motacilla flava*); ground nesting bird species of Principal Importance for conservation in England **[Ref. 7-6]**.

7.5.68. Grey partridge were recorded as probable breeding within the survey area during the 2022 breeding bird surveys and recorded again during the 2024 field surveys. Skylark and yellow wagtail were recorded as confirmed breeding with the survey area with skylark having 34 breeding territories recorded during the 2022 breeding bird surveys. Both species were also recorded breeding during the 2024 field surveys.

7.5.69. The areas of grassland and arable field margins were considered suitable habitat for ground nesting species as outlined above. Arable fields, hedgerows and scrub within Parcels 1 and 2 were of greatest value to breeding birds in 2024, with Parcel 2 supporting the greatest diversity of farmland bird species including grey partridge.

7.5.70. The ground nesting bird assemblage is considered to be of **County** importance.

7.5.71. Full details of the surveys and results are detailed in **ES Volume 4, Appendix 7.4: Breeding Bird Survey Report (2022) (Confidential)** and **ES Volume 4, Appendix 7.12: Breeding Bird Survey Report (2024) (Confidential) [EN010157/APP/6.4]**.

Non-ground nesting birds

7.5.72. During the breeding bird surveys undertaken between March and June 2022, 11 species listed as a Priority Species in the UK were confirmed to be holding breeding territories within the survey area or were thought to have probable/possible territories. Ten species included on the Birds of Conservation Concern Red List and 11 species included on the Birds of Conservation Concern Amber List were either confirmed to be holding breeding territories within the survey area, or were thought to have probable/possible territories.

7.5.73. During the breeding bird surveys undertaken between March and July 2024, 11 listed as a Priority Species in the UK were recorded breeding or potentially breeding. In addition, 11 species included on the Birds of Conservation Concern Red list and 11 species included on the Birds of Conservation Concern Amber list were either confirmed to be holding breeding territories within the survey area, or were thought to have probable/possible territories.

7.5.74. The non-ground nesting bird assemblage is considered to be of **County** importance.

7.5.75. Full details of the surveys and results are detailed in **ES Volume 4, Appendix 7.4: Breeding Bird Survey Report (2022) (Confidential)** and **ES Volume 4, Appendix 7.12: Breeding Bird Survey Report (2024) (Confidential) [EN010157/APP/6.4]**.

Barn owl, red kite, hobby and peregrine falcon (listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended))

7.5.76. Barn owl and hobby were recorded during the breeding bird surveys undertaken between March and June 2022 and were believed to be holding breeding territories within the Order Limits. Hobby were also recorded in 2024 as breeding. Barn owl were observed within the Order Limits during the 2024 surveys; however, no occupied breeding sites were confirmed within the Order Limits.

7.5.77. Red kite were recorded holding breeding territories within the Order Limits during the breeding bird surveys undertaken between March and June 2022. They were also recorded in 2024 as breeding or potentially breeding within the Order Limits.

7.5.78. Peregrine falcon were recorded as breeding or potentially breeding within the Order Limits during breeding bird surveys undertaken between March and July 2024. However, they were not recorded during the 2022 breeding bird surveys.

7.5.79. Woodland habitat, trees and electricity pylons and infrastructure within the National Grid East Claydon Substation located within and adjacent to the Order Limits were considered suitable breeding habitat for these species. The areas of grassland and arable field margins were considered suitable foraging habitats for these species and foraging raptors were recorded frequently across the Site. Barn owl boxes were also recorded across the Site.

7.5.80. The breeding populations of hobby and peregrine falcon recorded in 2024 were considered to potentially be of **County** importance whilst breeding populations of barn owl and red kite were considered to potentially be of **District** importance.

7.5.81. Full details of the surveys and results are detailed in **ES Volume 4, Appendix 7.4: Breeding Bird Survey Report (2022) (Confidential)** and **ES Volume 4, Appendix 7.12: Breeding Bird Survey Report (2024) (Confidential) [EN010157/APP/6.4]**.

Wintering birds

7.5.82. A total of 59 bird species were recorded during wintering bird surveys undertaken between October 2021 and March 2022. This included four species listed on Annex 1 of the EC Birds Directive[2] **[Ref. 7-11]**, 12

[2] This Directive is transposed into English law through the Conservation of Habitats and Species Regulations 2017 (as amended). As such, the requirements of the EC

included under Section 41 Species of Principal Importance of the Natural Environment and Rural Communities Act 2006 **[Ref. 7-6]**, 12 species included on the Birds of Conservation Concern Red List **[Ref. 7-37]** and 16 species included on the Birds of Conservation Concern Amber List **[Ref. 7-37]**. The surveys identified that Parcels 1 and 2 were of greatest value to wintering birds.

7.5.83. A total of 60 bird species were recorded during wintering bird surveys undertaken between November 2023 and February 2024. These included three species included on Annex 1 of the EC Birds Directive[2] **[Ref. 7-11]**, 11 species included under Section 41 Species of Principal Importance of the Natural Environment and Rural Communities Act 2006 **[Ref. 7-6]**, 12 species included on the Birds of Conservation Concern Red List **[Ref. 7-37]** and 18 species included on the Birds of Conservation Concern Amber List **[Ref. 7-37]**. The surveys identified that Parcels 1 and 2 were of greatest value to wintering birds.

7.5.84. The wintering bird assemblage is considered to be of **County** importance.

7.5.85. Full details of the surveys and results are detailed in **ES Volume 4, Appendix 7.3: Wintering Bird Survey Report (2022)** and **ES Volume 4, Appendix 7.11: Wintering Bird Survey Report (2024) [EN010158/APP/6.4]**.

Bats

7.5.86. The background desk study identified one record of Bechstein's bat within the Order Limits.

7.5.87. The background desk study returned multiple records of bat roosts, foraging and commuting activity for 13 bat species and three groups that could not be identified to species level within 2km of the Order Limits comprising:

- Bechstein's bat;
- Brandt's bat (*Myotis brandtii*);
- Serotine (*Eptesicus serotinus*);
- Leisler's bat (*Nyctalus leisleri*);
- Noctule bat (*Nyctalus noctule*);
- Daubenton's bat (*Myotis daubentonii*);

Birds Directive (2009/147/EC) apply despite the UK no longer being a member state of the European Union.

- Whiskered bat (*Myotis mystacinus*);
- Whiskered/Brandt's bat (*Myotis mystacinus/brandtii*);
- Natterer's bat (*Myotis nattereri*);
- Myotis species (*Myotis spp.*);
- Western barbastelle;
- Common pipistrelle (*Pipistrellus pipistrellus*);
- Soprano pipistrelle (*Pipistrellus pygmaeus*);
- Nathusius's pipistrelle (*Pipistrellus nathusii*);
- Pipistrelle species (*Pipistrellus spp.*); and
- Brown long-eared bat (*Plecotus auritus*).

7.5.88. High concentrations of bat records were located within the woodland blocks adjacent to the Order Limits, including multiple records of the Habitats Directive Annex II listed Bechstein's bats **[Ref. 7-3]** located within Finemere Wood, Sheephouse Wood, Home Wood, Shrubs Wood and Decoypond Wood. These records are beyond the Order Limits but for the one record of Bechstein's bat identified within the Order Limits. Further details are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

7.5.89. During the preliminary ecological appraisal surveys undertaken in 2023, 2024 and 2025 the hedgerows, field margins, woodland and pond habitats were assessed as offering highly suitable foraging and commuting habitat. The arable and modified grassland fields were assessed to be of less value to foraging bats. Further details are provided in **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**.

7.5.90. Based on the bat activity recorded during the walked transect surveys and the static automated detector surveys undertaken between July 2022 and September 2023, the Site is considered to support an assemblage of at least ten bat species. The assemblage comprises: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, Leisler's, serotine, brown long-eared, barbastelle, Daubenton's bat and *Myotis* species that could not be identified to species level. There are six resident species of *Myotis* species in the UK, all with similar call characteristics, and therefore it is likely that the *Myotis* calls represent more than one species. From survey work carried out for HS2 by Natural England **[Ref. 7-26]**, it is known that five species of *Myotis* are present within the vicinity of the Order Limits, comprising Bechstein's bat, whiskered bat, Brandt's bat, Daubenton's bat and Natterer's bats. This means the Site is considered likely to support an assemblage of 13 bat species.

7.5.91. The majority of activity recorded during the transects was of common pipistrelle bats across all Parcels, followed by soprano pipistrelle, in line with the relative abundance of these species as well as the relative detectability of their calls. Key areas of bat activity were identified in the following locations (see **Figure 11** in **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**):

- Within Parcel 1 along the margins of Shrubs Wood, a hedgerow extending east from Shrubs Wood, the margins of Sheephouse Wood and the hedgerows connecting Shrubs Wood and Sheephouse Wood;
- Within Parcel 1a, activity was distributed across the Parcel, recorded along all hedgerows and the margins of Sheephouse Wood and Romer Wood;
- Within Parcel 2, activity was predominantly concentrated around the margins of Runt's Wood and Finemere Wood, and a hedgerow extending south west from Runt's Wood and the hedgerows extending east from Finemere Wood; and
- Within Parcel 3, activity was predominantly concentrated along the eastern margin of the Parcel, along the western boundary of Claydon Brook that forms the eastern boundary of the Order Limits.

7.5.92. Activity by *Myotis* bats was recorded on 59 occasions in total during the walked transect surveys undertaken between July 2022 and September 2023. Calls could not be separated to species level and therefore are likely to include registrations, amongst other *Myotis* bat species, of the Habitats Directive Annex II listed Bechstein's bat known to roost within Sheephouse Wood adjacent to Parcels 1 and 2. *Myotis* bat registrations were made at all of the automated static detector locations during each monitoring occasion, except for Parcel 1 west location A, in June 2023, Parcel 1a location B in June 2023, Parcel 2 north east location B in August 2023, Parcel 2 south west location B in September 2022, and Parcel 2 north location B in August 2023 (see **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**).

7.5.93. Activity by the Habitats Directive Annex II listed barbastelle bat **[Ref. 7-3]** was recorded on three occasions during the walked transect surveys. Barbastelle bat was confirmed, or possible registrations were made, at all automated static detector locations, although not during every monitoring occasion.

7.5.94. Based on the rarity categories within the UK Bat Mitigation Guidelines 2025 **[Ref. 7-24]**, common pipistrelle, soprano pipistrelle and brown long-eared bats are widespread in Southern and Central England. Noctule and Daubenton's bats are considered to be widespread, but not abundant. Serotine and Leisler's bat have a rarer or restricted distribution. The Annex II listed Bechstein's and barbastelle bats are considered to be very rare. The Site is at the northern edge of the Bechstein's bat species range.

Table 3.3 'Assessing the importance of a bat assemblage' within the Bat Mitigation Guidelines 2025 **[Ref. 7-24]** has been used to provide an assessment of the importance of the bat assemblage present. There is no formal distinction between the geographic areas listed within the table. However, the Site has been determined to be within either 'Central England' or 'Southern England'. As the Site is beyond or at the very edge of the typical range of rarer species found within 'Southern England', such as Bechstein's bat, the 'Central England' region has been used to provide an accurate reflection of the importance of a species population at the edge of its range.

7.5.95. In accordance with guidance in paragraph 3.4.5 of the Bat Mitigation Guidelines 2025 **[Ref. 7-24]**, Bechstein's bat has been considered a rarity within 'Central England'. Therefore, while not listed in Table 3.3 for this geographic region, Bechstein's bat were included in the calculation under the 'Rarest Annex II species and very rare' category with a score of 4. Using a combination of both survey and desk study data for the Site, common pipistrelle, soprano pipistrelle and brown long-eared bat were assigned a score of 1; noctule, whiskered, Brandt's, Daubenton's and Natterer's bats were assigned a score of 2; serotine, Leisler's bat and Nathusius' pipistrelle were assigned a score of 3; and Bechstein's and barbastelle bat were assigned a score of 4. In total, the bat assemblage has a score of 30. On this basis, a result of **National** importance for the bat assemblage present was returned. Further details are provided in **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**.

7.5.96. From work carried out for HS2, Natural England has concluded that the population of Bechstein's bat (comprising at least three breeding colonies) of the Bernwood area, whilst not in Favourable Conservation Status nationally, and whilst genetically and geographically isolated locally, is nonetheless 'stable and viable'. However, the conservation status of the species could be threatened by expansion of built developments, habitat fragmentation and loss, and uncoordinated land management **[Ref. 7-26]**. The Core Sustenance Zone[3] and home range[4] of Bechstein's bat, as derived from multiple years of study, is detailed in **ES Volume 3, Figure 7.4: Bechstein's Bat Home Range and Core Sustenance Zone in**

[3] The Core Sustenance Zone is the area surrounding a maternity roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost **[Ref. 7-77]**. The Core Sustenance Zone size for Bechstein's bat has been determined as being a 3km radius from each maternity roost.

[4] The home range of an animal is defined as the total area within which it lives and moves on a regular basis and contains all the resources that the animal requires to survive and reproduce.

relation to Rosefield Solar Farm Order Limits [EN010158/APP/6.3]. Parcels 1, 1a and 2 are wholly within the Core Sustenance Zone for Bechstein's bat. The home range – generated from radio-tracking 'fixes' (i.e., from bats which have been caught, tagged and located as they travel through the landscape) is a smaller area which nonetheless encompasses much of Parcel 1, all of Parcel 1a and the southern most parts of Parcel 2, as well as the Interconnecting Cable Corridors (though much of that would be underground).

7.5.97. Of the 57 Bechstein's bat maternity roosts identified across the three colonies, none were located within the Order Limits. 44 were recorded in the existing SSSIs and 13 were recorded outside the SSSI woodland in old deciduous hedgerow trees, small areas of woodland, along watercourses, standing alone in arable fields and one on the edge of Home Wood. Of these, however, ten were located to the west of the railway, outside of the Order Limits. Of the remaining three, one is located within Home Wood, the others associated with Finemere Wood **[Ref. 7-26]**.

7.5.98. Of the key Bechstein's bat commuting routes identified by Natural England, many are west or alongside the trace of the HS2 rail. The exception that coincides with the Site ('Three Points Lane') runs along the south eastern edge of Sheephouse Wood and the HS2 mitigation planting, connecting Sheephouse Wood with Romer/Greatsea Woods and onto Finemere Wood. This commuting route runs along the eastern edge of Parcel 1a **[Ref. 7-26]**.

7.5.99. Results from the paired static bat detector surveys identified up to 13 bat species across the two paired static detector survey periods. Overall bat activity was found to be consistently higher levels on hedgerow detectors, with this accounting for 81.7% of all activity in October 2024 and 91.8% of all activity in May 2025.

7.5.100. In line with overall activity patterns, both barbastelle bat and the 'all other species' group demonstrated consistently greater levels of activity on hedgerow detectors across both survey periods, with hedgerow activity levels ranging from double to 120 times more than on field detectors across all detector pairings and survey periods.

7.5.101. Based on species level identifications, Bechstein's bat were only recorded during the May 2025 survey and then only from hedgerow detectors. However, due to the difficulties involved in distinguishing between Myotis species from echolocation calls alone, for wider assessment species level Myotis identifications were grouped together in a Myotis species group. As a group, Myotis activity did not demonstrate significant variation between hedgerows and fields during the October 2024 survey period. However, in May 2025, hedgerow Myotis species activity was found to be 26 to 191 times that recorded by detectors within the fields.

7.5.102. The findings of these surveys indicate that within the Order Limits, the hedgerows are likely to provide a more valuable and well used resource than open areas within fields with no evidence found to indicate a significant reliance on open field areas for foraging or commuting at the paired static detector locations. Further details are provided in **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**.

7.5.103. During the preliminary ecological appraisal surveys undertaken in 2023 and 2024, multiple trees and woodland blocks within the Order Limits were assessed as having potential to support roosting bats. The preliminary bat roost surveys undertaken in 2022, 2024 and 2025 identified 402 individual trees (with an additional 51 trees that could not be accessed during the surveys to adequately assess the potential to support roosting bats), 17 woodland blocks and 14 trees within and directly adjacent to the Order Limits as having potential to support roosting bats. Further details are provided in **ES Volume 4, Appendix 7.2: Bat Preliminary Roost Assessment Report (2022) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.14: Bat Preliminary Roost Assessment Report (2025) [EN010158/APP/6.4]**.

7.5.104. Due to the bat assemblage present within the Order Limits, and the relative importance of habitats both within the Order Limits and within the wider landscape, bat species have been split into three receptors in order to permit the nuanced assessment of impacts as a result of the Proposed Development. The three bat receptors are as follows:

- Bechstein's bat (foraging, commuting and roosting);
- Barbastelle bat (foraging commuting and roosting); and
- other bat species (foraging commuting and roosting) (common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, Leisler's bat, serotine, brown long-eared bat, Daubenton's bat and other *Myotis species*[5]).

7.5.105. Bechstein's bat (foraging, commuting and roosting) are considered to be of **National** importance. Barbastelle bats (foraging, commuting and roosting) are considered to be of **District** importance. Other bat species (foraging, commuting and roosting) are considered to be of **Local** importance.

[5] Although not specifically identified from recorded echolocation calls, a thriving population of Natterer's bat are known to be present within Finemere Wood, adjacent to the Site and therefore, this other *Myotis* sp. group is likely to include activity from Natterer's bat.

Hazel dormouse

7.5.106. The background desk study did not identify any records of this species occurring within 2km of the Order Limits, and there are limited records of their presence in Buckinghamshire. Therefore, hazel dormouse is not considered further in this assessment.

Otter

7.5.107. Otter resting sites, including a single holt and couch, have been recorded as present along Claydon Brook. The otter population is considered to be of **Local** importance.

7.5.108. Further details are provided in **ES Volume 4, Appendix 7.8: Otter and Water Vole Survey Report (2023) (Confidential) [EN010158/APP/6.4]**.

Water vole

7.5.109. Surveys did not identify signs of water vole, and they are assumed absent from the Site. Therefore, water vole is not considered further in this assessment.

Badger

7.5.110. **ES Volume 4, Appendix 7.15: Badger Survey Report (2025) (Confidential)** presents evidence of badger activity within the Order Limits, which was widespread. The badger population is therefore considered to be of **Local** importance.

Future baseline in the absence of the Proposed Development

7.5.111. This section considers those changes to the baseline conditions described above that might occur during the time period over which the Proposed Development will be in place. It considers changes that might occur naturally, in the absence of the Proposed Development being constructed, operated (and maintained) and decommissioned.

7.5.112. The habitat within the Order Limits is largely arable farmland, cropped on rotation, with some improved grassland and grass leys, bordered by hedgerows, arable field margins and wet and dry ditches. In the short to medium term, in the absence of the Proposed Development, these habitats would likely continue to be intensively managed as farmland which would provide potential habitat for species such as ground nesting birds and foraging bats. The distribution of some species may change in response to cropping patterns, whilst the assemblages would likely remain the same.

7.5.113. In the longer term (equivalent to the 40 year operation phase), broad habitat types would likely continue under agricultural management. The

majority of existing habitats are likely to continue being present, although some changes in habitat extent, composition and structure would occur as a result of ecological succession, such as the establishment of tree and shrub seedlings. These resultant gradual changes in habitat composition are unlikely to materially alter the ecological baseline and therefore the habitats and species present are very unlikely to undergo significant change.

7.6. Approach to the assessment

Approach to design flexibility

7.6.1. The parameters, as outlined in **ES Volume 1, Chapter 3: Proposed Development Description [EN010158/APP/6.1]**, and the parameter plans presented in **ES Volume 3, Figure 3.1: Height Parameters [EN010158/APP/6.3]** and secured in **Appendix 1: Green and Blue Infrastructure Parameters** and **Appendix 3: Vegetation Removal Parameters** of the **Outline LEMP [EN010158/APP/7.6]**, **Design Commitments [EN010158/APP/5.9]** and **Works Plans [EN010158/APP/2.3]**, set out the reasonable 'worst-case' parameters for the Proposed Development.

7.6.2. **ES Volume 1, Chapter 5: Approach to the EIA [EN010158/APP/6.1]** sets out those elements of the Proposed Development for which optionality is present within the design. The reasonable 'worst-case' scenario that has been assessed in this biodiversity chapter for each element of the Proposed Development where optionality is present within the design is outlined within **Table 7.5**.

Table 7.5: Reasonable worst-case scenario assessed for biodiversity

Project element	Reasonable worst-case scenario that has been assessed
Solar PV modules	The area for Solar PV development is shown in light blue in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured in the **Works Plans [EN010158/APP/2.3]**. Some of these areas overlap with Proposed Siting Areas for the Battery Energy Storage System (BESS), Collector Compounds and Rosefield Substation, hence there is optionality within these areas; Solar PV modules may or may not occur within these areas depending on the exact location of the BESS, Collector Compounds and Rosefield Substation. This assessment assumes Solar PV modules would be located within all the light blue areas detailed in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]**; this is considered to be the worst-

Project element	Reasonable worst-case scenario that has been assessed
	case scenario for biodiversity as it would be the maximum area where Solar PV modules would be located.
Balance of Solar System (BoSS)	The location of the BoSS has not yet been defined. The BoSS will comprise locating the Inverter, Transformer and Switchgear equipment, independently outdoors, or within an enclosed Inverter and Transformer Station (ITS) located throughout the fields shown in light blue in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured in the **Works Plans [EN010158/APP/2.3]**. Some of these areas overlap with Proposed Siting Areas for the BESS, Collector Compounds and Rosefield Substation - hence there is optionality within these areas; BoSS may or may not occur within these areas depending on the location of the BESS, Collector Compounds and Rosefield Substation. This assessment assumes the BoSS to be located independently outdoors and that Central Inverters would be used, as this is considered to be the reasonable worst-case scenario for biodiversity.
Satellite Collector Compounds	There are four fields that are considered suitable for the two Satellite Collector Compounds, as shown on **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured in the **Works Plans [EN010158/APP/2.3]**. There is overlap between the Satellite Collector Compound in Parcel 2 and the BESS Proposed Siting Zone in the same location. It is assumed that the two Satellite Collector Compounds could be sited anywhere within the indicative siting locations. One Satellite Collector Compound would be located Field B23 (South) in Parcel 1 within the extent shown. One Satellite Collector Compound would be located in one of three fields in Parcel 2. All fields where Satellite Collector Compounds locations are considered have been assessed within this assessment as a reasonable worst-case scenario for biodiversity.
Main Collector Compound	There are four fields that are considered suitable for the Main Collector Compound, which are located in Parcel 3,

Project element	Reasonable worst-case scenario that has been assessed
	as outlined in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured in the **Works Plans [EN010158/APP/2.3]**. The reasonable worst-case scenario considered for biodiversity is a single Main Collector Compound which could be located in one of four field location options.
BESS	There are two fields (D8 and D9) that are considered suitable for the siting of the BESS, as outlined within **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured in the **Works Plans [EN010158/APP/2.3]**. The reasonable worst-case location for biodiversity would be the BESS encompassing both Fields D8 and D9.
Rosefield Substation	Rosefield Substation would be located within Parcel 3 across Fields E11 and E20 as indicated as 'Proposed siting zone for Rosefield Substation' (marked as S) on the **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured in the **Works Plans [EN010158/APP/2.3]**. There is overlap between the Main Collector Compound and Rosefield Substation in Parcel 3. The reasonable worst-case location for biodiversity would be Rosefield Substation located across both Fields E11 and E20 and the removal of the dividing hedgerow.
Primary Construction Compounds	Eight fields are being considered for the locations of three Primary Construction Compounds, as indicated on the **ES Volume 3, Figure 3.8: Indicative Location of Primary and Secondary Construction Compounds [EN010158/APP/6.3]** and secured in the **Works Plans [EN010158/APP/2.3]**. It is anticipated that only one would be required within each Parcel. It is assumed that the three Primary Construction Compounds (each no greater than 25,000m^2) could be sited anywhere within the indicative locations. The reasonable worst-case scenario is for a total of three Primary Construction compounds located somewhere across the eight fields. For each of the eight fields proposed for the Primary Construction Compound, the closest location within any field to any sensitive receptor has been assessed.

Project element	Reasonable worst-case scenario that has been assessed
Secondary Construction Compounds	Eight fields (different fields to the Primary Compounds) are currently being considered for the locations of three Secondary Construction Compounds, as indicated on **ES Volume 3, Figure 3.8: Indicative Location of Primary and Secondary Construction Compounds [EN010158/APP/6.3]** and secured in the **Works Plans [EN010158/APP/2.3]**. It is anticipated that only one would be required in each Parcel. It is assumed that the three Secondary Construction Compounds (each up no greater than 1,250m^2) could be sited anywhere within the indicative locations. The reasonable worst-case scenario is for a total of three Secondary Construction compounds located somewhere across the eight fields. For each of the eight fields proposed for the Secondary Construction Compound, the closest location within any field to any sensitive receptor has been assessed
Vegetation removal	The reasonable worst-case scenario for biodiversity is that the vegetation removal parameters would require the maximum vegetation areas and lengths to be removed.

Assessment assumptions

7.6.3. The assessment of the biodiversity impact has been based on the assumptions set out in **ES Volume 1, Chapter 3: Proposed Development Description [EN010158/APP/6.1]** and the **Design Commitments [EN010158/APP/5.9]**.

7.6.4. Baseline conditions have been established from habitat and species surveys between 2021 and 2025 and other sources including referenced published data, records and web-based information obtained at the time of writing.

7.6.5. Specific assumptions and limitations relevant to each survey, including how any limitations have been overcome, are included within **ES Volume 4, Appendices 7.1 - 7.16 [EN010158/APP/6.4]**. There are no known survey-specific constraints that represent a significant limitation or data gap and the baseline that has been established is considered suitably robust for the assessment.

7.6.6. There can be a high degree of uncertainty regarding likely significant effects during decommissioning, as engineering approaches and technologies will evolve over the operational life of the Proposed

Development, and assumptions have therefore been made where appropriate.

Assessment methodology and criteria

7.6.7. This assessment has been undertaken in accordance with CIEEM Guidelines **[Ref. 7-21]**, as summarised below and as in accordance with **ES Volume 4, Appendix 5.1: EIA Scoping Report [EN010158/APP/6.4]** and **ES Volume 4, Appendix 5.2: EIA Scoping Opinion [EN010158/APP/6.4]**.

7.6.8. This preliminary assessment has comprised the following steps:

- Identify relevant ecological features (e.g. designated sites, habitats, species or ecosystems) that may be impacted;
- Determine the ecological importance of receptors using geographic frames of reference; and
- Provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects. Impacts and effects may be positive or negative.

7.6.9. Criteria that have been taken into account when determining significance comprise:

- Duration (short-term, medium-term or long-term);
- Permanence (permanent or temporary) and changes in significance (increase or decrease); and
- Reversibility (e.g. is the change reversible or irreversible).

7.6.10. The geographic frames of reference used for this assessment to help determine the ecological importance of receptors in accordance with the CIEEM Guidelines **[Ref. 7-21]** are as follows:

- International (i.e. Ramsar Sites, SACs and SPAs) (normally within the geographic area of Europe);
- UK or national;
- Regional;
- County;
- District; and
- Local (within approximately 5km of the Order Limits).

7.6.11. The ecological importance of species populations is based on their size, recognised status (such as through published lists of species of conservation concern and designation of Biodiversity Action Plan status) and legal protection.

7.6.12. When assigning ecological importance to species populations, the following has been considered: legal protection, distribution, rarity, population trends and population size. The assessment of ecological importance relies on the professional opinion and judgment of experienced ecologists, informed by relevant population information and scientific research.

7.6.13. When assigning ecological importance to plant communities, these have been assessed in terms of their intrinsic value, habitat for supporting protected species and for supporting plants species of nature conservation concern.

7.6.14. When describing ecological impacts and effects, reference is made to the following characteristics as required:

- **Positive or negative:** Positive represents a change that improves the quality of the environment e.g. by increasing species diversity, extending habitat or improving water quality. This may also include halting or slowing an existing decline in the quality of the environment. Negative represents a change which reduces the quality of the environment e.g. destruction of habitat, removal of foraging habitat, habitat fragmentation, pollution.
- **Extent:** The spatial or geographical area over which the impact/effect may occur under a suitably representative range of conditions (e.g. noise transmission under water).
- **Magnitude:** The size, amount, intensity and volume - this should be described on a quantitative basis where possible.
- **Duration:** Defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes.
- **Frequency and timing:** The number of times an activity occurs.
- **Reversibility:** An irreversible effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it. A reversible effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation. In some cases, the same activity can cause both reversible and irreversible effects.

7.6.15. CIEEM Guidelines **[Ref. 7-21]** requires a clear statement as to whether or not an effect is significant and at what geographical scale, for example ‘significant at the national level’. In accordance with CIEEM Guidelines **[Ref. 7-21]** a significant effect is an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features’ or for biodiversity in general. A significant effect can be either positive or negative.

Mitigation hierarchy

7.6.16. Throughout the assessment, regard has been paid to the biodiversity mitigation hierarchy comprising avoid, minimise, mitigate and offset. **Table 7.6** provides an overview with regard to how the Proposed Development has applied the mitigation hierarchy.

Table 7.6: Mitigation hierarchy

Mitigation hierarchy steps	Measures taken
Avoid	The Applicant was mindful from the outset of the presence of statutory designated sites. It was considered that any potential impacts on these sites could be mitigated through direct avoidance and no development is proposed within statutory and non-statutory designated sites. Further detailed design measures, including the use of setbacks from development, mitigation planting and screening were considered appropriate to further mitigate potential impacts (see **Planning Statement, Appendix 1: Site Selection Report [EN010158/APP/5.7]**). The design of the Proposed Development has been informed by the ongoing environmental assessments and comments raised by consultees (see **Table 7.1**) during consultation and engagement to date. The Proposed Development has also been designed to ensure the retention and protection of all other areas of woodland, ponds, watercourses, ditches and the majority of hedgerows and arable field margins within the Order Limits. Loss of hedgerows and individual trees have been kept to a minimum with re-instatement of hedgerows undertaken in the majority of cases. The majority of infrastructure (with the exception of cabling and access tracks) is proposed to be sited on arable fields or low value grassland pasture fields which are of limited value to biodiversity in comparison to retained habitats of higher value, with infrastructure located to avoid more ecologically sensitive areas. Several areas within the Site that are considered to be more ecologically sensitive have been reserved for ecological mitigations and enhancements and are not available for renewable infrastructure.
Mitigate	Measures have been 'embedded' into the design of the Proposed Development to remove potential likely significant effects as far as practicable, informed by ongoing engagement with consultees (see **Table 7.1**). Embedded environmental mitigation measures that are considered to be an inherent part of the Proposed Development are detailed within **Section 7.8, Table 7.7**.

Mitigation hierarchy steps	Measures taken
	Additional mitigation measures to avoid or reduce the duration, intensity and extent of impacts are detailed within **Section 7.9**. The locations of mitigation areas have been chosen to ensure the connections between the existing SSSIs and ancient woodland adjacent to the Site would be enhanced by creating species-rich grassland and arable margins along with scrub and tree planting. This will create a coherent ecological network that will link the Site to the wider landscape, reducing fragmentation across the wider landscape and supporting the movement of local wildlife, particularly bats. The creation of species-rich grassland will provide ground-nesting bird habitat and create a nectar source for invertebrates, which in turn provides a foraging resource for bats and bird species. A mosaic of scrub and grassland will improve foraging habitat for bats and provide habitat to support invertebrates. Restoration of defunct ponds will help to enhance the pond network in the area, provide additional bat foraging habitat and support GCN. In addition, these habitats will also be of benefit to species including invertebrates, amphibians, reptiles, non-ground nesting birds, roosting bats, badger and otter. During the operation (including maintenance) phase, potential effects on bat species will be monitored to confirm the efficacy of mitigation measures and contribute to the evidence base pertaining to the impacts of solar development on bat species. The monitoring data would be compared with the baseline bat activity data and any differences in bat activity across the whole Site would be assessed. The report would detail any actions or adaptive management practices required where appropriate.
Compensate	Compensation for loss of hedgerow habitat will be undertaken through re-instatement of hedgerows following cabling works and additional hedgerow planting across the Site. Scrub habitat will be planted in strategic locations to compensate for the loss of the Blackthorn resource for black and brown hairstreak butterfly.
Enhance	All mitigation will be delivered within the Order Limits, negating the need to compensate further away from where potential impacts would occur. The creation of species-rich grassland under and between Solar PV modules will increase floristic diversity and consequently increase invertebrate diversity and abundance. An increase in invertebrate diversity and abundance will provide a foraging source for birds and bats,

Mitigation hierarchy steps	Measures taken
	providing additional enhancement across the Site. The ecological mitigation and enhancement areas will deliver a minimum 10% net gain in biodiversity, and in fact, is expected to substantially exceed this.

Biodiversity net gain

7.6.17. The Environment Act 2021 mandatory requirement for 10% BNG **[Ref. 7-4]** does not yet apply to Nationally Significant Infrastructure Projects like the Proposed Development **[Ref. 7-25]**. Although not yet mandatory, the Applicant is still committing to achieving a minimum gain of 40% for area habitat, 17% for hedgerows and 10% for watercourses will be delivered which will be secured in the **Outline LEMP [EN010158/APP/7.6]**.

7.6.18. The BNG assessment is presented in **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]**.

7.7. Mitigation embedded into the design

7.7.1. This assessment has been based on the principle that measures have been 'embedded' into the design of the Proposed Development to avoid or reduce potential significant effects as far as practicable, for example by the considered placement of infrastructure. The embedded mitigation aims are to successfully integrate the Proposed Development within the context of the existing landscape and prevent or reduce any adverse effects on important ecological features.

7.7.2. Embedded mitigation measures relevant to the biodiversity assessment are detailed in **Table 7.7** below.

Table 7.7: Embedded mitigation relevant to biodiversity

Embedded mitigation measures relevant to biodiversity	Function	Securing mechanism
Perimeter fencing surrounding the Solar PV development will be offset at least 30m from existing statutory and locally designated wildlife sites. **Perimeter fencing surrounding the Solar**	This buffer provides a 30m wide corridor where species-rich grassland, scrub planting and pond creation/restoration will occur to help reduce potential displacement effects from Solar PV and associated infrastructure to foraging and commuting bats	**Design Commitments [EN010158/APP/5.9]**

Embedded mitigation measures relevant to biodiversity	Function	Securing mechanism
PV development will be offset at least 30m from existing woodland and hedgerows located along the boundaries of Field D29 and partially in Field D28.	to maintain foraging and commuting corridors and improve links to the wider landscape. 30m is over and above what is required to protect tree root protection area (RPA) of woodlands. Standing advice recommends a buffer zone of at least 15m from the boundary of ancient woodland to avoid root damage **[Ref. 7-38]**.	
Perimeter fencing surrounding the Solar PV development will be offset at least 20m from all other existing woodlands, including HS2 planting	This buffer provides a 20m wide corridor where species-rich grassland, scrub planting and pond creation/restoration will occur to help reduce potential displacement effects from Solar PV and associated infrastructure to foraging and commuting bats to maintain foraging and commuting corridors and improve links to the wider landscape. 20m is considered over and above what is required to protect tree RPA of woodlands. Standing advice recommends a buffer zone of at least 15m from the boundary of ancient woodland to avoid root damage **[Ref. 7-38]**. All woodland habitat would be retained.	**Design Commitments [EN010158/APP/5.9]**
Perimeter fencing surrounding the Solar PV development will be offset at least 15m	This buffer provides a 15m wide corridor link either side of each hedgerow between Sheephouse Wood, Shrubs	**Design Commitments [EN010158/APP/5.9]**

Embedded mitigation measures relevant to biodiversity	Function	Securing mechanism
either side from existing hedgerows located within Fields B3 and B7, between fields B7 and B8/B10 and between Fields B8/B10 and B9/B11	Wood and Decoypond Wood helping to reduce potential displacement effects from Solar PV to foraging and commuting bats. A 15m buffer is considered sufficient to avoid the RPA of hedgerows and hedgerow trees. Nesting birds using the hedgerows or bats roosting in hedgerow trees would have a 15m buffer from any works disturbance.	
Perimeter fencing surrounding the Solar PV development will be offset at least 10m either side from all existing hedgerows as far as reasonably practicable, except where a hedgerow crossing is required for access tracks and/or cable routes	A 10m buffer either side of each hedgerow is considered sufficient to avoid the RPA of hedgerows. This buffer also provides a 10m wide wildlife corridor on either side of each hedgerow across the Site, providing vegetated cover for foraging and dispersal. The 10m wide buffers on either side of linear field boundaries will help to reduce potential displacement effects from Solar PV and associated infrastructure to foraging and commuting bats by maintaining bat flight lines across the landscape. Nesting birds using the hedgerows or bats roosting in hedgerow trees would have a 10m buffer from any works disturbance.	**Design Commitments [EN010158/APP/5.9]**

Embedded mitigation measures relevant to biodiversity	Function	Securing mechanism
Where an Interconnecting Cable Corridor or Grid Connection Cable Corridor crosses a hedgerow and the hedgerow is removed, these will be reinstated post-construction	Where an Interconnecting or Grid Connection Cable Corridor crosses a hedgerow and the hedgerow is removed, these would be reinstated post-construction to maintain ecological connectivity.	**Outline LEMP [EN010158/APP/7.6]**
Principal components of the Proposed Development will avoid root protection areas of trees and hedgerows as far as reasonably practicable, except where a hedgerow crossing is required for access tracks and/or cable routes	These buffers are considered sufficient to avoid the root protection zone of trees and reduce the impact on trees. Retention of trees will also retain potential roosting habitat for bats and nesting habitat for birds.	**Design Commitments [EN010158/APP/5.9]**
Perimeter fencing surrounding the Solar PV development will be offset at least 10m either side from all existing ditches and ordinary watercourses except where access tracks and/or cable routes are required to cross an existing feature. **Perimeter fencing surrounding the Solar PV development will be offset at least 20m from the top of bank of Claydon Brook in Fields E20, E11, E10 and north section of E21.**	Maintaining a 10m buffer from ditches, ponds and watercourses will retain vegetation connectivity, help to stabilise banks and help provide protection from pollution such as runoff. It will also maintain the vegetated watercourse corridor habitat for aquatic species, riparian mammals and foraging and commuting bats.	**Design Commitments [EN010158/APP/5.9]**

Embedded mitigation measures relevant to biodiversity	Function	Securing mechanism
Creation of approximately 95 ha of species-rich neutral grassland	To provide open nesting habitat for ground nesting birds to compensate for habitat lost due to placement of Solar PV modules and improve habitat and carrying capacity for ground nesting birds. The species-rich grassland created will also likely boost invertebrate diversity, providing new foraging and commuting habitat for bats, birds and other species across the landscape. Arable to grassland reversion would reduce soil erosion, protect watercourses from sedimentation run-off and cause reduction in use of herbicides and pesticides.	**Outline LEMP [EN010158/APP/7.6]**
Provision of a winter seed source for birds along a proportion (approximately 5%) of the field margins or within a single designated area within an individual field	To compensate for loss of foraging habitat (open, arable habitat lost due to placement of Solar PV modules) and to improve foraging for wintering birds including ground nesting species.	**Outline LEMP [EN010158/APP/7.6]**
Creation of a mosaic of species-rich neutral grassland and scrub along field margins	This will improve connectivity across the Site to the wider landscape and provide commuting habitat for bats. It will also improve foraging for birds and bats, provide nesting habitat for birds, provide terrestrial habitat for GCN and provide habitat for black hairstreak and brown hairstreak butterfly and other invertebrate species.	**Outline LEMP [EN010158/APP/7.6]**

Embedded mitigation measures relevant to biodiversity	Function	Securing mechanism
Creation of species-rich other neutral grassland under and between Solar PV panels	This will increase floristic diversity and consequently increase invertebrate diversity and abundance. An increase in invertebrate diversity and abundance will provide a foraging source for birds and bats.	**Outline LEMP [EN010158/APP/7.6]**
Strategic planting of hedgerows and tree belts. **Improvement of existing hedgerows by bolstering with a diversity of appropriate native species and 'gapping-up' where required.**	Strategic planting to improve foraging and commuting habitat for bats between woodland blocks and to improve connectivity across the Site and to the wider landscape; compensate for hedgerows lost; improve retained hedgerows; to improve foraging, nesting/roosting habitat for birds and bats; provide terrestrial habitat for GCN; and provide habitat for black hairstreak and brown hairstreak butterfly and other terrestrial invertebrate species.	**Outline LEMP [EN010158/APP/7.6]**
Early planting/habitat management proposed within Parcel 1 (hedgerows between Shrubs Wood and Sheephouse Wood), Parcel 1a, Parcel 2 (along the boundary of fields D30, D29 and D28 and hedgerows along boundary of fields D30, D34 and D37) ahead of construction activities starting	Strategic planting to improve foraging and commuting habitat for bats between woodland blocks; to improve connectivity across the Site and to the wider landscape; compensate for hedgerows lost; improve retained hedgerows; to improve foraging, nesting/roosting habitat for birds and bats; and provide habitat for black hairstreak and brown hairstreak butterfly and other invertebrate species.	**Outline LEMP [EN010158/APP/7.6]**

Embedded mitigation measures relevant to biodiversity	Function	Securing mechanism
Establishment of ecological ponds (restoration of former ponds and creation of new ponds)	Increasing the number of ponds within the Order Limits will strengthen the pond network and provide additional breeding habitat for GCN and foraging habitat for bats.	**Outline LEMP [EN010158/APP/7.6]**
Perimeter fencing will permit the passage of wildlife, either through a clearance at ground level or via mammal gates	Mammal gates and clearance gaps under fences will allow animals, such as badgers and brown hare, to fully access areas under Solar PV modules for foraging and to allow dispersal across the area.	**Design Commitments [EN010158/APP/5.9]**
Appropriate buffer zones (e.g. 30m from statutory and locally designated wildlife sites and ancient woodland) will be marked by demarcation fencing and signage during construction and decommissioning	The 10m wide buffer zone between fences and hedgerows/field margins will also allow animals such as deer to disperse along the buffer through the wider landscape. Demarcation fencing will prevent construction activity in proximity to important habitats or species (e.g. SSSI sites, ancient woodland, ponds, badger setts) within and adjacent to the Order Limits. Where required, specific tree protection measures will be implemented, including fencing and construction exclusion zones.	**Outline LEMP [EN010158/APP/7.6]**
Acoustic barriers will be provided around elements of the Independent Outdoor Equipment centralised	This would help attenuate high frequency noise which could impact and displace foraging and commuting bats.	**Design Commitments [EN010158/APP/5.9]**

Embedded mitigation measures relevant to biodiversity	Function	Securing mechanism
inverters, transformers and switchgear), ITS (centralised inverters, transformers and switchgear), Rosefield Substation, Main Collector Compound, Satellite Collector Compounds and BESS compound, to ensure that unacceptable noise impacts do not arise		
Lighting will use directional fittings and face away from boundaries and into the Order Limits, in accordance with health and safety and environmental requirements	The lighting design would limit impact on sensitive receptors by directing lighting downward and away from the Order Limits and existing vegetation. During operation (including maintenance), no part of the Proposed Development would be continuously lit. Manually operated and motion detection lighting would be utilised for operational and security purposes. Passive infrared detectors (PID) would be implemented around Solar PV modules, and lighting sensors implemented around the Rosefield Substation and BESS compound. Use of lighting only when necessary and directing lighting downward, away from woodland and hedgerow boundaries, vegetation and watercourses, would reduce impact to bats	**Design Commitments [EN010158/APP/5.9]**

Embedded mitigation measures relevant to biodiversity	Function	Securing mechanism
	and other nocturnal species such as badgers and otter.	
Perimeter fencing surrounding the Solar PV development will be offset at least 30m from existing main badger setts where practicable	Large main badger setts can extend up to 30m underground. A 30m buffer from works would avoid damage to the setts and reduce disturbance.	**Design Commitments [EN010158/APP/5.9]**
Landscape structural planting, including tree planting, hedgerows, scrub, etc., created to deliver biodiversity mitigation and enhancement associated with the Proposed Development would be left in situ when the Site is returned to the landowner	Ecological mitigation, enhancement areas and landscape structural planting would be handed over to the relevant landowners, unless agreed otherwise. Consultation with appropriate stakeholders and landowners would be undertaken in advance of the decommissioning phase to discuss opportunities to maintain and manage the ecological mitigation and enhancement beyond the lifespan of the Proposed Development, as appropriate.	**Outline LEMP [EN010158/APP/7.6]** **Outline DEMP [EN010158/APP/7.4]**

7.8. Assessment of likely effects (without additional mitigation)

Construction

Statutory designated sites, non-statutory designated sites and ancient woodland

7.8.1. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure from designated sites and ancient woodland. There will be no direct land take from the designated sites or ancient woodland located adjacent to the Order Limits, and it is not envisaged that construction activities are likely to have a direct adverse impact upon these sites.

7.8.2. In order to access areas proposed for landscaping and environmental habitat creation in Parcel 1a, an existing track, located within Romer Wood and Greatsea Wood (ancient woodland within the Order Limits), currently used by maintenance traffic associated with HS2 landscape planting would be used to allow light vehicles, such as tractors, to access this area for habitat creation works. No loss of ancient woodland would be required as existing access tracks would be utilised and no built development is proposed along the access track.

7.8.3. In the absence of additional mitigation, there may be temporary indirect adverse impacts, such as surface water pollution run-off and dust pollution.

Hedgerows and hedgerow trees

7.8.4. The embedded mitigation detailed in **Table 7.7** detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure from hedgerows. However, sections of hedgerow would require removal to facilitate the installation of cables, internal roads and highways access including passing bays and visibility splays. Up to *c.*2,060m of hedgerow could be removed during construction, of which up to *c.*831m is classified as 'important' under The Hedgerows Regulations 1997, Part 2, 'wildlife and landscape criteria for important hedgerow selection' **[Ref. 7-7]**. The locations of the sections of hedgerows affected are shown in the **Outline LEMP, Appendix 3: Vegetation Removal Parameters [EN010158/APP/7.6]**.

7.8.5. Up to *c.*750m of hedgerow will be re-instated on completion of construction works, approximately *c.*3420m of hedgerow will be newly planted, of which a proportion will be early planting ahead of construction works commencing. The location or re-instated hedgerows are shown in the **Outline LEMP, Appendix 3: Vegetation Removal Parameters [EN010158/APP/7.6]**. **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]** shows the location of new hedgerow planting, including hedgerows that will be planted ahead of construction works commencing. Improvement to existing hedgerows will also be undertaken by bolstering with a diversity of appropriate native species and 'gapping-up' where required. These measures are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.8.6. In the absence of additional mitigation, there may be temporary indirect adverse impacts, such as surface water pollution run-off and dust pollution.

Individual ancient and veteran trees

7.8.7. The embedded mitigation detailed in **Table 7.7** detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum offset to the principal components of the Proposed Development to tree Root Protection Areas, as far as reasonably practicable for all ancient and veteran trees. As a result, there will be no direct loss of ancient or veteran trees; however, there is potential for roost disturbance to occur to a single veteran tree as a result of highways works.

7.8.8. In the absence of additional mitigation, there may be temporary indirect adverse impacts, such as surface water pollution run-off and dust pollution.

Individual trees and lines of trees

7.8.9. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum offset to the principal components of the Proposed Development to tree Root Protection Areas, as far as reasonably practicable for individual trees and lines of trees.

7.8.10. However, during construction, up to 16 individual trees would potentially need to be removed for installation of cables, internal roads and highways access including passing bays and visibility splays. The locations of the trees affected are shown in the **Outline LEMP, Appendix 3: Vegetation Removal Parameters [EN010158/APP/7.6]**.

7.8.11. The embedded mitigation detailed in **Table 7.7** includes for *c.*8.5 ha of tree belt/woodland planting created across the Site and the planting of *c.*435 trees within hedgerows across the Site, of which a proportion will be early planting ahead of construction works commencing. **Appendix 2: Landscape and Ecological Mitigation and Enhancements [EN010158/APP/7.6]** shows the location of new tree belt planting, including tree belts that will be planted ahead of construction works commencing, detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.8.12. In the absence of additional mitigation, there may be temporary indirect adverse impacts, such as surface water pollution run-off and dust pollution.

Cereal and non-cereal crops

7.8.13. During construction, up to *c.*323.9ha of cereal and non-cereal crop habitat will be permanently altered to facilitate Solar PV modules and associated infrastructure and for mitigation habitat creation. Mitigation for cereal and non-cereal crop habitat modification is detailed within **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** which outlines

measures such as conversion of arable habitat to species-rich grassland, scrub, ponds, hedgerows and woodland, resulting in an increased diversity or habitats that of higher value than cereal and non-cereal crops.

7.8.14. Cereal and non-cereal crop habitat will also be temporarily lost to facilitate Interconnecting Cable Corridor works and Construction Compounds. In the absence of additional mitigation, there may be temporary indirect adverse impacts to retained cereal and non-cereal crop habitats, such as surface water pollution run-off and dust pollution.

Lowland mixed deciduous woodland and other woodland

7.8.15. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure from woodland areas. As a result, there will be no direct loss of woodland habitat located within or adjacent to the Order Limits, and it is not envisaged that construction activities are likely to have a direct adverse impact upon woodland.

7.8.16. In the absence of additional mitigation, there may be temporary indirect adverse impacts, such as surface water pollution run-off and dust pollution.

7.8.17. The embedded mitigation detailed in **Table 7.7** includes for *c.*8.5ha of tree belt/woodland created across the Site, of which a proportion will be early planting ahead of construction works commencing. **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]** shows the location of new woodland planting, including woodland that will be planted ahead of construction works commencing, detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

Arable field margins

7.8.18. The embedded mitigation detailed in **Table 7.6** has aimed to retain arable field margins where possible. Creation of new arable field margins and management of new and retained arable field margins is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.8.19. In the absence of additional mitigation, there may be temporary indirect adverse impacts, such as surface water pollution run-off and dust pollution.

Ponds, watercourses and ditches

7.8.20. The embedded mitigation detailed in **Table 7.7** detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure of 10m from

all ponds, watercourse and ditches. As a result, there will be no direct loss of these habitats and it is not envisaged that construction activities are likely to have a direct adverse impact upon these habitats.

7.8.21. In the absence of additional mitigation, there may be temporary indirect adverse impacts, such as surface water pollution run-off and dust pollution.

7.8.22. The embedded mitigation detailed in **Table 7.7** includes for the re-instatement and creation of new ponds across the Site, as detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

Mixed scrub, bramble scrub, other neutral grassland and modified grassland

7.8.23. The majority of grassland within the Order Limits are classified as modified grassland, with a few field margins and a few areas of other neutral grassland. Although none were identified as species-rich or of particular ecological importance, small areas of scrub habitat were also recorded across the Site. During construction up to *c.*0.63ha of mixed scrub, *c.*0.05ha of bramble scrub, *c.*30.56ha of other neutral grassland and *c.*79.85 ha of modified grassland habitat will be permanently lost to facilitate Solar PV modules and associated infrastructure and for mitigation habitat creation. Mitigation for habitat modification is detailed within **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** which outlines measures such as conversion of modified grassland habitat to species-rich grassland, scrub, ponds, hedgerows, arable field margins and woodland, resulting in an increased diversity and abundance of invertebrate species to improve the foraging value of the areas for bats and farmland bird species.

7.8.24. There would also be a temporary loss of these habitats to facilitate Interconnecting Cable Corridors works and Construction Compounds. In the absence of additional mitigation, there may be temporary indirect adverse impacts to retained habitats, such as surface water pollution run-off and dust pollution.

Black hairstreak and brown hairstreak butterfly

7.8.25. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure from all woodland habitat. There will be no direct land take from woodland habitats within or located adjacent to the Order Limits; therefore, there will be no loss of Blackthorn resource from these areas.

7.8.26. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure from

hedgerows. However, sections of hedgerow would need to be removed for the installation of cables, internal roads and highways access including passing bays and visibility splays, which has the potential to result in loss of Blackthorn resource for hairstreak butterflies. Up to *c.*2,060m of hedgerow could be removed during construction. The locations of the sections of hedgerows affected are shown in the **Outline LEMP, Appendix 3: Vegetation Removal Parameters [EN010158/APP/7.6]**.

7.8.27. Up to *c.*750m of hedgerow will be re-instated on completion of construction works and approximately *c.*3,420m of hedgerow will be newly planted, of which a proportion will be early planting ahead of construction works commencing. The location or re-instated hedgerows are shown in the **Outline LEMP, Appendix 3: Vegetation Removal Parameters [EN010158/APP/7.6]**. **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]** shows the location of new hedgerow planting and new scrub planting, including hedgerows that will be planted ahead of construction works commencing. Improvement to existing hedgerows will also be undertaken by bolstering any gaps with a diversity of appropriate native species including Blackthorn where required. These measures are detailed and secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.8.28. In the absence of additional mitigation, there may be temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution.

Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly)

7.8.29. The majority of habitat within the Order Limits that may support notable invertebrates (e.g. woodland and deadwood) will be retained in their entirety and avoided during construction of the Proposed Development. However, sections of hedgerow, grassland, scrub and arable field margin habitat would need to be removed for the installation of cables, internal roads and highways access including passing bays and visibility splays, which has the potential to result in loss habitat suitable to support terrestrial invertebrates.

7.8.30. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and improvement of species-rich grassland, scrub, ponds, hedgerows, arable field margins and woodland, resulting in an increase of habitat suitable to support a diverse range of invertebrate species across the Site. These measures are detailed and secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.8.31. In the absence of additional mitigation, there may be temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution.

Great crested newt

7.8.32. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure of 10m from ponds and ditches. As a result, there will be no direct loss of GCN breeding habitat and it is not envisaged that construction activities are likely to have a direct adverse impact upon these habitats. However, in the absence of additional mitigation, there may be temporary indirect adverse impacts to ponds and ditches, such as surface water pollution run-off and dust pollution.

7.8.33. Terrestrial habitat suitable for GCN would be temporarily impacted during the Interconnecting Cable Corridor works, Grid Connection Cable Corridor works, Site access location works, and Construction Compound works. The impacts would be short term and limited to the duration of the construction phase. As the construction is phased, impacts would only occur within discrete areas within the Order Limits at any one time. Permanent terrestrial habitat loss would occur as a result of Internal Access Corridor works and permanent infrastructure works, e.g., Satellite Collector Compound and Rosefield Substation. Construction activities that require vegetation and ground clearance works carry a risk of causing incidental injury or mortality to GCN during the construction phase.

7.8.34. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and improvement of species-rich grassland, scrub, ponds, hedgerows, arable field margins and woodland, resulting in an increase of habitat suitable to support GCN across the Site.

Reptiles

7.8.35. The majority of habitat within the Order Limits is considered to be of low suitability for reptile species. Limited areas of habitat suitable for reptiles would be temporarily impacted during the Interconnecting Cable Corridor works, Grid Connection Cable Corridor works, Site access location works, and Construction Compound works. The impacts would be short term and limited to the duration of the construction phase. As the construction is phased, impacts would only occur within discrete areas within the Order Limits at any one time. Permanent habitat loss would occur as a result of Internal Access Corridor works and permanent infrastructure works, e.g., Satellite Collector Compound and Rosefield Substation. Construction activities that require vegetation and ground clearance works carries a risk of causing incidental injury or mortality to reptiles during the construction phase.

7.8.36. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and

improvement of species-rich grassland, scrub, hedgerows, arable field margins and woodland, resulting in an increase of habitat suitable to support reptile species across the Site. In the absence of additional mitigation, there may be temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution.

Ground nesting birds

7.8.37. The construction of the Proposed Development would result in the loss of large open arable fields used for nesting and foraging by ground nesting birds. Temporary disturbance to ground nesting birds during the construction phase would also occur. The Solar PV development covers an area of *c.*279.93ha, much of which is used by ground nesting birds, although numbers will vary each year depending on the current cropping regime.

7.8.38. The embedded mitigation detailed in **Table 7.7** includes for the creation of approximately *c.*95ha of species-rich grassland for ground nesting birds, as detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]** and **Outline LEMP [EN010158/APP/7.6]**. Although this habitat creation could take time to establish, it is anticipated that ground nesting birds would utilise it relatively quickly. In the absence of additional mitigation, there may be temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution.

Non-ground nesting birds

7.8.39. The embedded mitigation detailed in **Table 7.7** includes a minimum standoff distance from Solar PV modules and associated infrastructure of 10m from hedgerows, 30m from designated sites, 20m from other woodland and the root protection zone of individual and lines trees. However, the construction of the Proposed Development would result in a short-term loss of non-ground nesting bird breeding and foraging habitat, such as hedgerow sections that would require removal for the Interconnecting Cable Corridors, Grid Connection Cable Corridor and Site access within the Order Limits. Depending on the duration and timing, potential disturbance to non-ground nesting birds would occur within, and in close proximity to, the Order Limits from construction works.

7.8.40. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and/or improvement of species-rich grassland, scrub, hedgerows, arable field margins and woodland, resulting in an increase of habitat suitable to support non-ground nesting bird species across the Site.

7.8.41. In the absence of additional mitigation, there may be temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution.

Barn owl, red kite, hobby and peregrine falcon (listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended))

7.8.42. If nesting within the Order Limits or in close proximity to the Order Limits, Schedule 1 breeding species including barn owl, hobby, red kite and peregrine falcon could be disturbed and displaced by construction works depending on the duration and timing.

7.8.43. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and/or improvement of species-rich grassland, scrub, hedgerows, arable field margins and woodland, resulting in an increase of suitable foraging habitat for barn owl, red kite, hobby and peregrine falcon across the Site.

7.8.44. In the absence of additional mitigation, there may be temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution.

Wintering birds

7.8.45. The construction of the Proposed Development would result in a short-term loss of foraging habitat, such as hedgerow sections that would require removal for the Interconnecting Cable Corridors, Grid Connection Cable Corridor and Site access, for wintering birds within the Order Limits. Depending on the duration and timing, potential disturbance to wintering birds would occur within, and in close proximity to, the Order Limits from construction works.

7.8.46. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and/or improvement of species-rich grassland, scrub, hedgerows, arable field margins and woodland, resulting in an increase of suitable foraging habitat for wintering birds across the Site.

7.8.47. In the absence of additional mitigation, there may be temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution.

Bechstein's bat (foraging, commuting and roosting)

7.8.48. Construction activities have the potential to result in the disturbance, fragmentation, loss and/or degradation of features of importance for roosting, foraging and/or commuting Bechstein's bat, as a result of noise, lighting, removal and/or the degradation in quality of retained habitat features.

7.8.49. Noise from construction activities will occur throughout the majority of the construction phase and may include high-frequency noise, to which some bat species may be sensitive **[Ref. 7-24** and **Ref. 7-39]**. During the design of the Proposed Development, steps were taken to minimise noise impacts through design changes. These included the removal of a Collector Compound from Field B10, which would have placed it adjacent to Shrub's Wood.

7.8.50. Construction noise is anticipated to be limited in duration in any one location. However, as core construction working hours will be between 07:00 and 19:00, there will be some, albeit limited, crossover with the average Bechstein's bat emergence time (approximately 33 minutes after sunset **[Ref. 7-72]**), during the spring and autumn.

7.8.51. Greater levels of noise and vibration may be expected in association with Construction Compounds, Collector Compounds, the Rosefield Substation and BESS. **Table 7.8** below summarises:

- The location of the nearest woodland area, regardless of woodland size;
- The location of the nearest designated woodland; and
- The size of the buffer zone(s) that will be implemented around hedgerows in closest proximity to the infrastructure feature and/or Construction Compound.

Table 7.8: Anticipated distance of built infrastructure and Construction Compounds from retained habitat features

Infrastructure/ Construction Compound	Location	Approximate distance from SSSI/LWS woodland	Nearest woodland block (approximate woodland area*)	Hedgerow buffers
Rosefield Substation	Fields E11 and E20	2.9km north east of Runts Wood LWS	1.1km (0.45ha)	< 20m
Main Collector Compound	Fields E11, E20, E21 and E22	2.5km north east of Runts Wood LWS	890m (0.45ha)	< 20m
Satellite Collector Compound	Field B23	180m west of Home Wood LWS	75m (0.12ha)	<10m
Satellite Collector Compound	Field D17	250m north east of Runts Wood LWS	Adjacent (0.55ha)	<10m

Infrastructure/ Construction Compound	Location	Approximate distance from SSSI/LWS woodland	Nearest woodland block (approximate woodland area*)	Hedgerow buffers
Satellite Collector Compound	Fields D8 and D9	750m north east of Runts Wood LWS	50m (0.49ha)	<10m
BESS	Fields D8 and D9	750m north east of Runts Wood LWS	50m (0.49ha)	<10m
Primary Construction Compound 1	Fields B23 and B20	110m west of Home Wood LWS	See distance to SSSI/LWS woodland	<10m
Primary Construction Compound 2	Fields D7, D8 and D9	750m north east of Runts Wood LWS	25m (0.49ha)	<10m
Primary Construction Compound 3	Fields E21, E22 and E23	2.3km north east of Runts Wood LWS	475m (0.45ha)	<20m
Secondary Construction Compound 1	Fields B3, B6, B7 and B10	In fields adjacent to Shrub's Wood, Decoypond Wood and Sheephouse Wood	See distance to SSSI/LWS woodland Adjacent (0.33ha)	<15m
Secondary Construction Compound 2	Field D27	In fields adjacent to Runt's Wood	See distance to SSSI/LWS woodland	<10m
Secondary Construction Compound 3	Fields E10, E11 and E20	2.9km north east of Runt's Wood	25m (1.51ha – around existing substation)	<20m

** Bechstein's bat are considered to be most reliant on woodlands that are larger than 25 ha **[Ref. 7-26]**. The majority of woodland blocks that are not designated are below 1ha in area and are therefore considered to be of limited value to Bechstein's bat.*

7.8.52. Research into the impacts of construction noise on bats is limited, particularly when considering zero frequency-weighted (Z-weighted or unweighted) data, which does not skew acoustic data towards the human

auditory range. A Z-weighted construction noise assessment was undertaken on the western side of Sheephouse Wood for HS2 and is reported as a case study in the Bat Mitigation Guidelines **[Ref. 7-24]**. Fifteen construction activities were assessed, with two thirds found not to exceed 50dB at distances of at least 15m, either at any frequency or below 8.5kHz, which is considered to potentially be below the audible range of Myotis, such as Bechstein's bat **[Ref. 7-40]**. This included activities such as vehicle movements and dust suppression which may be associated with Construction Compounds, like the two Secondary Construction Compounds to be located in fields adjacent to Shrub's Wood, Sheephouse Wood, Decoypond Wood and Runt's Wood. These woods are part of the core foraging zone supporting Bechstein's bat maternity roosts associated with the Finemere Woods SSSI and/or the Grendon and Doddershall Woods SSSI, with Sheephouse Wood also supporting at least one Bechstein's bat maternity roost and several day roosts **[Ref. 7-26]**. These woodlands will be protected by a 30m buffer which is considered to be a sufficient distance to prevent significant disturbance being caused as a result of the majority of Construction Compound activities. The remaining infrastructure and Construction Compounds detailed in **Table 7.8** are considered to be at sufficient distances from woodland to prevent noise disturbance.

7.8.53. Hedgerows, some with trees suitable for roosting Bechstein's bat, will be located in closer proximity to some of these areas of development. These hedgerows will be protected by buffer zones of between 10m and 15m, mitigating for a proportion of any adverse noise impacts. However, there is the potential for brief periods of noise disturbance to occur for any roosting bats located in these areas. Bats are, however, known to switch roosts on a regular basis, with Bechstein's bat maternity roosts recorded regularly switching between different roosts during the breeding period **[Ref. 7-26]**. Therefore, should temporary noise disturbance occur, it is considered likely that Bechstein's bat will be fully capable of moving to an alternative roost location, with almost all of the current tree roost resource being retained, protected by buffer zones and at sufficient distance from construction activities to prevent significant disturbance.

7.8.54. When in flight, either commuting or foraging, it is considered that the most impactful frequencies of noise are those that overlap with a species' echolocation range, and that are in excess of 50dB **[Ref. 7-24]**. The Bechstein's bat echolocation call is frequency-modulated[6] and typically occurs between 35kHz and 100kHz **[Ref. 7-41]**. While the Sheephouse Wood construction noise case study did indicate some construction activities would exceed 50dB at distances beyond those of the

[6] A frequency-modulated call is defined as "*a signal whose frequency varies over a range of frequencies*" **[Ref. 7-76]**

aforementioned buffer zones, this was often when considered at frequencies below 10kHz **[Ref. 7-24]**. It is not considered, therefore, that there would be significant interference with Bechstein's' bat echolocation calls. The impacts of construction noise on foraging or commuting Bechstein's bat, on the limited occasions when there may be overlap of these activities, is therefore not considered to be significant.

7.8.55. Construction lighting may also impact Bechstein's bat, particularly during Spring and Autumn months when construction working hours overlap with hours of dusk and darkness (see **Paragraph 7.8.50**). Where lighting is required for construction, this will be implemented in accordance with a sensitive lighting plan developed to minimise impacts on nocturnal species, including the use of highly directional lighting to prevent light spill onto adjacent features, such as trees or dark corridors. This is included as part of the embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.8.56. 54,410m of hedgerow are present within the Order Limits, of which 96.21% (52,350m) will be retained and protected by buffer zones of either 10m or 15m on both sides of the hedgerow[7]. Hedgerow removal will occur in 82 locations, totalling *c.*2,060m of loss, in order to enable Internal Access Corridors and/or underground cabling. Of this, up to *c.*1,310m is anticipated to be permanent, while the remaining length of hedgerow will be replaced following completion of the works. Hedgerow loss will not impact any hedgerows identified as key Bechstein's bat commuting routes in the assessment of the Bernwood population of Bechstein's bat (**[Ref. 7-24]** see Figure 4), or areas of highest *Myotis* activity during bat surveys completed for the Proposed Development (see **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**). However, it is considered that all hedgerows within the home range of the Bernwood population of Bechstein's bat (see **ES Volume 3, Figure 7.4: Bechstein's Bat Home Range and Core Sustenance Zone in relation to Rosefield Solar Farm Order Limits [EN010158/APP/6.3]**) are likely to be of some importance.

7.8.57. Of hedgerow breaches, 40 sections would be 10m or less in width. While it has been suggested that gaps of 10m or more in linear features have the potential to affect the foraging and commuting behaviour of some bat species **[Ref. 7-42]**, it is considered that Bechstein's bat would not be dissuaded from crossing gaps of this size given that up to 30% of their diet has been found to reflect invertebrate species associated with either wetlands or open habitats **[Ref. 7-26]**, indicating an ability and willingness to cross and use open habitats. In addition, bat radiotracking surveys for

[7] Unless located on an Order Limit boundary, in which case the buffer will only be present on the side within the Order Limits.

HS2 found Bechstein's bat crossed the existing railway line west of Sheephouse Wood in several locations **[Ref. 7-43]**. Furthermore, an extensive network of hedgerows will be retained, offering alternative ways to navigate around a field or between woodlands. It is therefore considered unlikely that hedgerow gaps of this scale would result in significant adverse effects on Bechstein's bat.

7.8.58. The remaining sections of hedgerow loss will exceed 10m in width. It is considered that Bechstein's bat capacity to utilise open habitats (as discussed in **Paragraph 7.8.57**) will continue to minimise adverse impacts resulting from such gaps; however, a small number of gaps will exceed 100m in width and are considered to pose a greater risk of adverse impacts for commuting and/or foraging Bechstein's bat.

7.8.59. A 40.5m hedgerow gap will be created on the eastern side of Three Points Lane to the north of Home Wood with a further gap of 18m proposed for the western side of Three Points Lane in the same location due to access visibility splays. The southern end of Three Points Lane[8] has been identified as a key Bechstein's bat commuting route and one of the most frequently used commuting routes for foraging by Bechstein's bat **[Ref. 7-26]**. However, static detector and transect surveys in 2023 found limited evidence of bat use of Three Points Lane, with only singular *Myotis* registrations recorded in August and September (see **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**). Although the location of this hedgerow loss and limited survey data potentially representing Bechstein's bat indicates that this section of Three Points Lane is unlikely to be of high value for Bechstein's bat, the scale of hedgerow loss and the occurrence of hedgerow loss on both sides of the lane is considered to pose an increased risk of habitat fragmentation. Hedgerows will be partially reinstated with 30.75m replaced on the eastern side and 8m replaced on the western side to maintain connectivity.

7.8.60. A large section of hedgerow loss is proposed located within Parcel 3, approximately 3km north east of the nearest SSSI or LWS woodland. This hedgerow loss is required to enable the delivery of the Main Collector Compound and Rosefield Substation. While this will result in the loss of 242m of hedgerow (the hedgerow section currently acts, primarily, as otherwise-unconnected offshoots to the Claydon Brook corridor). Claydon Brook runs along the eastern boundary of the Order Limits and was the location of the majority of bat activity within Parcel 3 during static detector and transect surveys (see **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**). Claydon Brook itself will not

[8] Primarily between Finemere Hill, along the southern edge of Greatsea and Romer Woods to Sheephouse Wood SSSI and Decoypond Wood.

be impacted during construction. The watercourse will be protected by a 10-20m buffer on its western bank and vegetation will be planted to improve the value of this linear feature as a bat foraging and commuting corridor. The loss of this section of hedgerow is therefore considered unlikely to have a significant effect on Bechstein's bat.

7.8.61. The GLTA identified 887 individual trees/lines of trees within or immediately adjacent the Order Limits and 26 woodland blocks within or immediately adjacent to the Order Limits. Of these, 252 trees/lines of trees and 12 woodland blocks were considered to have suitability for bat maternity roosts and a further 170 trees/lines of trees and seven woodland blocks were assessed as suitable for individually roosting bats. While the Proposed Development has been designed to minimise any loss of trees, a small number of individual trees, primarily located within hedgerows, are anticipated to be lost to facilitate the Proposed Development. Specifically up to 16 individual trees[9] are anticipated to be removed (1.80% of the 887 trees/lines of trees identified), comprising three trees with suitability to support maternity roosts (1.19% of the identified maternity tree roost resource) and four trees suitable for individually roosting bats (2.35% of the identified individual tree roost resource), with the remaining nine trees having no features identified as suitable to support roosting bats.

7.8.62. Bechstein's bat are a primarily tree roosting bat species and consideration of the Bernwood Bechstein's bat population identified increasing evidence for the selection of individual trees located on hedgerows or within arable fields outside, but in close proximity to, woodlands. This was considered to be potential evidence for the preferential selection of exposed trees (i.e. those not within woodlands), rather than those sheltered within woodlands, with 'exposed' trees considered to be subject to less shading than trees within areas of woodland, and therefore potentially providing a warmer internal micro-climate suitable for raising young **[Ref. 7-26]**. However, despite this, almost all Bechstein's bat roosts, both day and maternity, identified as part of the assessment of the Bernwood population have been identified within, or on the edge of, woodlands (**[Ref. 7-26]** – see

[9] **Appendix 3: Vegetation Removal Parameters** of the **Outline LEMP [EN010158/APP/7.6]** has been assessed to identify the total number of individual trees that potentially require removal. Where the assessment detailed in **ES Volume 4, Appendix 7.2: Bat Preliminary Roost Assessment Report (2022) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.14: Bat Preliminary Roost Assessment Report (2025) [EN010158/APP/6.4]** has grouped individual trees into a *line of trees* and has assessed the roost resource as a whole rather than individual trees (i.e. the overall suitability of the line of trees for roosting bats), then the number of individual trees within the *line of trees* has been calculated. As in all cases, only a discrete number of individual trees located within an overall *line of trees* potentially require removal.

Figure 3). All woodland blocks and, as indicated by the percentages above, the majority of individual trees, will be retained and protected by buffer zones. This will ensure the retention and protection of almost all of the current bat tree roost resource. It is considered that suitable roost trees are not in short supply within the Bernwood area, given that Bechstein's bat do not currently use the ample supply of bat boxes already provided within Sheephouse Wood and Finemere Wood (P. Reason, pers. comm.)[10], despite Bechstein's bat having been recorded using bat boxes elsewhere across England **[Ref. 7-67]**.

7.8.63. Construction activities will also result in some wider habitat loss, both permanent, in relation to the Rosefield Substation, Collector Compounds and Internal access tracks; and temporary, such as that occurring as a result of Construction Compounds or the undergrounding of cables. In addition, within arable and modified grassland fields, habitats will be modified by the installation of Solar PV panels and/or degraded through damage from plant movement. The baseline habitat within the Order Limits is largely arable and, while arable field margins, particularly where associated with mature hedgerows, can be of significant value to bats (e.g. **[Ref. 7-69]**), arable fields themselves are typically deemed to be of limited value for foraging. The Site does not currently contain any significant areas of wetland vegetation and, although water runoff from Solar PV panels may result in some localised pooling of water during periods of rainfall, it is not considered that this would have notable direct or indirect impacts on Bechstein's bat, with no significant changes in hydrology anticipated. The Proposed Development has been designed to ensure the retention, protection and improvement of almost all hedgerows and field margins within the Order Limits, thus ensuring that the most valuable aspects of these areas are protected and remain available to foraging and commuting Bechstein's bat.

[10] Paola Reason is a Director of Ecology with 30 years' experience in the industry. Paola is the lead author of the UK Bat Mitigation Guidelines, published by CIEEM **[Ref. 7-24]** and is on the Technical Review Board for BCT's Bat Survey Guidelines **[Ref. 7-70]**. Paola is also a member of Natural England's Bat Expert Panel "providing expert opinion on Natural England's approach to bat conservation and regulation" and currently co-supervises a PhD on the impacts of noise on bats. As a Director, current high-profile projects include HS2 (Phase 1 Central) where she is the named ecologist on the licence for the Bernwood section of High-speed 2 (Bechstein's bats), and the expert witness for the proposed Camborne to Cambridge busway (barbastelle). Previously, she worked on the nuclear new-build at Sizewell, in Suffolk, also home to an important barbastelle population.

Barbastelle bats (foraging, commuting and roosting)

7.8.64. Construction activities have the potential to result in disturbance, fragmentation, loss and/or degradation of features of importance for roosting, foraging and/or commuting barbastelle bats, as a result of noise, lighting, the removal of and/or degradation in quality of retained habitat features.

7.8.65. The impacts of construction noise and lighting on barbastelle bats are considered to reflect those set out for Bechstein's bat in **Paragraphs 7.8.49** to **7.8.55** above.

7.8.66. As detailed in **Paragraph 7.8.56**, the majority of the extensive hedgerow network present within the Order Limits will be retained and protected throughout construction activities, although up to *c.*1,310m is anticipated to be permanently lost to enable the Proposed Development, (approximately 2.41% of the total hedgerow length). There is evidence to suggest that barbastelle bats may have a greater association with linear features when first leaving a roost **[Ref. 7-44** and **Ref. 7-45]**, with paired static detector surveys within the Order Limits reflecting this association (see **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**). These surveys identified up to 120 times greater barbastelle bat activity along hedgerows than within open fields in October 2024 and between 16 and 26 times more barbastelle bat activity on hedgerows in May 2025[11] (see **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**).

7.8.67. Barbastelle bats have also been found to demonstrate high fidelity to their commuting routes **[Ref. 7-46]** and therefore hedgerow loss, if extensive, could have the potential to increase fragmentation and adversely impact barbastelle bats. However, the design of the Proposed Development has ensured the retention and protection of the majority (96.21%) of the extensive hedgerow network present within the Order Limits; therefore, providing a variety of alternative routes around fields and between woodlands, if required. Furthermore, as a fast-flying bat species, barbastelle bats are also known to be comfortable commuting and foraging over large open areas **[Ref. 7-44** and **Ref. 7-45]**, behaviour that has been observed over Salisbury Plan and during surveys for Sizewell C

[11] An average of 47.80 barbastelle bat passes per night were recorded across all three paired static hedgerow locations in October 2025 compared to an average of 0.47 barbastelle bat passes per night across all three paired static open field locations in October 2024. In May 2025 an average of 18.40 barbastelle bat passes per night were recorded across the two paired static hedgerow locations compared to an average of 0.70 barbastelle bat passes per night across both paired static open field locations.

(P. Reason, pers. comm.). Therefore, barbastelle bats are considered less likely to be affected by gaps than Bechstein's bat and other clutter-feeding bats.

7.8.68. As detailed in **Paragraph 7.8.62**, all of the woodland tree roost resource located within or immediately adjacent to the Order Limits will be retained and protected by buffer zones, along with the majority of the individual tree roost resource. Like Bechstein's bat, barbastelle bats are primarily a tree-roosting bat demonstrating a particular affinity with lifted bark roost features, as well as also regularly using hazard beam and lightning strike features. Reflective of the relatively low levels of barbastelle bat activity recorded during surveys for the adjacent HS2 development (P. Reason, pers. comm.), these features were identified on only 50[12] of the 887 trees/tree lines assessed within the Order Limits during GLTAs (approximately 5.6%). Of these, 27 were assessed as having maternity roost suitability[13] and 19 were assessed as being suitable for individual roosting bats. The remaining four trees were either assessed as having no roosting suitability (two) or requiring further survey to determine the nature of any roosting suitability (two). The latter two trees are therefore considered within this assessment as potentially having suitability for a maternity roost on a precautionary basis.

7.8.69. Up to six individual trees with features suitable to support barbastelle bats will potentially be lost as a result of the Proposed Development. While other tree roost features may be used, the limited presence of the types of feature that may preferentially be selected and relatively low levels of barbastelle bat activity identified from both the bat surveys for the Proposed Development (see **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**) and HS2 (P. Reason, pers. comm.) suggests that the tree roost resource within the Order Limits may not be a significant resource for barbastelle bats.

7.8.70. The impacts of construction activities on the watercourse and arable habitats within the Order Limits on barbastelle bats are considered to reflect those set out for Bechstein's bat in **Paragraph 7.8.63**.

Other bat species (foraging, commuting and roosting)

7.8.71. Construction activities have the potential to result in disturbance, fragmentation, loss and/or degradation of features of importance for other bat species which roost, forage and/or commute within or through the Site,

[12] Thirty-two trees contained lifted bark features, 16 trees contained hazard beam features and two trees contained both lifted bark and hazard beam features. No lightning strike features were identified.
[13] Including the two trees that recorded both lifted bark and hazard beam features.

as a result of noise, lighting, removal and/or degradation in quality of retained habitat features.

7.8.72. The impacts of construction noise and lighting on other bat species are considered to reflect those set out for Bechstein's bat in **Paragraphs 7.8.49** to **7.8.55** above.

7.8.73. As detailed in **Paragraph 7.8.56**, the majority of the extensive hedgerow network present within the Order Limits will be retained and protected throughout construction activities, although up to up to *c.*1,310m is anticipated to be permanently lost to enable the Proposed Development, (approximately 2.41% of the total hedgerow length).

7.8.74. The extent to which the bat species assessed in this 'other bat species' receptor rely on linear features varies. Noctule typically fly at 10–15m in height and can travel at speeds up to 50km/h **[Ref. 7-41]**; therefore, they are typically not reliant on linear features and have been found not to demonstrate a preference for linear features over open fields **[Ref. 7-47]**.

7.8.75. Despite the aforementioned research, paired static detector surveys within the Order Limits found a broad trend across the species making up the 'other bat species' receptor for greater levels of activity on hedgerow detectors than on field detectors, reflecting findings from a number of studies (e.g. **[Ref. 7-48** and **Ref. 7-49]**).

7.8.76. While this was variable for some species, any occasions in which this trend was reversed[14] were typically based on only small non-significant differences, likely as a result of relatively low activity levels.

7.8.77. Over 96% of the hedgerow resource will be retained and protected by buffer zones, offering extensive route options with, through and around the Site. However, despite the small proportion of hedgerow due to be removed, some 'other bat species', particularly those that are clutter-feeders, may demonstrate close ties with hedgerows, and may, therefore, be susceptible to adverse effects as a result of hedgerow gaps, particularly where these are more substantial in size.

[14] Noctule at Location 3: Spinzel in October 2024. Leisler's bat at Location 3: Spinzel in October 2024 and Location 2: Abbots Coppice in May 2025, Nathusius' pipistrelle at Location 2: Abbot's Coppice in October 2024, brown long-eared bat at Location 2: Abbot's Coppice in October 2024 and Location 1: The Roses in May 2025 and serotine at Location 2: Abbot's Coppice in May 2025.

7.8.78. Of the 887 trees/tree lines identified within the Order Limits, further details of which are provided in **Paragraph 7.8.61**, up to 16 individual trees[15] are anticipated to be lost to the Proposed Development, (1.80% of the 887 trees/lines of trees identified), comprising three trees with suitability to support maternity roosts (1.19% of the identified maternity tree roost resource) and four trees suitable for individually roosting bats (2.35% of the identified individual tree roost resource), with the remaining nine trees having no features identified as suitable to support roosting bats. With the exception of serotine, all 'other bat species' have, to varying degrees, roost associations with trees. Therefore, considering the majority of trees and all woodland blocks will be retained and protected by buffer zones, the loss of up to six trees with suitability to support roosting bats is unlikely to have a significant adverse impact on the available tree roost resource.

7.8.79. The impacts of construction activities on the watercourse and arable habitats within the Order Limits on other bat species are considered to reflect those set out for Bechstein's bat in **Paragraph 7.8.63** above.

Otter

7.8.80. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure of 10m from ditches, ponds and ordinary watercourses and a minimum 20m offset from Claydon Brook in Fields E20, E11, E10 and north section of Field E21.

7.8.81. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and/or improvement of ponds and woodland, resulting in an increase of suitable habitat for otter across the Site.

7.8.82. However, potential disturbance to otters and their resting sites could occur within, and in close proximity to, the Order Limits from construction works. In the absence of additional mitigation, there may be temporary indirect

[15] **Appendix 3: Vegetation Removal Parameters** of the **Outline LEMP [EN010158/APP/7.6]** has been assessed to identify the total number of individual trees that potentially require removal. Where the assessment detailed in **ES Volume 4, Appendix 7.2: Bat Preliminary Roost Assessment Report (2022) [EN010158/APP/6.4]** and **ES Volume 4, Appendix 7.14: Bat Preliminary Roost Assessment Report (2025) [EN010158/APP/6.4]** has grouped individual trees into a *line of trees* and has assessed the roost resource as a whole rather than individual trees (i.e. the overall suitability of the line of trees for roosting bats), then the number of individual trees within the *line of trees* has been calculated. As in all cases, only a discrete number of individual trees located within an overall *line of trees* potentially require removal.

adverse impacts to the habitats that support otter, such as surface water pollution run-off and dust pollution.

Badger

7.8.83. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure of 30m from main badger setts.

7.8.84. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and/or improvement of species-rich grassland, scrub, hedgerows, arable field margins and woodland, resulting in an increase of suitable habitat for badger across the Site.

7.8.85. Field margins will remain as open corridors for animals to disperse and mammal gates will be installed within fences to allow badgers access into fields for foraging, as secured in the **Design Commitments [EN010158/APP/5.9]**.

7.8.86. Potential disturbance to badgers and damage to setts other than main setts could occur within, and in close proximity to, the Order Limits from construction works. In the absence of additional mitigation, there may be temporary, indirect adverse impacts to the habitats that support badgers, such as surface water pollution run-off and dust pollution.

Operation (including maintenance)

Statutory designated sites, non-statutory designated sites and ancient woodland

7.8.87. It is not envisaged that operation (including maintenance) activities are likely to have a direct adverse impact upon statutory designated sites, non-statutory designated sites and ancient woodland. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure that will be maintained during the operation (including maintenance) phase.

7.8.88. In order to access mitigation areas in Parcel 1a, an existing track, located within Romer Wood and Greatsea Wood (ancient woodland within the Order Limits), currently used by maintenance traffic associated with HS2 landscape planting, would be used to allow light vehicles, such as tractors, to access this area for management of mitigation planting. No loss of ancient woodland would be required as existing access tracks would be utilised, and no built development or resurfacing is proposed along the access track.

7.8.89. Minimal maintenance works within the Order Limits will be required during operation (including maintenance). However, in the absence of additional mitigation, there may be temporary indirect adverse impacts, such as surface water pollution run-off and dust pollution resulting from maintenance activities.

7.8.90. Hedgerows and hedgerow trees, individual ancient and veteran trees, individual trees and lines of trees, cereal and non-cereal crops, lowland mixed deciduous woodland and other woodland, arable field margins, ponds, watercourses and ditches, mixed scrub, bramble scrub, other neutral grassland and modified grassland. It is not envisaged that operation (including maintenance) activities are likely to have a direct adverse impact upon habitats including the following: hedgerows and hedgerow trees, individual ancient and veteran trees, individual trees and lines of trees, cereal and non-cereal crops lowland mixed deciduous woodland and other woodland, arable field margins, ponds, watercourses and ditches, mixed scrub, bramble scrub, other neutral grassland and modified grassland. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes a minimum standoff distance from Solar PV modules and associated infrastructure that will be maintained during the operation (including maintenance) phase.

7.8.91. Minimal maintenance works within the Order Limits will be required during operation (including maintenance). However, in the absence of additional mitigation, there may be temporary indirect adverse impacts, such as surface water pollution run-off and dust pollution resulting from maintenance activities.

7.8.92. Whilst mitigation planting would be completed in the construction phase, it would take time to mature and become established. The mitigation planting would continue to establish over time and both the increased extent and quality of habitats providing suitable habitat to support a range of species and would both increase connectivity to the wider landscape.

Black hairstreak and brown hairstreak butterfly

7.8.93. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and/or improvement of hedgerows, scrub and woodland, resulting in an increase of habitat suitable to support black and brown hairstreak butterflies across the Site.

7.8.94. Minimal maintenance works within the Order Limits will be required during operation (including maintenance). However, in the absence of additional mitigation, there may be temporary direct impacts to the habitats that support these species through hedgerow and scrub habitat maintenance and temporary indirect adverse impacts to the habitats that support these

species, such as surface water pollution run-off and dust pollution resulting from maintenance activities.

Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly)

7.8.95. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and/or improvement of species-rich grassland, scrub, ponds, hedgerows and woodland, resulting in an increase of habitat suitable to support a diverse range of invertebrate species across the Site.

7.8.96. Minimal maintenance works within the Order Limits will be required during operation (including maintenance). However, in the absence of additional mitigation, there may be temporary direct impacts to the habitats that support these species through habitat maintenance and temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution resulting from maintenance activities.

Great crested newt and reptiles

7.8.97. It is not envisaged that operation (including maintenance) activities are likely to have a direct adverse impact upon GCN or reptiles.

7.8.98. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and/or improvement of species-rich grassland, scrub, ponds, hedgerows, arable field margins and woodland, resulting in an increase of habitat suitable to support GCN and reptiles across the Site.

7.8.99. Minimal maintenance works within the Order Limits will be required during operation (including maintenance). However, in the absence of additional mitigation, there may be temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution resulting from maintenance activities.

Ground nesting birds

7.8.100. The placement of the Solar PV modules is likely to displace ground nesting birds, in particular species such as skylark which like to nest in large open fields. This will be a long-term effect for the duration of the operation (including maintenance) phase. The embedded mitigation detailed within **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** to compensate for habitat loss will be the creation of *c.*95ha of neutral grassland managed for the benefit of ground nesting and wintering birds, which will be in key open and connected areas. The proposed area and retained areas for habitat creation and improvement have been estimated as sufficient to support the number of territories that

would be lost, by increasing the carrying capacity and quality of nesting and foraging habitat for ground nesting birds.

7.8.101. Operation (including maintenance) works would be relatively small scale and localised which is not anticipated to cause significant visual or noise disturbance.

7.8.102. Minimal maintenance works within the Order Limits will be required during operation (including maintenance). However, in the absence of additional mitigation, there may be temporary direct impacts to the habitats that support these species through habitat maintenance and temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution resulting from maintenance activities.

7.8.103. Wintering birds and non-ground nesting birds The embedded mitigation detailed within **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** to compensate for habitat loss will be the creation of c.95ha of neutral grassland managed for the benefit of wintering birds (and ground nesting birds), which will be in key open and connected areas. The proposed area and retained areas for habitat creation and improvement have been estimated as sufficient to support the wintering bird assemblage, by increasing the quality of foraging habitat for ground wintering birds.

7.8.104. As well as embedded mitigation to compensate for habitat loss, there will also be improvement measures to increase both invertebrate and seed biomass for foraging wintering birds and non-ground nesting bird species. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** includes for the creation and/or improvement of species-rich grassland, scrub, ponds, hedgerows, arable field margins and woodland, resulting in an increase of habitat suitable to support GCN and reptiles across the Site.

7.8.105. Operation (including maintenance) works would be relatively small scale and localised which is not anticipated to cause significant visual or noise disturbance.

7.8.106. Minimal maintenance works within the Order Limits will be required during operation (including maintenance). However, in the absence of additional mitigation, there may be temporary direct impacts to the habitats that support these species through habitat maintenance and temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution resulting from maintenance activities.

Barn owl, red kite, hobby and peregrine falcon (listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)

7.8.107. Operation (including maintenance) works would be relatively small scale and localised which is not anticipated to cause significant visual or noise disturbance.

7.8.108. Minimal maintenance works within the Order Limits will be required during operation (including maintenance). However, in the absence of additional mitigation, there may be temporary indirect adverse impacts to the habitats that support these species, such as surface water pollution run-off and dust pollution resulting from maintenance activities.

Bechstein's bat (foraging, commuting and roosting)

7.8.109. The operational impact of solar farms on bat species is poorly understood at present, with limited research available on which to build a common consensus. This is particularly the case for Bechstein's bat which have not been individually considered in currently available literature, with *Myotis* species instead being assessed as a group.

7.8.110. The nature of literature findings for Myotis varies, with Tinsley *et al.* (2023) **[Ref. 7-29]** finding statistically significant evidence of a negative impact from Solar PV modules on *Myotis* where Solar PV modules were present along boundary features, suggesting that, in this configuration, Solar PV modules may be adversely impacting typical flight paths, potentially resulting in increased habitat fragmentation. Meanwhile Szabadi *et al.* (2023) **[Ref. 7-30]** found that, although *Myotis* activity was higher, to a statistically significant degree, in grassland habitats compared to solar farm sites, there was not a statistically significant difference between *Myotis* activity in arable fields, such as those present throughout much of the Order Limits, and solar farm sites. While both papers have limitations due to the early stages of the research into the impacts of solar developments on bats, currently available findings indicate a variable effect of solar farms on *Myotis* depending both on the baseline habitat and potentially the composition of *Myotis* recorded by each study. This underlines the importance of not making broad generalisations from small-scale studies.

7.8.111. Both papers **[Ref. 7-29** and **Ref. 7-30]** made a number of recommendations to minimise the impacts of solar farms on bats in light of their findings. As detailed in **Table 7.9**, many of these have been reflected in the design and development of the Proposed Development.

Table 7.9: Summary of recommendations from Tinsley *et al*. (2023) **[Ref. 7-29]** and Szabadi *et al*. (2023) **[Ref. 7-30]** and the application of these to the Proposed Development

Recommendation	Action on the Proposed Development
Reduce panel density within a site	The Solar PV module area has been reduced from 449 ha at the Phase One Consultation stage to 279 ha at the Phase Two Consultation stage, equating to an area reduction of 37.7% across the whole Site.
Ensure boundary habitats are maintained and improved	Buffer zones ranging between 10m and 30m will be implemented around all retained ecological features. Habitats within buffer zones will be managed and, where appropriate, improved. There will be an additional 5m standoff between the deer fencing (on the inner edge of the buffer zones) and the edge of the closest Solar PV modules (see **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]**).
Appropriate planting to improve bat foraging resources	Mitigation areas, additional to buffer zones, will be present in several locations within the Order Limits. Within these areas, native planting will be selected and implemented to increase invertebrate diversity and abundance, thereby providing improved foraging resources for Bechstein's bat within their home range and core sustenance zone (see **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]**).
Relocation of parts of a site away from bat roosts or known important commuting routes	As summarised above, Solar PV modules have been removed from a number of fields as part of an overall reduction in Solar PV module area, including removal from: • Fields B17 and part of B9, located adjacent to the northern edge of Sheephouse Wood and connecting to hedgerows identified as a bat mitigation corridor between Sheephouse Wood, Shrub's Wood and Decoypond Wood. • Fields C1, C2 and C3, located between Sheephouse Wood and Greatsea Wood adjacent to the key Bechstein's bat commuting route identified along the southern end of Three Points Lane (**[Ref. 7-26]** – see Figure 4).

Recommendation	Action on the Proposed Development
	• Fields D27, adjacent to the eastern edge of Runt's Wood. • Fields D30 to D37 adjacent to the southern edge of Finemere Wood SSSI, known to support 12 maternity roosts (**[Ref. 7-26]**). Instead, these fields will be used to provide mitigation areas for bats including increased foraging resources, woodland edge habitat and connectivity (see **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]**). In addition, a Collector Compound has been removed from Field B10, located adjacent to Sheephouse Wood.

7.8.112. Permanent habitat loss within the Order Limits will be limited to that associated with the Rosefield Substation, Collector Compounds and certain access tracks and has been discussed in detailed in **Paragraph 7.8.63** above.

7.8.113. Beyond the loss of habitats, the installation of Solar PV modules will result in the modification of habitats within the Order Limits which may adversely impact Bechstein's bat foraging and/or commuting behaviour through reductions in habitat quality or habitat fragmentation. However, the area covered by Solar PV modules as a result of the Proposed Development represents only 2.75%[16] of the Bechstein's bat core sustenance zone and 5.33%[17] of the Bechstein's bat home range associated with Bernwood **[Ref. 7-26]**. It is therefore considered that the majority of the Bechstein's bat core sustenance zone and home range will be retained without impact from the Proposed Development, ensuring that substantial alternative foraging areas remain available for Bechstein's bat.

7.8.114. Solar PV module coverage accounts for 40.6% of the area within the Order Limits. Solar PV modules will be located within fields, separated from retained ecological features by buffer zones of between 10m and

[16] Based on the area covered by Solar PV modules which overlaps with the Bechstein's bat core sustenance zone illustrated on Figure 5 of Natural England (2024) **[Ref. 7-26]**.
[17] Based on the area covered by Solar PV modules which overlaps with the Bechstein's bat home range illustrated on Figure 5 of Natural England (2024) **[Ref. 7-26]**.

30m and a further standoff of 5m from deer fencing. The layout of Solar PV modules has been designed in three distinct blocks with good connectivity retained and protected between and around these areas. In addition, the Solar PV module layout does not completely surround areas of woodland ensuring that, should the presence of Solar PV modules on one side of a woodland adversely impact the use of this area by Bechstein's bat, alternative routes into and out of key areas of woodland are retained, enabling continued use.

7.8.115. Barring one occasion in which greater activity was recorded within a field (Location 2: Abbot's Coppice October 2024), *Myotis* activity across the paired static detector surveys demonstrated a clear pattern of greater activity on hedgerows compared to that within the centre of fields. Although in October 2024 this pattern was non-significant due to low levels of activity, increased activity in May 2025 provided a clearer picture, with 98.7% of all May 2025 *Myotis* activity recorded on hedgerow detectors. Within the *Myotis* species group, this pattern was also recorded for specific Bechstein's bat identifications, albeit this was limited in number. Notably Bechstein' bat identifications were only recorded in May 2025, with all such identifications originating from detectors along hedgerows.

7.8.116. The results of the paired static detector surveys therefore indicate that *Myotis*, including Bechstein's bat, may make greater use of hedgerows (which are being largely retained and protected by buffer zones throughout the operation of the Proposed Development) than the open, currently arable, fields where Solar PV modules will be located.

7.8.117. This reflects typical Bechstein's bat foraging activity **[Ref. 7-41]** and findings relating to their dietary make-up, with up to 74% comprising invertebrates associated with woodland habitats **[Ref. 7-26]**. On this basis, it is considered that the open field areas within the Order Limits, which will house Solar PV modules, are of lesser importance to foraging Bechstein's bat.

7.8.118. Beyond the potential disturbance impacts of habitat modification, the Solar PV modules themselves have the potential to adversely impact Bechstein's bat through collisions and the risk of injury or mortality. At up to 3.5m in height, the Solar PV modules will fall within the typical height of Bechstein's bat foraging flight (1-5m **[Ref. 7-41]**), although Bechstein's bats are capable of flying significantly higher and, as a highly manoeuvrable species, used to flight in cluttered environments, they may be better placed to avoid collisions than some other bat species.

7.8.119. Studies have found that the polarisation of light and reflection of sound by Solar PV modules mimics that of water and therefore bats may collide with Solar PV modules when attempting to drink from them **[Ref. 7-50]**. However, research has indicated that most interactions of this nature result in bats landing on, rather than colliding with Solar PV modules, with

evidence to indicate that bats show signs of learnt behaviour following several unsuccessful drinking attempts **[Ref. 7-50** and **Ref. 7-51]**.

7.8.120. Invertebrates have also been found to be impacted by how Solar PV modules polarise light, resulting in the attraction of a range of invertebrate species; in particular, species with an aquatic life stage (e.g. **[Ref. 7-52** and **Ref. 7-53]**. This attraction of invertebrates to Solar PV modules could result in changes to bat prey distribution within the Site, while unsuccessful attempts to egg-lay onto Solar PV modules **[Ref. 7-54]** could have adverse impacts on invertebrate abundance and therefore bat prey availability. Many modern Solar PV modules; however, have anti-reflective coatings intended to minimise light polarisation and thereby reduce the impact on invertebrate species, although the impact of such coatings requires further research to fully understand its effectiveness and variations between invertebrate taxa **[Ref. 7-55]**.

7.8.121. Up to 30% of a Bechstein's bats' diet may come from invertebrates associated with open or wetland habitats. Availability of such invertebrates will be supported through embedded mitigation measures that include the creation of new ponds and areas of open habitat comprising species-rich grasslands and scrub that will support a range of invertebrate species (see **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]**). DNA analysis has shown that the remaining proportion of a Bechstein's bat diet (69.4-74%) comes from forest-dwelling invertebrate species **[Ref. 7-26]**, much of this from non-flying invertebrates **[Ref. 7-41]**, with the woodland and hedgerow habitats supporting these species retained and protected by buffer zones. Bechstein's bat may therefore be less impacted by potential changes in invertebrate distribution and abundance, such as those discussed in **Paragraph 7.8.117**, than other bat species.

7.8.122. Research into the impacts of noise with consideration to a bat's, rather than human's, audible range is in its infancy **[Ref. 7-24** and **Ref. 7-56]**; however, it is generally accepted that bats are likely to be more sensitive to sounds at higher frequencies. Therefore, while operational noise will be limited, the BESS, Rosefield Substation and Collector Compounds may produce high-frequency 'electrical' noise which could adversely impact Bechstein's bat.

7.8.123. **Table 7.8** summarises the location of the BESS, Rosefield Substation and Collector Compounds relative to SSSI or LWS woodlands and the scale of hedgerow buffers in these locations. These infrastructure features will be located at least 200m from the nearest woodland block, but will be located in closer proximity to hedgerows, which may be used by commuting, foraging, and where trees are present, potentially roosting, Bechstein's bat.

7.8.124. The exact level and attenuation distances for any high-frequency noise generated by this infrastructure are not known. However, high-frequency noise attenuates more quickly with distance than low frequency noise, with research indicating that attenuation rates may vary between 0.7dB/m at 30kHz to 8dB/m at 200kHz **[Ref. 7-57]**. Foraging bats are considered to be most impacted where a noise aligns closely with their echolocation call range **[Ref. 7-58]**, although this same pattern of disturbance impact is not necessarily replicated for roosting bats. Bechstein's bat echolocation calls typically occur between approximately 33kHz and 116kHz, with a peak frequency in the region of 50kHz **[Ref. 7-59]**. While there has not been specific research into the attenuation rates of sounds within the Bechstein's bat echolocation range, and while high-frequency sound attenuation does not follow a strictly linear progression, the aforementioned research may suggest that attenuation within the frequency range of Bechstein's bat echolocation calls could range from 0.7dB/m to in the region of 4dB/m. In addition to the natural attenuation of high-frequency sounds, the BESS and Collector Compounds will be surrounded by 4m high acoustic fencing, acting as a barrier to at least a proportion of high-frequency noise which can be more easily blocked than low-frequency sounds as it does not diffract or bend over barriers.

7.8.125. Over 96% of the 54,410m of hedgerow within the Order Limits will be retained and protected by buffer zones, while a proportion of the *c.*2060m of hedgerow lost during construction will be reinstated and available to bats during the operation (including maintenance) phase. Therefore, even accounting for hedgerow loss and the potential displacement of bats due to high-frequency noise in proximity to the BESS, Rosefield Substation and Collector Compounds, it is considered that the extensive network of hedgerows will offer alternative commuting routes to ensure continued connectivity through and around the Site. While such alternative routes could result in increased energy expenditure, it is not considered that this would be sufficient to result in adverse impacts on fitness at a population level, particularly as mitigation areas and habitat creation within buffer zones will provide improved foraging resources, over the baseline arable habitats present, in close proximity to known Bechstein's bat roosting areas (see **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]**).

7.8.126. Operational maintenance is anticipated to be small-scale and localised at any given point in time and to occur during daylight hours only, unless emergency actions are required. Therefore, operational maintenance is not expected to result in significant levels of disturbance. Any lighting required to support operational maintenance would be implemented in accordance with a sensitive lighting strategy. For example, such emergency lighting would point downwards and away from linear features and woodland. Directional security lighting, avoiding light spill onto retained habitat features, will be controlled by passive infra-red detectors and motion sensors. Therefore, lighting would not impact retained habitats

such as woodland and hedgerows or any Bechstein's bats using these habitats. This is included as part of the embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.8.127. Embedded mitigation measures for the Proposed Development will see the creation of a range of new habitats, as well as the improvement of existing, retained habitats. Many of these actions will focus on delivering benefits for bat species. This includes *c.*95ha of species-rich grassland and scrub creation in targeted bat and bird mitigation areas, and the improvement and/or reinforcement of 23,430m of hedgerow in addition to grassland, pond, tree and scrub creation to provide mitigation screening and public right of way buffers. Together, these measures will increase invertebrate diversity and abundance, increasing foraging resources within the Bechstein's bat core sustenance zone and reinforcing the existing network of commuting routes present within the Order Limits (see **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]**).

7.8.128. The creation of habitats such as these has been shown to be feasible within solar farm developments (e.g. **[Ref. 7-60]** and **[Ref. 7-61]**) and to result in increased insect diversity, over time, compared to turfgrass solar farms **[Ref. 7-62]** or even adjacent undeveloped land **[Ref. 7-61**]. Proposals for the management of grassland habitats created as part of the Proposed Development include the potential for low-level livestock grazing which has been found to be an effective means of increasing floral and faunal species diversity on solar farms **[Ref. 7-61]**.

7.8.129. In summary, while actions to minimise the impacts of noise on Bechstein's bat and to provide alternative and additional foraging and reinforced commuting routes will likely be effective in supporting Bechstein's bat (and potentially beneficial), there is currently limited extent of research into the operational effects of solar farms on bats. Given the isolated nature of the Bernwood population of Bechstein's bat, it is therefore considered, on a precautionary basis, that the habitat modification resulting from Solar PV module placement may have the potential to result in an adverse impact on Bechstein's bat.

Barbastelle bats (foraging, commuting and roosting)

7.8.130. The operational impact of solar farms on bat species is poorly understood at present, with limited research available on which to build a common consensus. While the limited number of studies on this topic have sometimes considered barbastelle bats, they have typically been unable to draw clear conclusions due to only low levels of barbastelle bat activity being recorded.

7.8.131. For example, Tinsley *et al.* (2023) **[Ref. 7-29]**, found no evidence of differences in activity levels between sampling sites; however, the small

number of barbastelle bat passes recorded meant that it was not possible to determine whether the apparent absence of impact from Solar PV modules was due to the paired habitats being unfavourable to barbastelle bats or the Solar PV modules themselves being inconsequential. Conversely, Barré *et al.* (2024) **[Ref. 7-31]** grouped barbastelle bats together with other bat species into a 'short-range echolocator guild' which demonstrated faster and straighter flight behaviour at solar farms than at control sites, indicating lower foraging activity. This was assumed to indicate a reduction in habitat quality within solar farms.

7.8.132. As noted in **Paragraph 7.8.111**, a number of the recommendations made in the available literature to minimise impacts on bats have been incorporated into the design of the Proposed Development, as detailed in **Table 7.9**.

7.8.133. Permanent habitat loss within the Order Limits will be limited to that associated with the Rosefield Substation, Collector Compounds and certain access tracks and has been discussed in detail in **Paragraph 7.8.63** above.

7.8.134. Beyond the loss of habitats, the installation of Solar PV modules will result in the modification of habitats within the Order Limits which may adversely impact barbastelle bat foraging and/or commuting behaviour through reductions in habitat quality or habitat fragmentation. However, Solar PV modules will cover less than half (40.6%) of the area within the Order Limits, with much of the remaining area subject to habitat improvement or creation which it is considered will provide increased foraging resources relative to the arable baseline.

7.8.135. Furthermore, barbastelle bats have been found to preferentially select for habitats that support high moth abundance, their primary prey item **[Ref. 7-44]**. This includes deciduous woodlands, associated edge habitats and field margins, including hedgerows, which can support comparatively high densities of moths **[Ref. 7-63]**. This pattern of habitat selection was reflected in the paired static detector surveys, with up to 120 times more barbastelle bat activity recorded along hedgerows than within the centre of fields during the October 2024 surveys and between 16 and 26 times more activity was recorded on hedgerows during the May 2025 surveys (see **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**). There is therefore little evidence to suggest that open field areas provide an important foraging resource for barbastelle bats and therefore the modification of these areas as a result of Solar PV module operation is unlikely to result in significant effects on barbastelle bat foraging activity.

7.8.136. Modification of habitats due to Solar PV module operation is also considered unlikely to result in significant effects on barbastelle bat commuting behaviour, with 96.21% of hedgerows retained and protected

by buffer zones, a proportion of lost hedgerow reinstated and the ability of barbastelle bats, once dark, to move freely across often large open spaces **[Ref. 7-64** and **Ref. 7-44]**. As detailed in **Paragraph 7.8.114**, the layout of Solar PV modules has also ensured that good connectivity is retained between each of the three distinct blocks of Solar PV modules and that woodlands are not surrounded by Solar PV modules on all sides.

7.8.137. Direct risks relating to collision with Solar PV modules are considered to reflect those detailed in **Paragraph 7.8.118** with regards to the potential for collisions when attempting to drink from Solar PV modules. Barbastelle bats demonstrate a variety of flight heights when foraging, both above and below tree canopies **[Ref. 7-41]**, suggesting that their typical flight height is often likely to be above that of the 3.5m high Solar PV modules and therefore, in combination with the apparent preference for hedgerows over open fields, the risk of collisions during flight is considered to be minimal for this species.

7.8.138. Barbastelle bats almost exclusively feed on moths **[Ref. 7-41]** and while a small number of UK moths have an aquatic life stage, it is considered likely that moths may be less impacted by the similarities between polarised light from Solar PV modules and water than some other invertebrate species, minimising the impact that Solar PV module light polarisation may have on barbastelle bats. As noted in **Paragraph 7.8.120**, the use of coatings to minimise the impacts of light polarisation is likely to further limited any potential impacts on the barbastelle bat prey resource.

7.8.139. The current understanding on noise impacts as they relate to barbastelle bats reflects that set out in **Paragraph 7.8.124** for Bechstein's bat. As for Bechstein's bat, the location of major infrastructure during the operation (including maintenance) phase of the Proposed Development is considered to be at a sufficient distance from woodlands in which barbastelle bats may be roosting to be unlikely to result in significant noise disturbance impacts, although the closer proximity of hedgerows to sources of high-frequency noise could result in displacement from these sections of hedgerow and/or a degradation in the value of these areas for barbastelle bats.

7.8.140. As detailed in **Paragraph 7.8.124**, accurate high-frequency noise levels and attenuation distances for solar farm infrastructure are not known. However, based on the high-frequency noise attenuation rates identified by Lawrence and Simmons (1982) **[Ref. 7-57]** and that foraging bats are considered to be most impacted where a noise aligns closely with their echolocation call range **[Ref. 7-58]**, then with peak frequencies at 33kHz and 44kHz **[Ref. 7-59]**, sounds at the frequencies most likely to impact barbastelle bats may attenuate at an approximate rate of 0.7dB/m up to in the region of 1dB/m, although the attenuation of high-frequency sound does not follow a strictly linear progression. It is considered that

barbastelle bats could be more sensitive to noise disturbance than the majority of other bat species as their low intensity echolocation calls limits them to short range detection of prey and the biomechanics of their nasally emitted echolocation calls put upper limits on the intensity of their echolocation calls which are, on average, approximately 15dB lower than orally emitting bat species of otherwise similar bat species **[Ref. 7-65]**.

7.8.141. In addition to the natural attenuation of high-frequency sounds, the BESS and Collector Compounds will be surrounded by 4m high acoustic fencing, acting as a barrier to at least a proportion of high-frequency noise which can be more easily blocked than low-frequency sounds as it does not diffract or bend over barriers.

7.8.142. In line with the discussion on displacement from hedgerows in **Paragraph 7.8.125**, it is considered that the majority of the baseline hedgerow network will remain available and suitable for barbastelle bats, even in light of hedgerow loss and the potential for noise disturbance in certain locations in close proximity to the BESS, Rosefield Substation and/or Collector Compounds. While such alternative routes could result in increased energy expenditure, it is not considered that this would be sufficiently substantial to result in adverse impacts on fitness at a population level, particularly as mitigation areas and habitat creation within buffer zones will provide improved foraging resources, over the baseline arable habitats present, in close proximity to woodlands suitable for supporting barbastelle bats. Barbastelle bats are also known to be fast-flying bats that can cover great distances on a nightly basis, including across large open areas, with some known to visit sites that are more than 10km distant from their roosts **[Ref. 7-44]**, so small alterations in commuting routes are unlikely to cause an impact. Furthermore, it has been suggested that observed preferences for hedgerows may, at least in part, be due to the concentration of moths often associated with hedgerows **[Ref. 7-63]**, rather than necessarily a reliance on linear features to move through the landscape.

7.8.143. The nature and scale of potential adverse impacts from operational maintenance and potential beneficial impacts of habitat creation and improvement on barbastelle bats are considered to reflect those detailed for Bechstein's bat, as detailed in **Paragraphs 7.8.127** and **7.8.128** respectively. In relation to habitat creation and/or improvement actions proposed to create field margins, retain and/or create woodland edge habitats and tree cover are amongst the actions recommended to increase moth numbers **[Ref. 7-66]** and thereby considered likely to increase the barbastelle bat prey resource.

7.8.144. In summary, actions to minimise the impacts of noise on barbastelle bats and to provide alternative and additional foraging and reinforced commuting routes are considered effective means of mitigating the likely impacts of the Proposed Development. Furthermore, while the limited

information available regarding solar farm impacts requires a precautionary approach to be taken, it is considered that barbastelle bats may be subject to fewer impacts from the Proposed Development than some other bat species given their typical foraging and flight behaviour.

Other bat (foraging, commuting and roosting)

7.8.145. At least eight other bat species[18] have been recorded within the Order Limits. While there are a limited number of studies on the impacts of solar farms on bat species, those that are available cover the bat species recorded at the Proposed Development, either individually or as part of the assessment of a genus (e.g. *Myotis*, *Nyctalus* or *Plecotus*).

7.8.146. Available studies illustrate a variable picture, with the overall assessments ranging from no significant difference in activity being recorded between arable fields and solar farms **[Ref. 7-30]**, to higher levels of bat activity being recorded in control sites compared to Solar PV modules sites, although notably, similar variations in species richness were not recorded **[Ref. 7-29]**. At the species or genus level, adverse impacts from Solar PV modules were identified by one or more studies for all species considered within the 'other bat species' receptor **[Ref. 7-29**, **Ref. 7-30** and **Ref. 7-31]**.

7.8.147. However, the limited research on this topic to date means that there is considerable variation in the species or species group level findings across these studies and it is not yet possible to draw clear conclusions. For example, **[Ref. 7-30]** concludes that the absence of natural linear features from solar sites may not be an issue for species that fly at high altitudes (e.g. *Nyctalus*) or those that which typically commute at lower heights along edge habitats (e.g. *Pipistrellus*), as these species were recorded within solar sites, not only commuting, but also foraging. Conversely, Tinsley *et al.* (2023) **[Ref. 7-29]**, found evidence of negative impacts from Solar PV modules on common pipistrelle, *Nyctalus* and serotine, regardless of underlying habitat type, along boundary features (serotine and Myotis) and in open habitats (soprano pipistrelle and Plecotus). This was supported by research by Barré *et al.* (2024) **[Ref. 7-31]**, which found evidence of faster flight speeds and more direct flight paths, indicating movement over, not foraging within, solar farm sites for common pipistrelle, soprano pipistrelle, *Plecotus* and *Myotis*. Notably, this

[18] Common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, Leisler's, serotine, brown long-eared bat and Daubenton's bat. Another *Myotis* sp. group was also identified. While exact species level identifications within this group could not be made due to the overlapping echolocation call parameters of species within the *Myotis* group it is considered likely that the other *Myotis* sp. group will have included occurrences of Natterer's bat as a thriving population is known to be present within Finemere Wood.

pattern was reversed for Nathusius' pipistrelle, with significantly slower flight speeds recorded within solar farms, although other parameters were considered to still reflect a decrease in foraging habitat quality within solar farm sites. Broadly speaking, Szabadi *et al.* (2023) **[Ref. 7-30]** found that those bat species that often thrive in urban landscapes were typically in greater abundance at solar farm sites, suggesting that there may be similarities in the selection pressures present in both locations.

7.8.148. As detailed in **Paragraph 7.8.111** and **Table 7.9**, many of the recommendations made to support a reduction in solar farm impacts on bats have been incorporated into the design of the Proposed Development and will minimise the operational impacts of the Proposed Development on bats within the 'other bat species' group.

7.8.149. Permanent habitat loss within the Order Limits will be limited to that associated with the Rosefield Substation, Collector Compounds and certain access tracks and has been discussed in detailed in **Paragraph 7.8.63** above.

7.8.150. Beyond the loss of habitats, the installation of Solar PV modules will result in the modification of habitats within the Order Limits which may adversely impact 'other bat species' foraging and/or commuting behaviour through reductions in habitat quality or habitat fragmentation. However, Solar PV modules will cover less than half (40.6%) of the area within the Order Limits, with much of the remaining area subject to habitat improvement or creation, which it is considered will provide increased foraging resources relative to the arable baseline.

7.8.151. Habitat preferences vary amongst the bat species considered in the 'other bat species' receptor. However, paired static detector surveys at the Site in both October 2024 and May 2025 showed a clear trend for greater use of hedgerows than open fields across this group, with overall 'other bat species' activity levels along hedgerows approximately 3.8 times higher than those recorded in open fields in October 2024 and approximately 11.7 times higher in May 2025. While this pattern showed minor variations for some species[14], this typically occurred where a species was recorded at very low levels and thus these variations may simply be a reflection of the small sample collected to date (see **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**). Broadly speaking, while the literature indicates that most species are likely to experience adverse impacts from Solar PV modules, data collected at the Site indicates that, for the majority of species, it is the hedgerows, which will be largely retained and protected by buffer zones, that are of greatest value for foraging bats, rather than the open fields in which Solar PV modules will be installed.

7.8.152. Direct risks relating to collision with Solar PV modules are considered to reflect those detailed in **Paragraph 7.8.118** with regards the potential for

collisions when attempting to drink from Solar PV modules. While typical flight heights vary amongst the species within this grouping, the majority of bats will fly higher than the 3.5m height of the solar panels and are therefore unlikely to be at significant risk from collision. The trawling foraging behaviour of Daubenton's bat may place it at greater risk of impact due to light polarisation from the Solar PV modules, both in relation to increased collision risks from attempting to forage over Solar PV modules and potential changes in prey distribution and/or abundance. However, it should be noted that there are no notable waterbodies present within the Site or immediate vicinity for invertebrates to be pulled from and the use of anti-reflective coatings on the Solar PV modules is considered likely to minimise the impacts of light polarisation as detailed in **Paragraph 7.8.120**.

7.8.153. The assessment of the understanding on noise impacts as they relate to 'other bat species' reflects that set out in **Paragraph 7.8.124** for Bechstein's bat. As for Bechstein's bat, the location of major infrastructure during the operation (including maintenance) phase of the Proposed Development is considered to be at a sufficient distance from woodlands in which 'other bat species' may be roosting to be unlikely to result in significant noise disturbance impacts, although the closer proximity of hedgerows to sources of high-frequency noise could result in displacement from these sections of hedgerow and/or a degradation in the value of these areas for 'other bat species'.

7.8.154. As detailed in **Paragraph 7.8.124**, accurate high-frequency noise levels and attenuation distances for solar farm infrastructure are not known. However, based on the high-frequency noise attenuation rates identified by Lawrence and Simmons (1982) **[Ref. 7-57]**, and that foraging bats are considered to be most impacted where noise aligns closely with their echolocation call range **[Ref. 7-58]**, then with peak frequencies ranging from approximately 19kHz to 55kHz, sounds most likely to impact bats within the 'other bat species' group may attenuate at approximate rates of anywhere from less than 0.7dB/m up to perhaps 1dB/m, although high-frequency sound attenuation does not follow a strictly linear progression. In addition to the natural attenuation of high-frequency sounds, the BESS and Collector Compounds will be surrounded by 4m high acoustic fencing, acting as a barrier to at least a proportion of high-frequency noise which can be more easily blocked than low-frequency sounds as it does not diffract or bend over barriers.

7.8.155. In line with the discussion on displacement from hedgerows in **Paragraph 7.8.125**, it is considered that the majority of the baseline hedgerow network will remain available and suitable for 'other bat species', where species are reliant on such features, even in light of hedgerow loss and the potential for noise disturbance in certain locations in close proximity to the BESS, Rosefield Substation and/or Collector Compounds. While the use of alternative routes could result in increased energy expenditure, it is

not considered that this would be sufficient to result in adverse impacts on fitness at a population level as mitigation areas and habitat creation within buffer zones will provide improved foraging resources, over the baseline arable habitats. These mitigation areas will be located in close proximity to woodlands suitable for supporting a range of bats species within the 'other bat species' group most of which rely, to a greater or lesser extent, on tree roosts (see **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]**).

7.8.156. In summary, actions to minimise the impact of noise on 'other bat species' and to provide alternative and additional foraging and reinforced commuting routes are considered effective means of mitigating impacts on 'other bat species'.

Otter and badger

7.8.157. It is not envisaged that operation (including maintenance) activities are likely to have a direct adverse impact upon otters or badgers.

7.8.158. The embedded mitigation detailed in **Table 7.7** and secured by the **Outline LEMP [EN010158/APP/7.6]** include a minimum standoff distance from Solar PV modules and associated infrastructure from ditches, ponds and ordinary watercourses and from badger setts. The embedded mitigation also includes for the creation and/or improvement of species-rich grassland, scrub, ponds, hedgerows, arable field margins and woodland, resulting in an increase of habitat suitable to support otter and badger across the Site. Field margins will remain as open corridors for animals to disperse and mammal gates will be installed within fences to allow badgers access into fields for foraging, as secured in the **Design Commitments [EN010158/APP/5.9]**.

7.8.159. Minimal maintenance works within the Order Limits will be required during operation (including maintenance). However, in the absence of additional mitigation, there may be temporary indirect adverse impacts to the habitats that support otter and badgers, such as surface water pollution run-off and dust pollution resulting from maintenance activities.

Decommissioning

7.8.160. The Proposed Development is to be operational for a period of 40 years. Decommissioning would involve the removal of all above ground infrastructure and any infrastructure up to a depth of 1m, including the Ground Mounted Solar PV Generating Stations, Satellite Collector Compounds, Rosefield Substation, BESS and ancillary infrastructure, including any on-site compounds.

7.8.161. The likely effects of the decommissioning phase on species and designated sites within and adjacent to the Order Limits are expected to be similar to those for the construction phase.

7.8.162. However, given the proposed embedded mitigation measures to improve the biodiversity value of fields within the Order Limits, the biodiversity uplift gained during the operation (including maintenance) phase may be lost if fields are returned to intensive agricultural use at decommissioning. Therefore, the likely effects of the decommissioning phase on habitats may potentially be greater than those experienced during construction. Landscape structural planting including tree planting, hedgerows, scrub, and ponds, created to deliver biodiversity mitigation associated with the Proposed Development would be left in situ when the Site is handed back to landowners. Otherwise, it is assumed that the landowner would return the land to agricultural use when it is handed back.

7.9. Additional mitigation

7.9.1. This section details the proposed additional mitigation measures for the receptors scoped into the assessment. Additional mitigation for other habitats and species, to avoid, prevent, reduce or offset environmental effects during the construction, operation (including maintenance), and decommissioning phases of the Proposed Development, are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** respectively.

Construction

7.9.2. A suitably qualified ecologist would be appointed during construction to advise on protecting important biodiversity features and provide advice on how to achieve compliance with environmental legislation. Relevant site staff would receive toolbox talks on the ecological risks present, legal requirements and working arrangements necessary to comply with legislation. Toolbox talks would be repeated as necessary over the duration of the relevant works, as detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**.

7.9.3. For certain species, pre-construction surveys will be required to identify any new constraints and to identify the requirement for protected species licensing, as detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**. Pre-construction surveys are detailed further below.

7.9.4. As detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, legally Protected Species Protection Plans will be produced, as appropriate, by the ecologist in conjunction with the Principal Contractor if required, based on pre-construction surveys. This is likely to include bats, badgers and GCN. Each Species Protection Plan would be a live

document subject to review and update. The Species Protection Plans would assist site personnel in the protection of species during construction, under the guidance of the suitably qualified ecologist. In the event protected species are found to be a constraint during the pre-construction surveys, and if a protected species licence is deemed to be required by the ecologist, then applications would be submitted to Natural England. These would be submitted sufficiently in advance of the works to meet with the optimum time for mitigation and to minimise any changes to the construction programme.

7.9.5. No invasive non-native species have been found or are recorded within the Order Limits. To reduce the potential for invasive species to be introduced, for example by construction traffic or landscape planting stock, the **Outline CEMP [EN010158/APP/7.2]** details and secures biosecurity procedures to ensure that no invasive species are brought onto the Site. In the event that any invasive non-native species are identified prior to and/or during construction, exclusion zones would be established and the suitably qualified ecologist contacted for advice as required.

Statutory designated sites, non-statutory designated sites and ancient woodland

7.9.6. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** detail and secure the control measures that will be implemented during construction to protect designated sites and ancient woodland which are:

- Using fencing and signage where appropriate to establish and maintain appropriate buffer zones. This will depend on habitat type, as detailed previously in **Section 7.7**.
- Mitigation for habitat degradation from potential construction related effects including dust deposition, air pollution, pollution incidents and water quality, would be provided through the adoption of construction industry good practice and environmental protection legislation during construction. For example, prevention of surface and ground water pollution, soil removal and appropriate re-instatement.

Hedgerows and hedgerow trees, individual ancient and veteran trees, individual trees and lines of trees, cereal and non-cereal crops, lowland mixed deciduous woodland and other woodland, arable field margins, ponds, watercourses and ditches, mixed scrub, bramble scrub, other neutral grassland and modified grassland

7.9.7. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** detail and secure the control measures that will be implemented during construction to protect hedgerows and hedgerow trees, individual ancient and veteran trees, individual trees and lines of trees, cereal and non-cereal crops, lowland mixed deciduous woodland and other woodland, arable field

margins, ponds, watercourses and ditches, mixed scrub, bramble scrub, other neutral grassland and modified grassland, which are:

- Using fencing and signage where appropriate to establish and maintain appropriate buffer zones. This will depend on habitat type, as detailed previously in **Section 7.7**.
- Mitigation for habitat degradation from potential construction related effects including dust deposition, air pollution, pollution incidents and water quality, would be provided through the adoption of construction industry good practice and environmental protection legislation during construction. For example, prevention of surface and ground water pollution, soil removal and appropriate re-instatement.

7.9.8. Any hedgerow sections that require removal would be reinstated in the same location where practicable. If reinstatement is not possible on the original alignment, then planting a mixture of native species would be undertaken within an appropriate location within the Order Limits as directed by a suitably qualified ecologist. For Site access, new hedgerows would be planted along new highway boundaries and visibility splays as soon as possible after works.

7.9.9. Compensatory habitat creation, hedgerow re-instatement and improvement measures (such as tree planting, gapping-up existing hedgerows, improving species diversity) are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

Black hairstreak and brown hairstreak butterfly

7.9.10. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** set out the control measures that will be implemented during construction to protect the hedgerow resource used by black and brown hairstreak butterflies which include, but are not limited to:

- Using fencing and signage where appropriate to establish and maintain appropriate buffer zones. This will depend on habitat type, as detailed previously in **Section 7.7**.
- Mitigation for habitat degradation from potential construction-related effects including dust deposition, air pollution, pollution incidents and water quality, would be provided through the adoption of construction industry good practice and environmental protection legislation during construction. For example, prevention of surface and ground water pollution, soil removal and appropriate re-instatement.

7.9.11. Pre-construction surveys of hedgerow sections that will require removal will be undertaken during the winter months to assess for the presence of black hairstreak and brown hairstreak eggs. Blackthorn that is found to contain black hairstreak or brown hairstreak eggs would be translocated to

an appropriate location within the Order Limits to enable the eggs to survive the winter and hatch the following spring. Pre-construction surveys are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**.

7.9.12. Management of woodland, hedgerows and scrub habitat that contain Blackthorn would be undertaken in such a manner to ensure maintenance works do not damage or destroy Blackthorn that could support black or brown hairstreak eggs.

Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly)

7.9.13. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** set out the control measures that will be implemented during construction to protect the habitats used by terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly) which include, but are not limited to:

- Using fencing and signage where appropriate to establish and maintain appropriate buffer zones. This will depend on habitat type, as detailed previously in **Section 7.7**.
- Mitigation for habitat degradation from potential construction-related effects including dust deposition, air pollution, pollution incidents and water quality, would be provided through the adoption of construction industry good practice and environmental protection legislation during construction. For example, prevention of surface and ground water pollution, soil removal and appropriate re-instatement.

Great crested newt

7.9.14. The **Outline CEMP [EN010158/APP/7.2]** and **Outline LEMP [EN010158/APP/7.6]** details and secures works with the potential to affect GCN would be carried out either under the Buckinghamshire District Level Licensing scheme through NatureSpace Partnership or under a European Protected Species licence from Natural England. The licensable works would encompass clearance, and construction works required within the intermediate and distant habitat zones of ponds (likely up to 250m) within the Order Limits.

7.9.15. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** detail and secure the control measures that will be implemented during construction to protect habitats suitable to support GCN, which are:

- Using fencing and signage where appropriate to establish and maintain appropriate buffer zones. This will depend on habitat type, as detailed previously in **Section 7.7**.
- Mitigation for habitat degradation from potential construction related effects including dust deposition, air pollution, pollution incidents and

water quality, would be provided through the adoption of construction industry good practice and environmental protection legislation during construction. For example, prevention of surface and ground water pollution, soil removal and appropriate re-instatement.

Reptiles

7.9.16. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** detail and secure the control measures that will be implemented during construction to protect habitats suitable to support reptiles, which are:

- Using fencing and signage where appropriate to establish and maintain appropriate buffer zones. This will depend on habitat type, as detailed previously in **Section 7.7**.
- Mitigation for habitat degradation from potential construction related effects including dust deposition, air pollution, pollution incidents and water quality, would be provided through the adoption of construction industry good practice and environmental protection legislation during construction. For example, prevention of surface and ground water pollution, soil removal and appropriate re-instatement.

7.9.17. Any vegetation clearance or ground clearance proposed within areas of habitat suitable for reptiles will be supervised by a suitably qualified ecologist.

7.9.18. A vegetation removal regime will be followed whereby any animals present are encouraged away from the cutting into retained habitats and not isolated in an unsuitable area. Each area will be walked by the ecologist to disturb reptiles prior to works commencing.

7.9.19. Vegetation is to be cleared at a minimum 150mm from the ground in the first pass.

7.9.20. Subsequent to this, a suitable period of time as decided by the ecologist will be given to allow for any reptiles present at the time of works to move away from the cut areas.

7.9.21. The vegetation will then be cut to as close to ground level as possible with vegetation cuttings being stored/used in habitat piles.

7.9.22. Any suitable reptile sheltering features (e.g. log piles, compost heaps or debris) will be identified by the on-site ecologist. These will be avoided if possible, if not they will be checked by the ecologist before their removal (should this be required). Any removal of sheltering habitats will be supervised by the ecologist. These will be dismantled by hand; this should be overseen by the ecologist. If a reptile is found, the ecologist will decide whether or not it is appropriate to relocate the animal. Shelter features that

require removal must be reinstated near the clearance area in a quiet, sheltered location. This will ensure that no net loss of potential reptile shelter features takes place.

Ground nesting birds, non-ground nesting birds and wintering birds

7.9.23. Appropriate pre-construction nesting bird surveys will be undertaken. A suitably qualified ecologist will supervise all work during the nesting bird season and ensure appropriate measures are undertaken to prevent disturbance, injury and/or death to ground nesting and non-ground nesting birds. Pre-construction surveys are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**.

7.9.24. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** detail and secure control measures for vegetation clearance, which would avoid the main nesting bird period (March to August inclusive) where possible.

7.9.25. Any vegetation clearance or ground clearance proposed within the nesting bird period (March to August inclusive) would be checked for the presence of any nests by a suitably experienced ecologist within 48 hours prior to vegetation removal or ground clearance. If active nests are found, appropriate buffer zones will be put in place and the area monitored until the young birds have fledged. Cleared ground would be maintained in a disturbed state in the run up to construction commencing to minimise the risk of ground nesting birds attempting to nest.

7.9.26. Unless otherwise agreed with Buckinghamshire Council, there would be no night-time (19:00 to 07:00) working and any artificial lighting would be kept to a minimum and directed away from habitat suitable for breeding birds.

7.9.27. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** detail and secure control measures to mitigate habitat degradation and to protect areas retained for ground nesting and non-ground nesting birds and wintering birds to avoid noise and visual disturbance. This includes measures such as demarcation fencing to prevent construction activity occurring within these areas. This would provide undisturbed areas for nesting and foraging.

Barn owl, red kite, hobby and peregrine falcon (listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended))

7.9.28. Construction activities have the potential to disturb breeding barn owl, hobby, peregrine falcon and red kite, if they are breeding within *c.*200m of the Order Limits. These species are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) **[Ref. 7- 1]** and are protected

against disturbance when they are nesting and/or have dependent young. Pre-construction surveys for Schedule 1 species would be undertaken, as detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**. If active nests are identified, then construction works would either be timed to avoid disturbance or suitable measures, including appropriate buffers from nests and demarcation during the breeding season, would be delivered to ensure disturbance is avoided to ensure legislative compliance.

7.9.29. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** detail and secure control measures to mitigate habitat degradation of habitats suitable to support these species.

Bats

7.9.30. The **Outline CEMP [EN010158/APP/7.2]** details and secures control measures to mitigate potential construction related effects to bats, including potential disturbance from light, noise and vibration.

7.9.31. Where construction lighting is required, it will conform to best practice guidelines with respect to minimising light spill into adjacent habitats to prevent disturbance to bats. Throughout construction, the use of motion detection or manually operated lighting would be used to avoid constant lighting. Inward/downward directional lighting would be used to avoid light spill onto adjacent hedgerows, woodlands, field margins and ponds, watercourses and ditches, which are likely to be used by bats and other nocturnal animals. Security lighting would use PID systems which should not affect bats.

7.9.32. For ‘key’ hedgerows where sections of 10m or more in length are proposed to be removed, mitigation would be required in the bat activity season (April to October) to maintain linear connectivity for foraging/commuting bats. This would involve the temporary installation of structures in hedgerow gaps mimicking the hedgerow which bats could use for echolocation when commuting e.g. a double row of ‘heras’ type fencing with camouflage type netting on top or filled with brash; or shrubs/trees in movable planters every 5m. This mitigation would be installed immediately after hedge removal (if undertaken in the bat activity season April to October) and left in place until works are completed. If the mitigation needs to be removed for works such as construction traffic access, the mitigation would be re-instated at the end of each day and retained until any new or replacement hedgerow is sufficiently established as an effective flightline. These mitigation measures are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**.

7.9.33. Preliminary bat roost assessment surveys of trees have been undertaken, as detailed in **ES Volume 4, Appendix 7.2: Bat Preliminary Roost**

Assessment Report (2022) [EN010158/APP/6.4] and **ES Volume 4, Appendix 7.14: Bat Preliminary Roost Assessment Report (2025) [EN010158/APP/6.4]**. Trees that have been identified with bat roost potential will be protected by a buffer and demarcation fencing, as detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**. However, if it is found that any trees with bat roost potential would experience direct impacts, they would be surveyed prior to impact to determine presence/or likely absence of a roost. If a roost is identified, in the first instance the design of the Proposed Development would be amended to ensure retention and protection of the tree and roost with an appropriate buffer. If this is not possible, depending on the roost type and species using the roost, loss of a confirmed bat roost would be mitigated and compensated under a European Protected Species licence from Natural England. These mitigation measures are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**.

7.9.34. In addition, a variety of bat boxes would be installed in suitable locations on hedgerow trees or in woodland to increase roosting opportunities.

7.9.35. Hedgerow and tree planting measures required to mitigate impacts to bats and provision of bat boxes to increase roosting opportunities are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

Otter

7.9.36. The **Outline CEMP [EN010158/APP/7.2]** details and secures control measures to mitigate potential construction related effects to otter, including potential disturbance from light, noise and vibration.

7.9.37. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** detail and secure control measures to mitigate habitat degradation of habitats suitable to support otter. This includes measures such as demarcation fencing to prevent construction activity occurring within these areas.

7.9.38. Pre-construction otter surveys will be undertaken to confirm any active holts, including further monitoring of resting places through the use of camera traps to determine use by otters, with appropriate buffers maintained to prevent disturbance. Pre-construction surveys are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**. Where construction lighting is required, it will conform to best practice guidelines with respect to minimising light spill into adjacent habitats to prevent disturbance to otter. Throughout construction, the use of motion detection or manually operated lighting would be used to avoid constant lighting. Inward/downward directional lighting would be used to avoid light spill onto adjacent ponds, watercourses and ditches, which are likely to be used by otters. Security lighting would use PID systems which should not affect otters.

7.9.39. Unless otherwise agreed with Buckinghamshire Council, there would be no night-time (19:00 to 07:00) working and any artificial lighting would be kept to a minimum and not directed towards habitat suitable for otters.

Badger

7.9.40. The **Outline CEMP [EN010158/APP/7.2]** details and secures control measures to mitigate potential construction related effects to badgers, including potential disturbance from light, noise and vibration.

7.9.41. The **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]** detail and secure control measures to mitigate habitat degradation of habitats suitable to support badgers. This includes measures such as demarcation fencing to prevent construction activity occurring within these areas.

7.9.42. Pre-construction badger surveys will be undertaken to confirm status of existing badger setts and to identify the presence of any new setts with appropriate buffers maintained to prevent disturbance or damage to setts. Pre- construction surveys are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**. In the unlikely event that a sett cannot be avoided, then set closure will be considered under the appropriate licensing regime.

7.9.43. Where construction lighting is required, it will conform to best practice guidelines with respect to minimising light spill into adjacent habitats to prevent disturbance to badgers. Throughout construction, the use of motion detection or manually operated lighting would be used to avoid constant lighting. Inward/downward directional lighting would be used to avoid light spill onto adjacent habitats, which are likely to be used by badgers. Security lighting would use PID systems which should not affect badgers.

7.9.44. Unless otherwise agreed with Buckinghamshire Council, there would be no night-time (19:00 to 07:00) working and any artificial lighting would be kept to a minimum and not directed towards habitat suitable for badgers.

Operation (including maintenance)

Statutory designated sites, non-statutory designated sites and ancient woodland

7.9.45. The **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and manage operational related effects on habitats to prevent pollution.

Hedgerows and hedgerow trees, individual ancient and veteran trees, individual trees and lines of trees, cereal and non-cereal crops, lowland mixed deciduous woodland and other woodland, arable field margins, ponds, watercourses and ditches, mixed scrub, bramble scrub, other neutral grassland, modified grassland

7.9.46. Appropriate management and monitoring of mitigation habitats would be required for a period of 30 years (as required by the Environment Act 2021 **[Ref. 7-4]**) to ensure successful establishment and condition. The habitat management and monitoring regime is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**. This includes management of ecological mitigation areas, hedgerows, grassland, field margins, watercourses and treatments under Solar PV modules.

7.9.47. As the operational life of the Proposed Development is 40 years, the **Outline LEMP [EN010158/APP/7.6]** will be reviewed during the 30 year period to ensure the management prescriptions are still appropriate.

7.9.48. The **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and manage operational related effects on habitats to prevent pollution.

Black hairstreak and brown hairstreak butterfly

7.9.49. The appropriate habitat management regimes to maintain habitat suitable to support black hairstreak and brown hairstreak butterfly are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**.

7.9.50. The **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and manage operational related effects on woodland, hedgerow and scrub habitats that support these species to prevent pollution events occurring that may adversely impact these habitats.

7.9.51. Management of woodland, hedgerows and scrub habitat that contain Blackthorn would be undertaken in such a manner to ensure maintenance works do not damage or destroy Blackthorn that could support black or brown hairstreak eggs.

Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly)

7.9.52. The appropriate habitat management regimes to maintain habitat suitable to support terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly) are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**.

7.9.53. The **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and manage operational related effects on habitats that support these species to prevent pollution events occurring that may adversely impact these habitats.

Great crested newt and reptiles

7.9.54. The appropriate habitat management regimes to maintain habitat suitable to support GCN and reptiles are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**.

7.9.55. The **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and manage operational related effects on habitats that support these species to prevent pollution events occurring that may adversely impact these habitats.

Ground nesting birds, non-ground nesting birds and wintering birds

7.9.56. The **Outline OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]** detail and secure control measures for vegetation clearance, which would avoid the main nesting bird period (March to August inclusive) where possible. Any vegetation clearance proposed within the nesting bird period (March to August inclusive) would be checked for the presence of any nests by a suitably experienced ecologist within 48 hours prior to vegetation removal or ground clearance. If active nests are found, appropriate buffer zones will be put in place and the area monitored until the young birds have fledged.

7.9.57. The **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and manage operational related effects on bird habitats and to prevent disturbance, including measures to prevent air, water and light pollution.

7.9.58. The appropriate habitat management regimes to maintain open ground nesting habitat and increased foraging potentials are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**. Once habitats are established during the operation (including maintenance) phase, it is predicted that the Proposed Development will be able to deliver sufficient habitat availability required to support a diverse breeding farmland bird assemblage of ground nesting birds similar to that currently present.

7.9.59. Monitoring of ground nesting birds would be undertaken during the operation (including maintenance) phase to measure the effectiveness of the embedded mitigation and the effect of Solar PV modules on ground nesting birds. This is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**.

Barn owl, red kite, hobby and peregrine falcon (listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended))

7.9.60. The **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and

manage operational related effects on barn owl, red kite, hobby and peregrine falcon habitats and to prevent disturbance, including measures to prevent air, water and light pollution.

Bats

7.9.61. During operation (including maintenance), no part of the Proposed Development would be continuously lit. Manually operated and motion detection lighting would be used only for operational and security purposes. Lighting would be used only at entrances or gates, or within compounds, and would only be operated when required for safe working or security. The use of PID systems security lighting, required around key electrical infrastructure, avoids the need for permanent lighting. The inward/downward direction design of lighting would avoid light spill on to adjacent hedgerows, woodlands, field margins, watercourses, ponds and wet ditches likely to be used by bats. This is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**.

7.9.62. Monitoring of bat activity would be undertaken during the operation (including maintenance) phase to measure the effectiveness of the embedded mitigation and the effect of Solar PV modules on bats. This is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**.

Otter and badger

7.9.63. During operation (including maintenance), no part of the Proposed Development would be continuously lit. Manually operated and motion detection lighting would be used only for operational and security purposes. Lighting would be used only at entrances or gates, or within compounds, and would only be operated when required for safe working or security. The use of PID systems security lighting, required around key electrical infrastructure, avoids the need for permanent lighting. The inward/downward direction design of lighting would avoid light spill on to adjacent hedgerows, woodlands, field margins and watercourses, ponds and wet ditches likely to be used by badgers or otter. This is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**.

Decommissioning

7.9.64. The **Outline DEMP [EN010158/APP/7.4]** details and secures measures to mitigate and manage decommissioning related effects on biodiversity, including measures to prevent air, water, light and noise pollution and avoid disturbance to sensitive species.

7.9.65. Prior to decommissioning, updated surveys, where required (for example for badgers), would be undertaken in sufficient time in advance of works to ensure that appropriately timed mitigation can be carried out.

7.9.66. Appropriate mitigation measures would be based on the results of the updated ecology surveys. Many of the mitigation measures required for the construction phase are also likely to be required during the decommissioning phase.

7.9.67. Ecological mitigation areas would be handed back to the relevant landowners, of which the Applicant would no longer have control of the Site. Consultation with appropriate stakeholders and landowners would be undertaken in advance of the decommissioning phase to discuss opportunities to maintain and manage the ecological mitigation habitats beyond the lifespan of the Proposed Development, as appropriate.

Statutory designated sites, non-statutory designated sites and ancient woodland

7.9.68. The **Outline DEMP [EN010158/APP/7.4]** sets out the control measures that will be implemented during decommissioning to protect statutory designated sites, non- statutory designated sites and ancient woodland, which include, but are not limited to:

- Using demarcation fencing and signage where appropriate to establish and maintain appropriate buffer zones. This will depend on habitat type, as detailed previously in **Section 7.7**.
- Mitigation for habitat degradation from potential decommissioning related effects including dust deposition, air pollution, pollution incidents and water quality, would be provided through the adoption of construction industry good practice and environmental protection legislation during decommissioning. For example, prevention of surface and ground water pollution, soil removal and appropriate re-instatement.

Hedgerows and hedgerow trees, individual ancient and veteran trees, individual trees and lines of trees, cereal and non-cereal crops, lowland mixed deciduous woodland and other woodland, arable field margins, ponds, watercourses and ditches, mixed scrub/bramble scrub, other neutral grassland and modified grassland

7.9.69. The **Outline DEMP [EN010158/APP/7.4]** sets out the control measures that will be implemented during decommissioning to protect hedgerows and hedgerow trees, individual ancient and veteran trees, individual trees and lines of trees, cereal and non-cereal crops, lowland mixed deciduous woodland and other woodland, arable field margins, ponds, watercourses and ditches, mixed scrub/bramble scrub, other neutral grassland and modified grassland which include, but are not limited to:

- Using demarcation fencing and signage where appropriate to establish and maintain appropriate buffer zones. This will depend on habitat type, as detailed previously in **Section 7.7**.
- Mitigation for habitat degradation from potential decommissioning related effects including dust deposition, air pollution, pollution incidents and water quality, would be provided through the adoption of construction industry good practice and environmental protection legislation during decommissioning. For example, prevention of surface and ground water pollution, soil removal and appropriate re-instatement.

Black hairstreak and brown hairstreak butterfly and terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly)

7.9.70. The **Outline DEMP [EN010158/APP/7.4]** details and secures the control measures that will be implemented during decommissioning to protect the habitat resource used by black and brown hairstreak butterflies and other terrestrial invertebrates which include, but is not limited to:

- Using fencing and signage where appropriate to establish and maintain appropriate buffer zones. This will depend on habitat type, as detailed previously in **Section 7.7**.
- Mitigation for habitat degradation from potential decommissioning related effects including dust deposition, air pollution, pollution incidents and water quality, would be provided through the adoption of construction industry good practice and environmental protection legislation during construction. For example, prevention of surface and ground water pollution, soil removal and appropriate re-instatement.

Great crested newt

7.9.71. Decommissioning activities with the potential to affect GCN would be carried out either under the Buckinghamshire District Level Licensing scheme through NatureSpace Partnership or under a European Protected Species licenced from Natural England.

7.9.72. Appropriate pre-decommissioning GCN surveys will be undertaken. Pre-decommissioning surveys are detailed in and secured by the **Outline DEMP [EN010158/APP/7.4]**.

Reptiles

7.9.73. Appropriate pre-decommissioning reptile surveys will be undertaken. A suitably qualified ecologist will supervise all work and ensure appropriate measures are undertaken to prevent injury and/or death to reptiles. Pre-decommissioning surveys are detailed in and secured by the **Outline DEMP [EN010158/APP/7.4]**.

Ground nesting birds, non-ground nesting birds and wintering birds

7.9.74. The **Outline DEMP [EN010158/APP/7.4]** details and secures control measures that would be implemented during decommissioning to reduce the potential risk of impact to ground nesting birds.

7.9.75. Work within or adjacent to areas which is likely to cause an impact to ground nesting birds, such as within the ecological mitigation areas, will be undertaken outside the nesting bird season whilst also avoiding the peak wintering bird season.

7.9.76. Appropriate pre-decommissioning nesting bird surveys will be undertaken. A suitably qualified ecologist will supervise all work during the nesting bird season and ensure appropriate measures are undertaken to prevent disturbance, injury and/or death to ground nesting birds. Pre-decommissioning surveys are detailed in and secured by the **Outline DEMP [EN010158/APP/7.4]**.

7.9.77. Any vegetation clearance or ground clearance proposed within the nesting bird period would be checked for the presence of any nests by a suitably experienced ecologist within 48 hours prior to vegetation removal or ground clearance. If active nests are found, appropriate buffer zones will be put in place and the area monitored until the young birds have fledged. Cleared ground would be maintained in a disturbed state in the run up to decommissioning commencing to minimise the risk of ground nesting birds attempting to nest.

7.9.78. Unless otherwise agreed with Buckinghamshire Council, there would be no night-time (19:00 to 07:00) working and any artificial lighting would be kept to a minimum and not directed towards habitat suitable for breeding birds.

7.9.79. Landowners and appropriate stakeholders will be engaged prior to decommissioning to discuss the options available to retain the ecological mitigation areas beyond decommissioning, given the Applicant would no longer have control of the Site.

Barn owl, red kite, hobby and peregrine falcon (listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended))

7.9.80. Decommissioning activities have the potential to disturb breeding barn owl, hobby, peregrine falcon and red kite, if breeding within *c.*200m of the Order Limits. These species are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) **[Ref. 7-1]** and are protected against disturbance when they are nesting and/or have dependent young. Surveys for Schedule 1 species would be undertaken in advance of decommissioning works commencing, as detailed in and secured by the **Outline DEMP [EN010158/APP/7.4]**. Suitable measures, including

appropriate buffers from nests during the breeding season, would be delivered to ensure disturbance is avoided in line with the relevant legislation.

Bats

7.9.81. The **Outline DEMP [EN010158/APP/7.4]** details and secures control measures that would be implemented during decommissioning to reduce the potential risk of impact to foraging and commuting bats.

7.9.82. The **Outline DEMP [EN010158/APP/7.4]** details and secures measures such as no night-time (19:00 to 07:00) working (unless otherwise agreed with Buckinghamshire Council) and directing any lighting away from boundary habitats and areas likely to be used by foraging and commuting bats.

7.9.83. Landowners and appropriate stakeholders will be engaged prior to decommissioning to discuss the options available to retain habitats which have been created which are likely to be used by foraging and commuting bats, such as the ecological mitigation areas.

Otter

7.9.84. Appropriate pre-decommissioning otter surveys will be undertaken. Pre-decommissioning surveys are detailed in and secured by the **Outline DEMP [EN010158/APP/7.4]**.

7.9.85. Unless otherwise agreed with Buckinghamshire Council, there would be no night-time (19:00 to 07:00) working and any artificial lighting would be kept to a minimum and not directed towards habitat suitable for otter.

Badger

7.9.86. Appropriate pre-decommissioning badger surveys will be undertaken. Pre-decommissioning surveys are detailed in and secured by the **Outline DEMP [EN010158/APP/7.4]**.

7.9.87. Unless otherwise agreed with Buckinghamshire Council, there would be no night-time (19:00 to 07:00) working and any artificial lighting would be kept to a minimum and not directed towards habitat suitable for badgers.

7.10. Assessment of residual effects (with additional mitigation)

Construction

Statutory designated sites, non-statutory designated sites and ancient woodland

7.10.1. Statutory designated sites are considered to be of **National** importance.

7.10.2. Non-statutory designated sites and ancient woodland are considered to be of **County** importance.

7.10.3. Taking into account the embedded design and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**, there is not anticipated to be an adverse effect on the integrity of statutory designated sites, non-statutory designated sites or ancient woodland during construction, which is considered to be **not significant**.

Hedgerows and hedgerow trees

7.10.4. The majority of hedgerows would be protected from construction works. However, a number of hedgerows would need to be crossed by the Grid Connection Cable Corridor, Interconnecting Cable Corridors and Internal Access Corridors. Cable installation and highways access proposals for visibility splays would also require sections of hedgerows to be removed. Details of lengths of hedgerow removal proposed is shown in the **Outline LEMP, Appendix 3: Vegetation Removal Parameters [EN010158/APP/7.6]**. The total impact to hedgerow across the Site is estimated as up to *c.*2,60m comprising *c.*1,310m of permanent loss and *c.*750m of reinstated hedgerow. An additional *c.*3,420m of new hedgerow planting will be implemented across the Site. Measures to minimise the impact of construction activities are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**.

7.10.5. There would be no long-term net hedgerow loss due to re-instatement and new planting. However, compensatory habitat would take time to develop (*c.*10 years for new hedgerows to fully mature).

7.10.6. The hedgerow resource is considered to be of **County** importance. Taking into account the embedded and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**, overall, the residual effect during construction is predicted to be **adverse**, **short-term** and **temporary** whilst reinstated sections of hedgerows become re-established. Given the hedgerow resource in the local area, this is deemed to be **not significant**.

Individual ancient and veteran trees

7.10.7. Individual ancient and veteran trees are considered to be of **County** importance.

7.10.8. No ancient or veteran trees will be lost to facilitate construction works; however, there is potential for roost disturbance to occur to a single veteran tree as a result of highways works.

7.10.9. Taking into account the embedded design and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**,there is not anticipated to be an overall adverse effect on ancient or veteran trees during construction, which is considered to be **not significant**.

Individual trees and lines of trees

7.10.10. Individual trees and line of trees are considered to be of **Local** importance.

7.10.11. The majority of individual trees and lines of trees would be protected from works. However, up to 16 individual trees would potentially need to be removed to facilitate the Grid Connection Cable Corridor, Interconnecting Cable Corridors and Internal Access Corridors. Cable installation and highways access proposals for visibility splays would also require sections trees to be removed. Details of lengths of tree removal proposed is shown in the **Outline LEMP, Appendix 3: Vegetation Removal Parameters [EN010158/APP/7.6]**. An additional *c.*8.5ha of tree belt/woodland planting will be implemented across the Site. Measures to minimise the impact of construction activities are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**.

7.10.12. Overall, the residual effect during construction is predicted to be **adverse**, **long-term** and **permanent** whilst new tree planting becomes established which is considered to be **not significant**.

Cereal and non-cereal crops

7.10.13. Cereal and non-cereal crops are considered to be of **Local** importance.

7.10.14. Mitigation for habitat modification resulting in the loss of cereal and non-cereal crops habitat is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** which outlines measures such as conversion of arable habitat to habitat of higher biodiversity value including species-rich grassland, scrub, ponds, hedgerows and woodland, resulting in an increased diversity and abundance of invertebrate species to improve the foraging value of the areas for bats and farmland bird species.

7.10.15. Measures to protect retained cereal and non-cereal crops are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**.

7.10.16. Taking into account the embedded and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]** and **Outline LEMP [EN010158/APP/7.6]**, there is not anticipated to be an adverse effect on cereal and non-cereal crops habitat during construction, which is considered to be **not significant**.

Lowland mixed deciduous woodland and other woodland

7.10.17. Lowland mixed deciduous woodland and other woodland are considered to be of **County** importance.

7.10.18. Taking into account the embedded design and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**, there is not anticipated to be an adverse effect on lowland mixed deciduous woodland and other woodland, which is considered to be **not significant**.

Arable field margins

7.10.19. Arable field margins are considered to be of **Local** importance.

7.10.20. Taking into account the embedded design and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**, there is not anticipated to be an adverse effect on arable field margins, which is considered to be **not significant**.

Ponds, watercourses and ditches

7.10.21. Ponds and watercourses are considered to be of **County** importance.

7.10.22. Ditches are considered to be of **Local** importance.

7.10.23. Taking into account the embedded design and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**, there is not anticipated to be an adverse effect on ponds, watercourses and ditches during construction, which is considered to be **not significant**.

Mixed scrub, bramble scrub, other neutral grassland and modified grassland

7.10.24. Mixed scrub, bramble scrub, other neutral grassland and modified grassland are considered to be of **Local** importance.

7.10.25. Taking into account the embedded design and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**, the residual effect at the construction phase is predicted to be **adverse**, **short-term** and **temporary** and is deemed to be **not significant**.

Black hairstreak and brown hairstreak butterfly

7.10.26. There will be no direct land take from woodland habitats within or located adjacent to the Order Limits and therefore no loss of Blackthorn resource from these areas. Hedgerows would require sections to be removed for installation of cables, Internal Access Corridors and highways access including passing bays and visibility splays. This has the potential to result in loss of Blackthorn resource for hairstreak butterflies. Although removals of hedgerow habitat will be required, there is not expected to be an overall loss of suitable Blackthorn resource for black hairstreak and brown hairstreak butterfly as boundary features will be improved and other habitat creation works, such scrub planting and hedgerow planting will be undertaken. Measures to minimise the impact of construction activities are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]** and **Outline LEMP [EN010158/APP/7.6]**.

7.10.27. Black hairstreak and brown hairstreak butterfly are considered to be of **National** importance. Taking into account the embedded design and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**, overall, the residual effect during construction is predicted to be **adverse**, **short-term** and **temporary** and **not significant**.

Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly)

7.10.28. Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly) are considered to be of **Local** importance.

7.10.29. Taking into account the embedded design and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**, overall, the residual effect during construction is predicted to be **adverse**, **short-term** and **temporary** and **not significant**.

Great crested newt

7.10.30. The Proposed Development will make use of either the Buckinghamshire District Level Licensing scheme for GCN or mitigation licence from Natural

England; either of these approaches ensuring legislative compliance regards GCN.

7.10.31. The GCN population is considered to be of **County** importance, and legislative compliance will be ensured. Therefore, the residual effect during construction is anticipated to be **adverse**, **short-term** and **temporary** and **not significant**.

Reptiles

7.10.32. Reptiles are considered to be of **Local** importance.

7.10.33. Taking into account the embedded design and additional mitigation measures to minimise the impact of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]** and **Outline LEMP [EN010158/APP/7.6]**, the residual effect at the construction phase is predicted to be **adverse**, **short-term** and **temporary** and **not significant**.

Ground nesting birds

7.10.34. The Proposed Development would result in modification (by the placement of Solar PV panels) of large open arable fields and pasture fields used for nesting and foraging by ground nesting birds and disturbance during the construction phase.

7.10.35. Key, open and connected areas would be retained and improved for ground nesting birds to compensate for nesting and foraging habitat lost during construction whilst mitigation areas develop. The surrounding farmland outside of the Order Limits would also continue to support a similar breeding bird assemblage. Taking into account additional mitigation to minimise the adverse effects of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, it is considered that the existing ground nesting bird assemblage would be maintained.

7.10.36. Measures to implement and manage mitigation areas retained for ground nesting birds are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]** and **Outline LEMP [EN010158/APP/7.6]**. Although this habitat creation could take time to establish, it is anticipated that ground nesting birds would utilise it relatively quickly.

7.10.37. Ground nesting birds are considered of **County** importance. The adverse effect of habitat loss and disturbance during construction is considered to be **temporary** and **short-term** and **not significant**.

Non-ground nesting birds

7.10.38. The Proposed Development would result in a short-term loss of non-ground nesting bird breeding and foraging habitat during the construction

phase. Measures to implement and manage breeding and foraging habitat for non-ground nesting birds are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]** and **Outline LEMP [EN010158/APP/7.6]**. Taking into account additional mitigation to minimise the adverse effects of construction activities detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, it is considered that the existing ground nesting bird assemblage would be maintained.

7.10.39. Non-ground nesting birds are considered of **County** importance. The adverse effect of habitat loss and disturbance during construction is considered to be **temporary** and **short-term** and **not significant**.

Barn owl, red kite, hobby and peregrine falcon (listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended))

7.10.40. Construction activities have the potential to disturb breeding Schedule 1 bird species, if they are breeding within *c.*200m of the Order Limits.

7.10.41. Surveys for Schedule 1 breeding birds would be undertaken in advance of construction works commencing, detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**. Works would either be timed to avoid the breeding season or, where required, suitable measures, including appropriate buffers and demarcation fencing from nests during the breeding season, would be delivered to ensure disturbance is avoided in line with the relevant legislation.

7.10.42. Foraging habitat would not be affected as field margins, watercourses and woodlands would be retained and protected with suitable buffers along with newly created and/or improved species-rich grassland, scrub, ponds, hedgerows and woodland, pollution control measures and any lighting mitigated.

7.10.43. Hobby and peregrine falcon are considered to be of **County** importance whilst barn owl and red kite are considered to be of **District** importance. With embedded mitigation and suitable additional mitigation measures detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]** and **Outline LEMP [EN010158/APP/7.6]** any adverse effects on Schedule 1 breeding birds during construction are anticipated to be **not significant**.

Wintering birds

7.10.44. The Proposed Development would result in disturbance and loss of habitat for wintering birds during the construction phase due to the placement of Solar PV modules.

7.10.45. The same key areas to be retained for ground nesting birds would also provide wintering bird foraging habitat, as would the retained woodland, hedgerows and associated buffers and newly created and/or improved species-rich grassland, scrub, ponds, hedgerows and woodland. These

areas would be improved to compensate for habitat lost. Measures to implement and manage mitigation areas retained for wintering birds are detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]** and **Outline LEMP [EN010158/APP/7.6]**.

7.10.46. Although there would be some temporary loss of foraging habitat and disturbance during construction works, the significant areas of large open fields and woodland and boundary features which would be retained and protected during construction, will help mitigate for the loss of other areas in the short-term whilst mitigation areas develop. The surrounding farmland outside of the Order Limits would also support a similar wintering bird assemblage. Taking into account additional mitigation to minimise the adverse effects of construction activities, it is considered that the existing wintering bird assemblage would be maintained.

7.10.47. The wintering bird assemblage is considered to be of **County** importance. The adverse effect of habitat loss and disturbance during construction is anticipated to be **temporary** and **short term** and **not significant**.

Bechstein's bat (foraging, commuting and roosting)

7.10.48. A sensitive lighting scheme will be implemented throughout construction to prevent light spill onto retained ecological features, while core construction working hours will have only minimal overlap with periods of dusk and darkness during early Spring and late Autumn months. To prevent lights accidentally being left on within Construction Compounds at the end of each working day, processes such as lighting timers will be implemented.

7.10.49. A small number of trees with bat roost potential may be impacted and/or require removal as part of hedgerow loss necessary to enable access tracks and/or cable routes. The majority of trees with roost potential will be avoided within the embedded design and, where possible, hedgerow breaches will be micro-sited to avoid the loss of trees with bat roost potential. Trees within the retained hedgerows will be protected by buffer zones. Any trees with roost potential that cannot be avoided will be surveyed to determine the presence or likely absence of a roost, and where necessary a European Protected Species licence from Natural England would be obtained. This licence would ensure that no significant effect on the conservation status of Bechstein's bat resulted from the loss of bat roost trees. Typically, such mitigation and compensation would take the form of bat boxes which Bechstein's bat have been recorded using nationally **[Ref. 7-67]**. However, within the Bernwood population, there have been no records of Bechstein's bat using bat boxes, despite an ample supply being available within Sheephouse Wood and Finemere Wood (P. Reason, pers. comm.). The absence of Bechstein's bat from existing bat boxes in this location suggests that suitable roost trees are unlikely to be in short supply even if a small number require removal as part of the Proposed Development. Where necessary and appropriate,

veteranisation of suitable retained trees will be considered to provide alternate suitable roost features.

7.10.50. As detailed in **Paragraphs 7.8.56** to **7.8.60**, the loss of hedgerow sections could result in the fragmentation of the network of woodland and linear features in the landscape, potentially resulting in the isolation of roosts, important foraging grounds or seasonally important resources such as hibernation sites. However, the retention and protection of 96.21% of the hedgerow network and likely ability of Bechstein's bat to cross at least small to moderate-sized gaps means that most sections of hedgerow loss are considered unlikely to result in significant adverse effects on Bechstein's bat.

7.10.51. Larger sections of hedgerow loss, such as those proposed along northern sections of Three Points Lane may have more notable impacts, particularly as hedgerow would be removed on both sides of the lane in this location. To minimise the fragmentation risk, trimming of the existing hedge and application of frequency maintenance to ensure the necessary visibility is achieved will be used in place of removal, where possible. Where this is not possible, a new hedgerow will be planted within the fields on the western side of Three Points Lane to provide a similar, albeit offset, linear feature aligned to the original hedgerow on at least one side. Where necessary, this or other larger gaps resulting from hedgerow loss where there are no obvious alternative local routes may be mitigated for by the use of temporary structures such as those detailed in **Section 7.9** above, which would be installed until such time as re-instated hedgerows are considered sufficiently established to support Bechstein's bat, estimated to be once sufficient vegetation has established, but likely before hedgerows become fully mature (estimated to be five years).

7.10.52. Early reinforcement planting to thicken and strengthen existing linear features would be undertaken before construction works commence in Fields D28, D29 and D30. These measures are designed to provide an additional foraging resource for Bechstein's bat during the course of construction works. The location of this planting, between Finemere Wood and Runt's Wood (both of importance as a Bechstein's bat roosting and foraging resource and currently not strongly linked), may reduce the impact of linear feature fragmentation by providing improved, alternative resources. Should the fragmentation of hedgerows result in Bechstein's bat travelling further, this could result in greater energy expenditure and a potential reduction in fitness; however, such additional distances would likely be at a very local scale, and many gaps would be temporary, with re-instatement/partial re-instatement planting of appropriate hedgerow species within 37 of the 82 hedgerow gaps carried out as soon as possible after construction works have been completed, in the correct planting season.

7.10.53. The loss of other habitats, either permanently or temporarily, for the duration of construction, will be limited. However, where feasible, infrastructure and/or Construction Compounds will be micro-sited within the identified fields to maximise their distance from retained ecological features; in particular, retained hedgerows.

7.10.54. In addition to the foraging resource created within mitigation areas, grassland under and between the Solar PV modules will be seeded with a species-rich grassland mix. The establishment of grassland cover under Solar PV modules has been found to be feasible (e.g. **[Ref. 7-60]**) and to achieve higher plant and insect diversity than turfgrass solar farms **[Ref. 7-62]**. This improvement is therefore considered likely to offer increase foraging opportunities for Bechstein's bat throughout the Site and consequently result in a beneficial impact (see **Appendix 2: Landscape and Ecological Mitigation and Enhancements** of the **Outline LEMP [EN010158/APP/7.6]**).

7.10.55. The Order Limits fall within the home range and core sustenance zone for the Bernwood population of Bechstein's bat. The Bernwood population is one of the largest populations of Bechstein's bat in the UK, located at the northern extent of its current UK distribution. The Bernwood Bechstein's bat population has been found to exhibit less genetic diversity than other Bechstein's bat populations, likely due to its geographic isolation and the fragmentated nature of woodland in the wider landscape **[Ref. 7-26]**. The Bernwood Bechstein's bat population is therefore considered to be of **National** importance.

7.10.56. The aforementioned characteristics of the Bechstein's bat population may result in greater sensitivity to landscape-scale changes, including habitat loss, modification and fragmentation. However, the proposed development has been designed to preserve and protect the majority of the tree roost resource and network of linear features, with Bechstein's bat considered able to adapt to the majority of hedgerow gaps created during construction, either by crossing smaller gaps or utilising alternate routes via the extensive network of retained hedgerows, while the limited extent of tree removal is considered unlikely to have population-level impacts.

7.10.57. Habitat loss forms only a minor part of the Proposed Development and, while larger areas will be subject to modification, this reflects only a very small proportion of the Bechstein's bat core sustenance zone and home range, with the arable areas impacted likely to have been of limited foraging value.

7.10.58. The embedded and additional mitigation measures are considered to be effective in minimising the construction impacts on Bechstein's bat. The residual impact of construction activities is therefore assessed as being **adverse**, **short-term** and **temporary** and is considered to be **not significant**.

Barbastelle bats (foraging, commuting and roosting)

7.10.59. Approaches to lighting, the protection of retained trees, micro-siting of hedgerow removal, where possible, to minimise tree loss, and the process that would be undertaken should any trees with bat roost potential require removal, are considered to be in line with that detailed for Bechstein's bat in **Paragraphs 7.10.48** to **7.10.49**, with barbastelle bats known to use bat boxes where they reflect natural crevice-type roost features (e.g. **[Ref. 7-68]**).

7.10.60. As detailed in **Paragraphs 7.8.56** to **7.8.60**, the loss of hedgerow, if extensive, could result in the fragmentation of the network of woodland and linear features used by barbastelle bats, potentially resulting in the isolation of roosts, important foraging grounds or seasonally important resources such as hibernation sites. However, 96.21% of the hedgerow network, and all woodlands, will be retained and protected and, as detailed in **Paragraph 7.8.67**, barbastelle bats are considered capable of crossing large open areas at considerable speed. It is therefore considered that, despite high fidelity to commuting routes **[Ref. 7-46]**, barbastelle bats are unlikely to experience significant adverse effects as a result of hedgerow removal.

7.10.61. This is considered to potentially remain the case even where more substantial sections of hedgerow are removed, such as on Three Points Lane. Although the loss of hedgerow from both sides of the lane in this location is considered to have a potentially more noticeable effect, it is considered that the additional mitigation measures detailed in **Paragraphs 7.10.50** and **7.10.51** would be effective in minimising any such impacts.

7.10.62. The loss of other habitats, either permanently or temporarily, for the duration of construction, will be limited. However, where feasible, infrastructure and/or Construction Compounds will be micro-sited within the identified fields to maximise their distance from retained ecological features, in particular retained hedgerows.

7.10.63. As detailed in **Paragraph 7.10.54**, the creation of grassland under and between the Solar PV modules is considered likely to increase plant and invertebrate diversity relative to the current arable baseline. While a statistically significant preference for hedgerows over open fields was identified for barbastelle bats during paired static detector surveys in both the October 2024 and May 2025 surveys (see **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**), actions that increase floral and invertebrate diversity within the fields are likely to also support increased invertebrate abundance along linear features on the edges of fields, benefiting barbastelle bats, with hedgerow associations suggested to be, at least in part, due to the concentration of moths found in such locations **[Ref. 7-63]**.

7.10.64. Woodlands located outside the Order Limits may form an important roosting and foraging resource at a local level. However, the Site is not considered to be a stronghold for barbastelle bats, with activity levels within the Site considered to be generally low, a pattern reflected in the extensive bat survey data available from the nearby HS2 development. This suggests a limited reliance on habitats within the Site as may be expected given that barbastelle bats are considered to have the largest core sustenance zone (6km) of any UK bat species **[Ref. 7-70]**. Barbastelle bats associated with the Proposed Development are therefore considered to be of **District** importance.

7.10.65. Given the barbastelle bat's status and use of the Site, the retention and protection of the majority of habitats considered to be of greatest value to barbastelle bats, notably woodlands and hedgerows, and the likelihood of limited impacts from hedgerow gaps, the embedded and additional mitigation measures are considered to be effective in minimising the construction impacts on barbastelle bats. The residual impact of construction activities is therefore assessed as being **adverse**, **short-term** and **temporary**, and is considered to be **not significant**.

Other bat species (foraging, commuting and roosting)

7.10.66. Approaches to lighting, the protection of retained trees, micro-siting of hedgerow removal, where possible, to minimise tree loss, and the process that would be undertaken should any trees with bat roost potential require removal, are considered to be in line with that detailed for Bechstein's bat in **Paragraphs 7.10.48** to **7.10.49**, with 'other bat species' that utilise tree roosts known to use a variety of bat boxes where reflective of their roost feature preferences.

7.10.67. As detailed in **Paragraphs 7.8.74** to **7.8.76**, the reliance of 'other bat species' on linear features varies; however, it is considered that the loss of hedgerow, if extensive, could result in the fragmentation of the network of woodland and linear features used by 'other bat species', potentially result in the isolation of roosts, important foraging grounds or seasonally important resources such as hibernation sites. Although 96.21% of the hedgerow network, and all woodlands, will be retained and protected, some 'other bat species', particularly those that are clutter-feeders, may demonstrate close ties with hedgerows, and may, therefore, be susceptible to adverse effects as a result of hedgerow gaps, particularly where these are more substantial in size, such as along Three Point Lane. Additional mitigation, including hedgerow reinstatement, reinforcement and/or new planting, as well as the use of temporary structures to bridge larger gaps, as detailed in **Paragraphs 7.10.50** and **7.10.51**, are considered to be effective measure of minimising any residual impacts.

7.10.68. The loss of other habitats, either permanently or temporarily, for the duration of construction, will be limited. However, where feasible,

infrastructure and/or Construction Compounds will be micro-sited within the identified fields to maximise their distance from retained ecological features; in particular, retained hedgerows.

7.10.69. As detailed in **Paragraph 7.10.54**, the creation of grassland under and between the Solar PV modules is considered likely to increase plant and invertebrate diversity relative to the current arable baseline.

7.10.70. Although the overall importance of the bat assemblage, with consideration to typical species distribution and rarity for Central England/Midlands (see **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]** and **[Ref. 7-24]**) is considered to be National, this is driven in large part by the presence of Bechstein's bat and barbastelle bat which have been assessed as separate receptors. The remaining 'other bat species' are dominated by species that are widespread in all geographies (i.e. common and soprano pipistrelle) and/or which are widespread but not necessarily abundant in all geographics (i.e. noctule) **[Ref. 7-24]**. Therefore, the assemblage of bat species considered under the 'other bat species' receptor is considered to be of **Local** importance.

7.10.71. The majority of the Site, including the majority of habitats impacted by habitat loss, modification or degradation are arable in nature, habitat(s) typically deemed to be of limited value to bats. The improvement of areas underneath and between Solar PV modules, as well as the retention and protection of the majority of habitats of greater value (i.e. woodlands and hedgerows) is considered likely to ensure the availability of habitats of greatest value to 'other bat species', although hedgerow gaps may impact some 'other bat species'. In light of the widespread nature of most of the 'other bat species' assemblage and generally low levels of activity within the Site, the impact of construction on 'other bat species' is considered to be **adverse**, **short-term**, **temporary** and **not significant**.

Otter

7.10.72. Otters are considered to be of **Local** importance.

7.10.73. With embedded mitigation and suitable additional mitigation measures detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]** and **Outline LEMP [EN010158/APP/7.6]**, there is not anticipated to be an adverse effect on otter during construction, which is considered to be **not significant**.

Badger

7.10.74. Badgers are considered to be of **Local** importance.

7.10.75. With embedded mitigation and suitable additional mitigation measures detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]** and **Outline LEMP [EN010158/APP/7.6]** there is not anticipated to be an

adverse effect on badgers during construction, which is considered to be **not significant**.

Operation (including maintenance)

Statutory designated sites, non-statutory designated sites and ancient woodland

7.10.76. Statutory designated sites are considered to be of **National** importance.

7.10.77. Non-statutory designated sites and ancient woodland are considered to be of **County** importance.

7.10.78. Statutory designated sites, non-statutory designated sites and ancient woodland are not anticipated to be affected by operational works. The embedded design principles include a minimum standoff distance from Solar PV modules and associated infrastructure of 30m from statutory designated sites, non-statutory designated sites and ancient woodland, with protection measures during the operation (including maintenance) phase detailed in and secured by the **Outline OEMP [EN010158/APP/7.3] and Outline LEMP [EN010158/APP/7.6]**.

7.10.79. There is not anticipated to be an adverse effect on the integrity of statutory designated sites, non-statutory designated sites or ancient woodland during operation (including maintenance), which is considered to be **not significant**.

Hedgerows and hedgerow trees

7.10.80. The hedgerow resource is considered to be of **County** importance.

7.10.81. Hedgerows and hedgerow trees are not anticipated to be affected by operational works. The embedded design principles include a minimum standoff distance from Solar PV modules and associated infrastructure from hedgerows and hedgerow trees. Protection of hedgerows and hedgerow trees during the operation (including maintenance) phase is secured by the **Outline OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]**.

7.10.82. There is not anticipated to be an adverse effect on the hedgerow resource during operation (including maintenance), which is considered to be **not significant**.

Individual ancient and veteran trees

7.10.83. Individual ancient and veteran trees are considered to be of **County** importance.

7.10.84. Individual ancient and veteran trees are not anticipated to be affected by operational works. The embedded design principles include a minimum

standoff distance from Solar PV modules and associated infrastructure from individual ancient and veteran trees. Protection of ancient and veteran trees during the operation (including maintenance) phase is detailed in and secured by the **Outline OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]**.

7.10.85. There is not anticipated to be an adverse effect on ancient or veteran trees during operation (including maintenance), which is considered to be **not significant**.

Individual trees and lines of trees

7.10.86. The individual trees and lines of trees are considered to be of **Local** importance.

7.10.87. Embedded design principles include a minimum standoff distance for Solar PV modules and associated infrastructure from individual trees and lines of trees. The **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]** will secure measures to protect individual trees and lines of trees.

7.10.88. There is not anticipated to be an adverse effect on individual trees and lines of trees during operation (including maintenance), which is considered to be **not significant**.

Cereal and non-cereal crops

7.10.89. Cereal and non-cereal crops are considered to be of **Local** importance.

7.10.90. Mitigation for habitat modification resulting in the loss of cereal and non-cereal crops is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** which outlines measures such as conversion of arable habitat to habitat of higher biodiversity value including species-rich grassland, scrub, ponds, hedgerows and woodland, resulting in an increased diversity and abundance of invertebrate species to improve the foraging value of the areas for bats and farmland bird species. The **Outline OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]** will secure mitigation measures to protect these habitats and retained cereal and non-cereal crops from habitat degradation.

7.10.91. There is not anticipated to be an adverse effect on cereal and non-cereal crops during operation (including maintenance), which is considered to be **not significant**.

Lowland mixed deciduous woodland and other woodland

7.10.92. Lowland mixed deciduous woodland and other woodland are considered to be of **County** importance.

7.10.93. The embedded design principles include a minimum standoff distance from Solar PV modules and associated infrastructure of minimum 20m from all lowland mixed deciduous woodland and other woodland areas. The **Outline OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]** will secure mitigation measures to protect woodland from habitat degradation.

7.10.94. There is not anticipated to be an adverse effect on lowland mixed deciduous woodland and other woodland during operation (including maintenance), which is considered to be **not significant**.

Arable field margins

7.10.95. Arable field margins are considered to be of **Local** importance.

7.10.96. The Outline **OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]** will secure mitigation measures to protect arable field margins from habitat degradation. There is not anticipated to be an adverse effect on arable field margins during operation (including maintenance), which is considered to be **not significant**.

Ponds, watercourses and ditches

7.10.97. Watercourses are considered to be of **County** importance.

7.10.98. Ditches are considered to be of **Local** importance.

7.10.99. The Outline **OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]** will secure mitigation measures to protect ponds, watercourses and ditches from habitat degradation. There is not anticipated to be an adverse effect on watercourses and ditches during operation (including maintenance), which is considered to be **not significant**.

7.10.100. Ponds are considered to be of **County** importance.

7.10.101. The Outline **OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]** will secure mitigation measures to protect ponds (retained and newly created/restored), from habitat degradation. There is not anticipated to be an adverse effect on ponds during operation (including maintenance). Overall, given the embedded and additional mitigation measures, at the operation (including maintenance) phase a **long-term**, **permanent** (for the duration of the operation (including maintenance) phase) **beneficia**l residual effect is predicted for ponds, which would be **significant** at the **Local** level.

Mixed scrub, bramble scrub, other neutral grassland and modified grassland

7.10.102. Mixed scrub, bramble scrub, other neutral grassland and modified grassland are considered to be of **Local** importance.

7.10.103. The Outline **OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]** will secure mitigation measures to protect these habitats.

7.10.104. Overall, given the embedded and additional mitigation measures, at the operation (including maintenance) phase a **long-term**, **permanent** (for the duration of the operation (including maintenance) phase) **beneficial** residual effect is predicted, which would be **significant** at the **Local** level.

Black hairstreak and brown hairstreak butterfly

7.10.105. Black hairstreak and brown hairstreak butterfly are considered to be of **National** importance.

7.10.106. The **Outline OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]** will secure mitigation measures to protect the hedgerow, woodland and scrub habitats that support black hairstreak and brown hairstreak butterfly.

7.10.107. The proposed habitat creation proposals detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]** would improve the suitability of the Site for black hairstreak and brown hairstreak butterfly at the operation (including maintenance) phase once established which is considered to be **not significant**.

Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly)

7.10.108. Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly) are considered to be of **Local** importance.

7.10.109. The proposed habitat creation proposals detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]** would improve the suitability of the Site for terrestrial invertebrates at the operation (including maintenance) phase once established which is considered to be **not significant**.

Great crested newt

7.10.110. The GCN population is considered to be of **County** importance.

7.10.111. Protection measures and the method of works to avoid harm to GCN are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and the **Outline OEMP [EN010158/APP/7.3]**. Furthermore, the embedded

design principles include a minimum offset distance of 10m from all ponds and ditches. In terms of terrestrial habitat, the Proposed Development design will also incorporate minimum offset distances woodland, trees and hedgerows. The creation of species-rich grassland, scrub, arable field margins, hedgerows and woodland which would benefit GCN, is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.10.112. There is not anticipated to be an adverse effect on GCN during operation (including maintenance), which is considered to be **not significant**.

Reptiles

7.10.113. Reptiles are considered to be of **Local** importance.

7.10.114. Protection measures and the method of works to avoid harm to reptiles are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and the **Outline OEMP [EN010158/APP/7.3]**. Furthermore, the embedded design principles include minimum offset distances to woodland, trees and hedgerows. The creation of species-rich grassland, scrub, arable field margins, hedgerows and woodland which would benefit reptiles, is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.10.115. There is not anticipated to be an adverse effect on reptiles during operation (including maintenance), which is considered to be **not significant**.

Ground nesting birds

7.10.116. Operational maintenance works would be relatively small scale and localised which is not anticipated to cause significant visual or noise disturbance to ground nesting birds. The **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and manage operational related effects on bird habitats.

7.10.117. As detailed in **Section 7.7** above, habitat creation and habitat management regimes are anticipated to improve the quality of nesting habitat and increase bird foraging habitat. Breeding bird survey data, as detailed in **ES Volume 4, Appendix 7.12: Breeding Bird Survey Report (2024) (Confidential) [EN010158/APP/6.4]**, has been used to estimate the number of skylark territories that would require compensation due to the placement of Solar PV modules. Skylarks were the most abundant ground nesting bird species found within the Site and have therefore been used as a proxy for all ground nesting species. These data have been used to estimate the area and quality of habitat required to mitigate for effects on ground nesting birds in key, open and connected areas which will be retained and improved as part of the embedded design.

7.10.118. These measures are detailed in and secured by the **Outline OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]**. Once

habitats are established during the operation (including maintenance) phase, it is predicted that the Proposed Development will be able to deliver a net gain in habitats required to support a diverse breeding farmland bird assemblage of ground nesting birds similar to that currently present.

7.10.119. Ground nesting birds are considered of **County** importance. With embedded design and additional mitigation measures, there is anticipated to be a **long-term, beneficial** effect in quantity of foraging habitat and quality of nesting habitat once fully established during operation. This **beneficial** effect is considered to be **significant** at the **Local** level.

Non-ground nesting birds

7.10.120. Non-ground nesting birds are considered of **County** importance.

7.10.121. Operational maintenance works would be relatively small scale and localised which is not anticipated to cause significant visual or noise disturbance to non-ground nesting birds. The **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and manage operational related effects on bird habitats and to prevent disturbance, including measures to prevent air, water and light pollution.

7.10.122. As detailed in **Section 7.7** above, habitat creation and habitat management regimes are anticipated to improve the quality of nesting habitat and increase bird foraging habitat.

7.10.123. There is not anticipated to be an adverse effect on non-ground nesting birds during operation (including maintenance), which is considered to be **not significant**.

Barn owl, red kite, hobby and peregrine falcon (listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended))

7.10.124. Hobby and peregrine falcon are considered to be of **County** importance whilst barn owl and red kite are considered to be of **District** importance.

7.10.125. These species are not anticipated to be disturbed by operational works as it is a passive development requiring minimal maintenance works. The **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and manage operational related effects on bird habitats and to prevent disturbance, including measures to prevent air, water and light pollution. Habitat creation and improvement measures, as detailed in and secured by the **Outline OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]** would benefit small mammals which are prey for these species, therefore improving the foraging resource. The embedded design will retain and improve key areas, which will provide connecting foraging habitat across the Site, as presented in the **Outline LEMP [EN010158/APP/7.6]**.

7.10.126. There is not anticipated to be an adverse effect on these species during operation (including maintenance), which is considered to be **not significant**.

Wintering birds

7.10.127. The wintering bird assemblage is considered to be of **County** importance.

7.10.128. Operational works would be relatively small scale and localised which are not anticipated to cause significant visual or noise disturbance to wintering birds. The **Outline OEMP [EN010158/APP/7.3]** details and secures measures to mitigate and manage operational related effects on bird habitats and to prevent disturbance, including measures to prevent air, water and light pollution.

7.10.129. Habitat creation measures as part of the embedded design to compensate for loss of foraging habitat (open, arable habitat lost due to placement of Solar PV modules) and to improve foraging for wintering are anticipated to have a beneficial effect (which is considered unlikely to be significant) in quantity of foraging habitat once fully established during the operation (including maintenance) phase. Habitat creation and management are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and the **Outline OEMP [EN010158/APP/7.3]**.

7.10.130. There is not anticipated to be an adverse effect on wintering birds during operation (including maintenance), which is considered to be **not significant**.

Bechstein's bats (foraging, commuting and roosting)

7.10.131. Bat- and bird-focused mitigation areas will create *c.*95ha of new habitat, equating to *c.*1.20% of the Bernwood Bechstein's bat core sustenance zone and *c.3*.99% of the population's home range, providing additional foraging opportunities in close proximity to woodlands known to be important for Bechstein's bats. This is in addition to wider areas of ecological mitigation and the creation of habitats within buffer zones that protect retained hedgerows, trees, woodlands and Claydon Brook, representing significant ecological improvements on the largely arable baseline habitats originally present. These habitats would also offer increased connectivity between woodlands which could be accessed without over-flying areas in which Solar PV modules had been installed, while species-rich grasslands under and between Solar PV modules should support increased invertebrate diversity and abundance across the Site as a whole.

7.10.132. The limited evidence currently available broadly suggests that adverse effects may be felt by some bat species as a result of solar farm operation, although the exact nature and extent of these impacts is not yet clear.

Therefore, while the embedded design and additional mitigation, including reinstatement of hedgerows and creation and/or improvement of foraging habitats and linear features, are considered to be effective means of minimising the impacts on Bechstein's bat, it is not possible, at this time, to definitively state that this mitigation will be fully efficacious and therefore residual impacts cannot be fully discounted.

7.10.133. Therefore, with due consideration to the status of the Bernwood Bechstein's bat population and the assessment of its **National** importance, a precautionary approach has been applied and the residual effects of the operation (including maintenance) of the Proposed Development are assessed as potentially being **adverse**, **long-term** and **permanent** for the duration of the operation (including maintenance) phase, in light of Bechstein's bat lifespans[19], and therefore ***potentially* significant** at the **District** level. It is considered that this *potentially* significant effect would not amount to, nor equate to, 'significant harm' as the predicted impacts will be of a scale that will not impact the overall favourable conservation status of the species as the Proposed Development design and mitigation has focused on protecting and enhancing Bechsteins's bat foraging and commuting habitat.

Barbastelle bats (foraging, commuting and roosting)

7.10.134. The benefits provided by habitat creation and improvement detailed in **Paragraph 7.10.69** are considered to offer the same benefits for barbastelle bats. In addition, landscape and mitigation planting has been designed to include provision of larval food plants of a range of moth species. Similarly, the same considerations detailed in **Paragraph 7.10.132** regarding the limited evidence base for solar farm impacts, also reflect our current understanding of the potential impacts of solar farm operation on barbastelle bats.

7.10.135. While barbastelle bats have been assessed as of **District** importance, barbastelle bats have only been recorded at low levels within the Order Limits and adjacent areas (see **ES Volume 4, Appendix 7.10: Bat Activity Survey Report (2024) [EN010158/APP/6.4]**) suggesting a limited reliance on habitats within the Order Limits. Furthermore, where habitats within the Order Limits are used, there is evidence of a strong association with areas of retained habitat, such as hedgerows (see **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report (2025) [EN010158/APP/6.4]**), which will be buffered from areas directly impacted by operational activities.

[19] Bechstein's bat have been recorded as having a 'maximum observed lifespan of 21 years in the wild' **[Ref. 7-71]**, although average lifespans are likely to be less, relative to an anticipated 40 year operational lifespan for the Proposed Development.

7.10.136. Therefore, while impacts from the operation (including maintenance) of the Proposed Development are assessed as being potentially **adverse**, **long-term** and **permanent**, with respect to barbastelle bat lifespans[20], these are considered likely to be **not significant**.

Other bat species (foraging, commuting and roosting)

7.10.137. The benefits provided by habitat creation and improvement detailed in **Paragraph 7.10.69** are considered to offer the same benefits for 'other bat species'. Similarly, the same considerations detailed in **Paragraph 7.10.132** regarding the limited evidence base for solar farm impacts, also reflect our current understanding of the potential impacts of solar farm operation on the bat assemblage considered within the 'other bat species' receptor.

7.10.138. 'Other bat species' have been assessed as being of **Local** importance with consideration to levels of activity and the largely widespread distribution of these species. Many of the species within the 'other bat species' receptor have been found to be primarily associated with habitats that will be retained and protected, while others demonstrate behavioural traits that mean they are unlikely to experience significant adverse effects as a result of the habitat loss and modification caused by the Proposed Development. All bat species within the 'other bat species' receptor are considered likely to benefit from habitat creation measures.

7.10.139. Therefore, while impacts from the operation (including maintenance) of the Proposed Development are assessed, on a precautionary basis as being potentially **adverse**, **long-term** and **permanent**, with respect to typical lifespans[21], these are considered likely to be **not significant**.

Otter

7.10.140. Otter are considered to be of **Local** importance.

7.10.141. The embedded design measures will maintain with minimum buffers from built development to ponds, watercourses and ditches. The Outline **OEMP [EN010158/APP/7.3]** and **Outline LEMP [EN010158/APP/7.6]** will secure

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[20] While individual barbastelle bats have been recorded at up to 22 years of age, their average life expectancy ranges from 5.5 to 10 years **[Ref. 7-73]** relative to an anticipated 40 year operational lifespan for the Proposed Development.
[21] Bat species within the 'other bat species' receptor have recorded lifespans of up to 28 years (i.e. Daubenton's bat **[Ref. 7-74]**); however, lifespans between 4 and 5 years are considered more typical in the wild, relative to an anticipated 40 year operational lifespan for the Proposed Development. Brandt's bat have been recorded exceeding 40 years **[Ref. 7-75]** and while not specifically identified within the 'other bat species' receptor may potentially be present within the other *Myotis* sp. grouping.

mitigation measures to protect ponds, watercourses and ditches and surrounding riparian habitat from habitat degradation and light pollution.

7.10.142. There is not anticipated to be an adverse effect on otters during operation (including maintenance), which is considered to be **not significant**.

Badger

7.10.143. Badgers are considered to be of **Local** importance.

7.10.144. Field margins will remain as open corridors for large animals such as deer to disperse across the wider landscape and mammal gates will be installed within fences to allow badgers access into fields for foraging, as secured in the **Design Commitments [EN010158/APP/5.9]**. The embedded design measures will maintain with minimum buffers from built development to existing badger setts during operation (including maintenance). Mitigation measures to ensure safeguarding badgers and their setts are detailed in and secured by the **Outline OEMP [EN010158/APP/7.3]**. Buffers to provide wildlife corridors are detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.10.145. There is not anticipated to be an adverse effect on badgers during operation (including maintenance), which is considered to be **not significant**.

Decommissioning

7.10.146. The effects of decommissioning of the Proposed Development are likely to be similar to those for construction outlined above. However, given the proposed embedded mitigation measures to improve the biodiversity value of fields within the Order Limits, the biodiversity uplift gained during the operation (including maintenance) phase may be lost if fields are returned to intensive agricultural use at decommissioning. Therefore, the likely effects of the decommissioning phase on habitats may potentially be greater than those experienced during construction. Habitats and protected or otherwise notable species are likely to be subject to temporary loss of habitat and disturbance during decommissioning activities and appropriate measures detailed in and secured by the **Outline DEMP [EN010158/APP/7.4]** would mitigate any significant adverse effects.

7.10.147. The land within the Order Limits would be reinstated in accordance with the **Outline DEMP [EN010158/APP/7.4]**. Landscape structural planting, including tree planting, hedgerows, scrub, and ponds, created to deliver biodiversity mitigation associated with the Proposed Development would be left in situ when the Site is handed back to landowners.

7.10.148. Ecological mitigation areas would be handed over to the relevant landowners, unless agreed otherwise. Consultation with appropriate

stakeholders and landowners would be undertaken in advance of the decommissioning phase to discuss opportunities to maintain and manage the ecological mitigation beyond the lifespan of the Proposed Development, as appropriate.

7.11. Opportunities for enhancement

7.11.1. As presented in **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]** all the trading rules in the Statutory Biodiversity Metric have been met for all habitats. The ecological mitigation and enhancement areas will deliver a minimum 40% net gain for habitat area, 17% for hedgerow and 10% for watercourses in line with the minimum 10% legislative requirement **[Ref. 7-25]**. Although not yet mandatory for Nationally Significant Infrastructure Projects (such as the Proposed Development), the Applicant is still committing to achieving this as a minimum level of BNG, which will be secured by the **Outline LEMP [EN010158/APP/7.6]**.

7.12. Monitoring requirements

7.12.1. The paired static detector surveys (see **ES Volume 4, Appendix 7.16: Paired Static Bat Detector Survey Report [EN010158/APP/6.4]**) indicate the importance of the hedgerow resource to the bat assemblage, including both foraging and commuting Bechstein's bat and barbastelle bat. Surveys undertaken by Natural England **[Ref. 7-26]** indicate the importance of the woodland resource for Bechstein's bat. This provides confidence that the approach to the Proposed Development design and mitigation is appropriate. However, as the effect of bats' use of solar farms is uncertain due to lack of research, monitoring of bat activity would be undertaken during the operation (including maintenance) phase to confirm the expected effectiveness of the embedded mitigation and the effect of Solar PV modules and associated infrastructure on bats, supporting improvements to the existing evidence base. This is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** and **Outline OEMP [EN010158/APP/7.3]**.

7.12.2. This monitoring would involve bat activity surveys, following the same method as the surveys already undertaken to inform this assessment (i.e. static bat detectors deployed in similar locations in spring, summer and autumn to enable comparison to the baseline data). These surveys would be carried out in Years 1, 3, 5 and 10, commencing on completion of construction work. The need for any further additional monitoring would then be reviewed.

7.12.3. The results of each bat monitoring survey visit would be compiled into a monitoring report. The monitoring data would be compared with the baseline bat activity data and any differences in bat activity across the whole Site would be assessed. The report would detail any actions or

adaptive management practices required where appropriate, which would be actioned before the next monitoring survey visit where possible.

7.12.4. Monitoring of habitat condition of the areas set aside for ground nesting birds would be undertaken to ascertain if created habitat within areas meet the required condition and monitoring establishment against condition criteria. Site visits will comprise of one survey per year during years 1 to 3 after habitat creation and then at five yearly intervals subsequently up to year 30. The surveys would be undertaken during the period May to July to ensure habitat condition criteria are being met. The results of each monitoring survey visit would be compiled into a monitoring report. The report would detail any actions or adaptive management practices required where appropriate, which would be actioned before the next monitoring survey visit where possible.

7.12.5. For biodiversity net gain, monitoring is required for habitats created or enhanced for a period of at least 30 years **[Ref. 7-25]**. Monitoring is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]**. After 30 years, monitoring would be reviewed to ensure habitat management prescriptions for the remainder of the operation (including maintenance) phase are appropriate.

7.12.6. Best practice monitoring requirements for habitats and species are also detailed in and secured by the **Outline CEMP [EN010158/APP/7.2]**, **Outline LEMP [EN010158/APP/7.6]** and **Outline DEMP [EN010158/APP/7.4]**.

7.13. Difficulties and uncertainties

7.13.1. The evidence base relating to biodiversity impacts of solar farms is relatively limited; in particular, there has been little research undertaken on the impact of solar farms on bats. Similarly, the evidence base underpinning current practice and mitigation recommendations does not appear to be well developed. The effects of solar panels on bat behaviour are not currently known and results from the few monitoring studies conducted to date have been mixed. This uncertainty has resulted in a precautionary approach taken for the assessment of impact from the Proposed Development on bats. But as indicated in **Paragraph 7.12.1**, the paired static study gives confidence that design of the Proposed Development and the approach to mitigation is appropriate.

7.13.2. This assessment is based on the baseline information of which there are no known difficulties or uncertainties of significance that would affect the validity of the baseline study/survey findings. Specific assumptions and limitations relevant to each survey, including how any difficulties and/or uncertainties have been overcome, are included within **ES Volume 4, Appendices 7.1 - 7.17 [EN010158/APP/6.4]**. The baseline surveys could be valid for up to three years if there have been no significant changes to

habitats within the Order Limits, although this would depend on species. An ecologist would need to review, undertake a site visit and potentially update desk study information in order to review the validity of the reports **[Ref. 7-78]**.

7.13.3. There are minor difference in the values stated for hedgerow loss and creation and tree loss within the **Outline LEMP [EN010158/APP/7.6]**, **ES Volume 4, Appendix 7.13: Arboricultural Impact Assessment [EN010158/APP/6.4]**, **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]** and **ES Volume 2, Chapter 7: Biodiversity [EN010158/APP/6.2]**. These differences arise due to the data used within the **Outline LEMP [EN010158/APP/7.6]** being based on topographical survey data and aerial photography and data used with **ES Volume 4, Appendix 7.13: Arboricultural Impact Assessment [EN010158/APP/6.4]** based on BS5837:2012 survey data, supported by topographical baseline mapping. The data used within **ES Volume 4, Appendix 7.17: Biodiversity Net Gain Assessment [EN010158/APP/6.4]** and **ES Volume 2, Chapter 7: Biodiversity [EN010158/APP/6.2]** is based on data collected as part of UKHab surveys detailed within **ES Volume 4, Appendix 7.7: Preliminary Ecological Appraisal (2025) [EN010158/APP/6.4]**. While the locations of proposed vegetation removal and creation are accurately represented, variations may occur in the description of what is impacted. This is due to differences in classification methodologies applied to vegetation and trees across the respective disciplines.

7.14. Summary

7.14.1. A summary of this assessment is presented in **Table 7.10**. The geographic importance of each receptor is identified alongside any relevant embedded mitigation and the likely effects that could arise on those receptors. Any proposed additional mitigation measures are stated and the residual effects then assessed. Finally, any monitoring requirements are stated where applicable.

Table 7.10: Summary of the biodiversity assessment

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
Statutory designated sites Sheephouse Wood SSSI Finemere Wood SSSI Grendon and Doddershall Woods SSSI Ham Home-cum-Hamgreen Woods SSSI	Construction, operation (including maintenance) and decommissioning	National	Retention of all statutory and locally designated wildlife sites and ancient woodland ensuring no habitat loss, with a minimum 30m offset from the fence line. There will be a minimum 30m offset from the fence line to woodland and hedgerows located along the boundaries of Field D29 and partially in Field D28. Species-rich grassland, scrub planting and pond creation/restoration will occur within the offset buffer to maintain foraging and commuting corridors for wildlife (in particular bats) and improve links to the wider landscape.	Indirect adverse effects, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect statutory designated sites including demarcation fencing to prevent construction activity in proximity to statutory designated sites.	***Construction, operation (including maintenance) and decommissioning*** No effect on structure/function **Not significant**	N/A
Non-statutory designated sites within/adjacent to the Order Limits Bernwood Biodiversity Opportunity Area Greatsea Wood LWS Shrub Woods LWS Decoypond Wood LWS Romer Wood LWS Runts Wood LWS Finemere Wildlife Trust Reserve (WTR) Home Wood, Middle Claydon LWS Balmore Wood LWS	Construction, operation (including maintenance) and decommissioning	County	Retention of all non-statutory designated sites ensuring no habitat loss, with a minimum 30m offset from the fence line. Species-rich grassland, scrub planting and pond creation/restoration will occur within the offset buffer to maintain foraging and commuting corridors for wildlife (in particular bats) and improve links to the wider landscape.	Indirect adverse effects, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect non-statutory designated sites including demarcation fencing to prevent construction activity in proximity to non-statutory designated sites.	***Construction, operation (including maintenance) and decommissioning*** No effect on structure/function **Not significant**	N/A

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
Other non-statutory designated sites within 2km of the Order Limits	Construction, operation (including maintenance) and decommissioning	County	Retention of all other non-statutory designated sites within 2km of the Order Limits ensuring no habitat loss.	No effect on structure/function	N/A	N/A	N/A
Ancient woodland within/adjacent to the Order Limits	Construction, operation (including maintenance) and decommissioning	County	Retention of all ancient woodland ensuring no habitat loss, with a minimum 30m offset from the fence line. Species-rich grassland, scrub planting and pond creation/restoration will occur within the offset buffer to maintain foraging and commuting corridors for wildlife (in particular bats) and improve links to the wider landscape.	Indirect adverse effects, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect ancient woodland including demarcation fencing to prevent construction activity in proximity to ancient woodland.	***Construction, operation (including maintenance) and decommissioning*** No effect on structure/function **Not significant**	N/A
Other ancient woodland sites within 2km of the Order Limits	Construction, operation (including maintenance) and decommissioning	County	Retention of all other ancient woodland sites within 2km of the Order Limits ensuring no habitat loss.	No effect on structure/function	N/A	N/A	N/A
Hedgerows and hedgerow trees	Construction, operation (including maintenance) and decommissioning	County	There will be a minimum 10m offset from the fence line to all other existing hedgerows. There will be a minimum 15m offset from the fence line to existing hedgerows located within Fields B3 and B7, between Fields B7 and B8/B10 and between Fields B8/B10 and B9/B11. Retention of the majority of hedgerow habitat (with the exception of where Internal Access Corridors and/or Cable Corridors are required to cross an existing feature; crossings will be kept to a minimum and restored where practical). Where a cable crosses a hedgerow and the hedgerow is removed, these would be reinstated post-construction.	Adverse effect of hedgerow loss during construction for Internal Access Corridors, highways access and Cable Corridors and other permanent infrastructure (e.g. BESS and Rosefield Substation). Indirect adverse effects, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect hedgerows and hedgerow trees including demarcation fencing to prevent construction activity in proximity to hedgerows and hedgerow trees.	***Construction and decommissioning*** (-) (D) (ST) (T) **Not significant** ***Operation (including maintenance)*** No effect on structure/function **Not significant**	For biodiversity net gain, monitoring is required for habitats created or enhanced for a period of at least 30 years

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
			Species-rich grassland, scrub planting and pond creation/restoration will occur within the offset buffer to maintain foraging and commuting corridors for wildlife (in particular bats) and improve links to the wider landscape.				
Individual ancient and veteran trees	Construction, operation (including maintenance) and decommissioning	County	All ancient and veteran trees will be retained. A minimum offset to the principal components of the Proposed Development to tree Root Protection Areas will be applied, as far as reasonably practicable.	Indirect adverse effects, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect individual ancient and veteran trees including demarcation fencing to prevent construction activity in proximity to ancient and veteran trees.	***Construction, operation (including maintenance) and decommissioning*** No effect on structure/function **Not significant**	N/A
Individual trees and lines of trees	Construction, operation (including maintenance) and decommissioning	Local	The majority of individual trees and lines of trees will be retained (with the exception of where Internal Access Corridors and/or Cable Corridors are required to cross an existing feature; crossings will be kept to a minimum). A minimum offset to the principal components of the Proposed Development to tree Root Protection Areas will be applied, as far as reasonably practicable.	Adverse effect of tree loss during construction for Internal Access Corridors, highways access and Cable Corridors and other permanent infrastructure (e.g. BESS and Rosefield Substation). Indirect adverse effects, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect individual trees and lines of trees including demarcation fencing to prevent construction activity in proximity to individual trees and lines of trees.	***Construction and decommissioning*** (-) (D) (ST) (T) **Not significant** ***Operation (including maintenance)*** No effect on structure/function **Not significant**	For biodiversity net gain, monitoring is required for habitats created or enhanced for a period of at least 30 years
Cereal and non-cereal crops	Construction, operation (including maintenance) and decommissioning	Local	Mitigation for habitat modification resulting in the loss of cereal and non-cereal crops habitat is detailed in and secured by the **Outline LEMP [EN010158/APP/7.6]** which outlines measures such as conversion of arable habitat to habitat of higher biodiversity value including species-rich grassland, scrub, ponds, hedgerows and woodland.	Indirect adverse effects, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect cereal and non-cereal crops.	***Construction, operation (including maintenance) and decommissioning*** No effect on structure/function **Not significant**	N/A

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
Lowland mixed deciduous woodland and other woodland	Construction, operation (including maintenance) and decommissioning	County	Retention of all woodland habitat ensuring no habitat loss, with a minimum 20m offset from the fence line. Species-rich grassland, scrub planting and pond creation/restoration will occur within the offset buffer along with planting of woodland belts to maintain foraging and commuting corridors for wildlife (in particular bats) and improve links to the wider landscape.	Indirect adverse effects, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect woodland including demarcation fencing to prevent construction activity in proximity to woodland.	***Construction, operation (including maintenance) and decommissioning*** No effect on structure/function **Not significant**	For biodiversity net gain, monitoring is required for habitats created or enhanced for a period of at least 30 years
Arable field margins	Construction, operation (including maintenance) and decommissioning	Local	The majority of arable field margins will be retained (with the exception of where Internal Access Corridors and/or Cable Corridors are required to cross an existing feature; crossings will be kept to a minimum). The embedded design measures include for the creation of a mosaic of species-rich neutral grassland and scrub along field margins.	Adverse effect of arable field margins during construction for Internal Access Corridors, highways access and Cable Corridors and other permanent infrastructure (e.g. BESS and Rosefield Substation). Indirect adverse effects, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect arable field margins including demarcation fencing to prevent construction activity in proximity of arable field margins.	***Construction, operation (including maintenance) and decommissioning*** No effect on structure/function **Not significant**	For biodiversity net gain, monitoring is required for habitats created or enhanced for a period of at least 30 years
Ponds, watercourses and ditches	Construction, operation (including maintenance) and decommissioning	Ponds and watercourses – County Ditches - Local	Retention of all ponds, watercourse and ditches ensuring no habitat loss, with a minimum 10m offset from ditches, ponds and ordinary watercourses and a minimum 20m offset from Claydon Brook in Fields E20, E11, E10 and north section of Field E21. The embedded design measures include for the Establishment of ecological ponds (either restoration of former ponds and or creation of new ponds).	Indirect adverse effects, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect ponds, watercourses and ditches including demarcation fencing to prevent construction activity in proximity.	***Construction, operation (including maintenance) and decommissioning*** No effect on structure/function **Not significant**	For biodiversity net gain, monitoring is required for habitats created or enhanced for a period of at least 30 years
Mixed scrub, bramble scrub, other neutral	Construction, operation (including	Local	Mitigation for habitat modification resulting in the loss of modified grassland habitat is detailed in and secured by the **Outline LEMP**	Indirect adverse effects, such as surface water	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]**	***Construction and decommissioning*** (-) (D) (ST) (T)	For biodiversity net gain, monitoring is

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
grassland, modified grassland	maintenance) and decommissioning		**[EN010158/APP/7.6]** which outlines measures such as improvement of grassland habitat to habitat of higher biodiversity value including species-rich grassland, scrub, ponds, hedgerows and woodland.	pollution run-off and dust pollution.	and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect these habitats.	**Not significant** ***Operation (including maintenance)*** No effect on structure/function **Not significant**	required for habitats created or enhanced for a period of at least 30 years
Black hairstreak and brown hairstreak butterfly	Construction, operation (including maintenance) and decommissioning	National	Retention of all woodland habitat and the majority of hedgerow habitat (with the exception of where Internal Access Corridors and/or Cable Corridors are required to cross an existing feature; crossings will be kept to a minimum and restored where practical). Where a cable crosses a hedgerow and the hedgerow is removed, these would be reinstated post-construction. Creation of scrub habitat along field margins. Planting of hedgerows and improvement of existing hedgerows. Early planting/habitat management proposed within Parcel 1 (hedgerows between Shrubs Wood and Sheephouse Wood), Parcel 1a, Parcel 2 (along the boundary of Fields D30, D29 and D28 and hedgerows along boundary of Fields D30, D34 and D37) ahead of construction.	Incidental injury and mortality. Indirect adverse effects to habitats that support these species, such as surface water pollution run-off and dust pollution.	Pre-construction targeted black hairstreak and brown hairstreak surveys of sections of hedgerow that will require removal, with translocation of sections of Blackthorn that support eggs as set out within the **Outline CEMP [EN010158/APP/7.2]** and **Outline DEMP [EN010158/APP/7.4].** **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect habitats that support these species.	***Construction and decommissioning*** (-) (D) (ST) (T) **Not significant** ***Operation (including maintenance)*** No effect on conservation status **Not significant**	N/A
Terrestrial invertebrates (excluding black hairstreak and brown hairstreak butterfly)	Construction, operation (including maintenance) and decommissioning	Local	The majority of habitat within the Order Limits that may support notable invertebrates (e.g. woodland and deadwood) will be retained in their entirety and avoided during construction of the Proposed Development. The embedded mitigation includes for the creation and improvement of species-rich grassland, scrub, ponds, hedgerows, arable field margins and	Indirect adverse effects to habitats that support these species, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect habitats that support these species.	***Construction, operation (including maintenance) and decommissioning*** No effect on conservation status **Not significant**	N/A

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
			woodland, resulting in an increase of habitat suitable to support a diverse range of invertebrate species across the Site.				
Great crested newt	Construction, operation (including maintenance) and decommissioning	County	There will be a minimum 10m offset from ditches and ponds. Establishment of ecological ponds (either restoration of former ponds or creation of new ponds). Retention of all woodland habitat and the majority of hedgerow habitat (with the exception of where access tracks and/or cable routes are required to cross an existing feature; crossings will be kept to a minimum and restored where practical). Where a cable crosses a hedgerow and the hedgerow is removed, these would be reinstated post-construction. Creation of mosaic of species-rich grassland and scrub habitat along field margins. Creation of *c.*95 hectares of species-rich neutral grassland. Planting of hedgerows and improvement of existing hedgerows. Early planting/habitat management proposed within Parcel 1 (hedgerows between Shrubs Wood and Sheephouse Wood), Parcel 1a, Parcel 2 (along the boundary of Fields D30, D29 and D28 and hedgerows along boundary of Fields D30, D34 and D37) ahead of construction.	Incidental injury and mortality. Indirect adverse effects to habitats that support GCN, such as surface water pollution run-off and dust pollution.	Works with the potential to affect GCN would be carried out either under the Buckinghamshire District Level Licensing scheme through NatureSpace Partnership or under a European Protected Species licenced from Natural England. **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** set out the control measures that will be implemented to protect GCN and the habitats that support GCN. Appropriate pre-decommissioning GCN surveys will be undertaken detailed in and secured by the **Outline DEMP [EN010158/APP/7.4]**.	***Construction, operation (including maintenance) and decommissioning*** No effect on conservation status **Not significant**	N/A
Reptiles	Construction, operation (including maintenance) and decommissioning	Local	Retention of all woodland habitat and the majority of hedgerow habitat (with the exception of where access tracks and/or cable routes are required to cross an existing feature; crossings will be kept to	Incidental injury and mortality. Indirect adverse effects to habitats that support	**Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP**	***Construction and decommissioning*** (-) (D) (ST) (T) **Not significant**	N/A

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
			a minimum and restored where practical). Where a cable crosses a hedgerow and the hedgerow is removed, these would be reinstated post-construction. Creation of mosaic of species-rich grassland and scrub habitat along field margins. Creation of *c.*95 hectares of species-rich neutral grassland. Planting of hedgerows and improvement of existing hedgerows. Early planting/habitat management proposed within Parcel 1 (hedgerows between Shrubs Wood and Sheephouse Wood), Parcel 1a, Parcel 2 (along the boundary of Fields D30, D29 and D28 and hedgerows along boundary of Fields D30, D34 and D37) ahead of construction.	GCN, such as surface water pollution run-off and dust pollution.	**[EN010158/APP/7.4]** set out the control measures that will be implemented to protect reptiles and the habitats that support reptiles. Appropriate pre-decommissioning reptile surveys will be undertaken detailed in and secured by the **Outline DEMP [EN010158/APP/7.4]**.	***Operation (including maintenance)*** No effect conservation status **Not significant**	
Ground nesting birds	Construction, operation (including maintenance) and decommissioning	County	Creation of *c.*95 hectares of species-rich neutral grassland to provide ground nesting habitat. Creation of species-rich other neutral grassland under and between solar panels to increase insect biodiversity and therefore foraging opportunities for ground nesting birds, also provision of seed source during winter months.	Habitat loss and disturbance during construction and decommissioning phase (until created and improved habitats have established). Incidental injury and mortality. Indirect adverse effects to habitats that support non-ground nesting birds, such as surface water pollution run-off and dust pollution.	Pre-construction and pre-decommissioning surveys for ground nesting birds would be undertaken in advance of works commencing, as secured through the **Outline CEMP [EN010158/APP/7.2]** and **Outline DEMP [EN010158/APP/7.4]**. **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** detail control measures for vegetation clearance to prevent harm to ground nesting birds and to mitigate habitat degradation and protect areas retained for ground nesting birds. No night-time (19:00 to 07:00) working (unless agreed) and any	***Construction and decommissioning*** (-) (D) (ST) (T) **Not significant** ***Operation (including maintenance)*** Local level (+) (D) (LT) (P) **Significant**	Monitoring of habitat condition of the areas set aside for ground nesting birds comprising one survey per year May to July during years 1 to 3 after habitat creation and then at 5 yearly intervals subsequently up to year 30.

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
					artificial lighting would be kept to a minimum and not directed towards habitat suitable for breeding birds.		
Non-ground nesting birds	Construction, operation (including maintenance) and decommissioning	County	Retention of all woodland habitat and the majority of hedgerow habitat (with the exception of where Internal Access Corridors and/or Cable Corridors are required to cross an existing feature; crossings will be kept to a minimum and restored where practical). Where a cable crosses a hedgerow and the hedgerow is removed, these would be reinstated post-construction. A minimum offset to the principal components of the Proposed Development to tree Root Protection Areas will be applied, as far as reasonably practicable. Planting of new hedgerows and improvement of existing hedgerows. Creation of mosaic of species-rich grassland and scrub habitat along field margins and creation of *c.*95 hectares of species-rich neutral grassland to provide foraging habitat. Creation of species-rich other neutral grassland under and between solar panels to increase insect biodiversity and therefore foraging opportunities for non-ground nesting birds, also provision of seed source during winter months.	Habitat loss and disturbance during construction and decommissioning phase (until created and improved habitats have established). Incidental injury and mortality. Indirect adverse effects to habitats that support non-ground nesting birds, such as surface water pollution run-off and dust pollution.	Pre-construction and pre-decommissioning surveys for non-ground nesting birds would be undertaken in advance of works commencing, as secured through the **Outline CEMP [EN010158/APP/7.2]** and **Outline DEMP [EN010158/APP/7.4]**. **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** detail control measures for vegetation clearance to prevent harm to non-ground nesting birds and to mitigate habitat degradation and protect habitats suitable to support non-ground nesting birds. No night-time (19:00 to 07:00) working (unless agreed with Buckinghamshire Council) and any artificial lighting would be kept to a minimum and not directed towards habitat suitable for breeding birds.	***Construction and decommissioning*** (-) (D) (ST) (T) **Not significant** ***Operation (including maintenance)*** No effect on conservation status **Not significant**	N/A
Barn owl, red kite, hobby and peregrine falcon (listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended))	Construction, operation (including maintenance) and decommissioning	Hobby and peregrine falcon - County importance Barn owl and red kite - District	Retention of all woodland habitat and the majority of hedgerow habitat (with the exception of where Internal Access Corridors and/or Cable Corridors are required to cross an existing feature; crossings will be kept to a minimum and restored where practical). Where a cable crosses a hedgerow and the hedgerow is	Adverse effect of disturbance during construction and decommissioning.	Pre-construction and pre-decommissioning surveys for Schedule 1 species would be undertaken in advance of works commencing, as secured through the **Outline CEMP [EN010158/APP/7.2]** and **Outline DEMP [EN010158/APP/7.4]**. If active nests are identified then works would either	***Construction, operation (including maintenance) and decommissioning*** No effect on conservation status **Not significant**	N/A

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
			removed, these would be reinstated post-construction. A minimum offset to the principal components of the Proposed Development to tree Root Protection Areas will be applied, as far as reasonably practicable. Creation of mosaic of species-rich grassland and scrub habitat along field margins and creation of *c.*95 hectares of species-rich neutral grassland to provide foraging habitat.		be timed to avoid disturbance or suitable measures, including appropriate buffers from nests and demarcation during the breeding season. **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** detail control measures to mitigate habitat degradation and protect habitats suitable to support these species. No night-time (19:00 to 07:00) working (unless agreed with Buckinghamshire Council) and any artificial lighting would be kept to a minimum and not directed towards habitat suitable for breeding birds.		
Wintering birds	Construction, operation (including maintenance) and decommissioning	County	Provision of a winter seed source for birds along a proportion of the field margins which will also benefit wintering species. Retention of all woodland habitat and the majority of hedgerow habitat (with the exception of where Internal Access Corridors and/or Cable Corridors are required to cross an existing feature; crossings will be kept to a minimum and restored where practical). Where a cable crosses a hedgerow and the hedgerow is removed, these would be reinstated post-construction. Creation of mosaic of species-rich grassland and scrub habitat along field margins. Creation of *c.*95 hectares of species-rich neutral grassland.	Adverse effect of habitat loss and disturbance during construction and decommissioning (until new and improved habitats have established).	**The Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]** and **Outline DEMP [EN010158/APP/7.4]** detail control measures to mitigate habitat degradation and protect areas retained for wintering birds. Work within or adjacent to areas which is likely to cause an impact to wintering birds, will be undertaken outside the peak wintering bird season.	***Construction and decommissioning*** (-) (D) (ST) (T) **Not significant** ***Operation (including maintenance)*** No effect on conservation status **Not significant**	N/A

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
			Planting of hedgerows and improvement of existing hedgerows. Early planting/habitat management proposed within Parcel 1 (hedgerows between Shrubs Wood and Sheephouse Wood), Parcel 1a, Parcel 2 (along the boundary of Fields D30, D29 and D28 and hedgerows along boundary of Fields D30, D34 and D37) ahead of construction.				
Bechstein's bats (foraging, commuting and roosting) **Barbastelle (foraging, commuting and roosting)** **Other bat species (foraging, commuting and roosting)**	Construction, operation (including maintenance) and decommissioning	National	Retention of all statutory and locally designated wildlife sites and ancient woodland with a minimum 30m offset from the built development. There will be a minimum 30m offset from the built development. From woodland and hedgerows located along the boundaries of Field D29 and partially in Field D28. There will be a minimum 10m offset from the built development to all other existing hedgerows (with the exception of where Internal Access Corridors and/or Cable Corridors are required to cross an existing feature; crossings will be kept to a minimum and restored where practical). Where a cable crosses a hedgerow and the hedgerow is removed, these would be reinstated post-construction. There will be a minimum 15m offset from the built development to existing hedgerows located within Fields B3 and B7, between Fields B7 and B8/B10 and between Fields B8/B10 and B9/B11. A minimum offset to the principal components of the Proposed Development to tree Root Protection Areas will be applied, as far as reasonably practicable.	Habitat loss and disturbance during construction and decommissioning phase Displacement to commuting and foraging. Incidental injury and mortality. Indirect adverse effects to habitats that support non-ground nesting birds, such as surface water pollution run-off and dust pollution.	**Outline CEMP [EN010158/APP/7.2]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** details control measures to mitigate potential construction-related effects to bats including potential disturbance from light, noise and vibration. Temporary installation of structures in hedgerow gaps to maintain linear connectivity for foraging/commuting bats. Pre-construction surveys of trees with bat roost potential that will be directly impacted. If a Bechstein's bat or barbastelle roost is identified within a tree that requires removal, the tree would be left in situ and retained in its entirety with an appropriate buffer. Any loss of other confirmed bat roost would be retained in the first instance, if this is not possible loss of the tree would be mitigated and compensated under a European Protected Species licence from Natural England. Bat boxes installed on trees in key locations to improve roosting opportunities.	**<u>Bechstein's bats (foraging, commuting and roosting)</u>** ***Construction and decommissioning*** (-) (D) (ST) (T) – all bat species **Not significant** ***Operation (including maintenance)*** (-) (D) (LT) (P) ***Potentially* significant at the District level** **<u>Barbastelle (foraging, commuting and roosting)</u>** ***Construction and decommissioning*** (-) (D) (ST) (T) **Not significant** ***Operation (including maintenance)*** (-) (D) (LT) (P) **Not significant**	Bat activity surveys (carried out in spring, summer and autumn) would be repeated in years 1, 3, 5 and 10. The need for any further monitoring would then be reviewed.

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
			Planting of hedgerows and improvement of existing hedgerows. Early planting/habitat management proposed within Parcel 1 (hedgerows between Shrubs Wood and Sheephouse Wood), Parcel 1a, Parcel 2 (along the boundary of Fields D30, D29 and D28 and hedgerows along boundary of Fields D30, D34 and D37) ahead of construction. There will be a minimum 10m offset from watercourses ditches and ponds. Establishment of ecological ponds (either restoration of former ponds or creation of new ponds), this would provide habitat to increase insect abundance and diversity and therefore foraging opportunities for bats. Creation of mosaic of species-rich grassland and scrub habitat along field margins. Creation of *c.*95 hectares of species-rich neutral grassland. Creation of species-rich other neutral grassland under and between solar panels. The Rosefield Substation, Main Collector Compound, BESS and Satellite Collector Compound would be surrounded by acoustic fencing to minimise effects of high frequency noise. The lighting design would use directional fittings facing away from boundaries and into the Order Limits. During operation (including maintenance), no part of the Proposed Development would be continuously lit. Manually operated and motion detection lighting would be utilised for operational and security purposes. PID would be implemented			**<u>Other bat species (foraging, commuting and roosting)</u>** ***Construction and decommissioning*** (-) (D) (ST) (T) **Not significant** ***Operation (including maintenance)*** (-) (D) (LT) (P) **Not significant**	

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
			around Solar PV modules, and lighting sensors implemented around the Rosefield Substation and BESS compound. Use of lighting only when necessary and directing lighting downward, away from woodland and hedgerow boundaries and vegetation and watercourses, would reduce impact to bats.				
Otter	Construction, operation (including maintenance) and decommissioning	Local	Minimum 10m offset from ditches, ponds and ordinary watercourses and a minimum 20m offset from Claydon Brook in Fields E20, E11, E10 and north section of Field E21 The lighting design would use directional fittings facing away from boundaries and into the Order Limits. The lighting design would use directional fittings facing away from boundaries and into the Order Limits. During operation (including maintenance), no part of the Proposed Development would be continuously lit. Manually operated and motion detection lighting would be utilised for operational and security purposes. PID would be implemented around Solar PV modules, and lighting sensors implemented around the Rosefield Substation and BESS compound. Use of lighting only when necessary and directing lighting downward, away from woodland and hedgerow boundaries and vegetation and watercourses, would reduce impact to otters.	Disturbance during construction and decommissioning phase. Indirect adverse effects to habitats that support otters such as surface water pollution run-off and dust pollution.	Pre-construction and pre-decommissioning surveys for otter would be undertaken in advance of works commencing with appropriate buffers maintained to prevent disturbance, as secured through the **Outline CEMP [EN010158/APP/7.2]** and **Outline DEMP [EN010158/APP/7.4]**. **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** details control measures to mitigate potential construction-related effects to otters including potential disturbance from light, noise and vibration and indirect impacts to habitats that support otter. No night-time (19:00 to 07:00) working (unless agreed with Buckinghamshire Council) and any artificial lighting would be kept to a minimum and not directed towards habitat suitable for otter.	***Construction, operation (including maintenance) and decommissioning*** No effect on conservation status **Not significant**	N/A
Badger	Construction, operation (including maintenance) and decommissioning	Local	Retention of all badger setts. Fencing that would enclose the Solar PV development would incorporate	Disturbance during construction and decommissioning phase. Indirect adverse effects to habitats that support	Pre-construction and pre-decommissioning surveys for badger would be undertaken in advance of works commencing with appropriate buffers from badger setts maintained	***Construction, operation (including maintenance) and decommissioning***	N/A

Receptor	Phase	Geographic importance of receptor	Embedded mitigation	Likely effect (without additional mitigation)	Additional mitigation	Residual effect (with additional mitigation)	Monitoring requirement
			clearances above ground, or mammal gates, to permit the passage of badgers. The lighting design would use directional fittings facing away from boundaries and into the Order Limits. During operation (including maintenance), no part of the Proposed Development would be continuously lit. Manually operated and motion detection lighting would be utilised for operational and security purposes. PID would be implemented around Solar PV modules, and lighting sensors implemented around the Rosefield Substation and BESS compound. Use of lighting only when necessary and directing lighting downward, away from woodland and hedgerow boundaries and vegetation and watercourses, would reduce impact to badgers.	badgers such as surface water pollution run-off and dust pollution.	to prevent disturbance or damage to setts, as secured through the **Outline CEMP [EN010158/APP/7.2]** and **Outline DEMP [EN010158/APP/7.4]**. **Outline CEMP [EN010158/APP/7.2]**, **Outline SMP [EN010158/APP/7.7]**, **Outline LEMP [EN010158/APP/7.6]**, **Outline OEMP [EN010158/APP/7.3]** and **Outline DEMP [EN010158/APP/7.4]** details control measures to mitigate potential construction-related effects to badgers including potential disturbance from light, noise and vibration and indirect impacts to habitats that support badgers. No night-time (19:00 to 07:00) working (unless agreed with Buckinghamshire Council) and any artificial lighting would be kept to a minimum and not directed towards habitat suitable for badgers.	No effect on conservation status **Not significant**	

Key:

+ = positive or - = negative; D = direct or I = indirect; S T = short-term, MT = medium-term or LT = long-term; P = permanent or T = temporary

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