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## 8. Ecology

### 8.1 Introduction

- 8.1.1 This chapter of the Environmental Statement (ES) identifies and proposes measures to address the potential impacts and effects of the Scheme on ecology and nature conservation (collectively referred to as biodiversity within this chapter) during construction, operation and decommissioning. It provides an evaluation of relevant important ecological receptors, including nature conservation designations, priority habitats, protected species and invasive non-native species (INNS) associated with the Scheme, with each being assigned a nature conservation value (sensitivity). The Scheme's potential direct and indirect impacts and effects on ecological receptors and their conservation status, inter-relationships, and their contribution to local (and if appropriate county, regional and national) biodiversity are identified. This assessment takes into account impact avoidance design measures and management activities when determining the significance of potential effects. The requirement for any further mitigation measures is then described and mitigation and monitoring measures are also considered in the assessment of potential residual effects.
- 8.1.2 Consultation responses and scoping opinions based on the EIA Scoping Report for the Scheme (Ref 8-1) and as part of the on-going consultation and engagement have been taken into account during the preparation of this chapter. Consideration is also given to other known projects and activities and specifically to the potential for interaction between the Scheme and other projects resulting in cumulative effects.

#### *Supporting Information*

- 8.1.3 This chapter is supported by the following appendices within the Environmental Statement [EN010118/APP/6.2]:
- a. ***Appendix 8A: Legislation and Policy;***
  - b. ***Appendix 8B: Preliminary Ecological Appraisal;***
  - c. ***Appendix 8C: Flora Report;***
  - d. ***Appendix 8D: Aquatic Ecology Report;***
  - e. ***Appendix 8E: Great Crested Newt Survey Report;***
  - f. ***Appendix 8F: Report on Surveys for Reptiles;***
  - g. ***Appendix 8G: Wintering Bird Survey Report;***
  - h. ***Appendix 8H: Report on Surveys for Breeding Birds;***
  - i. ***Appendix 8I: Report on Surveys for Bats;***
  - j. ***Appendix 8J: Badger Survey Report;***
  - k. ***Appendix 8K: Report on Surveys for Riparian Mammals; and***
  - l. ***Appendix 8L: Essex Field Club Desk Study***
- 8.1.4 Full details of the study areas, survey methodologies, survey dates and guidance used for each survey are available in these appendices (***Appendix***

**8B to 8K)** as detailed above. A summary of survey findings is provided further on in this chapter.

8.1.5 **The Habitat Regulations Assessment (HRA) [EN010118/APP/6.7]** of the Environmental Statement has been prepared in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017 (Ref 8-2) to set out whether the Scheme is likely to have any significant effect on European designated sites.

8.1.6 This chapter is also supported by an **Outline Landscape and Ecology Management Plan (OLEMP) [EN010118/APP/7.13]**, the purpose of which is to set out the key measures required to avoid, mitigate and compensate for impacts and effects to terrestrial biodiversity and landscape from the construction and operation of the Scheme. The **OLEMP** will also provide management prescriptions aimed at ensuring the Scheme delivers a net gain for biodiversity over the long term.

8.1.7 An **Outline Construction Environmental Management Plan (OCEMP) [EN010118/APP/7.10]**, **Outline Operational Environmental Management Plan (OOEMP) [EN010118/APP/7.11]**, and a **Decommissioning Strategy [EN010118/APP/7.12]** have been prepared for the Scheme, to manage any environmental effects of the Scheme and to demonstrate compliance with environmental legislation.

8.1.8 Effects on ecological resources from infrastructure projects can arise from direct and indirect impacts upon designated sites, habitats or species, and be of a temporary or permanent nature. Indirect effects can occur through pollution of air and water and via changes in lighting, noise or hydrology, and this ecology chapter is therefore supported by information contained within the following chapters of the ES **[EN010118/APP/6.1]**:

- a. **Chapter 6: Climate Change;**
- b. **Chapter 9: Water Environment;**
- c. **Chapter 10: Landscape and Visual Amenity;**
- d. **Chapter 11: Noise and Vibration; and**
- e. **Chapter 14: Air Quality.**

8.1.9 This chapter is supported by the following figures within the ES **[EN010118/APP/6.3]**:

- a. **Figure 8-1: Statutory Designated Sites within 10km (International) and 5km (National) of the Order limits;**
- b. **Figure 8-2: Non-statutory sites within 2km of the Order limits; and**
- c. **Figure 8-3: Phase 1 Habitat Map.**

8.1.10 This chapter should also be read in conjunction with **Chapters 1 to 5** of the ES **[EN010118/APP/6.1]**.

## **8.2 Legislation and Planning Policy**

8.2.1 **Appendix 8A: Legislation and Policy** of the ES **[EN010118/APP/6.2]** identifies the legislation, policy and guidance of relevance to the assessment of significant biodiversity effects of the Scheme.

8.2.2 Compliance with legislation may require obtaining relevant protected species licences prior to the implementation of the Scheme, which is considered further on in this chapter.

### 8.3 Assessment Assumptions and Limitations

8.3.1 Habitat and species information, referenced in the assessment and presented in this chapter, reflects that collected through site surveys in 2020 and 2021 and has referenced published data, records and web-based information obtained at the time of writing.

8.3.2 Specific assumptions and limitations relevant to each survey, including how any limitations have been overcome, are included within the relevant technical reports presented in **Appendices 8B to 8K** of the ES [EN010118/APP/6.2]. There are no survey specific constraints that represent a significant limitation or data gap and the baseline that has been established is suitably robust. Consequently, the assessment it has informed, presented in this chapter, is also adequately robust.

8.3.3 The desk study data obtained in July 2020, was informed by the Order limits as submitted for Scoping in 2019 (Ref 8-1). Since the Scoping process, the design of the Scheme has evolved, and the Scheme is that described in **Chapter 2: The Scheme** of the ES [EN010118/APP/6.1]. The data was updated in January 2021 (see **Appendix 8L: Essex Field Club Desk Study** of the ES [EN010118/APP/6.2]) and has informed the scope of the detailed surveys undertaken in support of the DCO and fully cover the Order limits and appropriate receptor Zones of Influence.

#### The Scheme Parameters Assessed

8.3.4 This ES Chapter assesses the potential effects resulting from **Appendix 2A: Concept Design Appendix** of the ES [EN010118/APP/6.2], which presents a realistic and feasible layout in accordance with the Design Principles and Rochdale Envelope. It is not possible to illustrate the Scheme with all infrastructure as listed in the Design Principles based on maximum parameters, due to the flexibility in the Works Plans and Schedule 1 of the DCO allowing solar PV or habitat/landscaping instead of some infrastructure if the latter is not built to its maximum footprint. Consideration has therefore been given to the flexibility allowed by the Design Principles and whether this would invalidate the assessment conclusions. A review of the Concept Design against the Design Principles confirmed that constructing and operating the Scheme in other ways allowed by the Design Principles would not result in a greater impact to the ecological receptors identified than the Concept Design. This is due to:

- a. The maximum height of all infrastructure, as set out in the Design Principles, is also included in the Concept Design. There is no height difference between the two;
- b. The Concept Design presents the maximum area proposed to be occupied by the BESS (Work No. 2) and Longfield Substation (Work No. 3). Should these maximum footprints not be required, the Works Plans allow for habitat, landscaping, or solar PV in these locations, which is predicted to have the same or lower impact than the aforementioned infrastructure. This flexibility would not invalidate the

conclusions of this assessment, which is based on the worst-case option;

- c. Where lateral flexibility does exist in the Design Principles (compared with the Concept Design), it is predominantly associated with the ability to construct more solar PV or landscaping/habitat areas on the land allowed for Phase 2 of the BESS (up to the maximum allowed surface area of solar PV specified in the Design Principles), should a decision be taken by the Applicant not to proceed with this second phase of the BESS. Solar PV or landscaping/habitat would have the same or lower impact than Phase 2 of the BESS and therefore does not invalidate the conclusions of this assessment; and
- d. Should the maximum location or footprint of BoSS/Solar Stations presented in the Design Principles and Concept Design not be required, the Works Plans allow for this land to be used for solar PV, providing the maximum surface area of solar PV presented in the Design Principles is not exceeded. The Solar PV would have a smaller physical footprint in the ground and would have the same or lower impact than the BoSS/Solar Stations, and therefore would not invalidate the conclusions of this assessment.

8.3.5 As noted in **Chapter 2: The Scheme**, the construction period is expected to be 24 months for the Scheme and is anticipated to commence no earlier than 2024. This is expected to be a realistic worst-case assumption for this assessment, as it represents the expected minimum build time and therefore the most intense activity onsite. The impact on flora is not affected by the duration of activity but rather the change or loss of any habitats. The impact on fauna is likely to be the same or less than has been assumed if the construction period is extended. This principle also applies to the Battery Energy Storage Systems (BESS), which is expected to be constructed over two phases, with the first part built alongside the solar PV and the second phase five years after commencing operation; it has been assessed as a single phase for the purpose of this assessment as this represents the 'worst case' in terms of anticipated impacts.

## 8.4 Stakeholder Engagement

8.4.1 Consultation undertaken to date in relation to ecology and nature conservation is outlined in the **Consultation Report [EN010118/APP/5.1]** submitted with the Application. **Table 8-1** presents the matters raised within the Scoping Opinion, during and following statutory consultation, and how these have been addressed through the ES in relation to Ecology and Nature Conservation. **Table 8-1** also includes responses from meetings with Essex County Council (ECC) and Chelmsford City Council (CCC) on 23 July 2021 on the scope of the ecology surveys, initial assessment of potential impacts, outline mitigation and enhancement.

**Table 8-1: Main matters raised during consultation**

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
<b>Matters raised from the Scoping Report</b>			
<b>Braintree District Council</b>	<p>Query on proximity to Local Wildlife Sites:</p> <p><i>“The general site area encompasses a cluster of Local Wildlife sites (which are also Ancient Woodlands as discussed further below). The developable area is shown to surround two of these Wildlife Sites completely and to run in close proximity to the remainder. The issue of lighting is raised in more detail below. The Council is also concerned with regard to the size of proposed stand-off areas and buffer zones to these Wildlife Sites and how functional these zones would be”.</i></p>	<p>Potential impacts to LoWS evaluated and included within this chapter. A minimum 15m buffer zone embedded into Scheme as per standard guidance for ancient woodland<sup>1</sup>. Any lighting used during construction will be minimal and directional to avoid light-spill onto adjacent habitats. No part of the Scheme continuously lit during operation. New planting and to strengthen habitats linkages between LoWS.</p>	See <b>Table 8-5, Table 8-8, Table 8-9</b> and Section 8.10.
<b>Braintree District Council</b>	<p>Query on potential impacts to the River Ter SSSI:</p> <p><i>“The River Ter (SSSI) is also adjacent to the site. This flows to the Essex Coast, acting as a Vector by which impacts upon the protected Natura 2000 Essex coastal sites may be impacted. The Council’s Adopted Essex</i></p>	<p>The River Ter SSSI (designated for Geology) will be avoided during construction of the Scheme. There are no impacts to Natura 2000 (now “national site network”) sites. Footpaths and other public rights of ways will remain available, but subject to temporary diversions during</p>	Please refer to <b>Habitats Regulations Assessment [EN010118/APP/6.7]</b> .

<sup>1</sup> Ancient woodland, ancient trees and veteran trees: advice for making planning decisions [online source].



Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>Coast Recreational Disturbance Avoidance and Mitigation Strategy (RAMS) SPD is relevant insofar as it identifies the importance of ensuring sufficient recreational space (including footpaths and other public rights of way) remain available in the southern part of the District, to help alleviate recreational pressure on protected coastal sites”.</i></p>	<p>construction (see <b>Chapter 10: Landscape and Visual Amenity</b>).</p>	
<p><b>Chelmsford City Council</b></p>	<p>Query on Local Policies to check and reference:   <i>“Chapter 8 Ecology should reference Strategic Priority 7 Conserving and enhancing the natural and historic environment, and the Green Belt. Chapter 8 should also reference Strategic Policy S4 Conserving and enhancing the natural environment”.</i></p>	<p>This chapter has referenced relevant policies in relation to ecology and Strategic Priority 7 in the Chelmsford Local Plan (May 2020).</p>	<p>Please refer to <b>Appendix 8A: Legislation and Policy</b>.</p>
<p><b>Chelmsford City Council</b></p>	<p>Query on information to be include in the assessment:   <i>“The proposed scheme will have a significant impact on the natural environment. The methodology set out is on the whole adequate to assess the ecological environment, but requires some amendment as set out below:</i></p>	<p>Comments on mitigation incorporated into the Masterplan and OLEMP for the Scheme.                       Relevant habitat and species assessments undertaken. Ancient woodland identified in this chapter, all are LoWS within the study area, and all retained and buffered from the Scheme.</p>	<p>Please refer to <b>Appendix 8B: Preliminary Ecological Appraisal</b> and throughout this chapter. <b>The Biodiversity Net Gain Report [EN010118/APP/6.5]</b> includes calculations and assessment of BNG and mitigation and enhancement included in the <b>OLEMP [EN010118/APP/7.13]</b>.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<ul style="list-style-type: none"> <li data-bbox="432 300 831 354">□ <i>It should include identification of ancient woodland.</i></li> <li data-bbox="432 376 831 494">□ <i>Further assessment of priority species such as harvest mouse and hare, and hedgerow assessments.</i></li> <li data-bbox="432 517 831 667">□ <i>A clearly defined strategy to avoid, and then mitigate the impact on the natural environment, enhancement and restoration*.</i></li> <li data-bbox="432 689 831 865">□ <i>More information about the impact and consequently the visual and ecological mitigation that is required is needed to fully understand the enhancements that could be made.</i></li> <li data-bbox="432 887 831 1005">□ <i>A clear strategy to achieve a minimum 10% biodiversity net gain in line with the Environment Bill.</i></li> <li data-bbox="432 1027 831 1203">□ <i>Consideration should be given to security fencing and lighting that responds to the rural context, and the impact to species commuting and foraging behaviour.</i></li> <li data-bbox="432 1225 831 1375">□ <i>The proposal should consider protecting the ancient woodland sites by providing additional tree and woodland planting in line with the City Council's Climate and</i></li> </ul>	<p>Priority species (including brown hare) assessed where relevant. Harvest Mouse scoped out of assessment no suitable habitat identified within the Scheme (<i>i.e.</i> intensively managed arable fields and recent/set-aside grassland). No records on Site. Nearest record over 2km south from 2013.</p> <p>Included in the chapter where relevant and refer to Biodiversity Net Gain Report, with over 10% net gain achieved.</p>	

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>Ecological Emergency declaration and action plans to increase the woodland cover significantly in the Chelmsford District.</i></p> <p><i>*Note. This may include specifying areas for no development, the location of equipment, screening, landscaping and planting”.</i></p>		
<b>Chelmsford City Council</b>	<p>Maintain connectivity across the Site:</p> <p><i>“It is considered that existing site features such as existing hedgerows and ecological features to support connectivity and species movement through the landscape is crucial to maintain landscape character and support biodiversity”.</i></p>	<p>Scheme will retain the majority of existing features, such as hedgerows to maintain connectivity across the Site.</p>	<p>See Section 8.8 of this chapter.</p>
<b>Chelmsford City Council</b>	<p>Query on security fencing:</p> <p><i>“Where possible, the solar farm should minimise the use and height of fencing using natural features such as field hedges. More details should be included of all security and lighting features with consideration given to mitigating impact on the natural environment”.</i></p>	<p>The Outline Landscape and Ecology Management Plan addresses this by limiting fencing to where essential to protect and secure the Scheme by utilising existing hedges/boundaries and by creating gaps in fencing suitable for mammals. No permanent lighting of habitats is required, lighting during operation will be for operational or security purposes, using</p>	<p>Please refer to the <b>OLEMP [EN010118/APP/7.13]</b> and section 8.8 of this chapter.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
		motion detectors and will not light sensitive habitats.	
<b>Chelmsford City Council</b>	Statement on trees and woodland:  <i>“Trees and woodland also provide vital benefits to the environment, including filtering air pollution, reducing noise, and creating and connecting wildlife habitats”.</i>	New tree/woodland planting is provided as part of the embedded design.	See section 8.8 and the <b>OLEMP</b> .
<b>Colchester Borough Council</b>	No comments raised	-	-
<b>Environment Agency</b>	Suggestion for positive impacts on Biodiversity:  <i>“Principles of Sustainable development of a solar farm</i>  <i>The proposal to develop Longfield as a solar farm has the potential to have beneficial impacts on biodiversity but these are only likely to positive if there is an overall decision to aim to balance conservation and the solar enterprise together. Example photographs in the EIA scoping report indicate some pretty bleak scenes of intense layout with bare shaded ground beneath on the one hand and alternatively higher panels set up above longer grass and sheep grazing in another.</i>	Landscape plans incorporate appropriate mitigation to address fragmentation. Gaps under fences for wildlife such as badger incorporated into design. Enhancement proposals comprising new planting (e.g. wildflower meadows, wetland restoration and creation) and provision of other new habitats such as hedges, woodland to improve habitat connectivity. Information is incorporated into the OLEMP.	Please refer to the <b>OLEMP</b> .

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>Dense solar arrays which do not allow for habitat development are likely to impact negatively on existing land denying wildlife of any habitat and causing soil compaction and potential problems with erosion and soil without normal life. Some solar farms have been developed on sensitive habitats and have managed to enhance these with improved numbers of rare birds whilst maintaining species rich flora, large areas for pollinating insects and habitat for reptiles and mammals. We would suggest that some of the ideas developed for the Broxted solar farm near Haverhill in Suffolk are considered for replication or development here in order to provide a win-win for farmland wildlife, local people and the developer. This Suffolk site has been closely monitored by ecologists since development in 2014”.</i></p>		
<p><b>Environment Agency</b></p>	<p>Include appropriate buffers from watercourses and ponds:  <i>“Watercourse buffers: As with any development The Environment Agency wish to see open watercourses retained and bankside habitats enhanced and</i></p>	<p>A minimum 8m buffer from River Ter floodplain, with no development of infrastructure within 50m and a minimum of 10m from ponds has been incorporated into the design.</p>	<p>See section 8.8 and the <b>OLEMP</b>.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>buffered with natural vegetation. Ponds and any standing water should also be protected and enhanced. Natural water features should not be shaded or negatively impacted by the proposals. Siting of battery units should be carefully designed to prevent risk to watercourse pollution and consequent harm to fish and aquatic life”.</i></p>	<p>Proposals to enhance ponds in the OLEMP.</p>	
<p><b>Environment Agency</b></p>	<p>Improvements to soil conditions:  <i>“Soil Conservation: Conservation of soil habitat and soil biodiversity will be an important issue. We would not wish to see areas of land that is completely shaded or routinely treated with herbicide as this would be more liable to erosion and will not support the full natural range of biodiversity of a healthy soil”.</i></p>	<p>There is likely to be a change in soil conditions. There will be some shading of new habitats through woodland planting/natural succession based on the Scheme design, but no routine treatment with herbicide. Reduction in soil nutrient status may be undertaken by topsoil stripping/inversion to establish new wildflower grassland on previous arable land.</p>	
<p><b>Environment Agency</b></p>	<p>Enhancements to existing habitats:  <i>“Enhancing existing habitats: Working with nature allowing hedges to grow out a little with good buffer zones to watercourses and plentiful blossom for invertebrates and fruit for winter feeding birds could be a</i></p>	<p>Landscape plans incorporate appropriate mitigation to address fragmentation. Gaps under fences for wildlife such as badger incorporated into design. Enhancement proposals comprising new planting (e.g. wildflower meadows, wetland restoration and creation) and</p>	<p>See section 8.8 and the <b>OLEMP</b>.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>great improvement to most intensely farmed arable landscapes. If the site was seeded with a native wildflower mix before development, there would be key long-term gains to develop a pollinator strategy here on land that should not need agricultural pesticides for the duration of the solar farm. This could be a huge win-win for landscape and habitats for ailing species. Sward length will also be a key factor in whether the current farmland becomes more of a wildlife haven or a barren industrial site. Reptiles and small mammals will flourish in a slightly tussocky grassland with benefits up the food-chain to top predators.</i></p> <p><i>Landscape and habitat connectivity should also be considered. There are opportunities to link existing habitats and benefit many struggling species. However, if fencing surrounds the site and goes to ground-level there will be dire consequences for mammals such as badger, otter and hedgehog.</i></p> <p><i>Landscape screening and softening should embrace the</i></p>	<p>provision of other new habitats such as hedges, woodland to improve habitat connectivity.</p>	

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>biodiversity opportunities and consider planting native trees and scrub to complement the ancient woodland around the site”.</i>		
<b>Essex County Council</b>	No matters specific to Ecology were raised.	-	-
<b>Forestry Commission</b>	Comments raised to retain and protect ancient woodland, including the appropriate use of 15m buffers around ancient woodland.	Appropriate buffers embedded into Scheme design to protect ancient woodland with a minimum buffer of 15m to be implemented.	See section 8.8.
<b>Hatfield Peverel Parish Council</b>	Query on fragmentation of landscape, for wildlife: <i>“The security fence described at 2.2.44 will limit access to the site for many forms of wildlife over most of the designated area. It will seriously interrupt long established wildlife corridors. It is relevant here that this land has been in the ownership of one family for generations resulting in a rich ecosystem. The 5m high CCTV posts are bound to have a visual impact across the whole site”.</i>	Gaps under fences for wildlife incorporated into design. OLEMP incorporates appropriate mitigation to address fragmentation and limiting fencing to where essential by utilising existing hedges/boundaries and by creating gaps in fencing suitable for mammals.	Please refer to the <b>OLEMP</b> .
<b>Hatfield Peverel</b>	Query on whether proposed mitigation is adequate:	Buffer zones around habitats included and land available for habitat compensation.	See section 8.8 and the <b>OLEMP</b> .



Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
<b>Parish Council</b>	<i>“The extent of the site and the security fence to be installed will be intrusive features on the landscape. It is therefore difficult to see how biodiversity and habitat loss mitigation 2.4.11 will be adequate to compensate for that currently in existence. Without sight of the proposed Management Plan it is not possible to make sensible comment at this moment in time”.</i>		
<b>Hatfield Peverel Parish Council</b>	<p>Query on timing of surveys:</p> <p><i>“8.4.3 The timescale over which ecological surveys are undertaken should be over a reasonable period and cover all seasons. As in 2.4.11 above, the effect of the security fence on a site of this size should be taken into consideration”, and:</i></p> <p><i>“10.4.36 As in 8.4.3 above such fieldwork should be undertaken in different seasons. In the period stated, it is highly likely that trees and vegetation were still in leaf”.</i></p>	<p>Surveys undertaken at appropriate times of the year as per methods provided in the Technical Appendices.</p>	<p>Please refer to <b>Appendices 8B to 8K</b> of the ES <b>[EN010118/APP/6.2]</b> and <b>Table 8-2: Ecological field surveys</b> completed of this chapter.</p>
<b>Natural England</b>	<p>Generic comments raised, standing advice regarding designated sites, habitats and species.</p>	<p>Standing advice followed.</p>	<p>Please refer to <b>Appendices 8B to 8K</b> of the ES and throughout this chapter.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
<b>Planning Inspectorate</b>	<p>Query on desk study data sources:</p> <p><i>“Whilst the MAGIC website is referenced, no other sources used in the desk study are referenced in the Scoping Report. The ES should list all sources used to inform the assessment of significant effects”.</i></p>	<p>Full desk study undertaken, and sources listed.</p>	<p>See section 8.5 of this chapter.</p>
<b>Planning Inspectorate</b>	<p>Impacts to birds from collision with overhead lines:</p> <p><i>“The Inspectorate notes the potential for bird disturbance/ mortality from construction and operation of new overhead lines (should this option be pursued). If significant effects on bird species as a result of new overhead lines are likely, these should be assessed in the ES.</i></p> <p><i>The Applicant’s attention is drawn to the requirements of NPS EN-5 (section 2.7) in this regard. Effort should be made to agree the need for a bird collision risk assessment with relevant consultation bodies”.</i></p>	<p>There will be undergrounding near Stocks Farm and new towers and line diversion at Bulls Lodge Substation, however, these are not in areas that support bird species sensitive to collision with OHL and no impacts will occur.</p>	<p>Please refer to <b>Chapter 2: The Scheme</b> of the ES [EN010118/APP/6.1].</p>
<b>Planning Inspectorate</b>	<p>Construction activities – watercourse crossings:</p> <p><i>“As highlighted in Section 2 above, the ES should describe where watercourse crossings are</i></p>	<p>No intrusive watercourse crossings proposed.</p>	<p>Please refer to <b>Chapter 2: The Scheme</b>.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>proposed and demonstrate that there is sufficient detail regarding the design as to inform a robust assessment of effects on watercourse hydraulics and ecology”.</i></p>		
<b>Planning Inspectorate</b>	<p>Impacts on fragmentation to ecological receptors, caused by security fencing:</p> <p><i>“Security fencing is proposed around the operational areas of the site. This has potential to fragment the landscape and impact on ecological receptors. The ES should assess any impacts associated with the security fencing on ecological receptors where significant effects are likely to occur. Any necessary mitigation measures, such as mammal gates, should be described”.</i></p>	<p>Gaps under fences for wildlife incorporated into design. The OLEMP incorporates appropriate mitigation to address fragmentation and limiting fencing to where essential by utilising existing hedges/boundaries and by creating gaps in fencing suitable for mammals. New planting and provision of new habitats to improve habitat connectivity.</p>	<p>See section 8.8 of this chapter and refer to the <b>OLEMP</b>.</p>
<b>Planning Inspectorate</b>	<p>Impacts to veteran trees:</p> <p><i>“Receptors identified in the Scoping Report include ancient woodland, but it is not clear whether veteran trees are included under this term. In line with NPS EN-1, paragraph 5.3.14, veteran trees found outside of these ancient woodland habitats should be identified and assessed</i></p>	<p>No significant effects to ancient/veteran trees outside of ancient woodland predicted with precautionary buffer zones of a minimum of 15m included for individual veteran / ancient trees and hedgerows (with trees) in the Scheme design.</p>	<p>See section 8.8 of this chapter.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>in the ES where significant effects are likely to occur. Any loss should be avoided or where this is unavoidable, this should be fully justified. Root protection zones of both ancient woodland and veteran trees should also be considered in the ES assessments of impacts to these habitats and appropriate buffer zones defined in line with Natural England and Forestry Commission's Standing Advice (see Appendix 2 of this Opinion)".</i></p>		
<p><b>Planning Inspectorate</b></p>	<p>Queried how the need for further surveys has been identified:</p> <p><i>"A Preliminary Ecological Assessment is referenced in the Scoping Report at paragraph 8.4.7. It included a Phase 1 Habitat Survey which, in combination with the desk study, has been used to identify further surveys necessary to inform the baseline in the ES. The results of both the desk study and Phase 1 Habitat Survey are not presented in the Scoping Report, meaning it is unclear how the need for further surveys has been identified. The ES should include any relevant data and/ or surveys that support the assessment of significant</i></p>	<p>Scope of surveys identified in the PEA. Survey methods follow best practice guidance and statutory standing advice. Reference to other similar scale schemes has been made.</p>	<p>Please refer to <b>Appendix 8B: Preliminary Ecological Appraisal</b> of the ES <b>[EN010118/APP/6.2]</b> and section 8.5 of this chapter.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>effects and explain how the results influenced the assessment. Effort should be made to agree the required surveys and their timings and locations with relevant consultation bodies”.</i></p>		
<p><b>Planning Inspectorate</b></p>	<p>Ecology ES should assess any impacts of noise and vibration:</p> <p><i>“Section 11 of the Scoping Report (Noise and Vibration) states that impacts from noise and vibration to ecological receptors will be considered in the Ecology ES aspect chapter. Whilst there is no explicit reference to consideration of impacts from noise and vibration in the Ecology section of the Scoping Report, the Inspectorate assumes such impacts would be covered under ‘disturbance’ as referenced in paragraphs 8.6.8 and 8.6.9. For the avoidance of doubt, the Ecology ES aspect chapter should assess any impacts from noise and vibration arising from the Proposed Development which are likely to result in significant effects on ecological receptors”.</i></p>	<p>Embedded mitigation provides buffers to sensitive habitats, which will avoid or reduce impacts from noise and vibration on ecological receptors. Recommendations included in this chapter where relevant. Methods of work, including ecological watching brief are provided in the Construction Environment Management Plan (CEMP).</p>	<p>See section 8.8 of this chapter and the <b>OCEMP [EN010118/APP/7.10]</b>.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
<b>Planning Inspectorate</b>	<p>Control of invasive species:</p> <p><i>“The Inspectorate notes the potential for impacts resulting from the spread of invasive species during construction and decommissioning of the Proposed Development. Any necessary eradication and/ or control measures should be detailed in the ES and any likely significant effects assessed”.</i></p>	<p>Low incidences of invasive non-native species occurring on Site and none likely to be of relevance to the Scheme.</p> <p>Precautionary measures and controls are included within a CEMP and Decommissioning Strategy where required.</p>	<p>See <b>Table 8-7</b> of this chapter and the <b>OCEMP [EN010118/APP/7.13]</b> and <b>Decommissioning Strategy [EN010118/APP/7.12]</b> of the ES.</p>
<b>Planning Inspectorate</b>	<p>Impacts to local wildlife sites:</p> <p><i>“The Inspectorate notes from Figure 8-2 of the Scoping Report that local wildlife sites (LWS), whilst outside of the application site boundary, will become effectively surrounded by the Proposed Development. Impacts to these LWSs including from fragmentation, severance and lighting should be carefully considered in the ES and any likely significant effects assessed. Effort should be made to agree appropriate mitigation measures with relevant consultation bodies”.</i></p>	<p>Following discussions with relevant consultees in workshops the OLEMP includes additional habitat creation and enhancement linkages between LoWS adjacent to the Scheme. Masterplan includes buffers around LoWS.</p>	<p>See section 8.8 of this Chapter and refer to the <b>OLEMP</b>.</p>
<b>Planning Inspectorate</b>	<p>Impacts to plants and invertebrates under the PV panels:</p>	<p>Land take limited to intensively managed arable field and recently established set-aside grassland of limited value to</p>	<p>See section 8.8 of this Chapter and refer to the <b>OLEMP</b>.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>“Impacts resulting from the presence of the solar PV panels (for example, reduced light) to plant and invertebrate species under the panels should be considered, particularly if the option for an east west orientation of panels is pursued. Any likely significant effects should be assessed in the ES”.</i></p>	<p>plants and invertebrates. Open grassland areas between and under panels to comprise of grassland that will be managed to benefit plant and invertebrate species.</p>	
<p><b>Planning Inspectorate</b></p>	<p>Mitigation to be agreed with relevant consultation bodies:</p> <p><i>“Effort should be made to agree any proposed mitigation measures with the relevant consultation bodies, and it should be clear how these are secured through the DCO or other legal mechanism. Where any off-site mitigation is proposed, the additional area should be included in the red line boundary and assessed in the ES where significant effects are likely to occur”.</i></p>	<p>Following discussions with relevant consultees in workshops, mitigation, habitat compensation and enhancement areas have been included within the Order limits and secured through the OLEMP Fields close to the River Ter and heritage areas available for this in addition to habitat buffer zones adjacent to woodlands, hedges and trees as well as habitat between / under solar panels.</p>	<p>See section 8.8 of this chapter and refer to the <b>OLEMP</b>.</p>
<p><b>Planning Inspectorate</b></p>	<p>Clearly define significant effects:</p> <p><i>“There is no definition of what effects are deemed significant in relation to Table 8.4. The ES should clearly define what effects are deemed significant and</i></p>	<p>Included in this chapter, based on standard methods for impact assessment.</p>	<p>See throughout this Chapter.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>explain how those conclusions have been reached”.</i>		
<b>Planning Inspectorate</b>	<p>Ensure ecology chapter cross-references other chapters, where appropriate:</p> <p><i>“The Ecology aspect chapter in the ES should include appropriate cross-referencing and explanation where other surveys, chapters and assessments are used to inform the assessment of significant effects on ecological receptors”.</i></p>	<p>The Ecology assessment, presented in this chapter, has been undertaken with reference to other relevant chapters such as landscape, heritage, water quality, air quality, noise and vibration.</p>	<p>Reference made to other chapters, where relevant, throughout this chapter.</p>
<b>Terling and Fairstead Parish Council</b>	<p>Comments relating to ecology surveys:</p> <p><i>“8.4.3 Non-Statutory Sites - This paragraph clearly illustrates the value of woodland areas, but not mentioned in this report is the need to carry out ecological surveys over a reasonable period of time and covering all seasons. The effect previously mentioned inclusion and discrete enclosures of boundary fences must be recognised”.</i></p>	<p>Surveys undertaken in 2020 and 2021 within appropriate seasons for each species or species group.</p>	<p>See <b>Table 8-2</b>.</p>
<b>Matters raised during Statutory Consultation (01 June 2021 – 13 July 2021)</b>			
<b>Braintree District</b>	<p><i>The Preliminary Ecological Appraisal does not include suitable justification on why Hazel Dormouse and terrestrial</i></p>	<p>The Essex Field Club records search extend further than 2km (up to 5km) and these records of Hazel Dormouse are over 2km.</p>	<p>Please refer to <b>Appendix 8B: Preliminary Ecological Appraisal</b> of the ES <b>[EN010118/APP/6.2]</b>.</p>



Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
<b>Council (BDC)</b>	<p><i>invertebrates have been scoped out from further assessment. Hazel Dormouse is protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended) and their breeding sites and resting places are fully protected. They are also a Priority Species under the NERC Act 2006. The species has been confirmed to be present within a 2km radius, as listed within Appendix 8J - Essex Field Club Desk Study. Therefore, as the proposals will involve the loss of suitable habitat for the species (hedgerows) and will be situated adjacent to deciduous woodlands, we request that further information should accompany this application on this European Protected Species.</i></p>	<p>More recent unpublished records of Dormouse exist along the A12 but on the basis of retaining and buffering existing habitat, lack of Dormouse records near to the Order limits and current Scheme proposals only having a small impact on minor hedgerow removal it is considered that the current approach of scoping out Dormouse assessment is acceptable (as agreed with Essex County Council (ECC) ecologist).</p>	
<b>BDC</b>	<p><i>In addition, there may be scope for rare/notable invertebrate species associated within arable land to be situated within the application site. Therefore, we request that further information is provided to support this development on the likely impacts of terrestrial invertebrates, which could</i></p>	<p>Suitable habitat for protected/rare terrestrial invertebrates within the Order limits includes the woodland and mature hedges/veteran and/or ancient trees. None of these habitats will be impacted by the Scheme and all will be suitably buffered. Surveys for terrestrial invertebrates have been scoped</p>	<p>Please refer to <b>Appendix 8B: Preliminary Ecological Appraisal</b> and section 8.8 of this Chapter.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>include surveys undertaken by a suitably qualified ecologist</i>	out of requiring further assessment due to avoidance of impacts (as agreed with ECC ecologist).	
<b>BDC</b>	<i>The Badger Surveys undertaken in 2020 identified the presence of Badger within the Site, but the proposed works would not impact upon their breeding or resting places for the species. Foraging habitat for the protected species is considered good and will likely be retained as a result of the proposed works.</i>	No impacts on Badger are predicted. In addition, a re-survey will be undertaken prior to construction in case Badger setts are found within the works areas.	Please refer to <b>Appendix 8J: Badger Survey Report</b> of the ES [EN010118/APP/6.2] and section 8.8 of this Chapter.
<b>BDC</b>	<i>Therefore, as the proposed solar farm will contain panels which are closely spaced, it is presumed that the development will result in a permanent loss of nesting habitat for this Priority Species, where solar panels are proposed on suitable nesting habitat for the species. Consequently, it is considered highly likely that the proposals could impact on Skylark at a population level. As a result, the bespoke mitigation strategy will need demonstrate that on-site and off-site compensation will be delivered, which considers the cumulative impacts of other solar farm and residential development</i>	As part of the mitigation strategy, suitable areas of grassland/set-aside will be created and managed within the Order limits for ground nesting birds, including Skylark. This includes ecologically enhanced set aside land of approximately 83 hectares outside the solar PV Array area.	Please refer to <b>Appendix 8H: Report on Surveys for Breeding Birds</b> of the ES [EN010118/APP/6.2] and section 8.8 of this Chapter.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>schemes within the local districts. This could include the provision of Skylark Plots and further creation of areas of set-aside or 'cover crops' within the local area. This may also require communication with local landowners or Stakeholders, which could be brokered by local land agents with specific experience in these matters. The bespoke mitigation strategy will need to be set out prior to commencement and should include post-construction monitoring to determine the success of the compensation and inform future Solar Farm proposals.</i></p>		
<b>BDC</b>	<p><i>The Breeding Bird Survey indicates that the scheme will retain as much of the existing boundary habitat as is practicable. Therefore, it is indicated that we strongly support this approach to ensure that minimal habitat loss will be caused to breeding bird species. However, the scheme will result in habitat loss used by breeding birds, particularly arable farmland and grassland species. As a result, the works will result in the temporary / permanent</i></p>	<p>Boundary habitats are retained and enhanced with buffer zones between the hedges / woodland and the Scheme. The mitigation measures for the Scheme include suitable areas of grassland/set-aside managed for ground nesting birds, including Skylark within the Order limits. Hedges will be infilled and widened with areas of scrub. Additional planting, including cover crops, with wild bird seed mixes and nest boxes will be provided for a variety of bird species, including</p>	<p>Please refer to <b>Appendix 8H: Report on Surveys for Breeding Birds</b> and section 8.8 of this Chapter.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>displacement of ground-nesting breeding bird species reliant on this habitat, such as Skylark, a Priority species.</i>	Tree Sparrow ( <i>Passer montanus</i> ) and Barn Owl ( <i>Tyto alba</i> ). These measures are secured through the OLEMP.	
<b>BDC</b>	<i>As a result, the site could be considered functionally linked land to the highlighted Internationally Designated Sites, as it provides foraging habitat for Lapwing and Golden Plover during the overwintering period. Consequently, we request that further information should be included within the Chapter 8 (Ecology) to set out the likely impacts on these species during the construction and operation phases, as the majority of the over wintering foraging habitat for the species will be lost from development of the proposed solar farm.</i>	Further information is included in the HRA report. The peak count of Golden Plover from wintering surveys is 35 individuals. The Blackwater Estuary SPA relevant designation supports 160,000 individuals. Given the distance and the relative number of individuals at the designation and the Scheme, it is not considered that the two are functionally linked.	Please refer to <b>Appendix 8G: Wintering Bird Survey Report</b> of the ES [EN010118/APP/6.2] and the <b>Habitat Regulations Assessment (HRA)</b> [EN010118/APP/6.7].
<b>BDC</b>	<i>We note that the Great Crested Newt Survey identified a small Great Crested Newt population in Pond P5. However, further eDNA surveys have been proposed for 28 ponds and further traditional survey methods may be required if any ponds determine that Great Crested Newt are present.</i>	Additional eDNA surveys, undertaken in 2021, confirmed Great Crested Newt presence in eight ponds within 250m of the Order limits. No impacts to these populations (of local importance) are predicted.	Please refer to <b>Appendix 8E: Great Crested Newt Survey Report</b> of the ES [EN010118/APP/6.2] and <b>Table 8-10</b> of this Chapter.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
<b>BDC</b>	<p><i>We note that the Reptile Survey did not confirm the presence of reptiles within the site. As a result, we support the proposed outlined mitigation strategy to minimise potential incidental killing or injury of animals and mitigate for the loss of reptile habitat. It is highlighted that the habitat creation within the site will likely provide significant enhancements for reptiles and may be a good receptor site for future developments within the local area, once habitat has established.</i></p>	Noted.	<p>Please refer to <b>Appendix 8F: Report on Surveys for Reptiles</b> of the ES [EN010118/APP/6.2] and <b>Table 8-10</b> and section 8.8 of this Chapter.</p>
<b>BDC</b>	<p><i>We note that the Bat Survey Report has concluded that the roosts and potential roost features identified are outside the current footprint of the Scheme. Therefore, we are satisfied that no further detailed roost presence/absence or characterisation surveys are required within the surveyed locations. We also note that commuting and foraging habitat for bats is assessed as of up to County/District Importance, due to the maternity roosts of common species and small numbers/individual roosts of rarer species such as Barbastelle, a</i></p>	Noted.	<p>Please refer to <b>Appendix 8I: Report on Surveys for Bats</b> of the Environmental Statement [EN010118/APP/6.2] and <b>Table 8-10</b> and section Embedded Design Mitigation and Enhancement of this Chapter.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>species listed in Appendix II of both the Bern and Bonn Conventions to which the UK is a signatory.</i>		
<b>BDC</b>	<i>We are satisfied the conclusions of the Riparian Mammal Survey, which confirmed Water Vole to be absent from the River Ter and that Otter were using the water course for foraging and commuting purposes.</i>	Noted.	Please refer to <b>Appendix 8K: Report on Surveys for Riparian Mammals</b> of the ES [EN010118/APP/6.2] and <b>Table 8-10</b>
<b>BDC</b>	<i>We are satisfied with the conclusions of the Flora Survey Report. This concluded that there will be minor losses of small sections of hedgerows (estimated up to 25m wide), but are satisfied that this loss can be compensated throughout the site. It is also identified that there will potentially be a loss of important arable plant assemblage of up to local value. Therefore, these species should be aimed to be retained within the grassland/edge habitats to be incorporated within the final design.</i>	Noted.	Please refer to <b>Appendix 8C: Flora Report</b> of the ES [EN010118/APP/6.2] and <b>Table 8-10</b> and section 8.8 of this Chapter.
<b>BDC, ECC</b>	<i>We are pleased to see that reports accompanying the planning application follow the Chartered Institute of Ecology</i>	Noted.	Please refer to <b>Appendices 8B to 8K</b> of the ES [EN010118/APP/6.2] and section 8.2 and <b>Table 8-2</b> of this Chapter.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>and Environmental Management (CIEEM) guidelines. However, it is indicated that the proposals will need to be supported by adequate ecological surveys and assessments to ensure the development is in compliance with national and local policy and its statutory duties. All further surveys must be undertaken by suitably qualified ecologists at the appropriate time of year using standard methodologies.</i></p>		
<b>BDC, ECC</b>	<p><i>We also support that 15-25m grassland buffers will be provided around all Ancient Woodland, an irreplaceable habitat, which is in line with Government guidelines to avoid root damage. However, it is indicated that the buffer zones should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter. In addition, it also may be necessary to deliver functional buffers greater than 15 metres to further minimise any potential edge effects identified from the proposed development. Nevertheless, we are pleased that the Outline Landscape Plan has provided buffers, whilst also creating ecological networks across the wider site, which join</i></p>	<p>Noted. These measures are secured through the OLEMP.</p>	<p>See also section 8.8 of this Chapter and refer to the <b>OLEMP</b>.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>up previously fragmented deciduous woodlands, Priority habitat.</i>		
<b>BDC, ECC</b>	<i>It is indicated that we support the conclusions outlined within the Chapter 8 (Ecology) and Preliminary Ecological Appraisal on the likely impacts on nearby designated sites (national and local), with mitigation measures able to be secured via the finalised Construction Environmental Management Plan under a DCO Requirement.</i>	Noted.	See also <b>Table 8-9</b> , section 8.8 and the <b>OCEMP</b> .
<b>BDC, ECC</b>	<i>We also note that a Biodiversity Net Gain report will be prepared with the Environmental Statement but is not available at this stage of the design. Therefore, whilst we appreciate the design of the scheme is continually changing, it is indicated that a draft Biodiversity Net Gain report would be extremely useful to accompany the initial design planning. This is because a Biodiversity Net Gain report will determine the extent of the biodiversity net gains that will be achieved from the proposed soft landscaping and allow the deliverability of the proposals to be appropriately assessed. The</i>	A biodiversity net gain report has been produced and biodiversity net gain has been calculated using the Biodiversity Metric 3.0.	See sections 8.5.40 to 8.5.46 and the <b>Biodiversity Net Gain Report [EN010118/APP/6.5]</b> .



Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>Biodiversity Net Gain report should use the DEFRA Biodiversity Metric 2.0 or any successor. The content of the Biodiversity Net Gain Assessment should preferably include the following:</i></p>		
BDC, ECC	<p><i>It is worth noting that the forthcoming release of the Biodiversity Metric 3.0 is imminent. Therefore, it is advised that applicant ecologist should be aware that may be changes to Biodiversity Metric Calculator following this update. It is also highlighted that proposals of the Biodiversity Net Gain report will need to be incorporated into the outline Landscape and Ecological Management Plan, to ensure the aims of plan will be delivered throughout the site.</i></p>	<p>A biodiversity net gain report has been produced and biodiversity net gain has been calculated using the Biodiversity Metric 3.0.</p>	<p>See sections 8.5.40 to 8.5.46 and the <b><i>Biodiversity Net Gain Report.</i></b></p>
BDC, ECC	<p><i>In terms of the deliverability of the soft landscape plans, as outlined within the Biodiversity Overlay Plan within the Consultation Booklet, it is considered highly unlikely that species-rich neutral grasslands can be achieved under the solar panels. This is because the solar farm will contain panels which are closely spaced, which will</i></p>	<p>Agreed and species rich grassland habitat type has not been used in the BNG calculation. It is still a target habitat type and long-term management will aim to promote species rich grassland that will replace intensively managed and arable crops resulting in higher biodiversity.</p>	<p>See sections 8.5.40 to 8.5.46 and the <b><i>Biodiversity Net Gain Report.</i></b></p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
BDC, ECC	<p><i>cause shading of grassland beneath for the majority of a day and reduce productivity of flowering species. In addition, the grassland underneath the panels would be grazed by sheep, which would keep the entire sward very short, not just the competitive grasses. However, it is accepted that this will ultimately depend on the livestock stocking densities, as well as how the grazing is rotated across the site. Therefore, whilst we are pleased to see that the proposals aim for the provision of species-rich neutral grasslands, we recommend that Biodiversity Net Gain Assessment should set out the likelihood of species-rich neutral grasslands being realistically achieved within the proposals.</i></p> <p><i>Overall, it is indicated that we support the outlined principles of the Biodiversity Overlay Plan, which seeks to create a range of new habitats and ecological networks, whilst also incorporating the management and enhancement of existing ecological assets. However, we will need to review this in closer detail when further information is</i></p>	Noted.	See sections 8.5.40 to 8.5.46 and the <b>Biodiversity Net Gain Report</b> which includes calculations and assessment of BNG.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>available. In particular, we are pleased to see the provision of a biodiversity trial area, which will help improve how to deliver natural capital benefits alongside solar farms and inform new management strategies. However, it would be useful to see what the biodiversity trial areas will contain at a later stage of the proposals.</i></p>		
BDC, ECC	<p><i>We would also strongly support the provision of new pond creations, adjacent to re-wilded scrub and grassland areas. This is because it is a relatively declining habitat mosaic and would provide significant benefits for declining bird species (e.g. Turtle Dove), whilst also providing benefits for amphibians, reptiles and invertebrate species.</i></p>	<p>Noted, new and restored ponds are part of the OLEMP</p>	<p>See <b>Appendix 10G: Glint and Glare Assessment</b> of the ES [EN010118/APP/6.2].</p>
BDC, ECC	<p><i>We also note that de-commissioning impacts for this solar farm have not been considered, when solar farms only have a relatively short lifespan. Therefore, we recommend that these are added to the Chapter 8 (Ecology) ahead of DCO submission.</i></p>	<p>Noted, further details are provided through a decommissioning strategy and ecological impacts assessed in this chapter</p>	<p>See the <b>Decommissioning Strategy</b> [EN010118/APP/7.12].</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
BDC, ECC	<i>The applicant needs to provide adequate ecological surveys and assessments for legally protected and Priority species. This should include Hazel Dormouse, Great Crested Newt and terrestrial invertebrates. It should also include updated surveys for sections of the site which have not been surveyed (e.g. Bats &amp; Badger).</i>	Noted, updates have been undertaken for protected species which had not previously been surveyed. As per previous comment, Hazel Dormouse and terrestrial invertebrates scoped out. This approach was agreed with the ECC ecologist at the meeting of 23 July 2021.	Please refer to <b>Appendix 8B: Preliminary Ecological Appraisal report</b> of the Environmental Statement.
BDC, ECC	<i>A bespoke mitigation strategy for ground nesting birds would need to be delivered, as it considered not possible that the development can compensate for impacts within the site boundary.</i>	A mitigation strategy has been developed. Based on a revised layout we anticipate that sufficient mitigation within the Order limits will be delivered by providing suitable grassland habitats in undeveloped fields. This was discussed and agreed with ECC and CCC at the meeting of 23/07/21.	Please refer to the <b>OLEMP</b> .
BDC, ECC	<i>Further information is required within Chapter 8 (Ecology) on the likely impacts on Lapwing and Golden Plover, with consideration on whether adverse effects on site integrity would be caused from the relevant European and International Designated Sites. This may require a simple shadow Habitats Regulations</i>	This is included in the HRA report. The Scheme will not result in any adverse effects on a European site as the wintering bird population using the Order limits is low and the Order limits is distant from the designated sites. This was discussed and agreed with ECC and CCC at the meeting of 23/07/21.	Please refer to <b>Appendix 8G: Wintering Bird Survey Report</b> of the ES and the <b>Habitat Regulations Assessment (HRA) [EN010118/APP/6.7]</b> .

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>Assessment to support the documentation.</i>		
<b>BDC, ECC</b>	<i>A Biodiversity Net Gain report should be delivered as soon as possible to support the draft proposals, which should provide further justification on whether proposals are deliverable.</i>	This has been prepared using the Biodiversity Metric 3.0	See sections 8.5.40 to 8.5.46 and the <b>Biodiversity Net Gain Report [EN010118/APP/6.5]</b> which includes calculations and assessment of BNG.
<b>BDC, ECC</b>	<i>We recommend that impacts from the de-commissioning of the site should also be addressed within Chapter 8 (Ecology).</i>	Noted, further details are provided through a decommissioning strategy and ecological impacts assessed in this ES chapter.	See the <b>Decommissioning Strategy [EN010118/APP/7.12]</b> .
<b>Boreham Parish Council</b>	<i>Wider swards of meadow/field boundary, we suggest 14m strips, need to be provided across the site to:</i>	Field boundary grassland will be between 10 and 25m wide.	See section 8.8 of this Chapter.
	<i>The use of sheep grazing should be reconsidered or limited. It is not conducive to increasing biodiversity. It deters hares and limits the use of the land to develop wildflower meadows which would support insect populations and feed birds and bats.</i>	Low intensity conservation grazing using sheep is one option, along with cutting considered for long-term management in the OLEMP.	Refer to the <b>OLEMP</b> .
<b>Boreham Parish Council</b>	<i>Minimise the impact of site lighting across the site and particularly at woodland margins,</i>	Lighting during construction will be limited to core working hours during winter months. Lighting	See section 8.8 of this Chapter.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>along bat flight lines and at times of nocturnal bird migration.</i>	<p>will be directional to avoid light-spill onto adjacent habitats.</p> <p>Lighting will be directed downward and away from boundaries. No visible lighting will be utilised at the site perimeter fence, aside from the site entrance points. Infra-Red (IR) lighting will be provided by the CCTV/security system to provide night vision functionality for CCTV. However visible lighting will be provided at site entrance points, operated by Passive Infra-Red (PIR), calibrated to detect vehicles, with the possibility to be manually operated if needed.</p>	
<b>Boreham Parish Council</b>	<i>We request that a complete ecological and historical survey be completed before any work commences at the proposed Longfield Solar Farm Site. This will provide an opportunity to record any historic features of the site before they are lost and to record the distribution of species of native plants, birds, animals and insects.</i>	Noted, ecological information is provided in the desk study and surveys undertaken as part of this Scheme.	See <b>Appendices 8B to 8L</b> , this Chapter and <b>Table 8-2</b> .
<b>Boreham Parish Council</b>	<i>We are not aware of the existence of a mammal gating system which would exclude humans and deer whilst being</i>	Badger gates will be used in the fence design to allow passage of Badger and other mammals such as small deer, rabbits and	See section 8.8 of this chapter and refer to the <b>OLEMP</b> .

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>porous to all other mammals. We therefore ask for additional information demonstrating how such access will be accommodated.</i>	hare. Large species of deer will be able to move through the Order limits along verges, hedges and tracks.	
<b>Boreham Parish Council</b>	<i>We request the developer engages a qualified ecologist, preferably with local knowledge to consider the management of the fields of PV arrays to enhance biodiversity. We further request that the developer deploys varied approaches and not rely on sheep grazing to control the grass.</i>	Noted comments, the applicant has engaged with suitably qualified ecologists and landscape professionals to enhance biodiversity. Habitat management treatment has been embedded in the Scheme design and further details provided in the OLEMP and Biodiversity Strategy.	Refer to the OLEMP and the <b>Biodiversity Net Gain Report [EN010118/APP/6.5]</b> .
<b>Boreham Parish Council</b>	<i>Why is the location of the Biodiversity Trial Area so close to the planned entrance to the site in an area bisected by the route which will be used by site traffic? It may be beneficial to include woodland borders in the Biodiversity Trial Area.</i>	Noted comments. The biodiversity trial area will comprise four fields dedicated to biodiversity research within an easily accessible area of the site. The exact nature of the trials will be decided in collaboration with an academic partner.	See <b>Biodiversity Net Gain Report</b> .
<b>Boreham Parish Council</b>	<i>We request that the developer undertake the construction and maintenance of the PV installation at Longfield in a time-sensitive manner avoiding such activity during the breeding seasons and ensure that there are suitable areas for ground nesting birds.</i>	Noted and timing with regards to protected species disturbance is secured within the CEMP. There are suitable areas provided for ground nesting birds in the OLEMP.	See the <b>OCEMP</b> and the <b>OLEMP</b> .

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
<p><b>Boreham Parish Council</b></p>	<p><i>Please provide information on how the existing great crested newt population will be protected during construction phase.</i></p>	<p>No suitable terrestrial habitat surrounding the pond will be lost and the pond and bankside terrestrial habitats will be buffered by at least 10m. Arable fields are not considered suitable terrestrial habitat for Great Crested Newt. If temporary fencing is needed in any locations to prevent Great Crested Newts from entering works areas, then this can be put in place. Ponds will be enhanced for amphibians through de-silting, selective tree felling, and provision of hibernacula as detailed in the OLEMP.</p>	<p>See section 8.8 of this ES and refer to the <b>OLEMP</b>.</p>
<p><b>Boreham Parish Council</b></p>	<p><i>We are very concerned that the proposed Longfield Solar Farm will destroy or severely reduce our local and legally protected bat populations. We request a clear plan from the developer which sets out the steps which will be taken to avoid disturbing or displacing the bat population and how the effectiveness of these steps will be monitored and reported.</i></p>	<p>Noted. On the basis that no ancient woodland loss and minimal temporary hedgerow loss with buffers from the Scheme and no permanent lighting it is assessed that there will not be any significant impacts to roosting/commuting or foraging bats. The change from arable to grassland habitats, new tree, hedge and scrub planting, new and restored ponds will enhance the habitats for bats. Long-term monitoring will be undertaken of the bat</p>	<p>Refer to <b>Appendix 8I: Report on Surveys for Bats</b> of the ES [EN010118/APP/6.2] and also see section 8.8 of this ES.</p> <p>For habitat planting and monitoring refer to the <b>OLEMP</b>.</p>



Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
		populations as detailed in the OLEMP.	
CCC	<i>The development proposal is likely to deliver significant enhancements for biodiversity in accordance with local and national policies. There should however be a net gain percentage set now, which should go beyond the 10% to be mandated in the Environment Bill, once passed.</i>	This assessment has been prepared using the new Biodiversity Metric 3.0 and is expected to achieve a 79% gain in habitat units and 20% hedgerow units.	See sections 8.5.40 to 8.5.46 and the <b>Biodiversity Net Gain Report [EN010118/APP/6.5]</b> , which includes calculations and assessment of BNG.
CCC	<i>Concerns in respect of lighting do not appear to have been overcome. This feature should respond to the rural context and minimise the use of artificial habitat disturbing the functioning of new and existing habitats such as, hedgerows and woodland and the permeability of mobile species across the landscape. More detail should be included of all lighting features and the impact this would have to local biodiversity.</i>	Proposed lighting is outlined in the application and will comprise sensor-controlled task and security lighting only. An assessment of the proposed lighting, including any temporary lighting during construction, on ecology has been undertaken	Please refer to <b>Chapter 2: The Scheme</b> and see section 8.8 of this Chapter.
CCC	<i>There is limited detailed information made in respect of the decommissioning process. There is a high degree of uncertainty what impact the decommissioning would have on</i>	Noted, further details are provided through a decommissioning strategy and ecological impacts assessed in this ES chapter.	See the <b>Decommissioning Strategy [EN010118/APP/7.12]</b> and <b>Table 8-8</b> .

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>established habitats and the species they would support. The PEIR states the effects of decommissioning are likely to be similar to those for construction. It is unclear to what extent adjacent habitats, both existing and those created, would be affected by the works and how the landscape would be restored.</i></p>	<p>Decommissioning the Scheme would be subject to the relevant laws and regulations at the time.</p>	
CCC	<p><i>Species rich grassland – this must consider underlying site soils and other biotic factors such as hydrology when selecting the most appropriate mix. This is to ensure the species selection for the grassland is meaningful and likely to establish to provide the desired enhancements. Turf and soil stripping should be re-used and established as new grassland habitats.</i></p>	<p>Noted and this is taken into account.</p>	-
CCC	<p><i>Enhanced waterscape – early discussion with Natural England should occur to aid the landscape wide waterscape improvements that would benefit the River Ter SSSI. Consideration should also be given to the Great Crested Newt district level licencing scheme as to whether there is an opportunity to provide net new</i></p>	<p>Noted, District Level Licensing is not considered necessary for the Scheme as impacts are low and there will be no loss in aquatic habitats. The Scheme will restore ponds and create scrub and grassland which will have a positive effect on amphibians.</p>	-

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>ponds that could be used in the scheme.</i>		
<b>Purdy Land</b>	<i>The scale of the solar farm proposed is likely to have a negative effect upon biodiversity and nature conservation in the area. No information appears to be presented to explain fully the negative effects of the proposed solar farm upon biodiversity. It remains the case that due to the sheer scale of development proposed here, there is likely to be a significant impact upon biodiversity, despite enhancement measures being put in place. More information is required in order to make an informed response to this point</i>	A full assessment of the ecological impacts of the proposed Scheme has been undertaken based on the baseline information collected and Scheme design using standard guidance for Ecological Impact Assessment	See throughout this ES Chapter, notably <b>Table 8-8</b> and section 8.9.
<b>Natural England</b>	<i>Natural England supports the structure, scope and context of the Report, noting that this presents only the preliminary findings of ongoing survey work.</i>	Noted, no comments required. BNG assessment using metric 3.0 has been prepared for the ES submission.	See sections 8.5.40 to 8.5.46 and the <b>Biodiversity Net Gain Report [EN010118/APP/6.5]</b> , which includes calculations and assessment of BNG.
<b>Natural England</b>	<i>In our view a project of this scale, should aim to make a proportionate contribution towards delivery of positive environmental outcomes, including biodiversity and environmental net gain.</i>	Noted, the Scheme will provide biodiversity net gain.	See sections 8.5.40 to 8.5.46 and the <b>Biodiversity Net Gain Report</b> which includes calculations and assessment of BNG.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
<b>Natural England</b>	<i>The proposed scheme boundary is immediately adjacent to the River Ter Site of Special Scientific Interest (SSSI) notified for its fluvial geomorphology. It is important the Scheme does not interfere with the natural process of the river.</i>	Noted, whilst a section of approximately 100m the River Ter adjacent to the SSSI section of the River Ter is included in the Order limits this land is included for habitat enhancement and there is no development planned adjacent to the River Ter.	See section 8.8 of this Chapter.
<b>Natural England</b>	<p><i>The scheme also lies within close proximity to the following designated nature conservation sites:</i></p> <ul style="list-style-type: none"> <li><i>• Blake's Wood &amp; Lingwood SSSI (~ 3.7km);</i></li> <li><i>• Woodham Walter Common SSSI (~ 4.6 km);</i></li> <li><i>• Essex Estuaries Special Area of Conservation (SAC) (~9.3km)</i></li> <li><i>• Blackwater Estuary (Mid-Essex Coast Phase 4) Special Protection Area (SPA) and Ramsar</i></li> </ul> <p><i>The proposed scheme is also within close proximity to a number of locally designated wildlife sites and areas of priority habitat including ancient woodland. The scheme will include measures for the creation of new and replacement habitats to mitigate impacts to protected species and sustainable drainage features for attenuation of flows</i></p>	Noted, no impacts predicted to these nationally and internationally designated sites. Locally designated sites retained and buffered and will not be impacted. Enhancement of many of these locally designated sites adjacent to the Scheme through habitat buffers and ecological networks between these sites	See <b>Table 8-4</b> , <b>Table 8-5</b> and section 8.8 of this Chapter.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>and treatment of water quality. We welcome that the final form and location of these measures will be determined through the EIA process and through consultation with relevant environmental bodies.</i></p>		
<b>Natural England</b>	<p><i>Natural England is generally supportive of the Environmental Measures to be embedded within the scheme design to mitigate adverse environmental effects, as outlined in section 8.8 of the Report. Details of these measures will need to be presented in the Environmental Statement (ES).</i></p>	Noted.	-
<b>Natural England</b>	<p><i>We are supportive of the proposed methodology for the Environmental Impact Assessment outlined on Chapter 5 of the Report and believe this generally takes into account the advice provided by Natural England in response to the EIA scoping consultation. We welcome that a Habitats Regulations Assessment (HRA) screening exercise is being carried out due to the presence of European sites and their relationship to the scheme. We support the proposed</i></p>	Noted.	-

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>incorporation of embedded mitigation measures to avoid and mitigate environmental impacts including habitat loss.</i></p>		
<p><b>Natural England</b></p>	<p><i>We note from the Report that Highways England's Biodiversity Net Gain calculations will be included in the ES, with over 10% net gain to be achieved. We welcome that calculations are being undertaken to establish to what extent embedded environmental measures being incorporated into the scheme will off-set biodiversity loss and potentially achieve biodiversity net gain. As discussed above, given the scale of the proposed scheme, we would expect the scheme to deliver significant biodiversity net gain in accordance with the aspirations of the Defra 25 Year Environment Plan.</i></p>	<p>Noted, the BNG assessment uses the new Biodiversity Metric 3.0 and significantly exceeds the 10% mandated.</p>	<p>See also sections 8.5.40 to 8.5.46 and the <b>Biodiversity Net Gain Report</b> which includes calculations and assessment of BNG.</p>
<p><b>Natural England</b></p>	<p><i>Natural England is satisfied with the desk-study and field based survey approach being taken to the assessment of impacts on biodiversity, including statutory and non-statutory wildlife sites, priority habitats and protected species. The approach outlined in Chapter 8 of the Report</i></p>	<p>Noted.</p>	<p>-</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>appears broadly in line with CIEEM2 best practice guidance for Ecological impact Assessment (EcIA).</i></p>		
<p><b>Natural England</b></p>	<p><i>Natural England advises that the ES should demonstrate how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests in accordance with NPS requirements. The NPS references the Government’s Biodiversity 2020 and the Natural Environment White Paper (NEWP) vision for moving progressively from net biodiversity loss to net gain, by supporting healthy, well-functioning ecosystems and establishing more coherent ecological networks that are more resilient to current and future pressures. The ES should seek to demonstrate the contribution the proposed scheme will make towards this vision.</i></p>	<p>Comments noted and the ES demonstrates the contribution of the Scheme to NPS requirements. The OLEMP includes new woodland, scrub, grassland and hedge habitats to buffer and enhance connectivity across the site., which contribute to a net gain in biodiversity.</p>	<p>Please refer to the <b>OLEMP, Appendix 10G: Glint and Glare Report</b> and the <b>Biodiversity Net Gain Report</b>.</p>
<p><b>Natural England</b></p>	<p><i>The proposed scheme lies within close proximity to several statutorily designated wildlife sites as discussed above. Section 8.9.4 of the Report</i></p>	<p>Noted, this is included in the HRA report. The Scheme will not result in any likely significant effects on a European site.</p>	<p>Please refer to the <b>Habitat Regulations Assessment (HRA) [EN010118/APP/6.7]</b>.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
<b>Natural England</b>	<p><i>considers that construction and operation of the Scheme is unlikely to have a significant effect on any of these sites subject to implementation of the proposed standard protection mitigation measures. Other sites are considered to be too distant and/or not ecologically connected for the scheme to have any adverse impacts. Our advice is that evidence should be provided in the ES to demonstrate this.</i></p>	<p>Assessment presented in this ES Chapter.</p>	<p>See <b>Appendices 8B to 8I</b> and throughout this Chapter.</p>



Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
<b>Natural England</b>	<p><i>address adverse impacts, will need to be presented in the ES.</i></p> <p><i>In order to resolve any outstanding issues early in the process Highways England [the Applicant considers this to be a typographical error] is encouraged to seek advice on protected species survey, assessment and draft mitigation proposals through Natural England's DAS and PSS. PSS provides early advice on all 3 licensing tests (in relation to European protected species), before a Development Consent Order is granted. This service also extends to other protected species (such as badger and water vole), protected by domestic wildlife legislation. This early assessment provides seeks to provide confidence, where required, that Natural England, as the statutory licensing authority, has considered the appropriate issues relating to protected species. In order to do this, Natural England will conduct a review, based on a full draft licence application, in advance of the formal submission of the NSIP application to the Inspectorate. Following the</i></p>	<p>The Applicant does not anticipate any protected species licensing requirements.</p>	<p>See <b>Table 8-10</b>.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>review of the draft licence application, Natural England will either: provide a Letter of No Impediment (LONI), explaining that based on the information reviewed to date, that it sees no impediment to a licence being granted in the future should the DCO be issued; or if there are licensing issues to address, these will be set out in writing for the applicant to resolve.</i></p>		
<p><b>Natural England</b></p>	<p><i>We welcome the preliminary roost appraisal (PRA) that was undertaken of buildings and structures and mature trees, following guidance as described in the Bat Conservation Trust (BCT) 'Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition' and note that Preliminary Roost Appraisal of new areas within the revised Site layout where impacts are predicted, will be undertaken. The Report assesses this site as having no potential for significant effects.</i></p>	<p>Noted.</p>	<p>Please refer to <b>Appendix 8I: Report on Surveys for Bats</b> of this ES.</p>
<p><b>Natural England</b></p>	<p><i>We note that 10 badger setts have been identified as being potentially within or sufficiently close to the Scheme that they may be impacted by construction</i></p>	<p>No impacts to these Badger setts are predicted as they are within buffer areas of the Scheme (i.e. hedgerows, woodlands), although a re-</p>	<p>Please refer to <b>Appendix 8J: Badger Survey Report</b> of this ES and section 8.8.</p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<i>works. The scheme could impact badger through the need to destroy a sett(s) and disrupt movement for feeding.</i>	survey will be undertaken prior to construction in case Badger setts are found within or close to the works areas and sett disturbance cannot be avoided.	
<b>Natural England</b>	<i>No evidence of water vole was found during the surveys. Otter was found to use the River Ter, with one confirmed sighting and a number of recent desk study records nearby. The Site is assessed as of Local Importance for Otter. The scheme could impact otter by disturbance from noise, dust and lighting as well as temporary or permanent loss of riparian habitats to the Scheme.</i>	Noted, impacts to Otter have been considered and no evidence of Water Vole has been identified.	Please refer to <b>Appendix 8K: Report on Surveys for Riparian Mammals</b> of the Environmental Statement also see section 8.8 of this ES.
<b>Natural England</b>	<i>Habitat loss and disturbance has the potential to impact wintering and breeding birds including a number of species of conservation concern including Lesser-spotted Woodpecker.</i>	Noted and has been included in the ES chapter. Lesser-spotted Woodpecker in woodland close to River Ter and not impacted. Small numbers of wintering birds but no significant impacts predicted	Please refer to <b>Appendix 8G: Wintering Bird Survey Report and Appendix 8H: Report on Surveys for Breeding Birds</b> of the Environmental Statement <b>[EN010118/APP/6.2]</b> and also see section 8.8 of this ES and <b>Table 8-11</b> .
<b>Natural England</b>	<i>The Report does not appear to access the potential for loss of terrestrial invertebrate habitat through the scheme, but we note that section 5.4.19 of Appendix 8A (the Applicant notes that this</i>	Only suitable habitat is the woodland and mature hedges/veteran and/or ancient trees. None impacted by the Scheme and suitably buffered and scoped out of the	Please refer to <b>Appendix 8B: Preliminary Ecological Appraisal Report</b> and <b>Table 8-8</b> and section 8.8.

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>is now <b>Appendix 8B</b>)- Ecological Appraisal states Based on the habitats and species recorded during the desk study, any potentially important habitats (i.e. woodland) are unlikely to be impacted by the Scheme and would be suitably buffered to avoid impacts to invertebrates, therefore detailed surveys for terrestrial invertebrates are unlikely to be required.</i></p>	<p>assessment in consultation with the Applicant's invertebrate expert and ECC ecologist. It was agreed at a meeting on 23 July 2021 that this approach is appropriate.</p>	
<p><b>Natural England</b></p>	<p><i>The report identifies that Further surveys (eDNA analysis) are considered necessary for ponds located outside of the Site, within a 250m Site buffer. The Habitat Suitability Index (HSI) score and any significant barriers to the Site will determine presence / likely absence of Great Crested Newt. One pond on site was determined to support two GCN. The pond will not be moved as part of the scheme and a buffer zone will be implemented.</i></p>	<p>These additional ponds within 250m have been surveyed and results are included in this ES chapter. Eight ponds outside the Order limits recorded the presence of Great Crested Newt. None will be impacted by the Scheme. Any potential loss of associated terrestrial habitat is assessed in this ES. As per the original baseline there is one pond within the Order limits, supporting Great Crested Newt and this pond along with suitable adjacent terrestrial habitat is not impacted and buffered from the Scheme.</p>	<p>Please refer to <b>Appendix 8E: Great Crested Newt Survey Report</b> and also see section 8.8 of this ES.</p>
<p><b>Natural England</b></p>	<p><i>We note the aquatic macroinvertebrate survey of the River Ter has been undertaken and that no macroinvertebrates</i></p>	<p>Noted.</p>	<p>Please refer to <b>Appendix 8C: Flora Report.</b></p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>of conservation importance were identified. No White-clawed Crayfish were found during the surveys however suitable habitat was present.</i></p>		
<b>Natural England</b>	<p><i>Natural England advises that the detailed findings of all protected species survey and assessment work, and mitigation measures to address any adverse impacts, should be presented in the ES.</i></p>	<p>Updated and presented in this ES Chapter.</p>	<p>See <b>Appendices 8B to 8K</b> and throughout this Chapter.</p>
<b>Natural England</b>	<p><i>As a minimum we advise that the ES should demonstrate how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests, in accordance with National Policy Statement (NPS) requirements. Our advice is that the scheme should aim to make a proportionate contribution towards delivery of positive environmental outcomes, including biodiversity and environmental net gain.</i></p>	<p>Comments noted and the ES demonstrates the contribution of the Scheme to NPS requirements. The OLEMP includes new woodland, scrub, grassland and hedge habitats to buffer and enhance connectivity across the site., which contribute to a net gain in biodiversity.</p>	<p>Please refer to the OLEMP[EN010118/APP/7.13] and the <b>Biodiversity Net Gain Report [EN010118/APP/6.5]</b></p>
<b>Natural England</b>	<p><i>We fully support the proposals outlined in Chapter 6 of the Report to assess the effects of the scheme on the environment. The England Biodiversity Strategy published by Defra</i></p>	<p>Comments noted. Planting provided in the OLEMP will take into account the changes in climate. The management of the site will be monitored (e.g. grassland habitat monitoring)</p>	<p>See section 8.8 of this chapter and the <b>OLEMP.</b></p>

Consultee	Main matter raised	How has the concern been addressed	Location of response in chapter / other reports
	<p><i>establishes principles for the consideration of biodiversity and the effects of climate change. The ES should reflect these principles and identify how the development's effects on the natural environment will be influenced by climate change, and how ecological networks will be maintained.</i></p>	<p>and where required the management adapted to maintain the habitats ecological networks for the long-term.</p>	

## 8.5 Assessment Methodology

### Study Area

- 8.5.1 The Scheme is located in Essex (approximately 5.7km north-east of Chelmsford) and the Order limits overlap within the administrative areas of Braintree District Council and Chelmsford City Council. The Order limits is approximately centred on Ordnance Survey (OS) National Grid Reference (NGR) TL 74179 14620 and located approximately 1.1 kilometres (km) to the west of the village of Terling. A Grid Connection Route, which requires a 20m working width, will run from the Longfield Substation and the Battery Energy Storage System (BESS) just north of Toppinghoehall Wood travelling south west across Boreham Road Gravel Pits Local Wildlife Site (LoWS) to the existing Bulls Lodge Substation.
- 8.5.2 A description of the Scheme is provided in **Chapter 2: The Scheme** of the Environmental Statement [EN010118/APP/6.1].
- 8.5.3 All designated sites, sensitive habitats and species of importance that occur within the relevant ecological Zone of Influence (Zol) of the Scheme were considered in this assessment. The extent of the Zol varies according to the ecological receptor in question and with regards to the precautionary principle. Accordingly, the study areas used in this assessment (see section 8.5.2 and **Table 8-2**) ensures sufficient data were gathered to meet any design iterations which may change the likely Zol used to undertake the impact assessment.

### Establishment of the Baseline Conditions

- 8.5.4 Establishment of the baseline environment, within the Zol, involved reference to existing data sources, consultation with statutory bodies and other organisations, and field surveys.

### Sources of Information

- 8.5.5 A desk study was carried out to identify sites designated for their biodiversity value and records of protected and, or, notable habitats and species (biodiversity features) and invasive non-native species that are relevant to the Scheme. The search areas used for the desk study are appropriate for identifying biodiversity features that are external to the Order limits that could be affected and are the maximum distances that statutory consultees would typically expect to be considered. The scope of surveys and study areas were presented, discussed and agreed with consultees (such as ECC and CCC, see **Table 8-1**). The desk study enabled the determination of appropriate study areas within which all important ecological features requiring assessment, as well as ecological features that could be directly or indirectly affected by the Scheme, were subject to field survey. **Table 8-2** presents the study (survey) areas used for each species (or species group) within the appropriate Zol.
- 8.5.6 The desk study included a search for:
- Sites of international nature conservation value (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites) within 10km of the Order limits as well as any SACs within 30km of the Order limits where bats are noted as the, or one of the, qualifying features;

- b. Statutorily designated sites of national nature conservation value, e.g. Sites of Special Scientific Interest (SSSIs) and Local Nature Reserves (LNRs) within 5km of the Order limits;
  - c. Non-statutorily designated sites of nature conservation value, e.g. Local Wildlife Sites (LoWSs), within 2km of the Order limits;
  - d. Ancient Woodland and other notable habitats within 2km of the Order limits; and
  - e. Records of protected or notable species within 2km of the Order limits.
- 8.5.7 Essex Wildlife Trust Records Centre (EWTRC) were contacted in July 2020 to gain information on pre-existing ecological information (*i.e.* location and citations of LoWSs, records of protected, notable and invasive species within 2km of the Order limits as well as any invasive non-native species). The Essex Field Club was also contacted for updated records of protected, notable and invasive species within 2km of the Order limits in January 2021 (see **Appendix 8L: Essex Field Club Desk Study** of the ES [EN010118/APP/6.2]) based on a revised Order limits boundary. These data (in respect of age and coverage) were used to inform the scope and extent of further ecological surveys.
- 8.5.8 Fish, macroinvertebrate and macrophyte species records were obtained from the Environment Agency (EA) Freshwater Fish Surveys Database (NFPD) via Ecology and Fish Data Explorer (Ref 8-3).
- 8.5.9 Online data resources that were reviewed included:
- a. Multi-Agency Geographic Information Centre (MAGIC) (Ref 8-4) for the location (and details) of statutorily designated sites, ancient woodland and notable habitats;
  - b. Joint Nature Conservation Committee (JNCC) website (Ref 8-5) for details of SACs and SPAs including site information and designation details; and
  - c. National Biodiversity Network (NBN) Gateway (Ref 8-6) for details on any protected and/ or notable species.
- 8.5.10 Protected and notable habitats and species included those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended) (Ref 8-7); Schedules 2, 4 and 5 of the Habitat Regulations (Ref 8-2); and species and habitats of principal importance for nature conservation in England listed pursuant to Section 41 of the NERC Act (Ref 8-8). Other habitats and species were also considered and were assessed on a case by case basis, e.g. those included in national, regional or local Red Data Books and Lists but not protected by legislation. This is consistent with the requirements of relevant planning policy.
- 8.5.11 Records of invasive non-native species, as listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (Ref 8-7) and the Invasive Alien Species (Enforcement and Permitting) Order 2019 (Ref 8-9) were also collated and have been taken into account when assessing the potential ecological effects of the Scheme.



### Field Surveys

- 8.5.12 The requirement for ecological field surveys was determined following the Preliminary Ecological Appraisal (PEA) (included as **Appendix 8B: Preliminary Ecological Appraisal** of the ES [EN010118/APP/6.2]) which was undertaken in May 2020 and then updated in March 2021 and September 2021 to reflect changes in the Order limits.
- 8.5.13 The PEA consisted of three components: the desktop study data review; a Phase 1 Habitat survey; and a scoping survey for protected species and other species of conservation concern.
- 8.5.14 The Phase 1 Habitat survey followed the standard method '*Handbook for Phase 1 habitat survey: A technique for environmental audit*' (Ref 8-10). In summary, this comprised walking over the habitat within the Order limits and recording the habitat types and boundary features present.
- 8.5.15 The aquatic survey walkover was used to assess the quality of aquatic habitats in local watercourses within 1km of the Order limits and to assess the potential for water bodies to support protected or notable species and inform further survey work (included within **Appendix 8D: Aquatic Ecology Report** of the ES [EN010118/APP/6.2]).
- 8.5.16 A protected species scoping survey was carried out in conjunction with the Phase 1 Habitat survey (see **Appendix 8B: Preliminary Ecological Appraisal**). This led to the recommendation of field surveys for certain protected or notable habitats and species, as presented in **Appendix 8B** of the Environmental Statement.
- 8.5.17 A number of Survey Areas were then defined and applied in the assessment, based on the consideration of the likely Zol of the Scheme (see section 8.5.6 of this chapter) on a given biodiversity feature.
- 8.5.18 The definition of Survey Areas was developed using a combination of professional judgement and guidance issued by the Chartered Institute of Ecology and Environmental Management (CIEEM) (Ref 8-11), which define the Zol as: "...the area over which biodiversity features may be affected by biophysical changes as a result of the proposed project and associated activities".
- 8.5.19 In defining individual Survey Areas, consideration was given to the geographic location, nature and scale of the Scheme (see **Chapter 2: The Scheme**).
- 8.5.20 Field surveys were then undertaken to characterise the ecological baseline within the relevant Survey Areas presented in **Table 8-2**. Further details regarding the definition of these Survey Areas and any limitations are presented in the associated survey reports within **Appendices 8B to 8K** of the ES. The Survey Areas vary according to the spatial characteristics of each species or habitat potentially impacted but reflect standard professional good practice and the distances that statutory consultees would typically expect to be considered for identification of features external to the Scheme that could be affected. This is informed by published guidance and professional judgement. The scope of surveys and study areas were presented, discussed and agreed with consultees (such as ECC and CCC, see **Table 8-1**) at ecology

workshops. Further justification on these extents are included in the relevant technical appendices (**8B to 8K**).

- 8.5.21 **Table 8-2** presents details of the coverage, methods and date of the field surveys undertaken within the relevant Survey Areas.
- 8.5.22 Surveys for terrestrial invertebrates and Hazel Dormouse were scoped out during the PEA (see **Appendix 8B**) and are not considered further in this chapter. The Order limits comprises a variety of habitats, but the majority of habitat that may support notable terrestrial invertebrates or invertebrate communities (e.g. woodland, scrub and arable margins) will be retained and avoided during construction of the Scheme. Hazel Dormouse was scoped out of further assessment as the desk study did not identify any records of this species occurring within 2km of the Order limits and although recent unpublished records of Dormouse exist along the A12, the Scheme will not impact upon Dormouse habitat as woodland habitat will be retained and avoided and any impacts to hedgerows would be minor.
- 8.5.23 Formal surveys for Hedgehog *Erinaceus europaeus* and Brown Hare *Lepus europaeus* were not undertaken as part of the assessment as observations of both species were recorded through other ecological surveys of the Order limits and consideration for any mitigation required for either species is included further in this chapter.

**Table 8-2: Ecological field surveys completed**

Survey and relevant technical appendix	Survey Area (see Section 8.5.6)	Survey Method	Date of Survey Period	Justification for the Survey Areas or rationale for scoping out surveys
Phase 1 Habitat ( <b>Appendix 8B</b> of the ES [EN010118/APP/6.2])	Main habitats within the Order limits and to a maximum of 50m from the Order limits, where viewable or access permitted.	Walkover of the Order limits recording the habitat types and boundary features present following followed the standard method ' <i>Handbook for Phase 1 habitat survey: A technique for environmental audit</i> ' (JNCC, 2010) (Ref 8-7).	Commenced in May 2020 with subsequent surveys as a result of changes to the Order limits undertaken in March and September 2021, which informed the requirement for further detailed surveys, where necessary.	50m is an appropriate Survey Area, acknowledging that the majority of habitats that are likely to be impacted by the Scheme are within the Order limits.
Terrestrial Habitats and Flora (including invasive non-native species) ( <b>Appendix 8C</b> of the ES [EN010118/APP/6.2]).	The areas of terrestrial habitat surveyed, those with the potential to be affected by the Scheme, were identified from the initial Phase 1 habitat survey and desk study information. The survey area was the Order limits.	<p>Surveys for arable flora involved walking arable field boundaries to record notable species as listed in the Great Britain (Dines <i>et al</i>, 2005 (Ref 8-12) and England (Stroh <i>et al</i>, 2014) (Ref 8-13) Red Data Lists or as locally, regionally or nationally scarce by Byfield &amp; Wilson, (2005) (Ref 8-13).</p> <p>Grasslands (including set-aside and verges) were surveyed in more detail (<i>i.e.</i> species lists with abundance ratings) for notable species and species composition to help inform mitigation, habitat compensation and enhancement proposals, with the rarity of higher plants given based on Stace (Ref 8-15).</p>	June and September 2020	Habitat within the Order limits is an appropriate Survey Area, acknowledging that habitats that are likely to be impacted by the Scheme are within the Order limits.

Survey and relevant technical appendix	Survey Area (see Section 8.5.6)	Survey Method	Date of Survey Period	Justification for the Survey Areas or rationale for scoping out surveys
Hedgerows ( <b>Appendix 8C</b> of the ES [EN010118/APP/6.2])	Hedgerows potentially affected by the Scheme within the Order limits.	Selected hedgerows, where likely to be impacted, were surveyed and assessed for their 'importance' against the Wildlife and Landscape Criteria, detailed in the Hedgerow Regulations (Ref 8-16)	June and July 2020	Order limits is an appropriate Study Area, acknowledging that the majority of hedgerows will be retained and/ or avoided and the Scheme will be constructed within the Order limits.
Aquatic scoping survey ( <b>Appendix 8D</b> of the ES [EN010118/APP/6.2])	All water bodies identified within the Order limits and up to 1km from the Order limits.	Walking accessible and safe stretches of waterbody banks, noting physical habitat features such as riparian cover, channel substrate, habitat type, modifications and in-stream vegetation to assess the potential for waterbodies to support protected or notable species and inform further survey work.	17 March, 18 May, and 1 June 2020	1km from the Order limits is an appropriate Survey Area to determine any potential impacts arising from the Scheme both upstream and downstream.
Aquatic macrophyte and macro-invertebrate surveys, including the presence of any invasive non-native species ( <b>Appendix 8D</b> of the ES [EN010118/APP/6.2])	Water bodies identified during the aquatic scoping survey and desk study for further survey within the Order limits and up to 1km from the Order limits, where access permitted.	Surveys of ponds were based on the Predictive System for Multimetrics (PSYM) methods used for ponds (Pond Action, 2002) (Ref 8-17).  Survey methodology for streams and ditches followed the aquatic macroinvertebrate sampling procedures standardised by the EA in 2017 (Ref 8-18).	Aquatic macrophytes surveyed in June 2020  Aquatic macroinvertebrates surveyed in May and September 2020	1km from the Order limits is an appropriate Survey Area to determine any potential impacts arising from the Scheme both upstream and downstream.
White-clawed Crayfish <i>Austropotamobius pallipes</i> ( <b>Appendix</b>	White-clawed Crayfish surveys undertaken in the River Ter.	White-clawed Crayfish surveys undertaken using standard survey method (Ref 8-19), which	May and September 2020	Up to 1km from the Order limits is an appropriate Survey Area to determine any potential impacts

Survey and relevant technical appendix	Survey Area (see Section 8.5.6)	Survey Method	Date of Survey Period	Justification for the Survey Areas or rationale for scoping out surveys
<b>8D</b> of the ES <b>[EN010118/APP/6.2])</b>		comprised manual searches and use of baited traps.		arising from the Scheme both upstream and downstream.
Fish including any invasive non-native species ( <b>Appendix 8D</b> of the ES.	River Ter, within 3km of the Order limits.	Based on a review of EA Freshwater Fish Surveys Database (Ref 8-3).	N/A	EA monitoring data from the River Ter, where these are located up to 3km from the Order limits is sufficient to determine any potential impacts arising from the Scheme both upstream and downstream.
Amphibians, including Great Crested Newt ( <i>Triturus cristatus</i> ) ( <b>Appendix 8E</b> of the ES <b>[EN010118/APP/6.2])</b>	<p>The desk study, using maps and aerial photography, identified a total of 97 water bodies or watercourses within 500m of the Order limits, which were subject to a visual inspection or Habitat Suitability Index (HSI) survey for Great Crested Newt.</p> <p>Further surveys were then undertaken, on waterbodies or watercourses most likely to support Great Crested Newt, with:</p> <ul style="list-style-type: none"> <li>- eDNA samples taken and analysed for 30 ponds / water bodies within 250m of the Site; and</li> <li>- standard field survey techniques to determine presence or absence (and population size, if required) used for 23 ponds within the Site.</li> </ul>	<p>HSI evaluated suitability of ponds for Great Crested Newt following the methodology developed by Oldham <i>et al.</i> (2000) (Ref 8-20).</p> <p>eDNA method strictly adhered to the standard survey technique for eDNA (Biggs, 2014) (Ref 8-21).</p> <p>Great Crested Newt presence or absence and population size surveys used torch, bottle-trapping, egg searching and refuge search methods all recommended by Natural England (Ref 8-22).</p>	<p>HSI – March, September and October 2020 and April to June 2021</p> <p>eDNA - spring 2021</p> <p>Presence or absence and population surveys - March – June 2020</p>	<p>Habitats within the Order limits could constitute significant foraging areas, hibernation or resting sites for Great Crested Newts, which typically utilise terrestrial habitat within 500m of their breeding ponds (Ref 8-22).</p>

Survey and relevant technical appendix	Survey Area (see Section 8.5.6)	Survey Method	Date of Survey Period	Justification for the Survey Areas or rationale for scoping out surveys
Reptiles ( <b>Appendix 8F</b> of the ES [EN010118/APP/6.2])	Suitable habitat for reptiles (such as grassland) within the Order limits.	Reptile surveys involved recording reptile species using artificial refugia in accordance with Froglife's Advice Sheet 10 for Reptile Surveys (Froglife, 1999) (Ref 8-23) and Natural England's Standing Advice Sheet for Reptiles (Natural England, 2015) (Ref 8-24).	April to May; and August to September 2020	The Survey Area provides sufficient information on reptile presence or absence within the Order limits and allows recording of any transient reptiles, occurring outside of the Order limits, which may use the Order limits.
Wintering (non-breeding) Birds (including farmland birds) ( <b>Appendix 8G</b> of the ES [EN010118/APP/6.2])	The Order limits and to a maximum of 50m from the Order limits.	Wintering bird surveys utilised transect-based walkovers following methodology detailed in 'Bird Monitoring Methods' (Gilbert et al., 1998) (Ref 8-25) and 'Bird Census Techniques' (Bibby et al., 2000) (Ref 8-26).	January to March 2020 and October to December 2020.	Standardised survey buffers for assessing the impacts of development on bird populations do not exist, however, the Survey Area used provides information on the wintering (non-breeding) birds within the area immediately surrounding the Order limits and includes areas contiguous with the Order limits boundary, where birds may potentially be adversely affected and is sufficient to determine the likely impacts of the Scheme on the majority of wintering bird species occurring or likely to occur in the area.
Breeding Birds (including farmland birds) ( <b>Appendix 8H</b> of the ES [EN010118/APP/6.2])	The Order limits and to a maximum of 50m from the Order limits. Appropriate Scheme buffer extended out from the Order limits for species specific surveys, e.g.	Surveys for breeding birds were based on a standard territory mapping methodology for surveying breeding birds as detailed in 'Bird Monitoring Methods' (Gilbert et al., 1998) (Ref 8-25) and 'Bird Census	April to September 2020	Standardised survey buffers for assessing the impacts of development on bird populations do not exist, however, the Survey Area used provides information on the breeding birds within the area immediately surrounding the

Survey and relevant technical appendix	Survey Area (see Section 8.5.6)	Survey Method	Date of Survey Period	Justification for the Survey Areas or rationale for scoping out surveys
	Hobby <i>Falco subbuteo</i> and Barn Owl <i>Tyto alba</i> .	<p><i>Techniques</i>' (Bibby et al., 2000) (Ref 8-26); and were adapted where necessary to include species-specific methods for Hobby.</p> <p>Species-specific methods used for specially protected species, including: '<i>Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment</i>' (2011) (Ref 8-27), where appropriate.</p>		<p>Order limits and includes areas contiguous with the Order limits boundary, where birds may potentially be adversely affected. Depending on the sensitivity of the species, birds occurring outside of the survey area may also be adversely affected (such as those listed on Schedule 1 of the WCA) and therefore where any such species were recorded beyond the 50 m survey buffer (up to 200 m from the Order limits), these were also recorded. However, the 50 m survey buffer is sufficient to determine the likely impacts of the Scheme on the majority of breeding bird species occurring or likely to occur in the area.</p>
<p>Bats (<b>Appendix 8I</b> of the ES  <b>[EN010118/APP/6.2]</b>)</p>	<p>The Order limits, to a maximum of 50m from the Order limits.</p>	<p>A preliminary roost appraisal (PRA) was undertaken of buildings and structures and mature trees, following guidance as described in the Bat Conservation Trust (BCT) '<i>Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition</i>' (Collins, J. (ed.), 2016) (Ref 8-28).</p> <p>Surveys for bat activity were based on standard methodology for bat activity transect surveys as described in the BCT</p>	<p>PRA survey: May and July 2020; and April 2021.</p> <p>Activity surveys: May to September 2020.</p>	<p>The Survey Area provides sufficient information on bat usage of the Order limits, assessing commuting and foraging habitat and nearby roosts and enabling determination of impacts on bat populations occurring within, or adjacent to, the Order limits.</p>

Survey and relevant technical appendix	Survey Area (see Section 8.5.6)	Survey Method	Date of Survey Period	Justification for the Survey Areas or rationale for scoping out surveys
Badger ( <b>Appendix 8J</b> of the ES [EN010118/APP/6.2])	The Order limits and to a maximum of 50m from the Order limits.	guidelines (Collins, 2016) (Ref 8-28).  Surveys for Badger involved a walkover survey searching for signs of Badger activity as described in the Mammal Society publication Surveying Badgers (Ref 8-29) and in the National Badger Survey methodology (Ref 8-30).	April 2020, with any evidence of Badger noted during other ecological surveys in 2020 also recorded. Surveys along the grid connection corridor undertaken in November 2021.	50m is an appropriate Survey Area acknowledging that the majority of habitats of importance to Badger, such as woodland and hedgerows, will be retained.
Riparian mammals (including invasive non-native species, such as Mink ( <i>Mustela vison</i> )) ( <b>Appendix 8K</b> of the ES [EN010118/APP/6.2])	The River Ter, up to a maximum of 200m from the Order limits, where access permitted and up to 50m within adjacent suitable terrestrial habitats.	Water Vole surveys involved searching watercourses for signs of Water Vole activity as described by Strachan <i>et al.</i> , (2011) (Ref 8-31) and Dean <i>et al.</i> , (2016) (Ref 8-32). Otter surveys involved searching watercourses for signs of Otter activity, following guidance in the New Rivers and Wildlife Handbook (Ref 8-33); the EA's Fifth Otter Survey of England 2009-2010 (Ref 8-34) and the Ecology of European Otter (Ref 8-35).	Water Vole - May and September 2020  Otter – May, September and December 2020  Surveys for both species undertaken on Boreham Brook in November 2021.	Surveying riparian habitats up to 200m from the Order limits is sufficient to determine presence or absence of riparian mammals within the Zol.



### **Impact Assessment Method**

8.5.24 The impact assessment, detailed in this chapter, has been undertaken in accordance with best practice guidance for Ecological Impact Assessment (EclA), issued by the CIEEM (the CIEEM guidelines) entitled '*Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine*' (Ref 8-11) as summarised below. The aims of the ecological assessment are to:

- a. Identify relevant ecological features (*i.e.* designated sites, habitats, species or ecosystems) which may be impacted by the Scheme;
- b. Provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects of the Scheme. Impacts and effects may be positive or negative;
- c. Facilitate scientifically rigorous and transparent determination of the consequences of the Scheme in terms of national, regional and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its potential impacts; and
- d. Set out what steps will be taken to adhere to legal requirements relating to the relevant ecological features concerned.

8.5.25 The principal steps involved in the CIEEM approach can be summarised as:

- a. Ecological features that are both present and might be affected by the Scheme are identified (both those likely to be present at the time works begin and those predicted to be present at a set time in the future) through a combination of targeted desk-based study and field survey work to determine the relevant baseline conditions;
- b. The importance of the identified ecological features is evaluated, placing their relative nature conservation importance into geographic context, which is then used to define the relevant biodiversity features that need to be considered further;
- c. The changes or perturbations predicted to result as a consequence of the Scheme (*i.e.* the potential impacts) and which could potentially affect relevant ecological features are identified and their nature described. Established best-practice, legislative requirements or other incorporated design measures to minimise or avoid impacts are also described and are taken into account;
- d. The likely effects (positive or negative) on relevant ecological features are then assessed, and where possible quantified;
- e. Measures to avoid or reduce any predicted significant effects, if possible, are then developed in conjunction with other elements of the design (including mitigation for other environmental disciplines) and if necessary, measures to compensate for effects on features of nature conservation importance are also included;
- f. Any residual effects of the Scheme are reported; and
- g. Scope for ecological enhancement is considered.

- 8.5.26 It is not necessary in the assessment to address all habitats and species with potential to occur in the relevant study area and instead the focus is on those that are “relevant” *i.e.* ecological features that are considered to be important and potentially affected by the Scheme. The CIEEM guidelines (Ref 8-11) makes clear that there is no need to “*carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable*”. This does not mean that efforts should not be made to safeguard wider biodiversity and requirements for this have been considered. National and local planning policy documents emphasise the need to achieve net gains for nature and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution. These considerations have been applied to the assessment methodology in this chapter.
- 8.5.27 To support a focussed assessment, there is a need to determine the scale at which the relevant ecological features identified through the desk studies and field surveys undertaken for the Scheme are of value. The value of each relevant ecological feature has been defined with reference to the geographical level at which it matters.
- 8.5.28 The frames of reference used for this assessment, based on section 4.7 in the CIEEM guidelines (Ref 8-11) are:
- a. International (*i.e.* Ramsar Sites, SACs and SPAs), normally within the geographic area of Europe;
  - b. UK or national (Great Britain, but considering the potential for certain ecological features to be more notable (of higher value) in England, with context relative to Great Britain as a whole);
  - c. Regional (East of England) – however, a geographical area for Regional importance has not been defined. A feature is of Regional importance when it is of greater geographical importance than within the county of Essex but does not reach the threshold to be of National importance;
  - d. County (Essex);
  - e. District (Chelmsford); and
  - f. Local (biodiversity or geological features that do not meet criteria for valuation at a district or higher level, but that have sufficient value to merit retention or mitigation *e.g.* for purposes of ensuring no net loss of biodiversity).
- 8.5.29 Species populations are valued on the basis of their size, recognised status (such as recognised through published lists of species of conservation concern and designation of Biodiversity Action Plan (BAP) status) and legal protection. For example, bird populations exceeding 1% of published information on biogeographic populations are considered to be of international importance, those exceeding 1% of published data for national populations are considered to be of national importance, and so on.
- 8.5.30 In assigning values to species populations, it is important to take into account the status of the species in terms of any legal protection. However, it is also

important to consider other factors such as its distribution, rarity, population trends and the size of the population which would be affected. For example, whilst the Great Crested Newt is protected as a European protected species under the relevant legislation and therefore conservation of the species is of significance at an international level, this does not mean that every population of Great Crested Newt is internationally important. It is important to consider the particular population in its context. Therefore, in assigning values to species the geographic scale at which they are important has been considered. The assessments of value rely on the professional opinion and judgment of experienced ecologists.

- 8.5.31 Plant communities are assessed both in terms of their intrinsic value and as habitat for protected species whose habitat is also specifically protected and for species of nature conservation concern which are particularly associated with them.
- 8.5.32 Due regard will also be paid to the legal protection afforded to species during the development of mitigation and compensation measures to be implemented for the Scheme. For European protected species there is a requirement that the Scheme should not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.
- 8.5.33 Assessing the value of features requires consideration of both existing and future predicted baseline conditions. Therefore, the description and valuation of ecological features takes account of any likely changes, such as trends in the population size or distribution of species, likely changes to the extent of habitats and the effects of other proposed developments or land use changes; as explained in the 'Future Baseline' section below.
- 8.5.34 In line with section 1.21 in the CIEEM guidelines (Ref 8-11), the terminology used within the EclA draws a clear distinction between the terms 'impact' and 'effect'. For the purposes of this EclA these terms are defined as follows:
- a. Impact – actions resulting in changes to an ecological feature. For example, construction activities of a development removing a hedgerow; and
  - b. Effect – outcome resulting from impact acting upon the conservation status or structure and function of an ecological feature, *e.g.* the effects on a population of bats as a result of the loss of a bat roost.
- 8.5.35 When describing potential impacts (and where relevant the resultant effects) consideration is given to the following characteristics likely to influence this:
- a. Positive or negative - *i.e.* is the change likely to be in accordance with nature conservation objectives and policy and is that change:
    - Positive - a change that improves the quality of the environment, or halts or slows an existing decline in quality *e.g.* increasing the extent of a habitat of conservation value; or
    - Negative - a change that reduces the quality of the environment *e.g.* destruction of habitat.

- b. Spatial extent - the spatial or geographical area or distance over which the impact or effect may occur under a suitably representative range of conditions;
- c. Magnitude - the 'size', 'amount' or 'intensity' and 'volume' of an impact - this is described on a quantitative basis where possible;
- d. Duration - the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. Consideration has been given to how this duration relates to relevant ecological characteristics such as a species' lifecycle. However, it is not always appropriate to report the duration of impacts in these terms. The duration of an effect may be longer than the duration of an activity or impact;
- e. Timing and frequency - *i.e.* consideration of the point at which the impact occurs in relation to critical life-stages or seasons; and
- f. Reversibility - *i.e.* is the impact temporary or permanent. A temporary impact is one from which recovery is possible or for which effective mitigation is both possible and enforceable. A permanent effect is one from which recovery is either not possible or cannot be achieved within a reasonable timescale, *i.e.* the 40-year lifespan of the Scheme (in the context of the feature being assessed).

### **Significance Criteria**

- 8.5.36 For each ecological feature, only those characteristics relevant to understanding the ecological effect of the Scheme and determining the significance are described. The determination of the significance of effects has been made based on the predicted effect on the structure and function, or conservation status, of relevant ecological features, as follows:
- a. Not significant - no effect on structure and function, or conservation status; and
  - b. Significant - structure and function, or conservation status is affected.
- 8.5.37 Sections 5.24 to 5.28 in the CIEEM guidelines (Ref 8-11) states that effects should be determined as being significant when "*an effect either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national / local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local. A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. In broad terms, significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)*".
- 8.5.38 Using this information and judgement, it is determined whether the effects will be significant or not on the structure and integrity (of site or ecosystems) or conservation status (of habitats and, or species) of each ecological feature

and the impact significance is determined at the appropriate geographical scale.

8.5.39 There are a number of approaches for determining the significance of effects on ecological features. Whilst the CIEEM guidelines (Ref 8-11) recommend the avoidance of the use of the matrix approach for categorisation (major, moderate and minor), in order to provide consistency of terminology within this chapter, the findings of the CIEEM assessment have been translated into the classification of effects scale, as outlined in **Table 8-3**.

**Table 8-3: Relating CIEEM assessment terms to those used in other EIA chapters**

Effect classification terminology used in other EIA chapters	Equivalent CIEEM assessment
Major beneficial	Beneficial effect on structure / function or conservation status at a regional, national or international level.
Moderate beneficial	Beneficial effect on structure/ function or conservation status at a county level.
Minor beneficial	Beneficial effect on structure / function or conservation status at a local level.
Neutral / Negligible	No effect on structure / function or conservation status.
Minor adverse	Adverse effect on structure / function or conservation status at a local level.
Moderate adverse	Adverse effect on structure / function or conservation status at a county level.
Major adverse	Adverse effect on structure / function or conservation status at a regional, national or international level.

### *Biodiversity Net Gain*

8.5.40 When the relevant provisions come into force (date to be appointed), the Environment Act 2021, will include a mandate for at least 10% biodiversity net gain for projects, including for Nationally Significant Infrastructure Projects (NSIPs).

8.5.41 BNG is a quantitative process applied to development and can be defined as "*development that leaves biodiversity in a better state than before and involves an approach where developers work with local governments, wildlife groups, land owners and other stakeholders in order to support their priorities for nature conservation*" (Ref 8-36).

8.5.42 The principle behind BNG is to ensure that any impacts on Biodiversity, arising from any development, are taken into consideration and compensated with equivalent or additional gains.

- 8.5.43 For a development to achieve BNG it is important that the principles of the mitigation hierarchy are followed. This process involves first trying to avoid adverse impacts on biodiversity before finding ways to minimise or mitigate effects, and as a last resort compensating for any residual effects.
- 8.5.44 There are four sequential steps that must be taken throughout the lifecycle of a project:
- a. Avoidance – actions taken to avoid causing impacts to the environment prior to beginning development (e.g. moving the development to a different location);
  - b. Minimisation – measures taken to reduce the duration, intensity, extent and/ or likelihood of the unavoidable environmental impacts caused by development (e.g. adapting the development design to minimise impacts);
  - c. Restoration or rehabilitation – actions taken to repair environmental degradation or damage following unavoidable impacts caused by development; and
  - d. Offsets – measures taken to compensate for any adverse environmental impacts caused by development which cannot be avoided, minimised and/ or restored (e.g. including habitat creation to offset losses).
- 8.5.45 Biodiversity metrics provide a measure of overall biodiversity value based on habitat type, area, condition and distinctiveness. The current approved metric is Defra’s Metric 3.0 and this metric is a tool that allows a value to be measured, in this case biodiversity, which is calculated pre- and post-development. The change in biodiversity units indicates either a net loss, a net gain or no change in biodiversity.
- 8.5.46 The BNG assessment, as the ***Biodiversity Net Gain Report*** is presented in the ES [EN010118/APP/6.5].

## 8.6 Baseline Conditions

- 8.6.1 This section describes the baseline environmental characteristics of the Order limits and Study Areas with specific reference to ecological features.

### ***Existing Baseline***

#### Sites statutorily designated for biodiversity value

- 8.6.1 There are six statutory sites for nature conservation within the Zol set out in section 8.5.6 of this chapter. These sites, designated for biodiversity reasons, are detailed in **Table 8-4**. The locations of these statutory sites, relevant to the Scheme, are shown in **Figure 8-1: Statutory Designated Sites within 10km (International) and 5km (National) of the Order limits**, of the Environmental Statement [EN010118/APP/6.3].
- 8.6.2 Site designation details are summarised in **Table 8-4** and are taken from citation documents, published online by JNCC for the individual sites. Statutory sites detailed in **Table 8-4** are listed in descending order, with those closest to the Order limits listed first.

8.6.3 There are no international statutory site designations for bats within 30km of the Order limits.

**Table 8-4 Sites statutorily designated for the biodiversity value within 10km (international) and 5km (national) of the Order limits**

Statutory Site Name and designation	Area (ha)	Description	Distance (km) and direction from the closest point of the Order limits	Importance
River Ter SSSI	6.41	Designated for its geological importance, it is representative of a lowland stream with a distinctive flood regime. It is flashy, draining a low-lying catchment on glacial till, and has a very low base flow discharge but high flood peaks; daily, monthly and annual flow variability are also high. In addition, the site demonstrates characteristic features of a lowland stream including pool-riffle sequences, bank erosion, bedload transport and dimensional adjustments to flooding frequency.	The SSSI boundary is immediately adjacent to the Order limits. An undesignated section of the River Ter bisects the northern part of the Order limits.	National
Blake's Wood & Lingwood Common SSSI	87.33	Broadleaved, mixed, Yew woodland and dwarf shrub heath. Species include Hornbeam ( <i>Carpinus betulus</i> ) and Sweet Chestnut ( <i>Castanea sativa</i> ) mature coppice and occasional Oak ( <i>Quercus robur</i> ), with mature Hornbeam and Sweet Chestnut trees, with a transition to dense Hornbeam coppice and Birch ( <i>Betula</i> species). There are areas of dwarf shrub heath with a mosaic of woodland, acid grassland and old orchard.	Approx. 3.7km to the south of the Order limits.	National
Chelmer Valley Riverside LNR	17.6	The northern end has the river, unimproved grassland, veteran hedges, scrub and woodland. The southern area is more managed, with mown grass as well as large trees and an area of marshland.	Approx. 4.3km to the south-west of the Order limits	National
Woodham Walter Common SSSI	79.67	Broadleaved, mixed and Yew ( <i>Taxus baccata</i> ) woodland, characterised by young and mature Sweet Chestnut coppice and mature Hornbeam coppice. Sycamore ( <i>Acer pseudoplatanus</i> ) becoming invasive. There is also younger Sweet Chestnut coppice.	Approx. 4.6km to the south of the Order limits.	National
Essex Estuaries SAC	46,109.95	This is a large marine site in south-east England, and is a typical, undeveloped, coastal plain estuarine system with associated open coast mudflats and	Approx. 9.3km to the south-east of the Order limits	International

Statutory Site Name and designation	Area (ha)	Description	Distance (km) and direction from the closest point of the Order limits	Importance
		<p>sandbanks. Qualifying features comprise Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>). Mudflats and sandflats not covered by seawater at low tide Salicornia and other annuals colonising mud and sand Sandbanks which are slightly covered by sea water all the time Spartina swards (<i>Spartinion maritima</i>).</p>	<p>and, hydrologically, approximately 17.5km from the Order limits.</p>	
<p>Blackwater Estuary (Mid-Essex Coast Phase 4) SPA and Ramsar</p>	<p>4,395.15</p>	<p>This marine site comprises an extensive complex of estuaries and intertidal sand and silt flats, including several islands, shingle and shell beaches and extensive areas of saltmarsh. Qualifying features in the non-breeding season comprise Black-tailed Godwit (<i>Limosa limosa islandica</i>), Dark-bellied Brent Goose (<i>Branta bernicla bernicla</i>), Dunlin (<i>Calidris alpina alpina</i>), Grey Plover (<i>Pluvialis squatarola</i>) and Hen Harrier (<i>Circus cyaneus</i>). In the breeding season: Little Tern (<i>Sternula albifrons</i>), Pochard (<i>Aythya ferina</i>), Ringed Plover (<i>Charadrius hiaticula</i>). Also the non-breeding waterbird assemblage.</p>	<p>Approx. 9.3km to the south-east of the Order limits and, hydrologically, approximately 17.5km from the Order limits.</p>	<p>International</p>

### Sites non-statutorily designated for biodiversity value

8.6.4 There are 31 non-statutory sites designated for nature conservation within 2km of the Order limits (as per the study area in Section 8.5.6 of this chapter) and these are presented in **Table 8-5**. These sites have been designated as LoWS for their biodiversity value at a county level and are known to have supporting value to a wide variety of protected and ecologically important species and/ or habitats. The locations of these non-statutory sites, relevant to the Scheme, are shown in **Figure 8-2: Non-statutory sites within 2km of the Order limits**, of the ES [EN010118/APP/6.3].

8.6.5 Non-statutory sites detailed in **Table 8-5** are listed in descending order, with those closest to the Order limits listed first.



**Table 8-5 Sites non-statutorily designated for the biodiversity value within 2km of the Order limits**

<i>Non-statutory site name and designation</i>	<i>Area (ha)</i>	<i>Description</i>	<i>Distance (km / metres (m)) and direction from the closest point of the Order limits</i>	<i>Importance</i>
Boreham Road Gravel Pits LoWS	23.45	This large site comprises a series of lakes of various sizes surrounded by woodland, with some areas of open, sometimes marshy, ground. The complex geomorphology is the result of former sand and gravel extraction. As a result, the wooded margins to the lakes occupy an undulating terrain which is reflected in varying canopy composition. This includes willows ( <i>Salix sp.</i> ), Ash, Oak and Silver Birch. An area of damp woodland extending to the south of the main area comprises Oak, Ash and Hornbeam, with Meadowsweet ( <i>Filipendula ulmaria</i> ) and Wild Angelica ( <i>Angelica sylvestris</i> ) as ground flora, both of which prefer wetter substrates.	Within and adjacent to the Order limits	County
The Grove LoWS	5.83	Streamside woodland with some substantial earthwork features within its borders and is little changed in outline from that on 19th century Ordnance Survey maps.	Adjacent to the Order limits.	County
Sandy Wood LoWS	18.36	This large ancient wood has been somewhat disturbed by storm damage and replanting with both broadleaved and coniferous trees.	Adjacent to the Order limits.	County
Scarlett's Wood LoWS and Scarlett's Wood (part of) LoWS	5.58	The site mainly comprises plantation woodland with Sweet Chestnut, Wild Cherry ( <i>Prunus avium</i> ) and Sycamore, though there is evidence of an old coppice structure to be found particularly in the far south corner where Hornbeam and Small-leaved Lime ( <i>Tilia cordata</i> ) coppice and Pedunculate Oak ( <i>Quercus robur</i> ) standards are found.	Adjacent to the Order limits.	County
Ringer's Wood LoWS	6.01	Neglected Hornbeam and Small-leaved Lime coppice, Pedunculate Oak and Ash standards are the main canopy components of Ringer's Wood.	Adjacent to the Order limits.	County
Toppinghoehall Wood LoWS	33.09	This ancient wood now survives as two separate sections, the north section being contiguous with Porter's Wood straddling the Braintree-Chelmsford boundary. The southern section is an area of mixed woodland - mostly conifer plantation with interspersed Pedunculate Oak, Sweet Chestnut, Beech ( <i>Fagus sylvatica</i> ) and Silver Birch ( <i>Betula pendula</i> ). The ground flora is dominated by Bramble ( <i>Rubus fruticosus agg</i> ) with Bluebell ( <i>Hyacinthoides non-scripta</i> ).	Adjacent to the Order limits.	County

<b>Non-statutory site name and designation</b>	<b>Area (ha)</b>	<b>Description</b>	<b>Distance (km / metres (m)) and direction from the closest point of the Order limits</b>	<b>Importance</b>
Lost Wood LoWS	18.59	This ancient wood is being commercially exploited for timber production, with extensive plantations of Beech, Scots Pine ( <i>Pinus sylvestris</i> ), Larch ( <i>Larix sp.</i> ) and Spruce ( <i>Picea sp.</i> ).	Adjacent to the Order limits.	County
Porter's Wood and Toppinghoehall Wood (part of) LoWS	12.71	Porters Wood is an ancient wood contiguous with Toppinghoehall Wood (see description above). Hornbeam coppice and Pedunculate standards characterise this woodland site. Ash is also found in the high canopy, whilst Field Maple ( <i>Acer campestre</i> ) is found as a sub-canopy tree. A small area of the woodland on the eastern edge of the site has previously been cleared and replanted with native trees. The ground flora has patches where Bluebell is abundant. Other ancient woodland indicators recorded include Three-nerved Sandwort ( <i>Moehringia trinervia</i> ), Wood Millet ( <i>Milium effusum</i> ), Wood Speedwell ( <i>Veronica montana</i> ) and Climbing Corydalis ( <i>Ceratocarpus claviculata</i> ).	Adjacent to the Order limits.	County
Chopping's Wood LoWS	5.21	An ancient wood containing a mix of broadleaved species.	195m west of the Order limits.	County
Craigments Spring LoWS	1.71	This site comprises a small, possibly ancient woodland fragment and three peripheral ponds.	280m east of the Order limits.	County
Terling Hall Woods LoWS	2.76	These two woods, possibly both ancient, have canopies dominated by Pedunculate Oak, Ash and Hornbeam.	330m east of the Order limits.	County
Bulls Lodge Lagoons LoWS	10.65	This series of water management lagoons associated with the adjacent mineral workings epitomises the ecological value of brownfield land, with an intricate mosaic of habitats. Areas of flower-rich, albeit weedy, rough grassland provide good foraging habitat for a wide range of invertebrates and areas of bare ground, including some steep, sandy banks, provides nesting habitat and hunting areas also for invertebrates. Areas of reedbed and scrub are also present.	380m west of the Order limits.	County

<b>Non-statutory site name and designation</b>	<b>Area (ha)</b>	<b>Description</b>	<b>Distance (km / metres (m)) and direction from the closest point of the Order limits</b>	<b>Importance</b>
St Mary the Virgin, Great Leighs LoWS	0.49	The churchyard exhibits a range of grass species including Bent-grasses (a species of <i>Agrostis</i> ), Red Fescue ( <i>Festuca rubra</i> ) and Meadow grasses (a species of <i>Poa</i> ).	440m west of the Order limits.	County
Lyonshall Wood LoWS	26.83	An ancient wood displaying a wide mix of tree species and stands.	505m west of the Order limits.	County
Wade's Spring LoWS	1.16	This small, possibly ancient wood fragment has a canopy of Ash and Pedunculate Oak over neglected Hazel ( <i>Corylus avellana</i> ) and Hornbeam coppice.	930m east of the Order limits.	County
Brickhouse Wood LoWS	4.19	Hornbeam coppice dominates this ancient wood, whilst Ash, Silver Birch and Field Maple are also found throughout.	1.1km north of the Order limits	County
Hookley Wood LoWS	1.89	This small ancient wood has a varied canopy and ground flora composition. Whilst Ash ( <i>Fraxinus excelsior</i> ) predominates, there is also much Small-leaved Lime, Pedunculate Oak, Hazel, Field Maple and Hornbeam.	1.1km north of the Order limits	County
Terling Churchyard and Green LoWS	0.99	The light soil here supports a scarce floral assemblage.	1.2km east of the Order limits.	County
Mann/Parson's Wood LoWS (including Parson's and Queens Wood LoWS)	34.15	The wood is generally split up into compartments, each being separated by grassy rides. Mann/Parsons Wood contains mature Hornbeam and Small-leaved Lime coppice, with some Silver Birch and Sweet Chestnut. In contrast, Sludlands Wood has coppiced Hazel, forming a much lower canopy structure. A stream valley flows southwards towards the eastern edge of the site. Tall Alder ( <i>Alnus glutinosa</i> ) coppice is characteristic of this wetter area. Ramsons ( <i>Allium ursinum</i> ) is abundant in this part of the site. An area of Hornbeam coppice to the north of the small lake is the only area of the site where Bluebells are found in profusion.	1.2km north of the Order limits.	County

<b>Non-statutory site name and designation</b>	<b>Area (ha)</b>	<b>Description</b>	<b>Distance (km / metres (m)) and direction from the closest point of the Order limits</b>	<b>Importance</b>
		<p>Amongst typical ancient woodland ground flora species are Wood, Yellow Archangel, Ramsons, Yellow Pimpernel (<i>Lysimachia nemorum</i>), Wood-sedge (<i>Carex sylvatica</i>), Wood Speedwell (<i>Veronica montana</i>) and Primrose (<i>Primula vulgaris</i>).</p> <p>Queen's Wood, the southernmost block, is an ancient wood with a canopy dominated by Hornbeam standards with Sweet Chestnut, Hornbeam and Small-leaved Lime coppice. Both Midland Hawthorn (<i>Crataegus laevigata</i>) and Spindle (<i>Euonymus europaeus</i>) are to be found in the shrub layer. The ground flora is typified by Bracken (<i>Pteridium aquilinum</i>) and Dog's Mercury (<i>Mercurialis perennis</i>).</p>		
Titbeech Wood LoWS	4.71	Titbeech wood has been replanted with a variety of broadleaved and coniferous species for commercial timber production	1.4km east of the Order limits.	County
Lowley's Farm Meadow LoWS	0.98	Formerly listed under the name "Osiers", this site is a small area of horse grazed grassland on the west bank of the River Ter.	1.4km east of the Order limits.	County
Fairsteadhall Wood LoWS	2.06	This wood is one of three remaining fragments of the formerly much larger ancient Galleycable Wood and contains a mix of broadleaved tree species.	1.4km north-west of the Order limits.	County
Brakey Wood LoWS and Brakey Wood (part of) LoWS	4.20	The main canopy structure of this ancient woodland comprises a mix of Hornbeam and Sweet Chestnut coppice, with Pedunculate Oak standards.	1.5km south of the Order limits.	County
Long Wood Complex LoWS	8.65	This LoWS comprises Long Wood, Brewhouse Wood, Bishop's Wood and Sandpit Wood.	1.6km south-east of the Order limits.	County
Stonage Wood LoWS	2.31	This coppice-with-standards woodland contains several ancient woodland indicators.	1.7km west of the Order limits.	County

<b>Non-statutory site name and designation</b>	<b>Area (ha)</b>	<b>Description</b>	<b>Distance (km / metres (m)) and direction from the closest point of the Order limits</b>	<b>Importance</b>
Galleycable Wood LoWS	2.78	This ancient woodland remnant is composed of neglected coppice of Small-leaved Lime, Hornbeam and Hazel with Ash and Pedunculate Oak standards.	1.8km north-west of the Order limits.	County
Stockley Wood LoWS	2.93	This ancient wood has undergone extensive replanting with Larch (a species of <i>Larix</i> ) and Scots Pine ( <i>Pinus sylvestris</i> ), with Horse Chestnut ( <i>Aesculus hippocastanum</i> ) also present.	1.9km west of the Order limits.	County

### Species Records

- 8.6.6 The data search, obtained in July 2020 from EWTRC, returned records of protected and notable species within the 2km search radius from the Order limits and from the preceding ten years. These protected and notable species, including species of conservation importance, can be reviewed in in **Appendix 8B: Preliminary Ecological Appraisal** of the ES [EN010118/APP/6.2]. The results from the January 2021 desk study from Essex Field Club is provided in full in **Appendix 8L: Essex Field Club Desk Study** of the ES [EN010118/APP/6.2].

### Habitats

- 8.6.7 The Order limits area is 453ha and the land use dominated by arable fields (387ha), with a few improved grassland livestock fields to the north-west (see **Table 8-6**). There are mature trees and hedges, small, wooded copses and ponds. The River Ter, within adjacent woodland and grassland, bisects the Order limits to the north. The surrounding habitat is mainly arable and mature broadleaved woodland (plantation, semi-natural and ancient). There are individual and clusters of residential properties located within and adjacent to the Order limits.
- 8.6.8 The terrestrial and aquatic habitats present within the Order limits were identified during the Phase 1 Habitat survey in 2020 and 2021 (and reported in **Appendix 8B** of the ES and further defined by detailed habitat surveys undertaken in 2020 and 2021. These habitats are summarised in **Table 8-6**, alongside area calculations (taken from digitised maps of the Phase 1 Habitats) and their biodiversity importance. The locations of these habitats are shown in **Figure 8-3: Phase 1 Habitat Map**, of the Environmental Statement [EN010118/APP/6.3] and included in **Appendix 8B**.
- 8.6.9 Data required to calculate the biodiversity net gain (BNG) or net loss were collected in the Phase 1 Habitat survey and subsequent surveys (such as arable flora and hedgerow surveys) to ensure a comprehensive baseline of data for the assessment.

**Table 8-6: Broad habitat types within the Order limits**

Habitat	Area (ha) / length (km)	% of Site area	Notable Habitat?	Biodiversity Importance	Rationale
A1.1.1 – Broad-leaved woodland - semi-natural (including ancient woodland)	2.83ha	0.62	Habitat of Principal Importance – Lowland Mixed Deciduous Woodland and Wet Woodland.  Ancient Woodland is a Local Biodiversity Action Plan (LBAP) habitat	County	Small copses of non-designated mature semi-natural woodland throughout the Order limits, mainly around ponds or former ponds. Whilst on their own, they are unlikely to meet County importance due to small extent within the Order limits and that this habitat is present more widely beyond the Zol in the local area, their proximity to ancient woodland stands would identify them as being eligible for selection as LoWS, using LoWS Selection Criteria for assessing habitats of county importance (Ref 8-37). A number of woodlands adjacent to the Order limits are listed as ancient and are likely to fulfil the criteria of priority habitat. A data search for veteran or ancient trees (see section 8.5.7) identified 35 such trees within 2km of the Order limits, with many other potentially veteran and/ or ancient trees occur within hedges and along lanes within or immediately adjacent to the Order limits.
A1.1.2 – Broad-leaved woodland - plantation	3.08ha	0.67	No	Local	Not a habitat of principal importance.
A1.3.1 - Mixed woodland - semi-natural	0.11ha	<0.1	No	Local	Not a habitat of principal importance.
A2.1 - Scrub - dense/continuous	0.75ha	0.17	No	Local	Not a habitat of principal importance.
A2.2 - Scrub - scattered	0.29ha and 0.32km	<0.1	No	Local	Not a habitat of principal importance.

Habitat	Area (ha) / length (km)	% of Site area	Notable Habitat?	Biodiversity Importance	Rationale
A3.1 - Broadleaved Parkland / scattered trees	6.06km	-	No	County	Comparable with hedges in terms of ecological importance. Some trees are veteran or ancient and would meet the LoWS Selection Criteria for assessing habitats of county importance under Habitat Criterion 6 (HC6) – Veteran Trees (Ref 8-37).
B4 - Improved grassland	15.07ha	3.30	No	Local	Not a habitat of principal importance.
B5 – Marshy grassland	0.27ha	<0.1	A component of a Habitat of Principal Importance – Wet Woodland	District	A small area of marshy grassland and scattered wet woodland along the proposed cable corridor route (part of Boreham Road Gravel Pits LoWS). Unlikely to meet County importance due to small extent within the Order limits but adds to the wider habitat resource.
B6 - Poor semi-improved grassland	32.36ha	7.1	No	Local	Not a habitat of principal importance.
C3.1 - Other tall herb and fern - ruderal	1.55ha	0.34	No	Local	Not a habitat of principal importance.
G1 - Standing water	0.56ha	0.12	Ponds of certain criteria are a Habitat of Principal Importance	One pond (pond 7, location presented in <b>Appendices 8A, 8C and 8D</b> ) is of District Importance.  All other ponds of Local Importance.	Ponds can be defined as permanent (or seasonal) waterbodies up to 2ha in extent and qualify as being a priority habitat if they meet one or more criteria for UKBAP classification, including supporting species of high conservation importance. The majority of ponds within the Order limits either have little to no macrophytes / aquatic vegetation and have little other ecological value. Furthermore, they are not stand-alone habitats within the wider area, as similar habitats can be found in the surrounding area. Therefore, the ponds within the Order limits do not reach the required levels to fulfil the criteria of a priority habitat and are considered as being of no more than local importance.



Habitat	Area (ha) / length (km)	% of Site area	Notable Habitat?	Biodiversity Importance	Rationale
					However, one pond within the Order limits (pond 7) has some uncommon aquatic macrophytes and is assessed as of district importance.
G2 – Running Water	1.56km	-	Rivers are a Habitat of Principal Importance	County	A short (approximately 120m) undesignated section of the River Ter bisects the northern part of the Order limits. Boreham brook is in the south-west of the Order limits, within the cable corridor.
HS – Hard surface	3.81ha	0.83	No	Local	Not a habitat of principal importance.
J1.1 – Cultivated / disturbed land – arable (including arable flora)	386.92ha	84.80	Cereal (arable) field margins are an LBAP and Habitat of Principal Importance	Local	Arable field margins with rare or scarce arable flora species, including Corn Chamomile <i>Anthemis arvensis</i> . Arable flora is included as a receptor in <b>Table 8-7</b> .
J1.2 – Amenity Grassland	0.11ha	<0.1	No	Local	Not a habitat of principal importance.
J1.3 – Cultivated / disturbed land - ephemeral/short perennial	1.90ha	0.42	No	Local	Not a habitat of principal importance.
J3.6 – Buildings	0.04ha	<0.1	No	Local	Not a habitat of principal importance.
J4 - Bare ground	1.33ha	0.29	No	Local	Not a habitat of principal importance.
Unclassified – Access track – not surveyed	4.93ha	1.1	No	Local	Not a habitat of principal importance.
J2.1.1 - Intact hedge - native species-rich	2.05km	n/a	Habitat of Principal Importance and LBAP -	Up to County	Ancient and/ or species rich hedgerows are present across the Order limits. Habitat of Principal Importance. Based on guidance in LoWS Selection

Habitat	Area (ha) / length (km)	% of Site area	Notable Habitat?	Biodiversity Importance	Rationale
			Ancient and / or species rich hedgerows and green lanes		Criteria for assessing habitats of county importance (Ref 8-37) under Habitat Criterion 8 (HC8) – Hedgerows and Green Lanes.
J2.1.2 - Intact hedge - species-poor	3.99km	n/a	Habitat of Principal Importance	Local	Does not meet guidance in LoWS Selection Criteria for assessing habitats of county importance (Ref 8-37) under Habitat Criterion 8 (HC8) – Hedgerows and Green Lanes, due to lack of species diversity and lack of trees.
J2.2.2 - Defunct hedge - species-poor	0.34km	n/a	Habitat of Principal Importance	Local	Does not meet guidance in LoWS Selection Criteria for assessing habitats of county importance (Ref 8-37) under Habitat Criterion 8 (HC8) – Hedgerows and Green Lanes, due to lack of species diversity, gaps in the hedge and lack of trees.
J2.3.1 - Hedge with trees - native species-rich	6.82km	n/a	Habitat of Principal Importance and LBAP - Ancient and/or species rich hedgerows and green lanes	County	Large extent of this habitat within Order limits and likely to meet guidance in LoWS Selection Criteria for assessing habitats of county importance (Ref 8-37) under Habitat Criterion 8 (HC8) – Hedgerows and Green Lanes (Ref 8-37), as species rich and presence of ancient / veteran trees.
J2.3.2 - Hedge with trees - species-poor	2.04km	n/a	Habitat of Principal Importance	Up to District	Does not meet guidance in LoWS Selection Criteria for assessing habitats of county importance (Ref 8-37) under Habitat Criterion 8 (HC8) – Hedgerows and Green Lanes, due to being species poor, but presence of mature, veteran / ancient trees assessed as important up to district level.
J2.4 – Fence	3.89km	n/a	No	n/a	Not a habitat of principal importance.

Habitat	Area (ha) / length (km)	% of Site area	Notable Habitat?	Biodiversity Importance	Rationale
J2.6 - Dry ditch	9.84km	n/a	No	Local	Not a habitat of principal importance. Normally dry but occasionally with temporary water after heavy rain. Limited species diversity, but some value in terms of species movement and additional habitat niches add to local biodiversity value.

### Protected and Notable Species

- 8.6.10 A summary of protected or notable animal species that have been identified during ecological surveys as present, or potentially present, within the Order limits and survey areas (see **Table 8-2**) and an evaluation including importance / value (sensitivity) and rationale of the ecological features for each species is presented in **Table 8-7**. Full descriptions of the baseline conditions are presented in **Appendices 8B to 8K** of the ES [EN010118/APP/6.2] and accompanying figures, as indicated in **Table 8-7**.
- 8.6.11 The assessment of biodiversity importance of species has been made for the entirety of the Order limits. Where the biodiversity importance of a receptor is specific to a particular area of the Order limits (e.g. occurring within the cable corridor only), then this is specified with population size or specific species in **Table 8-7**.

**Table 8-7: Summary of Baseline Details for Legally Protected and Notable Species alongside Assessment of Biodiversity Importance of Ecological Features**

Ecological feature and relevant technical appendix	Baseline Detail	Nature Receptor	Conservation	Assessment of Biodiversity Importance	Rationale
Flora species ( <b>Appendix 8C</b> of the ES [EN010118/APP/6.2].	<p>Arable field margins with rare or scarce arable flora species, including a single plant of Corn Chamomile, which is classified as Endangered in the Red Lists for UK and England (Ref 8-12 and Ref 8-13). Four other important arable plants of Least Concern in the Red Lists for UK and England also recorded.</p> <p>No notable or protected species were found during the grassland survey and all grassland has affinity to a ubiquitous and widespread grassland community type MG1 <i>Arrhenatherum elatius</i> grassland.</p>	<p>Arable flora of Local importance found in three arable fields.</p> <p>One road verge has a higher species diversity with some wetland and woodland species and is considered to enrich the habitat resource and be of Local importance. Six other roadside grassland areas are of lower value and of less than local importance.</p>	Local importance	Local Importance	<p>Arable flora assessment based on standard assessment methodology, using Byfield and Wilson (2005) (Ref 8-14).</p> <p>No SPI, under Section 41 of the NERC Act (Ref 8-8) recorded within grassland habitats.</p>
Aquatic Macrophytes ( <b>Appendix 8D</b> of the ES [EN010118/APP/6.2]	<p>PSYM analysis (Ref 8-17) indicated that one pond was 'good' and classed as a priority pond by the Freshwater Habitats Trust (FHT).</p> <p>No macrophyte species of conservation importance were recorded in any water bodies surveyed, however, four species are classed as uncommon by the FHT: Fine-leaved Water Dropwort <i>Oenanthe aquatica</i>, Common Water-crowfoot <i>Ranunculus aquatilis</i>, Slender Tufted-sedge <i>Carex acuta</i> and Rigid Hornwort <i>Ceratophyllum demersum</i>.</p>	Aquatic macrophyte community within water bodies across the Order limits.	District importance	District Importance	<p>One pond (pond 7, location presented in <b>Appendices 8B, 8D and 8E</b>) is a priority pond as classified by the FHT. All other ponds are of local importance.</p> <p>No macrophytes of conservation importance (<i>i.e.</i> Red List, nationally rare or scarce) but a few species recorded are classified by the FHT as uncommon.</p>

Ecological feature and relevant technical appendix	Baseline Detail	Nature Receptor	Conservation Assessment of Biodiversity Importance	Rationale
	All other macrophyte taxa recorded are classed as Least Concern based on taxa designations and red data lists.			
Aquatic macroinvertebrates, including White-clawed Crayfish ( <b>Appendix 8D</b> of the ES [EN010118/APP/6.2]).	River Ter has a moderate conservation value and contained 52 macroinvertebrate taxa. A number of rare/notable macroinvertebrate species including the beetles <i>Hygrotus nigrolineatus</i> and <i>Berosus affinis</i> were identified from the pond surveys No White-clawed Crayfish recorded during field surveys.	Aquatic macroinvertebrate community within water bodies and watercourses across the Order limits.	Local Importance	Similar aquatic macroinvertebrate assemblages expected to be common across the wider landscape and no macroinvertebrates of conservation importance recorded.  River Ter is likely to support notable aquatic macroinvertebrate species and assemblages.
Fish ( <b>Appendix 8D</b> of the ES)	EA data returned the following records of protected or notable fish species from the River Ter: Brown Trout <i>Salmo trutta</i> (UK BAP), Brook Lamprey <i>Lampetra planeri</i> (UK BAP, Bern Convention (Appendix 3) Habitats Directive Annex II), Bullhead <i>Cottus gobio</i> (UK BAP) and European Eel (UK BAP). Brown Trout and Bullhead were also observed in the River Ter during the aquatic surveys.	Brown Trout, Brook Lamprey, European Eel and Bullhead	Brook Lamprey and European Eel – Regional Importance  Bullhead and Brown Trout – County Importance	Whilst protected and notable fish species were recorded within the River Ter during the EA data search, the populations of Brook Lamprey, European Eel, Bullhead and Brown Trout occurring within the River Ter are unlikely to meet the thresholds for any higher importance (e.g. national importance for Brook Lamprey) within a small section of the River Ter bisecting the Order limits.
Amphibians ( <b>Appendix 8E</b> of the ES [EN010118/APP/6.2]).	No records of Great Crested Newt were returned by the data search, although a review of MAGIC identified one Natural England EPSML application within 2km of the Order limits, which was for the destruction of a resting and breeding place	Great Crested Newt presence in one pond within the Order limits and eight ponds outside of the Order limits	Local Importance	Great Crested Newt is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (Ref 8-7), which affords them protection under Section 9, as amended by the Countryside Rights

Ecological feature and relevant technical appendix	Baseline Detail	Nature Receptor	Conservation Assessment of Biodiversity Importance	Rationale
	<p>for Great Crested Newt approximately 1.2km west of the Order limits in 2017.</p> <p>The suitability of 97 waterbodies for Great Crested Newt was assessed by collecting specified data which were used to calculate a Habitat Suitability Index (HSI) for each waterbody. Surveys were then undertaken on those waterbodies which had been assessed as being suitable for Great Crested Newt within 500m of the Order limits (the Survey Area) to determine the presence or absence of Great Crested Newt.</p> <p>Great Crested Newt were recorded from one pond within the Site and positive eDNA results from eight water bodies outside of the Order limits, within the Survey Area.</p>			<p>of Way Act (2000) (Ref 8-38) and are also protected under Regulation 42 and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (Ref 8-2 They are listed on Annex II and IV of the EC Habitats Directive (Ref 8-39), are included as SPI in England under Section 41 of the NERC Act 2006 (Ref 8-8).</p> <p>However, surveys only identified a small (peak count of two individuals) population of Great Crested Newt from one pond within the Order limits and presence of this species in eight ponds outside of the Order limits. Notwithstanding the international legislation that protects the species, due to presence within a single pond inside the Order limits and eight ponds outside of the Order limits, a Great Crested Newt population of only Local Importance is considered to be present within the survey area.</p>
<p>Reptiles (<b>Appendix 8F</b> of the ES [EN010118/APP/6.2]).</p>	<p>The data search returned records of four reptile species within 2km of the Order limits and within the preceding ten years of the request date: Grass Snake <i>Natrix helvetica</i>, Slow-worm <i>Anguis fragilis</i>, Adder <i>Vipera berus</i> and Common Lizard <i>Zootoca vivipara</i>.</p>	<p>Common Lizard present in adjacent habitat to Order limits.</p>	<p>Local Importance</p>	<p>Whilst reptiles are protected from injury or killing within the Wildlife and Countryside Act 1981 (as amended) (Ref 8-7) and are SPI under Section 41 of the NERC Act (2006) (Ref 8-8), a presumed (based on a single desk study record), low population of</p>





Ecological feature and relevant technical appendix	Baseline Detail	Nature Receptor	Conservation Assessment of Biodiversity Importance	Rationale
				list and are of least conservation concern.
Breeding Birds ( <b>Appendix 8H</b> of the ES [EN010118/APP/6.2]).	66 bird species were recorded within the survey area during surveys for breeding birds, with territories for 53 species confirmed and one probable territory, resulting in a breeding bird assemblage of 54 species across the Order limits.  Territories of three Wildlife and Countryside Act 1981 (as amended) (Ref 8-1) Schedule 1 species (Red Kite <i>Milvus milvus</i> , Hobby and Barn Owl) confirmed within the survey area.  One probable territory of Lesser-spotted Woodpecker ( <i>Dryobates minor</i> ) within woodland in the survey area - Priority Species (Ref 8-1), BoCC (Ref 8-1) Red List species and declining both nationally and in Essex.  Three territories of Tree Sparrow <i>Passer montanus</i> within peripheral habitat in the survey area - Priority Species (Ref 8-1), BoCC (Ref 8-1) Red List species	An assemblage of notable birds breeding on the arable land within the Order limits.  Common nesting bird species throughout the Order limits.  Red Kite, Hobby and Barn Owl	County Importance  Local Importance  County Importance	The arable land within the Order limits supports a number of notable species during the breeding season, including Yellowhammer <i>Emberiza citrinella</i> , Linnet <i>Linaria cannabina</i> and Skylark <i>Alauda arvensis</i> ; all are BoCC (Ref 8-41) Red or Amber list species or listed as SPI (Ref 8-8).  All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended) (Ref 8-7).  Habitat present across the extent of the Order limits supports nesting birds.  Specially protected species owing to inclusion on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) (Ref 8-7).
		Lesser-spotted and Tree Sparrow	County Importance	Lesser-spotted Woodpecker is a declining species within Essex and the UK. SPI (Ref 8-8) and BoCC (Ref 8-41) Red List species – one probable territory would represent a significant

Ecological feature and relevant technical appendix	Baseline Detail	Nature Receptor	Conservation Assessment of Biodiversity Importance	Rationale
Bats ( <b>Appendix 8I</b> of the ES <b>[EN010118/APP/6.2]</b> ).	<p>The desk study identified that the closest bat roost to the Order limits is a Brown Long-eared bat <i>Plecotus auritus</i> maternity roost, approximately 500m south of the Order limits. Based on the field data collected from the PRA survey and bat activity surveys, there are likely to be roosts within or close to the Order limits of Common Pipistrelle <i>Pipistrellus pipistrellus</i>, Soprano Pipistrelle <i>Pipistrellus pygmaeus</i>, Noctule <i>Nyctalus noctula</i>, Leisler's bat <i>Nyctalus leisleri</i>, <i>Myotis</i> bat species (e.g. Daubenton's <i>Myotis daubentonii</i>), Brown Long-eared bat and Barbastelle <i>Barbastella barbastellus</i>.</p> <p>Species recorded on the activity surveys (activity transects and static bat detectors) in 2020 comprised at least eight species: Common Pipistrelle, Soprano Pipistrelle, Brown Long-eared Bat, Serotine <i>Eptesicus serotinus</i>, Noctule, Barbastelle, Leisler's Bat, Daubenton's Bat and unknown <i>Myotis</i> species (Daubenton's Bat and / or other <i>Myotis</i> species).</p>	Foraging / commuting activity throughout of common and rarer bat species with potential for roosts within and adjacent to the Order limits.	<p>Foraging / commuting habitat for Common and Soprano Pipistrelle – up to County importance.</p> <p>Foraging / commuting habitat for Barbastelle – up to County importance.</p> <p>Foraging / commuting habitat for Noctule, Leisler's, Serotine, Brown Long-eared Bat, Daubenton's bat and potentially other <i>Myotis</i> species - Local importance.</p>	<p>proportion of the breeding population in Essex.</p> <p>Tree Sparrow <i>Passer montanus</i> is a recent re-coloniser as a breeding species in Essex. Therefore, three territories would represent a significant proportion of the breeding population in Essex.</p> <p>All bat species and their roosts are legally protected in the UK under the Wildlife and Countryside Act (1981, as amended) (Ref 8-7) and Conservation of Habitats and Species Regulations (as amended) (Ref 8-2), which implemented the EC Directive 92/43/EEC (the Habitats Directive) (Ref 8-39). Seven bat species are also included as SPI under Section 41 of the NERC Act (Ref 8-8).</p> <p>Biodiversity importance of foraging and commuting bats based on species rarity, estimated numbers of bats, presence of nearby roosts and type / complexity of community/foraging features. All potential roosts currently to be retained and not disturbed.</p>

Ecological feature and relevant technical appendix	Baseline Detail	Nature Receptor	Conservation	Assessment of Biodiversity Importance	Rationale
Badger ( <b>Appendix 8J</b> of the ES [EN010118/APP/6.2]).	Twenty-one Badger setts, (fifteen in active use), recorded within the survey area. Of these, four active main setts are within the Order limits.	At least five separate social groups present within or in the vicinity of the Order limits.	Badger	Local Importance	Badgers are protected under The Protection of Badgers Act 1992 (Ref 8-42), however, they remain common and widespread throughout Essex.
Otter ( <b>Appendix 8K</b> of the ES [EN010118/APP/6.2]).	Otters were found to use the River Ter occasionally, with one confirmed sighting on one night using the River Ter and recent desk study records nearby.  No Otter holts, couches or resting sites recorded within the Order limits.	Change or loss of riparian habitat used by Otter.	Otter	Local Importance	Otter is protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) (Ref 8-7) and under The Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 8-2).  Otters have an estimated British population of 11,000 and are increasing in population size and range. There are of IUCN Least Concern Status in England.  The absence of holts, couches or resting sites within the survey area means the Order land is likely to only support an Otter Population of Local Importance.
Hedgehog	An assessment of the mix of scrub, hedgerow and grassland habitat present within the Order limits and likelihood for Hedgehog to occur, concluded that Hedgehog is likely to be present within the Order limits.	Assumed presence within Order limits.	Hedgehog	Local Importance	SPI in England (Ref 8-8).  No surveys were undertaken for Hedgehog. However, an assumption has been made this species is likely to be present across the whole Site.

Ecological feature and relevant technical appendix	Baseline Detail	Nature Receptor	Conservation	Assessment of Biodiversity Importance	Rationale
Brown Hare	An assessment of the arable habitat within the Order limits and likelihood for Brown Hare to occur, concluded that Brown Hare is likely to be present within the Order limits.	Assumed presence within limits.	Order	Local Importance	<p>Hedgehog is widespread and abundant in the UK and in Essex, but declining.</p> <p>SPI in England (Ref 8-8) and Local BAP species in Essex (Ref 8-43). No surveys were undertaken for Brown Hare. However, Brown Hare were recorded in arable land during other ecological surveys and when considering the habitat quality within the Order limits, an assumption has been made this species is likely to be present across the Order limits.</p> <p>Brown Hare is widespread and abundant in the UK and in Essex.</p>
Invasive Non-native species	<p>Two invasive non-native plant species, Nuttalls Waterweed <i>Elodea nuttallii</i> and New Zealand Pigmyweed <i>Crassula helmsii</i> were recorded during the desk study, within 1.4km and 1km respectively from the Order limits and as recently as 2015.</p> <p>The data search also returned records of Mink, Muntjac <i>Muntiacus reevesi</i> and Japanese Knotweed <i>Reynoutria japonica</i> which were within 2km of the Order limits. Mink was recorded on the River Ter during surveys for riparian mammals and Muntjac were recorded within the Order limits during field surveys.</p>	Potential impacts upon native species and habitats within and outside the Order limits due to the spread of invasive non-native species, and associated biosecurity risks, e.g. due to the spread of water-borne diseases such as crayfish plague.	N/A	N/A	Section 14 and schedule 9 of the Wildlife and Countryside Act (WCA) 1981 (Ref 8-7).

Ecological feature and relevant technical appendix	Baseline Detail	Nature Receptor	Conservation	Assessment of Biodiversity Importance	Rationale
	<p>Spanish Bluebell <i>Hyacinthoides hispanica</i> was recorded in one location within the Order limits during field surveys.</p> <p>Two non-native macroinvertebrate species were identified in the macroinvertebrate samples during aquatic surveys: New Zealand Mud Snail (<i>Potamopyrgus antipodarum</i>) and the amphipod <i>Cranogonyx pseudogracilis / floridanus</i>.</p>				

8.6.12 Water Vole was confirmed, through field surveys, to be absent within the Order limits and was therefore scoped out of the assessment and is not considered further in this chapter.

### **Future Baseline**

- 8.6.13 This section considers those changes to the baseline conditions described above that might occur during the time period over which the Scheme will be in place. It also considers changes that might occur in the absence of the Scheme being constructed.
- 8.6.14 The habitat within the Order limits and up to 50m from the Order limits is dominated by arable fields (cropped on rotation) with a few fields of improved grassland for livestock, bordered by mature trees and hedges, small wooded copses and ponds. The River Ter, within adjacent woodland and grassland bisects the Order limits to the north, just west of the village of Terling. There are individual and clusters of residential properties located within and adjacent to the Order limits.
- 8.6.15 In the short to medium term, in the absence of the Scheme, these habitats have and will continue to provide a number of species with potential habitat such as arable farmland for ground-nesting breeding birds. In the long term, in the absence of the Scheme, habitats on site will be under agricultural management and therefore the distribution of some species will change in response to cropping, whilst the assemblages may remain broadly the same. Any changes to the baseline between now and the future scenario have been taken into account in the assessment and when determining mitigation measures.
- 8.6.16 Irrespective of whether the Scheme were to proceed or not, the current trend is for declines in species diversity and abundance, e.g. farmland birds, both locally and at a national scale. These declines are likely to continue throughout the duration of the Scheme, although whether targeted efforts halt or reverse these declines remains to be seen.

### **Construction Period (no earlier than 2024)**

- 8.6.17 Based on current trends, species abundance and diversity is likely to remain similar to the baseline conditions reported in Section 8.6 during the construction period, although the trajectory for the majority of species is continued decline.
- 8.6.18 If the Scheme did not proceed, the majority of existing habitats are likely to continue being present, although some changes in habitat extent, composition and structure will occur as a result of ecological succession e.g. the gradual 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 prior to 2024 and up to 2026.

### **Opening and Operation (2026-2066)**

- 8.6.19 Based on current projections the long-term, i.e. next 40 years, will continue to see a decline in biodiversity, including species associated with the baseline conditions present within the Order limits. This will have implications for the species assemblages present during opening and operation of the Scheme.

8.6.20 Policies targeted at halting and reversing these declines is set out in **Appendix 8A: Legislation and Policy** of the ES [EN010118/APP/6.2].

8.6.21 If the Scheme did not progress, based on available information, whilst there is likely to be an overall decline in biodiversity, there are no reasons to expect that there would be any marked change in the broad habitat types associated with the Scheme between opening in 2026 and 2066 (based on an estimated 40-year operation). It is noted however, that changing climatic conditions resulting from climate change may influence the resilience of certain habitats and species, such as grasslands and their associated faunal communities. Habitats such as broad-leaved trees and scrub will be more mature but are likely to support a broadly similar species assemblage and arable farmland will also be managed accordingly, maintaining broadly similar species assemblages.

#### Decommissioning (2066)

8.6.22 The future baseline conditions in 2066 is currently unknown and more difficult to predict given the time period that would need to lapse between now and then. They are likely to be similar to those at the start of construction (2024), although habitats such as plantation woodland would have matured further, though some may have been felled or partially cropped. Species assemblages are also likely to have changed in accordance with the site conditions. Changes in biodiversity are likely to occur if climate change continues at its current pace. Adverse effects could include changes in species habitats and compositions and consequently changes in species assemblages and distribution. A **Decommissioning Strategy** [EN010118/APP/7.12] has been prepared to support the DCO submission and will be finalised prior to the decommissioning. This has included measures which will be adaptive to accommodate climate related changes in the environment present within the Order limits at the time of decommissioning.

#### **Summary of Important Ecological Features**

8.6.23 **Table 8-8** summarises the important ecological features that are relevant to the Scheme. Based on CIEEM guidelines (Ref 8-11) and using professional judgement, features of Local and Site importance i.e. less than district importance, are not considered further in the assessment process, unless legislation requires their consideration. Therefore, in recognition of the protected status of species occurring at a local level (e.g. Great Crested Newt), the Scheme has embedded appropriate mitigation to minimise impacts in line with the relevant legislation.

**Table 8-8: Summary of important ecological features**

<b>Important Ecological Feature</b>	<b>Reason for Valuation</b>	<b>Biodiversity Importance</b>
<b>Essex Estuaries SAC</b>	Statutory site of nature conservation importance.	International
<b>Blackwater Estuary (Mid-Essex Coast Phase 4) SPA and Ramsar</b>	Statutory site of nature conservation importance.	International
<b>Three SSSI sites</b>	Statutory sites of nature conservation importance.	National
<b>One LNR</b>	Statutory site of nature conservation importance.	National
<b>31 local Wildlife Sites (LoWSs)</b>	Non-statutory sites of nature conservation importance.	County
<b>Woodland – Broad-leaved semi-natural</b>	Habitat of Principal Importance – Lowland Mixed Deciduous Woodland.	County
<b>Scattered veteran trees</b>	Veteran trees, based on guidance in LoWS selection criteria.	County
<b>Marshy Grassland</b>	A component of a Habitat of Principal Importance – Wet Woodland.	District
<b>Standing Water – Pond 7</b>	One pond meets certain criteria and is a Habitat of Principal Importance.	District
<b>Running Water (River Ter and Boreham Brook)</b>	Habitat of Principal Importance - River Ter bisects the northern part of the Order limits and Boreham brook is within the cable corridor.	County
<b>Hedgerows</b>	Hedgerows across the Order limits, based on guidance in LoWS selection criteria are likely to be of up to County Importance.	Up to County
<b>Aquatic Macrophytes</b>	One pond (pond 7) supports uncommon aquatic plants.	District
<b>Fish</b>	Population of Eel, Bullhead, Brown Trout and Brook Lamprey in River Ter.	Up to Regional



Important Ecological Feature	Reason for Valuation	Biodiversity Importance
<b>Non-breeding (wintering) birds</b>	Population of wintering birds - species diversity.	County
	Wintering population of Lesser-spotted Woodpecker.	County
	Wintering population of Tree Sparrow.	County
<b>Breeding Birds</b>	An assemblage of notable birds breeding on the arable land within the survey area.	County
	Population of Red Kite, Hobby and Barn Owl.	County
	Population of Lesser-spotted Woodpecker.	County
	Population of Tree Sparrow.	County
<b>Bats</b>	Foraging / commuting common and scarce / rarer bat species, with potential for roosts within and adjacent to the Order limits.	Up to County

## 8.7 Potential Impacts and Effects

8.7.1 The construction, operation and decommissioning of the Scheme could potentially result in the following impacts and effects discussed below.

### *Construction (no earlier than 2024-2026)*

8.7.2 Impacts on biodiversity features during construction of the Scheme are likely to include:

- a. Habitat loss or gain – direct impacts associated with changes in land use resulting from the Scheme, for example temporary works associated with site clearance, and permanent land-take (mainly arable land) associated with the installation of the Scheme.
- b. Fragmentation of populations or habitats – indirect impacts due to the Scheme dividing a habitat, group of related habitats, site or ecological network, or the creation of partial or complete barriers to the movement of species, with a consequent impairment of ecological function.
- c. Disturbance – indirect impacts resulting from a change in normal conditions (light, noise, vibration, human activity) that result in individuals or populations of species changing behaviour or range.

- d. Habitat degradation – direct or indirect impacts resulting in the reduction in the condition of a habitat and its suitability for some or all of the species it supports, for example changes in chemical water quality or changes in surface flow or groundwater.
- e. Species mortality – direct impacts on species populations associated with mortalities due to construction activities, for example site clearance.

#### **Operation (no earlier than 2026-2066)**

8.7.3 Impacts on biodiversity features during the operational phase of the Scheme are likely to include:

- a. changes to foraging and commuting habitats, e.g. from agriculture (arable crops / cattle grazing) to grassland (potentially cut or grazed);
- b. potential attraction or avoidance of species such as bats and birds to the solar panels from potential increases in prey (i.e. flying insects), potential noise attraction or disturbance from BESS, operational compound and solar panel barrier effects;
- c. potential for nesting and/ or roosting in new infrastructure; and
- d. indirect beneficial impacts through a possible reduction of agriculture chemical inputs to watercourses / reduction in pesticide use on crops within the local area resulting in an increase in prey availability.

#### **Decommissioning (no earlier than 2066)**

8.7.4 Impacts on biodiversity features during decommissioning of the Scheme are likely to be the same as construction. Upon decommissioning, the above-ground physical infrastructure will be removed and the Order limits returned to landowners in the condition as at the end of operations, including the established habitats.

### **8.8 Embedded Design Mitigation and Enhancement**

8.8.1 Primary mitigation measures are embedded within the Scheme, as illustrated within the **Design Statement [EN010118/APP/7.3]**, **OLEMP [EN010118/APP/7.13]**, **OCEMP [EN010118/APP/7.1]**, **OOEMP [EN010118/APP/7.11]** and the **Decommissioning Strategy [EN010118/APP/7.12]**, the development of all of which are secured by the DCO. Embedded mitigation measures are detailed in the following sections. This embedded mitigation is needed to successfully integrate the Scheme within the context of the existing landscape and prevent or reduce any adverse effects on ecological features.

8.8.2 For the purposes of BNG, the Scheme will result in an overall net gain of 79% habitat units for biodiversity and 20% of hedgerow habitats. The results of the BNG assessment are included within the **Biodiversity Net Gain Report [EN010118/APP/6.5]** and summarised in the **OLEMP**. Whilst the majority of habitat lost is of low ecological value and of no more than local importance, e.g. arable farmland, any important ecological habitat features (such as marshy grassland) have been taken forward for further assessment (**Table**

**8-8)** and embedded design measures described below ensure no net loss in these important habitat types.

8.8.3 The following Scheme design, impact avoidance and embedded mitigation measures have been incorporated into the Scheme design.

#### Habitat avoidance, creation and replacement

8.8.1 The **OCEMP** includes the requirement for a perimeter Deer fence around the Scheme that will be implemented early in the construction phase to secure the Order limits. The fence design will include gaps to allow mammals, including small deer, to pass underneath at strategic locations. This fence will also prevent construction activity in proximity to retained vegetation, in particular designated sites (River Ter SSSI and any LoWS) within and adjacent to the Order limits and where required specific tree protection measures will be implemented, including fencing and construction exclusion zones.

8.8.2 With the exception of Boreham Road Gravel Pits LoWS (see section 8.8.3), it has been ensured that designated sites (see **Table 8-9**) are avoided. Measures embedded within the Scheme design ensure that designated sites are not impacted during construction, operation and decommissioning e.g. through siting construction routes away from and outwith designated sites, incorporating suitable buffer zones and erection of temporary construction fencing to avoid incursion into exclusion zones. Following decommissioning the Order limits will be returned to landowners, in the condition as of the end of operation, including established habitats.

8.8.3 Where Boreham Road Gravel Pits LoWS is crossed by the proposed grid connection cable, measures (such as the use of HDD) will be undertaken to avoid habitat loss during construction. These measures are outlined and secured within the **OCEMP**. Post-construction, any habitat loss within the footprint of the grid connection cable will be restored to its pre-construction condition. The measures that will be deployed on this Scheme are incorporated in the **OCEMP** and secured through the DCO.

8.8.4 The Scheme has been designed so that impacts upon important habitats (including woodland, veteran trees, marshy grassland, hedgerows, running water and ponds) are avoided.

8.8.5 Throughout the Scheme, undeveloped buffers will be included to protect all hedgerows, veteran/ancient trees, ponds and ancient woodland during construction and operation. Within some of these buffers, particularly around the ancient woodland, natural regeneration of woodland will create additional scrub and woodland habitat. Other areas will be managed as grassland. Tree Root Protection fencing will be erected around retained trees, in line with British Standard BS 5837: Trees in relation to design, demolition and construction – Recommendations and the undeveloped buffers will be of at least 15m from woodlands (including from ancient woodland), trees and hedgerows with trees and 5m from hedgerows without trees. The measures that will be deployed on this Scheme are incorporated in the **OCEMP** and **OLEMP** and secured through the DCO.

- 8.8.6 Throughout the Scheme, as set out within the **Design Statement** and in **Chapter 10: Landscape and Visual Amenity**, a range of new habitats will be provided including bare ground, grassland, 'cover crops', hedgerow, tree and scrub planting to increase the biodiversity of the Scheme. These habitats will comprise:
- a. 8.6km of new native hedgerows with hedgerow trees;
  - b. 20.6km of native hedgerow enhancement - gapping up and infill planting;
  - c. Approximately 200 new individual trees;
  - d. 23.2ha of land for natural regeneration;
  - e. Over 3ha. of new native woodland buffer planting measuring 25m wide to form ecological corridors between existing woodlands;
  - f. 0.6ha. of native linear tree belts measuring 15m wide;
  - g. A new north/south green route, via a new permissive path;
  - h. 272ha. of new species rich grassland below solar arrays;
  - i. 131ha. of new species rich grassland in open areas; and
  - j. 42km of species rich mown grassland around the perimeter of proposed solar arrays.
- 8.8.7 These habitats will provide landscape scale benefits for wildlife through increased habitat provision and connectivity and will be of value to a wide range of fauna, including farmland birds such as Skylark and Yellowhammer. Grassland will be provided adjacent to and beneath the Solar PV Arrays, including in larger open fields within the Order Limits, to increase the diversity of flora in comparison to existing intensive agriculture and provide new habitat niches to encourage other fauna such as invertebrates and birds, such as Skylark. The creation of new habitats within the Order limits, including grassland habitat within and around the solar arrays, will provide permanent long-term opportunities for Skylark (and other ground-nesting species) to nest, undisturbed, throughout the duration of the breeding season.
- 8.8.8 Vegetation would be established through natural regeneration or from seed collection from the grasslands identified within the Order limits and through a suitable long-term habitat management regime. Consideration will be paid to microclimatic conditions when considering appropriate species. Management will be undertaken in a variety of ways to deliver biodiversity gains. This may include creating disturbed open bare ground areas to promote annual seed-bearing plant species to benefit declining farmland birds such as Turtle Dove (*Streptopelia turtur*). Grassland will be managed by either low intensity grazing or infrequent hay cutting to allow plant species to flower and seed.
- 8.8.9 Gaps in currently defunct hedges will be planted with suitable native species to improve the connectivity of habitats (such as between ancient and other broad-leaved woodland) within and adjacent to the Order limits. New areas of tree planting around infrastructure will be provided to provide both screening from Scheme infrastructure and to improve habitat connectivity as well to the increase the area of hedge / woodland habitat within the Order limits. New

scrub habitat and wider hedgerows (up to 8m wide) will be created in selected areas to provide suitable habitat for declining farmland birds such as Nightingale (*Luscinia megarynchos*) and Turtle Dove. Hedgerows and trees will be allowed to grow tall and wide to provide maximum benefits for biodiversity and this natural regeneration will encourage a mosaic of successional habitats, forming broad habitat corridors throughout the Scheme. These measures are incorporated in the **OLEMP** (and secured through the DCO).

8.8.10 Further information on the habitat creation and landscape proposals embedded within the Scheme design are set out in the **Design Statement** and **OLEMP**.

8.8.11 The Scheme drainage strategy (see the Drainage Strategy, **Appendix 9C and 9D** of the ES [EN010118/APP/6.2]) has been developed to manage surface water runoff and will reduce the likelihood and severity of potential pollution incidents and flooding affecting watercourses and the local ditch network to reduce or eliminate adverse effects for aquatic and riparian species and habitats.

8.8.12 Where lighting is required, it will conform to best practice guidelines with respect to minimising light spill into adjacent habitats and prevent disturbance to bats and other species. With reference to **Chapter 2: The Scheme** of the ES, temporary construction site lighting, in the form of mobile lighting towers with a power output of 8 kilo volt-amperes (kVAs), will be required in areas where natural lighting is unable to reach (sheltered/confined areas) and during core working hours within winter months. All construction lighting will be deployed in accordance with the following recommendations to prevent or reduce the impact on human and ecological receptors:

- k. The use of lighting will be minimised to that required for safe site operations;
- l. Lighting will utilise directional fittings to minimise outward light spill and glare (e.g. via the use of light hoods/cowls which direct light below the horizontal plane, preferably at an angle greater than 20° from horizontal); and
- m. Lighting will be directed towards the middle of the Order limits rather than towards the boundaries.

8.8.13 During operation, no part of the Scheme will be continuously lit. Manually operated and motion-detection lighting will be utilised for operational and security purposes around electrical infrastructure such as inverters, transformers and switchgear across the Solar PV Array Areas, and within the BESS, Longfield Substation and Bulls Lodge Substation Extension. Lighting will be directed downward and away from boundaries. No visible lighting will be utilised at the site perimeter fence, aside from the site entrance points.

#### Protected and notable species

8.8.14 The following measures will be incorporated into the design of the Scheme to mitigate impacts and effects on protected and, or notable species. Some of these measures have a direct relationship to the standard mitigation measures

for protected species that will be implemented prior to, or during construction (see further on in this chapter). These have been included in the **OCEMP**, **OOEMP** and **Decommissioning Strategy**.

#### Standard mitigation measures

- 8.8.15 The **OCEMP** sets out the measures that will be implemented during construction of the Scheme to mitigate construction-related effects on biodiversity associated with dust deposition, air pollution, pollution incidents, water quality, light, noise and vibration. Similarly, the **OOEMP** and **Decommissioning Strategy** set out measures to mitigate and manage operational and decommissioning related effects on biodiversity, respectively. These measures are secured through the DCO.
- 8.8.16 Pre-construction surveys will be undertaken to validate and, where necessary, update the baseline survey findings. The purpose of these pre-construction surveys is to ensure mitigation during the construction phase is based on the latest protected species information. This will also be required for any protected species licensing that may be identified as being necessary at detailed design stage. Relevant site staff would receive toolbox talks on the ecological risks present, legal requirements and working arrangements necessary to comply with legislation. Toolbox talks will be repeated as necessary over the duration of the relevant works. Similar surveys and toolbox talks would also be undertaken prior to decommissioning to inform mitigation and protected species licensing requirements.
- 8.8.17 Low instances of invasive non-native species were recorded within the Order limits. Pre-construction and pre-decommissioning surveys will be undertaken to provide an update on the presence and location of any invasive species, the findings of which will inform the implementation of measures to prevent their spread into the wild. These surveys will inform the production of a Biosecurity Management Plan which will set out procedures to ensure that no invasive species are brought onto the Site (e.g. Wildlife and Countryside Act 1981 (as amended) (Ref 8-7) Schedule 9 species) and secured through the **OCEMP and Decommissioning Strategy**. In the event that any future infestations of invasive non-native species are identified prior to and or during the development process, exclusion zones will be established around them and the Ecological Clerk of Works (ECoW) contacted for advice as required.
- 8.8.18 The implementation of the **OCEMP** and **OOEMP** is secured through the DCO to manage the environmental effects of the Scheme and to demonstrate compliance with environmental legislation. The following standard mitigation measures secured through the **OCEMP** and/or **OOEMP** will be implemented during construction and operation to protect retained vegetation, designated sites, protected species and other areas of biodiversity value from disturbance, damage and accidental pollution:
- n. During construction and operation of the design of the Scheme will comply with industry good practice and environmental protection legislation during both construction and operation e.g. prevention of surface and ground water pollution, fugitive dust management, noise prevention or amelioration. The Ecology and Landscape assessments (presented in **Chapter 8: Ecology** and **Chapter 10: Landscape and**

**Visual Amenity** of the ES [EN010118/APP/6.1], respectively) has informed the iterative design process, via design principles which respond to the requirements, published landscape character assessments and field work analysis, in order to mitigate the likely adverse effects of the Scheme.

- o. Throughout construction and operation of the Scheme, the use of motion detection security lighting to avoid permanent lighting will be utilised and the inward distribution of light will avoid light spill on to existing boundary features.
- p. During construction the crossing of Boreham Brook will be undertaken using HDD methods to avoid impacts to watercourses. Furthermore, setbacks of at least 10m from all watercourses is considered sufficient to mitigate for potential hazards such as chemical and soils spills into watercourses and avoid potential direct impacts to the River Ter and Otter, which occasionally use the river for commuting and foraging. The CEMP will specify requirements for the safe storage of chemicals / other hazardous materials (e.g. fuel) reaching watercourses during flood events during construction. A full list detailing crossing methods and an explanation of these techniques is provided in **Chapter 9: Water Environment** of the ES [EN010118/APP/6.1].
- q. Preparation of mitigation strategies for protected species and where required, application for species licences from Natural England for translocation of animals away from construction areas sufficiently in advance of the works to meet with the optimum time for mitigation and to minimise any changes to the construction programme.
- r. Vegetation clearance will be undertaken in advance of construction and at an appropriate time of year so as to avoid incidental injuring or killing of reptiles and amphibians. There will be no need to undertake any translocation of reptiles. Similarly, any vegetation management during operation will need to be undertaken at an appropriate time of year.
- s. Construction will avoid the nesting bird period i.e. March to August (inclusive) for vegetation clearance. Any vegetation clearance proposed within the nesting bird period will be checked for the presence of any nests by a suitably qualified ornithologist, prior to vegetation removal, and if active nests are found, then appropriate buffer zones would be put in place and the area monitored until the young birds have fledged. During operation, any required management will need be undertaken in accordance with legislative requirement associated with breeding birds. During decommissioning, prior to the removal of above ground infrastructure cleared ground and grassland will be maintained in a disturbed state in the run up to decommissioning commencing to minimise the risk of ground nesting birds attempting to nest. These avoidance measures are set out in the **OCEMP, OOEMP and Decommissioning Strategy** which are secured through the DCO.
- t. During construction and operation, reasonable avoidance measures, including appropriate buffers (of up to 30m) around any identified Badger setts, or trees with bat roost potential (a buffer of 15m) throughout the Scheme (e.g. solar array and along the cable corridors).

These avoidance measures are set out in the **OCEMP and OOEMP** which is secured through the DCO.

- u. Implementation of measures to avoid animals being injured or killed within construction working areas, through excluding them from such areas and preventing them falling into and becoming trapped in excavations.

## 8.9 Assessment of Likely Impacts and Effects on Relevant Ecological Features

8.9.1 This section describes the impacts and potential effects of the Scheme (see section 8.7 of this chapter) on relevant ecological features in the absence of any mitigation over and above that which is embedded in the design (as described above).

8.9.2 Relevant ecological features are those that are considered to be important and have the potential to be affected by the Scheme. An initial consideration of potential impacts and effects arising from the construction, operation and decommissioning phases of the Scheme on the important ecological features identified in **Table 8-8** is provided in **Table 8-9** to **Table 8-10**, to set the requirements for the more detailed impact assessment that follows.

8.9.3 This section addresses potential impacts arising from construction, operation and decommissioning of the Scheme. It has been assumed that decommissioning impacts will be similar to those occurring during construction, with retention, where reasonably practicable, of important ecological features present at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. It is anticipated that the existing protected species legislation would remain in place.

### Sites statutorily and non-statutorily designated for their biodiversity value

8.9.4 The statutory and non-statutory designated sites that have been considered are included in **Table 8-9**. Where there is the potential for significant effects this is stated, and the relevant receptors assessed in section 8.10 of this chapter.



**Table 8-9: Determination of relevant ecological features – Designated Sites**

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects?
<b>Essex Estuaries SAC / Blackwater Estuary (Mid-Essex Coast Phase 4) SPA and Ramsar</b>	International	<p><b>Construction:</b> The Essex Estuaries SAC / Blackwater Estuary (Mid-Essex Coast Phase 4) SPA and Ramsar is located over 9.3km from the Order limits and there are no ecological connections between this designated site and the Scheme. Whilst there is a possible hydrological connection to these designated sites, impacts will not occur due to the distance along the river network from the Scheme of approximately 17.5km and avoidance of development close to the River Ter.</p> <p>The construction of the Scheme will not directly impact on habitat within these designated sites, owing to the distance between these sites and the Order limits.</p> <p>There will be no fragmentation of habitats, or of populations of species using habitats, within these designated sites during construction.</p> <p>There will be no disturbance to designated sites or habitat degradation through preparation of the Order limits, although the construction of the Scheme will result in dust generation, along with noise and visual disturbance. Noise (see <b>Chapter 11: Noise and Vibration</b> of the ES [EN010118/APP/6.1]) and visual disturbance (see <b>Chapter 10: Landscape and Visual Amenity</b> of the ES [EN010118/APP/6.1]) will not impact on the integrity or the functioning of SAC, SPA or Ramsar sites, owing to the distance between these sites and the Order limits. Consequently, indirect effects to designated sites during construction will not occur and there will be no effect to the integrity of these statutory designated sites.</p> <p>There will be no species mortality of any species associated with these designated sites, during construction of the Scheme, directly or indirectly, owing to the distance between these sites and the Order limits.</p> <p>Therefore, there are no impact pathways, either directly or indirectly, that would impact upon the integrity or functioning of these statutory designated sites.</p>	No
		<p><b>Operation:</b></p> <p>There are no pathways (e.g. habitat loss or disturbance to designated site features such as through noise, water quality, air quality, lighting or visual), during operation of the Scheme which could affect these statutory designated sites.</p>	No

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects?
		<p><b>Decommissioning:</b> Decommissioning impacts will be similar to those occurring during construction. The decommissioning of the Scheme will not directly impact on habitat within these designated sites, owing to the distance between these sites and the Order limits.</p> <p>There will be no fragmentation of habitats, or of populations of species using habitats, within these designated sites during decommissioning.</p> <p>There will be no disturbance to designated sites, habitat degradation or species mortality and any impacts at the time of decommissioning would be mitigated fully in line with relevant legislative and policy requirements. These measures are included within the <b>Decommissioning Strategy [EN010118/APP/7.12]</b>.</p>	No
<p><b>River Ter SSSI</b></p>	<p>County</p>	<p><b>Construction:</b> This statutory designated site is adjacent to the Order limits and a short undesignated section of the River Ter bisects the north of the Order limits. The SSSI is designated for geological importance, but the river itself does support aquatic macroinvertebrates, notable/protected fish and Otter (see <b>Table 8-7</b>). There are ecological and hydrological connections between the River Ter SSSI and the Scheme.</p> <p>The construction of the Scheme will not directly impact on habitat within the River Ter SSSI as the nearest infrastructure will be at least 50m from the river and other adjacent fields within the Order limits will be used for habitat creation rather than built development. Embedded mitigation measures, with regards to the management of construction site run-off, the management of spillage risk, the management of flood risk, the management of risk to morphology of waterbodies (as described in <b>Chapter 9: Water Environment</b> of the ES [EN010118/APP/6.1]) will ensure that no indirect impacts to watercourses, which in turn could affect the River Ter SSSI, occur.</p> <p>Measures to ensure incursion into the SSSI does not occur will be put in place (see section 8.8) and these measures will include security fencing erected early on in the construction process. These measures are included within the <b>OCEMP</b>.</p> <p>There will be no fragmentation of habitats, or of populations of species using habitats, within the River Ter during construction.</p> <p>Any construction within the vicinity of the River Ter may require temporary lighting, which has the potential to spill into the River Ter. With reference to <b>Chapter 2: The Scheme</b> of</p>	No

**Ecological Feature**

**Biodiversity Importance**

**Potential Impacts**

**Potential for significant effects?**

the ES, construction working hours will be 7am until 7pm Monday to Saturday and during construction in the winter months, mobile lighting towers with a power output of 8 kilo volt-amperes (kVAs) will be used. Any lighting that is required for the construction of the Scheme will be directed away from existing retained and sensitive habitats, particularly the River Ter, to minimise light disturbance to species associated with these habitats. Any requirements for task-specific lighting during construction will be designed to be downward directional and will only be used for the duration of the task. All temporary lighting will need to satisfy health and safety requirements, as well as minimising potential effects on the surrounding areas by minimising sky glow, glare and light spillage. The direction of required construction lighting (facing away from the designated site and into the Scheme and existing boundary features (woodland/hedgerows)) will also reduce the potential for light spill on sensitive habitats from construction activities.

During construction, there is potential for pollutant spills and surface runoff into the River Ter and other connected watercourses and any such incidences have the potential to adversely affect habitats and species associated with the River Ter SSSI. Unmitigated, these indirect effects will adversely affect the integrity of the designated site. The impact, whilst short term during the period of construction, may result in medium term effects to important ecological features associated with the designated site. For example, the aquatic environment may take a number of years to recover from the result of a pollution spill during construction. However, as discussed in section 8.8 of this chapter, standard environmental protection measures will be implemented and adopted during construction. These measures (including dust suppression and pollution prevention) are set out in the **OCEMP** and secured through the DCO.

There will be no species mortality of any species associated with this SSSI, during construction of the Scheme.

Therefore, there are no impact pathways, either directly or indirectly, that would impact upon the integrity or functioning of the River Ter SSSI.

**Operation:** There are no pathways (e.g. habitat loss or disturbance to designated site features such as through noise, water quality, lighting or visual), during operation of the Scheme which could affect the River Ter SSSI. Through the management of surface water (see also **Chapter 9: Water Environment** of the ES, no significant adverse effects on the

No

**Ecological Feature**

**Biodiversity Importance**

**Potential Impacts**

**Potential for significant effects?**

River Ter are predicted during operation (via Sustainable Drainage Systems (SuDS) designed to ensure no increase in flood risk to the Order limits or elsewhere.

**Decommissioning:** Decommissioning impacts will be similar to those occurring during construction. The decommissioning of the Scheme will not directly impact on habitat within these designated sites and there will be no fragmentation of habitats, or of populations of species using habitats, within these designated sites during decommissioning.

There will be no disturbance to designated sites, habitat degradation or species mortality and any impacts at the time of decommissioning would be mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

No

**Blake's Wood & Lingwood Common** County  
**SSSI, Chelmer Valley Riverside LNR**  
**and Woodham Common SSSI**

**Construction:** These statutory designated sites (primary designation being woodland habitats) are all over 3km from the Order limits and there are no ecological or hydrological connections between these designated sites and the Scheme.

No

The construction of the Scheme will not directly impact on habitat within these designated sites.

There will be no fragmentation of habitats, or of populations of species using habitats, within these designated sites during construction.

Preparation of the Order limits and the construction of the Scheme will result in dust generation, along with noise and visual disturbance. (see **Chapter 11: Noise and Vibration** of the ES) and visual disturbance (see **Chapter 10: Landscape and Visual Amenity** of the ES) will not impact on the integrity or the functioning of these SSSI or LNR sites, owing to the distance between these designated sites and the Scheme. Furthermore, the construction of the majority of the Scheme will be screened by existing vegetation and the topography.

The implementation of standard environmental protection measures during construction, such as dust suppression and pollution prevention, will be adopted and these measures will be formalised into the **OCEMP** and secured through the DCO. Consequently, dust generation during construction will not affect the integrity of any statutory designated sites.

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects?
<p>There will be no species mortality of any species associated with these designated sites, during construction of the Scheme.</p> <p>Therefore, there are no impact pathways, either directly or indirectly, that would impact upon the integrity or functioning of these statutory designated sites.</p> <hr/> <p><b>Operation:</b> There are no pathways (e.g. habitat loss or disturbance to designated site No features such as through noise, water quality, air quality, lighting or visual), during operation of the Scheme which could affect these statutory designated sites.</p> <hr/> <p><b>Decommissioning:</b> Decommissioning impacts will be similar to those occurring during No construction. The decommissioning of the Scheme will not directly impact on habitat within these designated sites, owing to the distance between these sites and the Order limits. There will be no fragmentation of habitats, or of populations of species using habitats, within these designated sites during decommissioning. There will be no disturbance to designated sites, habitat degradation or species mortality and any impacts at the time of decommissioning would be mitigated fully in line with relevant legislative and policy requirements. These measures are included within the <b>Decommissioning Strategy.</b></p>			
<b>Boreham Road Gravel Pits LoWS</b>	County	<p>Construction: Boreham Road Gravel Pits LoWS, comprising a series of lakes surrounded by woodland, scrub and grassland and is within the footprint of the grid connection. The lakes will be avoided, however, an area of grassland, scrub and woodland is within the footprint of the grid connection corridor.</p> <p>The construction of the Scheme will not directly impact on habitat within this designated site and measures to ensure incursion during construction to designated sites will be put in place, e.g. security fencing and buffer zones early on in the construction process. The construction of the Scheme for the Grid Connection through Boreham Road Gravel Pits LoWS will utilise HDD methods and as such, will not directly impact habitats within this site, through loss of habitat</p> <p>There will be no fragmentation of habitats, or of populations of species using habitats, within the LoWS during construction. Boundary vegetation will be retained, which will allow for connectivity across the Order limits. Preparation of the site and the construction of the Scheme will result in dust generation, along with noise and visual disturbance.</p>	<b>No</b>

**Ecological Feature**

**Biodiversity Importance**

**Potential Impacts**

**Potential for significant effects?**

		<p>Noise and visual disturbance will not impact on the integrity or the functioning of the LoWS, which is designated for habitats. The implementation of standard environmental protection measures during construction, such as dust suppression and pollution prevention, will be adopted and these measures will be formalised into a CEMP. Consequently, pollution (include impacts to air quality) during construction will not affect the integrity of the LoWS.</p> <p><b>Operation:</b> There are no pathways (e.g. habitat loss or disturbance to designated site No features such as through noise, water quality, air quality, lighting or visual), during operation of the Scheme which could affect Boreham Road Gravel Pits LoWS.</p> <p><b>Decommissioning:</b> No potential impact pathways are identified as the grid cable under Boreham Road Gravel Pits LoWS will remain in situ.</p>	
<p><b>The Grove LoWS, Sandy Wood LoWS, Scarlett's Wood LoWS and Scarlett's Wood (part of) LoWS, Ringer's Wood LoWS, Toppinghoehall Wood LoWS, Lost Wood LoWS, Porter's Wood and Toppinghoehall Wood (part of) LoWS and Boreham Road Gravel Pits LoWS</b></p>	<p>County</p>	<p><b>Construction:</b> These ten non-statutory designated sites (all Local Wildlife Sites) are woodland sites which are directly adjacent to the Order limits with, therefore, ecological and hydrological connections between these sites and the Scheme.</p> <p>The construction of the Scheme will not directly impact on habitat within these designated sites and measures to ensure incursion into designated sites does not occur will be put in place, e.g. security fencing and buffer zones early on in the construction process. These measures will be included within the <b>OCEMP</b>.</p> <p>There will be no fragmentation of habitats, or of populations of species using habitats, within the River Ter during construction. Boundary vegetation, such as hedgerows connecting woodland sites will be retained, which will allow for connectivity across the Order limits. Furthermore, the construction of the majority of the Scheme will be screened by existing vegetation, which will prevent disturbance to species using woodland habitats in the LoWS's.</p> <p>Any construction within the vicinity of these LoWS may require temporary lighting, which has the potential to spill into adjacent habitats. With reference to <b>Chapter 2: The Scheme</b> of the ES, construction working hours will be 7am until 7pm Monday to Saturday and during construction in the winter months, mobile lighting towers with a power output of 8 kilo volt-amperes (kVAs) will be used. Any lighting that is required for the construction of the Scheme will be directed away from existing retained and sensitive habitats to minimise light disturbance to species associated with these habitats. Any requirements for task-</p>	

Ecological Feature

Biodiversity  
Importance

Potential Impacts

Potential for  
significant  
effects?

specific lighting during construction will be designed to be downward directional and will only be used for the duration of the task. All temporary lighting will need to satisfy health and safety requirements, as well as minimising potential effects on the surrounding areas by minimising sky glow, glare and light spillage. The direction of required construction lighting (facing away from these Local Wildlife Sites and into the Scheme and existing boundary features (woodland/hedgerows)) will also reduce the potential for light spill on sensitive habitats from construction activities.

During construction, there is potential for pollutant spills and surface runoff into watercourses hydrologically connected to these sites, which have the potential to adversely affect woodland habitats and, consequently, species associated with them. Embedded mitigation measures, with regards to the management of construction site runoff, the management of spillage risk, the management of flood risk, the management of risk to morphology of waterbodies (as described in **Chapter 9: Water Environment** of the ES) will ensure that no indirect impacts to watercourses, which in turn could affect these LoWS, occurs. Buffer zones of a minimum of 15m between LoWS and any development is embedded into the Scheme and standard environmental protection measures (such as dust suppression and pollution prevention) will be implemented and adopted during construction. With the buffer zones and implementation of standard environmental protection measures, there will be no indirect impacts to LoWS in the vicinity of the Scheme.

There will be no species mortality of any species associated with these designated sites, as a result of construction of the Scheme.

Therefore, there are no impact pathways, either directly or indirectly, that would impact upon the integrity or functioning of these Local Wildlife Sites adjacent to the Scheme during construction.

**Operation:** The management of surface water, including for PV array runoff, BESS runoff, No Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES) and the Drainage Strategy (**Appendix 9C and 9D**) will ensure no hydrological impacts occur and that there are consequently no impacts upon Local Wildlife Sites adjacent to the Scheme during operation.

**Ecological Feature**

**Biodiversity Importance**

**Potential Impacts**

**Potential for significant effects?**

There are no pathways (e.g. habitat loss or disturbance to designated site features such as through noise, lighting or visual), during operation of the Scheme which could affect these non-statutory designated sites.

**Decommissioning:** Decommissioning impacts will be similar to those occurring during No construction, with any impacts mitigated fully in line with relevant legislative and policy requirements. Note that at decommissioning habitat buffers around any adjacent LoWS will have developed and will be retained, providing suitable habitat buffers from the decommissioning works (i.e. removal of above ground infrastructure) and these LoWS. These measures are included within the **Decommissioning Strategy**.

**Chopping's Wood LoWS, Craigmants Spring LoWS, Terling Hall Woods LoWS, Bulls Lodge Lagoons LoWS, St Mary the Virgin LoWS, Great Leighs LoWS, Lyonshall Wood LoWS, Wade's Spring LoWS, Brickhouse Wood LoWS, Hookley Wood LoWS, Terling Churchyard and Green LoWS, Mann/Parson's Wood LoWS (including Parson's and Queens Wood LoWS), Titbeech Wood LoWS, Lowley's Farm Meadow LoWS, Fairsteadhall Wood LoWS, Brakey Wood LoWS and Brakey Wood (part of) LoWS, Long Wood Complex LoWS, Stonage Wood LoWS, Galleycable Wood LoWS, Stockley Wood LoWS** County

**Construction:** These 21 non-statutory designated sites are all outside the Order limits, No the closest of which is Chopping's Wood LoWS, which is 195m from the Order limits.

The construction of the Scheme will not directly impact on habitat within these designated sites.

Preparation of the Order limits and the construction of the Scheme will result in dust generation, along with noise and visual disturbance. Noise (see **Chapter 11: Noise and Vibration** of the ES) and visual disturbance (see **Chapter 10: Landscape and Visual Amenity** of the ES) will not impact on the integrity or the functioning of sites, owing to the distance between these sites and the Order limits. Furthermore, the construction of the majority of the Scheme will be screened by existing vegetation and the topography.

During construction, there is potential for pollutant spills and surface runoff into watercourses hydrologically connected to these sites, which have the potential to adversely affect woodland habitats and, consequently, species associated with them. Embedded mitigation measures, with regards to the management of construction site runoff, the management of spillage risk, the management of flood risk, the management of risk to morphology of waterbodies (as described in **Chapter 9: Water Environment** of the ES) will ensure that no indirect impacts to watercourses, which in turn could affect these LoWS, occurs. Standard environmental protection measures (such as dust suppression and pollution prevention) will be implemented and adopted during construction. With the implementation of standard environmental protection measures, there will be no indirect impacts to LoWS.



**Ecological Feature**

**Biodiversity Importance**

**Potential Impacts**

**Potential for significant effects?**

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There will be no species mortality of any species associated with these designated sites, as a result of construction of the Scheme.

Therefore, there are no impact pathways, either directly or indirectly, that would impact upon the integrity or functioning of these non-statutory designated sites.

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**Operation:** The management of surface water, including for PV array runoff, BESS runoff, No Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**)) will ensure no hydrological impacts occur and that there are consequently no impacts upon Local Wildlife Sites during operation.

There are no pathways (e.g. habitat loss or disturbance to designated site features such as through noise, lighting or visual), during operation of the Scheme which could affect these non-statutory designated sites.

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**Decommissioning:** Decommissioning impacts will be similar to those occurring during No construction. The decommissioning of the Scheme will not directly impact on habitat within these designated sites, owing to the distance between these sites and the Order limits. There will be no fragmentation of habitats, or of populations of species using habitats, within these designated sites during decommissioning. There will be no disturbance to designated sites, habitat degradation or species mortality and any impacts at the time of decommissioning would be mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

### Habitat and Species

- 8.9.5 The relevant ecological features that have been considered are included in **Table 8-10** below. Where there is the potential for significant effects this is stated, and the relevant receptors assessed in section 8.10 of this chapter.

**Table 8-10 Determination of relevant ecological features - habitats and species**

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
<b>Woodland – Broad-leaved semi-natural</b>	County	<p><b>Construction:</b> All woodland present within the Order limits will be retained and measures embedded within the Scheme design (see section 8.8 of this chapter) to protect retained habitats during construction, such as that security fencing will be established at an early stage to protect retained habitats from incursion during construction (see <b>Chapter 2: The Scheme</b>) and the <b>OCEMP</b>. Therefore, there will be no direct loss of woodland habitat.</p> <p>There will be no fragmentation of habitats, or of populations of species using woodland habitats, during construction. Boundary vegetation, such as hedgerows connecting woodland sites will be retained as much as is practicable, which will allow for connectivity across the Order limits.</p> <p>During construction, it is identified in <b>Chapter 14: Air Quality</b> of the ES [EN010118/APP/6.1] there is the potential that preparation of the Order limits and construction of the Scheme will result in dust and other pollutants (such as emissions from construction vehicles and oil-spills) which may impact woodland habitats. The implementation of standard environmental protection measures during construction, such as dust suppression and pollution prevention, will be adopted and these measures are formalised through the <b>OCEMP</b> Consequently, preparation of the Order limits during construction will not affect retained woodland.</p> <p>Woodland habitats across the Order limits will be retained and there will be no species mortality of any species using woodland habitats during construction of the Scheme. Where individual trees are removed (e.g. for access), the implementation of standard mitigation measures (such as nesting bird checks), will ensure there is no species mortality.</p> <p>Therefore, there are no impact pathways, either directly or indirectly, that would impact upon woodland habitats.</p>	No
		<p><b>Operation:</b> During operation, the management of surface water, including for PV array runoff, BESS runoff, Bull’s Lodge Substation Extension runoff and foul water drainage (see also <b>Chapter 9: Water Environment</b> and the</p>	No

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
		<p>Drainage Strategy (<b>Appendix 9C and 9D</b>) will ensure no hydrological impacts occur and that there are consequently no impacts upon retained habitats during operation.</p> <p>There are no impact pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect retained habitats.</p>	
		<p><b>Decommissioning:</b> Decommissioning impacts will be similar to those No occurring during construction, with retention and avoidance of woodland habitats, where reasonably practicable, at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the <b>Decommissioning Strategy</b>.</p>	
<p><b>Scattered trees – veteran trees</b></p>	<p>County</p>	<p><b>Construction:</b> All veteran trees within the Order limits (including all those No within hedges, tree lines and individual trees) will be retained and measures embedded within the Scheme design to protect scattered trees during construction, including where these occur outside of the Order limits. These protection measures will be in line with British Standard BS 5837: Trees in relation to design, demolition and construction – Recommendations (BSI, 2012). Therefore, there will be no direct loss of veteran scattered trees.</p> <p>There will be no fragmentation of habitats, or of populations of species using veteran trees during construction. Boundary vegetation, such as hedgerows, will be retained, where practicable, which will retain connectivity for species across the Order limits. Where any minor hedgerow loss (&lt;5m) is required (e.g. for access) replacement habitat will be provided.</p> <p>During construction, there is the potential that preparation of the Order limits and construction of the Scheme will result in dust and other pollutants (such as emissions from construction vehicles and oil-spills) which may impact veteran trees. The implementation of standard environmental protection measures during construction, such as dust suppression and pollution prevention, will be adopted and these measures are formalised through the</p>	

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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**OCEMP**, secured through the DCO. Consequently, preparation of the Order limits during construction will not affect retained veteran trees.

There will be no species mortality of any species using veteran trees during construction of the Scheme as there will be no loss of veteran trees and therefore no impact on species using them (e.g. nesting birds).

Therefore, there are no impact pathways, either directly or indirectly, that would impact upon scattered veteran trees.

**Operation:** During operation, the management of surface water, including for No PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**) will ensure no hydrological impacts occur and that there are consequently no impacts upon retained habitats during operation.

Therefore, there are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect scattered trees.

**Decommissioning:** Decommissioning impacts will be similar to those No occurring during construction, with retention and avoidance of veteran trees, where reasonably practicable, that are present at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

<b>Marshy Grassland</b>	District	<p><b>Construction:</b> This habitat occurs within the Boreham Road Gravel Pits LWS No (see <b>Table 8-9</b>). The construction of the Scheme will not directly impact on marshy grassland as the construction methods for the Grid Connection Route will utilise HDD methods.</p> <p>There will be no fragmentation of habitats, or of populations of species using marshy grassland.</p>	
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Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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Preparation of the Order limits and the construction of the Scheme will result in dust generation, along with noise and visual disturbance. Noise and visual disturbance will not impact on marshy grassland. The implementation of standard environmental protection measures during construction, such as dust suppression and pollution prevention, will be adopted and these measures will be formalised into a CEMP. Consequently, pollution (include impacts to air quality) during construction will not affect marshy grassland or species using this habitat.

**Operation:** There are no pathways (e.g. habitat loss and pollution) during No operation of the Scheme which could affect marshy grassland.

**Decommissioning:** This habitat is present in Boreham Road Gravel Pits No LoWS. No potential impact pathways are identified as the grid cable under Boreham Road Gravel Pits LoWS will remain in situ.

<b>Standing Water – Pond 7</b>	District	<p><b>Construction:</b> All standing water (ponds) present within the Order limits will No be retained and measures embedded within the Scheme design to protect retained habitats during construction, such as that security fencing will be established at an early stage to protect retained habitats from incursion during construction. Therefore, there will be no direct loss of standing water habitat.</p> <p>There will be no fragmentation of habitats, or of populations of species using standing water habitats (such as amphibians), during construction. Offsets of 5m or more from boundary vegetation (such as hedgerows and grassland margins) are embedded within the design (see section 8.8 of this chapter), which will retain connectivity for species (such as Great Crested Newt) across the Order limits.</p> <p>During construction, there is the potential that preparation of the Order limits and construction of the Scheme will result in dust and other pollutants (such as emissions from construction vehicles and oil-spills) which may impact ponds, through surface water run-off. Implementation of standard environmental protection measures during construction, such as dust suppression and pollution prevention, will be adopted and these measures are</p>	No
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Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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formalised through the **OCEMP**, secured through the DCO. Embedded mitigation measures, with regards to the management of construction site runoff, the management of spillage risk, the management of flood risk, the management of risk to morphology of waterbodies (as described in **Chapter 9: Water Environment** of the ES will ensure that no indirect impacts to standing water habitats occurs. Consequently, pollution during construction will not affect the integrity of ponds and of those species using ponds.

There will be no species mortality of any species using standing water habitats during construction of the Scheme.

Therefore, there are no impact pathways, either directly or indirectly, that would impact upon standing water and, specifically, pond 7.

**Operation:** During operation, the management of surface water, including for No PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** and the Drainage Strategy (**Appendix 9C and 9D**) will ensure no hydrological impacts occur and that there are consequently no impacts upon standing water habitats.

Therefore, there are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect standing water.

**Decommissioning:** Decommissioning impacts will be similar to those No occurring during construction, with retention and avoidance, where reasonably practicable, of standing water present at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

**Running Water (River Ter and Boreham Brook)**

County

**Construction:** There will be no direct loss of running water habitat and there No will be no fragmentation of habitats, or of populations of species using habitats, within the River Ter or Boreham Brook during construction. Construction

**Ecological Feature**

**Biodiversity  
Importance**

**Potential Impacts**

**Potential for  
significant effects**

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methods across Boreham Brook will utilise HDD methods avoiding potential impact to this watercourse (see **Table 8-9**).

Any construction within the vicinity of watercourses may require temporary lighting, which has the potential to spill into the River Ter or Boreham Brook. Artificially lighting of these habitats may disrupt species' movements. Therefore, any lighting that is required for the construction of the Scheme will be directed away from existing retained and sensitive habitats to minimise light disturbance to species associated with these habitats. Any requirements for task-specific lighting during construction will be designed to be downward directional and will only be used for the duration of the task. All temporary lighting will need to satisfy health and safety requirements, as well as minimising potential effects on the surrounding areas by minimising sky glow, glare and light spillage.

During construction, there is potential for pollutant spills and surface runoff into the River Ter, Boreham Brook and other connected watercourses, that have the potential to adversely affect habitats and species associated with the river. However, as discussed above scheme design, i.e. undeveloped buffers from watercourses and standard environmental protection measures will be implemented and adopted during construction, formalised through a CEMP, and these measures will include dust suppression and pollution prevention. Furthermore, a drainage strategy will be implemented for management of surface water during operation (via SuDS treatment for attenuation of flows and treatment of water quality prior to discharge of any water to the River Ter). Consequently, indirect effects (such as disturbance and habitat degradation) to the River Ter (and the River Ter SSSI) during construction will not occur and there will be no effect to the integrity of this SSSI.

There will be no species mortality of any species associated with running water during construction of the Scheme.

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**Operation:** There are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect retained habitats.

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Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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**Decommissioning:** Decommissioning impacts will be similar to those occurring during construction, with retention and avoidance, where reasonably practicable, of running water at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

No

**Hedgerows**

Up to County

**Construction:** Whilst the embedded mitigation includes the retention and avoidance of the majority of hedgerows, there will be a loss of small sections of hedgerow (approximately 450.6m in total across the Order limits) during construction, to facilitate grid connection cable, new fence-lines and access routes. These habitats will be restored, post-construction, but there is likely to be a temporary (short-term) adverse effect on this habitat type.

**Yes**

During construction, there is the potential that preparation of the Order limits and construction of the Scheme will result in dust and other pollutants (such as emissions from construction vehicles and oil-spills) which may impact hedgerows. The implementation of standard environmental protection measures during construction, such as dust suppression and pollution prevention, will be adopted and these measures are formalised through the **OCEMP**, secured through the DCO. Consequently, pollution during construction will not affect the integrity of retained hedgerows.

The implementation of standard mitigation measures (such as nesting bird checks), will ensure there is no species mortality of any species using hedgerows during construction of the Scheme.

**Operation:** During operation, no part of the Scheme will be continuously lit and any lighting will be directional (into the Scheme and using directional fittings), manually operated and for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES). Therefore, lighting will not impact upon retained habitats and species within them.

No

The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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**Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**) will ensure no hydrological impacts occur and that there are consequently no impacts upon hedgerows.

There are no pathways (e.g. habitat loss and pollution) during operation of the Scheme which could affect hedgerows.

**Decommissioning:** Hedges will be retained at decommissioning therefore no potential direct impacts are predicted. Other decommissioning impacts comprising dust and other pollutants (such as emissions from construction vehicles and oil-spills) which may impact hedgerows. The implementation of standard environmental protection measures during construction, such as dust suppression and pollution prevention, will be adopted and these measures are included within the **Decommissioning Strategy**. No

**Aquatic Macrophytes**

District

**Construction:** All water bodies present within the Order limits will be retained and measures embedded within the Scheme design to protect retained habitats during construction, such as that security fencing will be established at an early stage to protect retained habitats from incursion during construction. Therefore, there will be no direct loss of standing water habitat and no direct impacts to aquatic macrophytes. No

During construction, there is the potential that preparation of the Order limits and construction of the Scheme will result in dust and other pollutants (such as emissions from construction vehicles and oil-spills) which may impact ponds, through surface water run-off. Implementation of standard environmental protection measures during construction, such as dust suppression and pollution prevention, will be adopted and these measures are formalised through the **OCEMP**, secured through the DCO. Embedded mitigation measures, with regards to the management of construction site run-off, pollution, flood risk and the management of risk to morphology of waterbodies (as described in **Chapter 9: Water Environment** of the ES) will ensure that no indirect impacts to standing water habitats and therefore aquatic macrophytes occurs. Consequently, pollution during construction will not affect the integrity of water bodies and of aquatic macrophytes within them.

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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Aquatic habitats across the Order limits will be retained and indirect impacts to these habitats avoided through standard environmental protection measures. Therefore, there will be no species mortality of any macrophytes within standing water habitats during construction of the Scheme.

Therefore, there are no impact pathways, either directly or indirectly, that would impact upon aquatic macrophytes

**Operation:** During operation, no part of the Scheme will be continuously lit and any lighting will be directional (into the Scheme and using directional fittings), manually operated and for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES. Therefore, lighting will not impact upon retained habitats and species within them. No

The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**)) will ensure no hydrological impacts occur and that there are consequently no impacts upon aquatic macrophytes.

Therefore, there are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect standing water and therefore macrophytes.

**Decommissioning:** Decommissioning impacts will be similar to those No occurring during construction, with retention and avoidance, where reasonably practicable, of aquatic habitats supporting aquatic macrophytes at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

**Fish**

Up to Regional

**Construction:** There will be no direct loss of habitat, or fragmentation of No habitats, supporting fish during the construction of the Scheme. All watercourses present within the Order limits, and particularly the River Ter, will

Ecological Feature

Biodiversity  
Importance

Potential Impacts

Potential for  
significant effects

be retained and measures embedded within the Scheme design to protect retained habitats during construction, such as security fencing, will be established at an early stage to protect retained habitats from incursion during construction.

Any construction within the vicinity of the River Ter may require temporary lighting, which has the potential to spill into the River Ter. Artificially lighting these habitats may disrupt fish species' movements. Therefore, any lighting that is required for the construction of the Scheme will be directed away from existing retained and sensitive habitats to minimise light disturbance to species associated with these habitats, in particular the River Ter. During construction, there is the potential that preparation of the Site and construction of the Scheme will result in dust and other pollutants (such as emissions from construction vehicles and oil-spills) which may impact water quality and in turn, fish. The implementation of standard environmental protection measures during construction, such as dust suppression and pollution prevention, will be adopted and these measures will be formalised into a CEMP. Consequently, pollution during construction will not affect water quality and therefore, fish.

**Operation:** During operation, no part of the Scheme will be continuously lit and any lighting will be directional (into the Scheme and using directional fittings), manually operated and for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES). Therefore, lighting will not impact upon retained habitats (such as the River Ter) and fish using the river. No

The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**)) will ensure no hydrological impacts occur and that there are consequently no impacts upon fish.

Therefore, there are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect fish.

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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		<p><b>Decommissioning:</b> Decommissioning impacts will be similar to those occurring during construction with retention and avoidance, where reasonably practicable, of aquatic habitats supporting fish at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the <b>Decommissioning Strategy</b>.</p>	No
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<p><b>Non-breeding (wintering) bird assemblage</b></p>	County	<p><b>Construction:</b> The construction of the Scheme will lead to the loss of arable habitat, although the amount of permanent habitat loss has been minimised as far as reasonably practicable, with hedgerows and woodland areas retained, and creation of new grassland habitats meaning the majority of wintering bird species using the Order limits will not be affected. The loss of any arable habitat, which in turn will lead to the displacement of wintering bird species reliant on this habitat, will be mitigated through the creation of new grassland and cover crops, both around the infrastructure and within undeveloped fields.</p> <p>The construction of the Scheme will be undertaken over many months and whilst small sections of hedgerow would be removed (approximately 450.6m in total) to facilitate access, the majority of hedgerows and other boundary features will be retained, which will ensure connectivity is maintained across the Order limits for non-breeding bird species. Therefore, there will be no fragmentation of habitats used by non-breeding birds.</p> <p>Best practice construction methods, as detailed in the <b>OCEMP</b>, includes implementation of measures to minimise noise, lighting and vibration disturbance, which will in turn remove any potential disturbance to wintering birds in retained habitats.</p> <p>No species mortality is anticipated during construction of the Scheme. As part of the Scheme, there will be undergrounding of cables near Stocks Farm and new towers and overhead line (OHL) diversion of a small section of existing OHL at Bulls Lodge Substation. However, these are not in areas that support bird species sensitive to collision with OHL (such as waterbirds e.g. geese and swans) and no species mortality is likely to occur.</p>	No
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Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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Therefore, there are no impact pathways, either directly or indirectly, that would impact upon wintering birds.

**Operation:** During operation, no part of the Scheme will be continuously lit and any lighting will be directional (into the Scheme and using directional fittings), manually operated and for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES), lighting will not impact upon retained habitats (such as woodland and hedgerows) and any wintering birds using such habitats. No

The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**)) will ensure no hydrological impacts occur and that there are consequently no impacts upon habitats, which in turn could impact upon wintering birds using them.

Therefore, there are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect wintering birds. The inclusion of cover crops as part of the embedded mitigation will conserve a similar assemblage of wintering birds to that noted pre-construction.

**Decommissioning:** Decommissioning impacts will be similar to those No occurring during construction, with retention and avoidance, where reasonably practicable, of habitats supporting non-breeding birds at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

County

**Construction:** Lesser-spotted Woodpecker is a species reliant on woodland No habitat for nesting and during winter months, occasionally uses scrub and hedgerows for foraging alongside woodland habitat. There will be no direct

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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**Wintering population of Lesser-spotted Woodpecker**

loss of woodland habitat, used by wintering Lesser-spotted Woodpecker, during construction of the Scheme.

The construction of the Scheme will be undertaken over many months and will not impact upon hedgerows and other boundary features that are potentially used by this species, and will retain connectivity across the Order limits for Lesser-spotted Woodpecker. Therefore, there will be no fragmentation of habitats used by wintering Lesser-spotted Woodpecker.

Best practice construction methods as detailed in the **OCEMP**, includes implementation of measures to minimise noise, lighting and vibration which will ensure that disturbance to birds, including Lesser-spotted Woodpecker, in adjacent and retained habitats will not occur.

There will be no species mortality of Lesser-spotted Woodpecker during construction of the Scheme.

Therefore, there are no impact pathways, either directly or indirectly, that would impact upon wintering Lesser-spotted Woodpecker.

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**Operation:** During operation, no part of the Scheme will be continuously lit and any lighting will be directional (into the Scheme and using directional fittings), manually operated and for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES) Therefore, lighting will not impact upon retained habitats (such as woodland and hedgerows) and any wintering Lesser-spotted Woodpecker using such habitats.

The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**)) will ensure no hydrological impacts occur and that there are consequently no impacts upon habitats, which in turn could impact upon wintering Lesser-spotted Woodpecker using them.

Therefore, there are no pathways (e.g. habitat loss, disturbance of habitats and pollution (as described above)), during operation of the Scheme which

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Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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could affect wintering Lesser-spotted Woodpecker. The creation of habitats, such as hedgerows and scrub as part of the embedded mitigation will provide additional resources for this species.

**Decommissioning:** Habitats used by this species will be retained at No decommissioning therefore no potential direct impacts are predicted. Measures to minimise noise, lighting and vibration which will ensure that disturbance to birds, including Lesser-spotted Woodpecker, in adjacent and retained habitats will not occur and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

<b>Wintering population of Tree Sparrow</b> County	<p><b>Construction:</b> Tree Sparrow is a farmland bird species, reliant on scrub, No hedgerows and any available seed habitats (such as within arable stubble) for foraging during winter months. The Scheme will retain peripheral habitat, such as hedgerows and scrub and will provide new grassland habitats and cover crops suitable for use by Tree Sparrow and therefore, there will be no direct loss of habitat, used by wintering Tree Sparrow, during construction of the Scheme.</p> <p>The construction of the Scheme will be undertaken over many months and will not impact upon hedgerows and other boundary features, which will retain connectivity across the Order limits for Tree Sparrow. Therefore, there will be no fragmentation of habitats used by wintering Tree Sparrow.</p> <p>Best practice construction methods as detailed in the <b>OCEMP</b> includes implementation of measures to minimise noise, lighting and vibration which will ensure that disturbance to birds, including Tree Sparrow, in adjacent and retained habitats will not occur.</p> <p>There will be no species mortality of Tree Sparrow during construction of the Scheme.</p> <p>Therefore, there are no impact pathways, either directly or indirectly, that would impact upon wintering Tree Sparrow.</p>
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Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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**Operation:** During operation, no part of the Scheme will be continuously lit and any lighting will be directional (into the Scheme and using directional fittings), manually operated and for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES). Therefore, lighting will not impact upon retained habitats (such as woodland and hedgerows) and any wintering Tree Sparrow using such habitats.

The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**)) will ensure no hydrological impacts occur and that there are consequently no impacts upon habitats, which in turn could impact upon wintering Tree Sparrow using them.

There are no pathways (e.g. habitat loss, disturbance of habitats and pollution (as described above)), during operation of the Scheme which could affect wintering Tree Sparrow. The inclusion of cover crops as part of the embedded mitigation will conserve a similar assemblage of Tree Sparrow to that noted pre-construction

No

**Decommissioning:** Habitats used by this species (including any boxes provided) will be retained at decommissioning therefore no potential direct impacts are predicted. Measures to minimise noise, lighting and vibration which will ensure that disturbance to Tree Sparrows, will not occur and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

No

**Breeding Bird Assemblage**

County

**Construction:** The construction of the Scheme will lead to the loss of arable habitat, used by breeding bird species such as Skylark, although the amount of permanent habitat loss has been minimised as far as reasonably practicable, with hedgerows and woodland areas retained, which will not affect the majority of breeding bird species found across the Order limits. The loss of arable habitat will lead to the temporary displacement of ground-nesting breeding bird species reliant on this habitat, such as Skylark (an estimated 46 territories) and will require replacement habitat. Retained habitats, such as

Yes

Ecological Feature

Biodiversity  
Importance

Potential Impacts

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significant effects

hedgerows and woodland, will maintain occupation of species using them and therefore the majority of breeding bird species found across the Order limits will not be affected

The construction of the Scheme will be undertaken over many months and will not impact upon retained habitats used by breeding birds (such as woodland and hedgerows), which will maintain connectivity across the Order limits for the majority of breeding bird species. Therefore, there will be no fragmentation of habitats used by breeding birds.

Best practice construction methods as detailed in the **OCEMP**, secured through the DCO, includes implementation of measures to minimise noise, lighting and vibration disturbance to breeding birds to ensure that, where construction of the Scheme is undertaken within the bird breeding season (typically March to August inclusive), then disturbance to breeding birds in adjacent and retained habitats will be minimised.

The construction of the Scheme, if undertaken within the bird breeding season (typically March to August inclusive) has the potential to cause mortality to breeding birds in habitats that are to be removed. Where construction cannot avoid nesting birds, then nesting bird checks will need to be undertaken by an ornithologist prior to construction (where this occurs within the breeding season) to ensure there is no species mortality. Therefore, there will be no species mortality of any breeding bird species associated during construction of the Scheme.

**Operation:** During operation, no part of the Scheme will be continuously lit No and any lighting will be directional (into the Scheme and using directional fittings), manually operated and for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES). Therefore, lighting will not impact upon retained habitats (such as woodland and hedgerows) and any breeding birds using such habitats.

The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy

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**Potential Impacts**

**Potential for significant effects**

**(Appendix 9C and 9D)** will ensure no hydrological impacts occur and that there are consequently no impacts upon habitats, which in turn could impact upon breeding birds using them.

There are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect breeding birds. Furthermore, whilst existing arable habitat within the Scheme (which is often of a temporary nature) will be lost during construction (see above, under construction), arable habitat between the solar arrays will be converted to permanent grassland habitat, which will be beneficial to invertebrates and species, such as Skylark, that prey on them. Grassland habitat in and around the solar arrays will provide long-term opportunities for Skylark (and other ground-nesting species) to forage and potentially nest.

**Decommissioning:** No habitat loss is predicted as habitats used by the No breeding bird assemblages (i.e. grassland, ponds, hedges and woodland) will be retained at decommissioning. Other decommissioning impacts will be similar to those occurring during construction, with retention and avoidance, where reasonably practicable, of habitats supporting breeding birds at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

**Population of County breeding Red Kite, Hobby and Barn Owls**

**Construction:** There will be no direct loss of habitat used by breeding Red Kite, Hobby or Barn Owl during construction of the Scheme. Red Kite rely predominantly on woodland habitat (or mature trees) for nesting, which will be retained during construction. Hobby rely on woodland, scrub and hedgerow habitats for nesting, the majority of which will be retained during construction. Barn Owl nest in mature trees, buildings and in artificial nesting sites such as nest boxes. All such habitats (where found within the Order limits) will be retained during construction. The provision of additional nest boxes (for Barn Owl) and creation of new habitats (such as hedgerows for Hobby) will increase the availability of potential nesting and foraging habitat on and adjacent to the Order limits for these species.

Ecological Feature

Biodiversity  
Importance

Potential Impacts

Potential for  
significant effects

There will be no fragmentation of habitats used by Red Kite, Hobby or Barn Owl during construction of the Scheme. Red Kite are opportunistic foragers, reliant on a range of habitats for prey items (such as carrion) which would be abundant in the wider landscape and still included within the Order limits within retained habitats. Hobby feed on small birds and insects (such as dragonflies), which are taken on the wing. Therefore, construction of the Scheme will not impair this species' ability to hunt. Barn Owl forage in grassland (including margins and open grassland fields) and along ditches and woodland edge. All such habitats will be retained, and their area increased during construction of the Scheme and therefore, there will be no impacts on foraging Barn Owl during construction of the Scheme.

Red Kite, Hobby and Barn Owl are all species that are included on Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended) (Ref 8-1) and all are sensitive to disturbance. All three species were located breeding (or considered likely to be breeding) within 200m of the Order limits. Any construction of the Scheme within this distance and where undertaken during the bird breeding season (typically March to August, inclusive) is likely to result in temporary disturbance to these species. **Chapter 11: Noise and Vibration** of the ES identifies that there will be increased noise levels during construction works, e.g. site clearance and installation of plant at the substation/BESS, which may cause some disturbance, however this would be temporary with no permanent residual effect.

With the implementation of embedded and essential mitigation measures, there will be no species mortality of Red Kite, Hobby and Barn Owl due to construction of the Scheme as there are no impacts that could cause mortality.

**Operation:** During operation, no part of the Scheme will be continuously lit No and any lighting will be directional (into the Scheme and using directional fittings), manually operated and for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES. Therefore, lighting will not impact upon retained habitats (such as woodland and hedgerows) and any breeding birds using such habitats.

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**)) will ensure no hydrological impacts occur and that there are consequently no impacts upon habitats, which in turn could impact upon breeding birds using them.

Therefore, there are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect breeding Red Kite, Hobby and Barn Owl.

**Decommissioning:** Decommissioning impacts will be similar to those occurring during construction, with retention and avoidance, where reasonably practicable, of habitats supporting breeding populations of Red Kite, Hobby and Barn Owl (or other WCA Schedule 1 bird species) at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

**Population of breeding Lesser-spotted Woodpecker**

County

**Construction:** Lesser-spotted Woodpecker is a species reliant on woodland habitat for nesting and, during winter months, occasionally uses scrub and hedgerows for foraging alongside woodland habitat. There will be no direct loss of woodland habitat, used by breeding Lesser-spotted Woodpecker, during construction of the Scheme.

No

The construction of the Scheme will be undertaken over many months and will not impact upon hedgerows and other boundary features, which will retain connectivity across the Site for Lesser-spotted Woodpecker. Therefore, there will be no fragmentation of habitats used by breeding Lesser-spotted Woodpecker.

Best practice construction methods as detailed in the **OCEMP**, includes implementation of measures to minimise noise, lighting and vibration disturbance to all breeding birds to ensure that, where construction of the Scheme is undertaken within the bird breeding season (typically March to

Ecological Feature

Biodiversity  
Importance

Potential Impacts

Potential for  
significant effects

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August inclusive), then disturbance to breeding birds, including Lesser-spotted Woodpecker, in adjacent and retained habitats will not occur.

The construction of the Scheme, if undertaken within the bird breeding season (typically March to August inclusive) has the potential to cause mortality to breeding birds in habitats that are to be removed. Where construction cannot avoid nesting birds, then nesting bird checks will need to be undertaken by an ornithologist prior to construction (where this occurs within the breeding season) to ensure there is no species mortality. Therefore, there will be no species mortality of Lesser-spotted Woodpecker during construction of the Scheme.

Therefore, there are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect breeding Lesser-spotted Woodpecker.

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**Operation:** During operation, no part of the Scheme will be continuously lit No and any lighting will be directional (into the Scheme and using directional fittings), manually operated and for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES Therefore, lighting will not impact upon retained habitats (such as woodland and hedgerows) and any breeding birds using such habitats.

The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**)) will ensure no hydrological impacts occur and that there are consequently no impacts upon habitats, which in turn could impact upon breeding birds using them.

There are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect breeding Lesser-spotted Woodpecker. The creation of habitats, such as hedgerows and scrub as part of the embedded mitigation will provide additional resources for this species.

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Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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**Decommissioning:** Habitats used by this species will be retained at No decommissioning therefore no potential direct impacts are predicted. Measures to minimise other decommissioning impacts such as noise, lighting and vibration which will ensure that disturbance to birds, including breeding Lesser-spotted Woodpecker, in adjacent and retained habitats will not occur and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

**Population of breeding Tree Sparrow**

County

**Construction:** Tree Sparrow is a farmland bird species, reliant on scrub and No hedgerows for foraging and nesting in holes in trees, buildings or in nest-boxes. The Scheme will retain peripheral habitat, such as hedgerows and scrub, used by Tree Sparrow and therefore, there will be no direct loss of habitat, used by breeding Tree Sparrow, during construction of the Scheme.

The construction of the Scheme will be undertaken over many months and will not impact upon hedgerows and other boundary features, which will retain connectivity across the Site for Tree Sparrow. Therefore, there will be no fragmentation of habitats used by breeding Tree Sparrow.

Best practice construction methods as detailed in the **OCEMP**, includes implementation of measures to minimise noise, lighting and vibration disturbance to all breeding birds to ensure that, where construction of the Scheme is undertaken within the bird breeding season (typically March to August inclusive), then disturbance to breeding birds, including Tree Sparrow, in adjacent and retained habitats will not occur.

There will be no species mortality of Tree Sparrow during construction of the Scheme.

**Operation:** During operation, no part of the Scheme will be continuously lit No and any lighting will be directional (into the Scheme and using directional fittings), manually operated and for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES).

Ecological Feature	Biodiversity Importance	Potential Impacts	Potential for significant effects
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Therefore, lighting will not impact upon retained habitats (such as woodland and hedgerows) and any breeding birds using such habitats.

The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**)) will ensure no hydrological impacts occur and that there are consequently no impacts upon habitats, which in turn could impact upon breeding birds using them.

There are no pathways (e.g. habitat loss, disturbance of habitats and pollution), during operation of the Scheme which could affect breeding Tree Sparrow. The creation of habitats, such as hedgerows and scrub as part of the embedded mitigation will provide additional resources for this species.

**Decommissioning:** Decommissioning impacts will be similar to those No occurring during construction, with retention and avoidance, where reasonably practicable, of habitats supporting the breeding population of Tree Sparrow at the time of decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the **Decommissioning Strategy**.

**Bats**

Up to County, depending on species

**Construction:** The construction of the Scheme will avoid features used by No roosting and foraging/ commuting bats, such as woodland, hedgerows and ponds. There will be no loss of these important habitats used by bats anywhere within the Order limits.

The construction of the Scheme will be undertaken over many months and will not impact upon hedgerows and other boundary features, which will retain connectivity across the Site for commuting and foraging. Therefore, there will be no fragmentation of habitats used by bats.

During construction, there is potential for disturbance and light pollution which could adversely affect habitats used by bats. However, standard environmental protection measures will be implemented and adopted during construction, through the **OCEMP**, and these measures include dust



**Ecological Feature**

**Biodiversity  
Importance**

**Potential Impacts**

**Potential for  
significant effects**

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suppression, pollution prevention, screening of important habitats and measures to control light spill. Consequently, indirect effects to habitats supporting bats during construction will be avoided.

There will be no species mortality during construction of the Scheme.

Therefore, there are no impact pathways, either directly or indirectly, that would impact upon roosting or foraging bats.

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**Operation:** During operation, no part of the Scheme will be continuously lit and any lighting will be directional (into the Scheme and using directional fittings), manually or PIR operated for operational and security purposes around electrical infrastructure (as described in **Chapter 2: The Scheme** of the ES. Therefore, lighting will not impact upon retained habitats (such as woodland and hedgerows) and any bats using such habitats. No

The management of surface water, including for PV array runoff, BESS runoff, Bull's Lodge Substation Extension runoff and foul water drainage (see also **Chapter 9: Water Environment** of the ES and the Drainage Strategy (**Appendix 9C and 9D**)) will ensure no hydrological impacts occur and that there are consequently no impacts upon habitats, which in turn could impact upon bats using them.

There are no pathways (e.g. habitat loss and/ or disturbance, such as noise, lighting or visual), during operation of the Scheme which could affect bats.

Furthermore, where there is a change of land use (during construction) from low value habitats (such as intensively managed arable) to permanent grassland habitat, or where habitats are newly created, then these areas are likely to be of benefit to terrestrial invertebrates, which in turn will provide increased foraging opportunities for bats.

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**Decommissioning:** At this stage existing and new habitats will be well established and these habitats (including bat boxes) used by the bat population will be retained at decommissioning. Other impacts will be similar to those occurring during construction, with retention and avoidance, where reasonably practicable, of habitats supporting bats at the time of

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**Ecological Feature**

**Biodiversity  
Importance**

**Potential Impacts**

**Potential for  
significant effects**

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decommissioning and any impacts mitigated fully in line with relevant legislative and policy requirements. These measures are included within the ***Decommissioning Strategy***.

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## 8.10 Significance of Effects

- 8.10.1 The impacts and effects (both beneficial and adverse) associated with the construction, operation and decommissioning of the Scheme are outlined in the sections below. The assessments have been assessed following consideration of the embedded mitigation measures as described in Section 8.8.
- 8.10.2 Taking into account the committed avoidance and mitigation measures as detailed in section 8.8 of this chapter, the potential for the Scheme to generate effects on important ecological features was evaluated using the methodology as detailed in section 8.1 of this chapter. The aim of the evaluation was to identify potentially significant effects and determine the need for bespoke mitigation measures additional to those detailed in section 8.8 of this chapter.
- 8.10.3 Accordingly, the evaluation has identified that during construction (and decommissioning), the following impacts on important ecological features that have been taken forward for further assessment:
- a. Temporary loss of hedgerows during construction within the Order limits (for access and grid connection cables only);
  - b. Temporary loss of habitat during construction used by the breeding bird assemblage across the Scheme; and
  - c. Temporary disturbance during construction and decommissioning to breeding Red Kite, Hobby and Barn Owl (during the breeding season only).
- 8.10.4 The evaluation has concluded that the operation of the Scheme will not lead to any impacts on important ecological features.
- 8.10.5 The effects of decommissioning of the Scheme are likely to be similar to those for construction. Whilst habitats will be retained there may be some temporary disturbance/degradation during the removal of above ground infrastructure and protected or notable species are likely to be subject to temporary disturbance. Therefore, appropriate measures will need to be put in place to minimise degradation of habitats and disturbance of species based on relevant legislation and policy in place at the time. These measures are included in a **Decommissioning Strategy** that has been prepared [EN010118/APP/7.12]).

### Temporary loss of hedgerows within the Order limits (for access and grid connection cables only)

- 8.10.6 Construction activities for the access routes and grid connection routes (noting use of HDD at Boreham Gravel Pits LoWS), will result in the direct loss of small sections of existing hedgerow, with the total loss of hedgerow across the Order limits being approximately 450m and likely to be of no more than 10m sections of hedgerow removal in any one place. The majority of hedgerows across the Scheme will be avoided and replanting has been embedded within the Scheme design for creation of hedgerows, replacement planting and bolstering currently defunct hedgerows. It is noted that this may take time to develop and therefore, there is likely to be a temporary and short-term adverse effect on this habitat type in some areas. Lengths of new, species rich, hedgerow would be planted to compensate for any lost, using three core species: Hawthorn, Blackthorn (*Prunus spinosa*) and Field Maple with others to add diversity including: Oak, Hornbeam, Holly (*Ilex aquifolium*), Hazel, Spindle, Crab Apple (*Malus sylvestris*), Elder (*Sambucus nigra*), Buckthorn (*Rhamnus cathartica*), Dogwood (*Cornus sanguinea*), and English Elm\* (*Ulmus procera*) (\*a disease resistant cultivar). Once hedgerows establish along with additional hedgerow planting proposed across the Order limits, it is predicted that the Scheme will be able to deliver a net gain in this habitat and the overall impact will be beneficial.
- 8.10.7 Taking into account embedded protection measures in Section 8.8 and Scheme design to minimise the impact of construction activities causing direct loss of small sections of hedgerows, this impact has been assessed as temporary low adverse, which results in a temporary **negligible** effect, that is not considered significant.

### Temporary loss of habitat used by the breeding bird assemblage across the Order limits

- 8.10.8 The Scheme will retain key areas for breeding birds across the Order limits both within existing areas, but also by ensuring the majority of boundary features (hedgerows, trees and woodland) are retained and protected during construction. Construction activities will result in the direct loss of arable habitats supporting notable breeding bird species, such as Skylark. Land has been embedded within the Scheme design for creation of biodiverse habitats (see section 8.8) which will be of a permanent nature and whilst Skylark are unlikely to nest beneath the solar arrays, recent research papers<sup>2, 3, 4</sup> indicate that Skylark will incorporate solar farms into their territorial boundaries and nesting does occur between panels and within buffers. Therefore, the conversion of 275 hectares of arable habitats (which are often temporary in nature) to permanent grassland beneath and between the solar arrays and provision of 83 hectares of new habitats managed for biodiversity will be sufficient to maintain the existing population of 46 territories and would potentially increase the productivity of the Skylark population within the Order limits.

<sup>2</sup> Solarview – Ecological monitoring of solar sites. Overview of 2019 surveys. [online source]

<sup>3</sup> Bird use of solar farms – interim results [online source]

<sup>4</sup> The effects of solar farms on local biodiversity – a comparable study [online source]

8.10.9 Some habitats will take time to develop and therefore, there is likely to be a temporary and short-term adverse effect on the breeding bird assemblage particularly those species associated with arable farmland. However, as significant areas of grassland habitats, along with boundary features (hedgerows, trees and woodland), will be retained and protected during construction with their quality improved (through positive management), this will help mitigate in the short-term for the loss of other areas and whilst mitigation areas develop. The surrounding farmland outside of the order limits will also support the breeding bird assemblage. Areas of early planting, prior to construction, of hedges and woodland have been identified across the Scheme. In addition further enhancement through the provision of nesting / roosting opportunities in the form of a variety of bird boxes on trees suitable for some species of birds (including over-wintering species) within hedges / copses will be provided while these habitats develop. Once habitats are established it is predicted that the Scheme will be able to deliver a net gain in habitats required to support a diverse breeding bird assemblage similar to that currently present, but at an increased population size and the overall impact will be beneficial.

8.10.10 Taking into account the avoidance and retention of habitats and inclusion within the Scheme design of areas of biodiverse grassland to minimise the impact of construction activities on habitats supporting notable breeding bird assemblages, this impact has been assessed as temporary low adverse, which results in a temporary **minor adverse** effect, that is not considered significant.

[Temporary disturbance to breeding Red Kite, Hobby and Barn Owl during the breeding season only](#)

8.10.11 Construction and decommissioning activities have the potential to disturb breeding Red Kite, Hobby and Barn Owl, where these species are breeding within 200m of the Order limits. All three species are sensitive breeding species listed on Schedule 1 of the Wildlife and Countryside Act (WCA) 1981 (as amended) (Ref 8-7). Pre-commencement surveys for sensitive breeding birds, i.e. those listed on Schedule 1 of the WCA, will be undertaken in advance of construction works commencing and through the **OCEMP [EN010118/APP/7.1]** and **Decommissioning Strategy [EN010118/APP/7.12]** secured through the DCO), suitable measures, including appropriate buffers from nests during the breeding season, will be delivered to ensure disturbance to sensitive breeding birds is avoided in line with the relevant legislation. There is likely to be a temporary (short-term) adverse effect from disturbance on breeding Red Kite, Hobby and Barn Owl if construction is undertaken during the bird breeding season (typically March to August inclusive). However, through appropriate monitoring and management during construction and decommissioning, impacts will be avoided, in line with legislative requirements. In addition, further enhancement will also include Barn Owl boxes within the Order limits to provide alternative nesting / roosting provision for this species across the Order limits and these will be retained at decommissioning.

8.10.12 Taking into account embedded protection measures and implementation of a CEMP, the impact of construction and decommissioning activities causing

disturbance to breeding Red Kite, Hobby and Barn Owl, this impact has been assessed as temporary low adverse, which results in a temporary **negligible** effect, that is not considered significant.

## 8.11 Summary of Magnitude of Impact and Significance of Effect

8.11.1 **Table 8-11** summarises the sensitivity (value) of important ecological features, impacts and effects resulting from construction of the Scheme. No impacts and effects, arising from operation of the Scheme, were identified.

**Table 8-11: Summary of Magnitude of Impact and Significance of Effect**

<i>Receptor</i>	<i>Sensitivity (value)</i>	<i>Description of Impact</i>	<i>Magnitude of Impact</i>	<i>Effect Category</i>	<i>Significant effect (Yes / No)</i>
<b>Hedgerows</b>	Medium (County)	Loss of habitat	Low adverse	Negligible	No
<b>Breeding bird assemblage</b>	Medium (County)	Loss of habitat	Low adverse	Minor adverse	No
<b>Breeding Red Kite, Hobby and Barn Owl</b>	Medium (County)	Disturbance when breeding	Low adverse	Negligible	No

8.11.2 Taking into account the mitigation and enhancement measures embedded into the Scheme design as set out in section 8.8, there are no residual effects on biodiversity as a result of the construction, operation and decommissioning of the Scheme. Further to this, in consideration of the positive effect on biodiversity, achieved through the 79% gain in habitat units (as evidenced in the ***Biodiversity Net Gain Report*** of the ES [EN010118/APP/6.5]), the Scheme will deliver a beneficial effect for biodiversity within the Order limits over the medium to long term, which would be considered a **significant beneficial** effect.

## 8.12 Additional Mitigation and Enhancement Measures

8.12.1 The Scheme design has embedded sufficient mitigation to avoid significant adverse effects to important ecological features, without additional mitigation measures being required.

8.12.2 The Scheme will deliver significant enhancements for biodiversity in line with national and regional policies and biodiversity priorities. A robust monitoring programme is also provided in the ***OLEMP*** [EN010118/APP/7.13] secured through the DCO, to ensure mitigation and enhancement measures are delivered successfully.

### 8.13 Residual Effects and Conclusions

8.13.1 As no additional mitigation measures have been identified, the residual effects remain as identified after the implementation of embedded mitigation measures. Accordingly, no significant residual effects on ecological features are predicted during construction, operation or decommissioning of the Scheme.

### 8.14 Cumulative Effects

8.14.1 An assessment of cumulative effects has been made with reference to the methodology and guidance set out in **Chapter 5: EIA Methodology** of the ES [EN010118/APP/6.1] and **Appendix 5A: Long List of Cumulative Schemes** of the ES [EN010118/APP/6.2].

8.14.2 The Scheme includes sufficient avoidance and retention of ecological features and the creation of extensive areas of new habitat. In combination with other mitigation and enhancement measures (as detailed in Section 8.8 of this chapter) the impacts and effects on ecological receptors have been minimised or avoided.

8.14.3 Other schemes within 4km of the Scheme, as identified in **Appendix 5A** of the ES were reviewed for potential overlapping spatial and temporal interactions with the Scheme. Where these potential overlapping interactions of ecological receptors was likely to occur, the relevant ecological receptors were identified and where they were considered to be sensitive, the overlapping development was taken forward for cumulative assessment. There is no potential for cumulative effects where the Scheme has a **negligible** effect, so this assessment has only considered those **minor** adverse effects reported in Section 8.11.

8.14.4 All of the other schemes identified in **Appendix 5A** of the ES, which were considered to have the potential to interact cumulatively with the Scheme have followed good design principles to minimise and avoid significant effects on ecological receptors and all avoid spatial and temporal interaction with the Scheme. The Scheme is therefore not considered to have a significant adverse effect on ecological receptors in combination (cumulatively) with other schemes.

### 8.15 References

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