

BT-NG-020621-545-0163

Bramford to Twinstead Reinforcement

Volume 6: Environmental Information

Document 6.3.7.1.2: ES Appendix 7.1 – Annex B Hintlesham Woods SSSI Assessment

Final Issue A
April 2023

Planning Inspectorate Reference: EN020002

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(a)

nationalgrid

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1. Introduction

1.1 Overview

- 1.1.1 This document accompanies National Grid Electricity Transmission plc's (here on referred to as National Grid) application for development consent to reinforce the transmission network between Bramford Substation in Suffolk, and Twinstead Tee in Essex. The Bramford to Twinstead Reinforcement ('the project') would be achieved by the construction and operation of a new electricity transmission line over a distance of approximately 29km comprising of overhead lines, underground cables and grid supply point substation. It also includes the removal of 25km of the existing distribution network, 2km of the 400kV overhead line transmission network and various ancillary works.
- 1.1.2 This report has been produced to identify whether the project would have a likely significant effect on Hintlesham Woods Site of Special Scientific Interest (SSSI) and its interest features (breeding birds and ancient woodland). It also outlines the embedded measures made by National Grid to reduce effects on the woodland during construction.
- 1.1.3 National Grid recognises that there are other potential effects in relation to the woodland (outside of the SSSI interest features) such as on bats and hazel dormouse (*Muscardinus avellanarius*). These are not described within this report, but a full assessment is presented in Environmental Statement (ES) Chapter 7: Biodiversity (**application document 6.2.7**) and the supporting appendices.
- 1.1.4 This report includes a summary of the existing baseline (Chapter 2), describes the project features and construction methodology (Chapter 3), presents the impact assessment (Chapter 4), and concludes with a summary of the likely significant effects (Chapter 5).

1.2 Planning Policy Context

- 1.2.1 The project meets the threshold as a Nationally Significant Infrastructure Project (NSIP), as defined under Part 3 of the Planning Act 2008, hence National Grid requires a development consent order (DCO) to construct and operate the project. The National Policy Statements (NPS) EN-1 (Overarching NPS for Energy) (Department for Energy and Climate Change (DECC), 2011a) and EN-5 (Electricity Networks) (DECC, 2011b), taken together, provide the primary basis for decisions on applications for electricity networks infrastructure, and in turn the project.

- 1.2.2 Paragraph 5.3.11 of EN-1 states that:

'Where a proposed development on land within or outside a SSSI is likely to have an adverse effect on a SSSI (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect, after mitigation, on the site's notified special interest features is likely, an exception should only be made where the benefits (including need) of the development at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs. The IPC [now the Planning Inspectorate] should use requirements and/or planning obligations to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest.'

2. Baseline Environment

2.1 Site Description

- 2.1.1 Hintlesham Woods SSSI is designated for its ancient woodland habitat and breeding woodland bird assemblage. The citation lists the site as being one of the largest areas of ancient coppice-with-standards woodlands in Suffolk dating from at least the 12th century. The woodland is further linked to other ancient woodland in the vicinity by secondary woodlands from the 16th to 19th century.
- 2.1.2 The SSSI comprises five units as described in Table 2.1 and shown on ES Figure 7.1.8: Proposed Works Around Hintlesham Woods (**application document 6.4**). Table 2.1 also includes the results of the latest condition assessment undertaken by Natural England (Natural England, 2023). Further guidance on how Natural England assesses condition and the definition of the SSSI condition categories can be found in the SSSI Monitoring, Assessment and Reporting Standard (Natural England, 2019).

Table 2.1 – Hintlesham Woods SSSI Units

Unit	Unit Name	Condition	Area	Habitat
001	Wolves Wood	Unfavourable – no change (2022)	38ha	Broadleaved, mixed and yew woodland - lowland
002	Keeble's Grove	Unfavourable – no change (2011)	2ha	
003	Ramsey Wood	Favourable (2021)	34ha	
004	SW Ramsey Wood	Unfavourable recovering (2012)	3ha	
005	Hintlesham Great Wood*	Favourable (2021)	41ha	

*Includes Hintlesham Little Wood

- 2.1.3 The SSSI is managed by the Royal Society for the Protection of Birds (RSPB) as one of their reserves. For the purposes of this report, reference to Hintlesham Woods SSSI, comprises Ramsey Wood (Unit 003), SW Ramsey Wood (Unit 004) and Hintlesham Great Wood (Unit 005). Although the Order Limits are also adjacent to Wolves Wood (Unit 001) and Keeble's Grove (Unit 002), the proposals at these locations are associated with habitat corridors and planting proposals and are anticipated to involve limited impact and disturbance to the SSSI and its interest features.
- 2.1.4 This report focuses on the activities within 500m of the SSSI, which is considered an appropriate distance of where effects could be perceived. This is based on the results of the noise assessment undertaken for the project, which indicate that the sound pressure level from construction works would reduce to 56dBA, which is comparable to existing ambient and background noise levels of around 50dB at 300m distance from origin (see ES Chapter 14: Noise and Vibration (**application document 6.2.14**) for details). ES Figure 7.1.8: Proposed Works Around Hintlesham Woods (**application document 6.4**) shows a 300m and 500m buffer around units 003, 004 and 005.

2.2 Baseline Survey

- 2.2.1 Baseline surveys have been undertaken at Hintlesham Woods SSSI to understand the habitats and species relevant to the SSSI interest features. These have included a UK

Habitats (UKHab) Classification Survey, arboricultural survey and breeding bird survey, which are relevant to the interest features. Other surveys relevant to the ES are presented in ES Chapter 7: Biodiversity (**application document 6.2.7**) and its supporting appendices.

Ancient Woodland Habitat Interest Feature

- 2.2.2 A UKHab survey was undertaken in 2021 and 2022 for land within and immediately adjacent to the Order Limits. This included the existing maintained swathe through Hintlesham Woods and also the fields to the north and west of the woods.
- 2.2.3 Where the Order Limits cross Hintlesham Woods SSSI, the habitats comprised habitat type w1f7 in the UKHab survey, which is described as other lowland mixed deciduous woodland, a Habitat of Principal Importance. Approximately 50% of this area (to the east) is also an ancient woodland inventory (AWI) site, although the UKHab survey results show that the remaining 50% is assessed as having likely ancient woodland origin and are therefore valued similarly.
- 2.2.4 The area maintained below the existing pylons for operational safety clearances (the existing maintenance swathe) was in moderate condition, as per the UKHab survey. There was a 10m strip to the north-east predominately comprised dense blackthorn (*Prunus spinosa*) interspersed with some taller trees such as ash (*Fraxinus excelsior*) and silver birch (*Betula pendula*).
- 2.2.5 Beyond the existing maintenance swathe, the site survey results show that the woodland was more typical of the rest of Hintlesham Woods (good condition) with oak (*Quercus robur*), coppiced hazel (*Corylus avellana*) and significant silver birch. The northern area of the SSSI within the Order Limits resembled more ancient woodland with an ash canopy, some in poor condition. There was a hazel understorey and ground flora comprising several ancient woodland indicator species. The area to the south was identified as having a younger appearance in the site survey.

Breeding Bird Assemblage Interest Feature

- 2.2.6 Breeding bird surveys (three transects repeated seven times) were undertaken across Ramsey Woods, Hintlesham Little Wood and the adjacent boundary edge of Hintlesham Great Wood between March and July 2022. Fifty-nine species were recorded in total during field surveys, 32 of which were classified as priority species i.e. were listed as red or amber birds in Birds of Conservation Concern 5 (Stanbury *et al.*, 2021), on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), a Species of Principal Importance (SPI) in England and/or listed as a priority species on the Suffolk Biodiversity Information Service website.
- 2.2.7 Six Schedule 1 species were recorded during surveys with the results provided in ES Appendix 7.2: Species Baseline Report (**application document 6.3.7.2**). These were all non-breeding species and are considered to be wintering passerines (brambling, firecrest, redwing) or commuting/ foraging raptors (hobby, peregrine and red kite). Two of the eight SPI recorded during the surveys were confirmed breeders; dunnock and marsh tit. Ten red-list species were recorded of which, marsh tit was a confirmed breeder with mistle thrush, nightingale and spotted flycatcher exhibiting behaviour or showing signs of possible breeding or probable breeding activity within the woodland. Other confirmed breeding bird species were common whitethroat, woodpigeon and wren.

- 2.2.8 The highest densities of bird records were found along woodland edges and rides where the open tree canopy promoted the growth of a scrubby understory that are of high value to breeding birds. Conversely, it was evident that dense areas of woodland with limited natural light significantly reduced the presence of bird activity, although some trees appeared to provide suitable nesting opportunities for more common species such as treecreeper and nuthatch.

2.3 Existing Overhead Line

- 2.3.1 There is an existing 400kV overhead line located within Hintlesham Woods which is owned and operated by National Grid. National Grid operate this line in accordance with all appropriate design safety standards including a suite of National Grid policies and processes. As part of these requirements, vegetation surrounding and beneath the existing 400kV overhead line is managed to maintain operational safety clearances of 5.2m plus three-years' growth between the conductors and the vegetation (two years, plus one years' worth of growth) for the predominant species, to avoid branches interfering with the conductors.
- 2.3.2 The existing overhead line is subject to regular inspections from the ground (using a small van) or from the air by helicopter or drone to check for visible faults or signs of wear. The inspections confirm whether unplanned refurbishment is required and indicate if vegetation growth were at risk of affecting safety clearances of the overhead line. Refurbishment/uprating of this 400kV overhead line took place in 2012.
- 2.3.3 There is an existing 132kV overhead line located approximately 400m (at its closest point) to the south of Hintlesham Woods which is owned and operated by UK Power Networks.

3. Proposed Project

3.1 Introduction

- 3.1.1 This chapter describes the proposed construction works in and around the SSSI including details of the construction schedule and methodology. It also describes the operational requirements for maintaining the overhead line.
- 3.1.2 National Grid has used the mitigation hierarchy to 'avoid' impacts to the ancient woodland by routing the reinforcement around the woodland to the north. It has also avoided disturbance to breeding birds where practicable, by timing works outside of the bird breeding season (March to August inclusive) in the vicinity of Hintlesham Woods where possible. Where this is not possible, consideration has been given to the nature of the works to identify whether additional measures may be required to reduce the effects.
- 3.1.3 Order Limits have been defined to encompass the land required temporarily to build the project and permanently to operate the project. The Order Limits include Limits of Deviation (LoD), which represent the maximum locational flexibility for permanent infrastructure, such as the overhead line and pylons. This allows for adjustment to the final positioning of project features to avoid localised constraints or unknown or unforeseeable issues that may arise. The assessment presented within this report is based on the Proposed Alignment, which is the design that is shown on ES Figure 7.1.8: Proposed Works Around Hintlesham Woods (**application document 6.4**). However, it should be noted that the permanent aspects of the project, including pylon locations, are not fixed and could be located anywhere within the LoD, as defined on the Work Plans (**application document 2.5**).
- 3.1.4 As noted in Section 2.1, a 500m buffer has been used around Hintlesham Woods SSSI as the area where there could be a level of disturbance to SSSI interest features. This encompasses works between pylon 4YL011 and RB9 to the north-east of the woods and pylon 4YL017A and RB16 to the south-west of the woods. This is shown on ES Figure 7.1.8: Proposed Works Around Hintlesham Woods (**application document 6.4**).

3.2 General Description

- 3.2.1 In accordance with the Holford Rules, the design of the proposed overhead line has been developed to parallel the existing 400kV overhead line where practicable, with the proposed line lying to the south of the existing line. To maintain the position of the proposed overhead line to the south of the existing, the existing 400kV overhead line would be realigned to the north and west of Hintlesham Woods on newly constructed pylons and the proposed overhead line would use the route and pylons of the existing 400kV overhead line through Hintlesham Woods. This is known as a 'transposition' of the existing overhead line onto the new alignment to the north of Hintlesham Woods, preventing crossing of the two overhead lines.
- 3.2.2 National Grid is proposing to remove the 132kV overhead line between Burstall Bridge and Twinstead Tee as part of the project should development consent be granted. There are agricultural fields, residential properties and a 'B' road named Duke Street between Hintlesham Woods SSSI and the 132kV overhead line proposed for removal. Therefore, although a short section of the 132KV overhead line lies within 500m of Hintlesham

Woods, it is not anticipated that this removal would cause a disturbance to breeding birds due to the intervening land use and is therefore not discussed further within this report.

3.2.3 Should consent be granted, the project is anticipated to be constructed between 2024 and 2028. The transposition would involve works to the existing operational overhead line; therefore, the transposition would need to be completed within a pre-agreed programme of set electrical outage windows. These are set by the electricity network operator and typically occur over the summer when electricity demand is at its lowest.

3.2.4 Illustration 3.1 shows the indicative construction schedule for the works in and around Hintlesham Woods SSSI based on the current agreed electrical outages and commitments around timings to avoid bird nesting season noted in Section 3.4. This indicative schedule could vary depending on if and when development consent is granted, the agreed timings of electrical outage windows determined by the Network Operator and also on the construction schedule provided by National Grid's Main Works Contractor.

3.3 Proposed Commitments

- 3.3.1 National Grid has embedded measures into the design of the project to avoid or reduce significant effects that may otherwise be experienced during construction and operation of the project. Embedded measures are those that are intrinsic to and built into the design of the project and assumed prior to the impact assessment. These are given a reference number with an EM prefix for ease of reference.
- 3.3.2 Embedded measures specifically put in place to reduce potential effects at Hintlesham Woods are described in Table 3.1 along with a description of how it would reduce potential effects. These measures are contained within the Register of Environmental Actions and Commitments (REAC) which is Appendix B of the Construction Environmental Management Plan (CEMP) (**application document 7.5.2**). These embedded measures are secured through Requirement 4 of the draft DCO (**application document 3.1**).
- 3.3.3 In addition, the Code of Construction Practice (CoCP) includes good practice measures that would be relevant to the works around Hintlesham Woods SSSI. These include but are not limited to the following with the full list of good practice measures found in CEMP Appendix A: CoCP (**application document 7.5.1**):
- LV01: The contractor(s) will retain vegetation where practicable. Where vegetation is lost and hedgerows and trees cannot be replaced in situ due to the restrictions associated with operational requirements of planting near the line and/ or safety requirements, replacement vegetation will be planted as close by as practicable and will complement landscape character and be sympathetic to the local habitat type in order to provide a high biodiversity value;
 - LV02: The contractor(s) will apply the relevant protective principles set out in British Standard 5837:2012: Trees in relation to design, demolition and construction. This will be applied to those trees within the Order Limits which will be preserved through the construction phase, and to trees outside of the Order Limits where such measures do not hinder or prevent the use of the relevant working width for construction. All works to high grade trees, including trees under Tree Preservation Orders and veteran trees, will be undertaken or supervised by a suitably qualified arboriculturist;
 - B02: Vegetation with the potential to support breeding birds will be programmed to be removed outside of breeding bird season (March to August inclusive) where practicable. If any vegetation clearance is required during the breeding bird season, vegetation will be checked by an ecologist for nesting birds prior to removal. Appropriate protection measures will be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the ecologist; and
 - B07: Where the works require the crossing or removal of hedgerows, the gap will be reduced to a width required for safe working. Where hedge removals are necessary and the hedgerow is identified as having value for bats, dormouse or other relevant species, then 'dead hedging' would be used where practicable, in the interim periods to retain connectivity during construction. Dead hedging can comprise vegetation arisings or artificial provision, such as hazel hurdles, willow screening panels or Heras fencing covered in camouflage netting.

Table 3.1 – Embedded Measures

Ref	Commitment	Reason
EM-AB02	The new 400kV overhead line will reuse the existing pylons (RB12 and RB13) at Hintlesham Woods SSSI.	This avoids impacts on Hintlesham Woods SSSI by reducing the works that take place in and around the SSSI.
EM-AB09	For the construction works in and around Hintlesham Woods (between pylons 4YL011 and 4YL017A) construction works would be undertaken outside of bird breeding season except for the following activities which need to take place within agreed outages as shown in the indicative construction schedule in Illustration 3.1: <ul style="list-style-type: none"> • Install conductors / transposition works; • Construction of pylon 4YL12A and removal of the existing 4YL12; and • Assembly and removal of temporary pylon RB12T. 	This would avoid a large proportion of the works taking place around the woods during bird breeding season, other than the activities specifically dependent on a planned outage.
EM-AB10	No intrusive construction activities will take place within 15m of the north and western edge of Hintlesham Woods SSSI (excluding planting proposals and works to the existing 400kV overhead line). This includes tracking of heavy vehicles or material storage and soil excavation. Demarcation fencing will be used to identify the exclusion zone.	This would avoid impacts on the root protection area (RPA) of trees along the edge of the SSSI.
EM-AB11	The temporary access routes used to move between pylons to the north and west of Hintlesham Woods SSSI will be located to the north and west of the proposed overhead line.	This mean that vehicle movements would be further from the edge of the SSSI reducing disturbance further.
EM-AB12	Vegetation management for works to the existing overhead line within Hintlesham Woods SSSI would comprise coppicing to ground level for a width of 20m along the existing operational maintenance swathe. In addition, the trees would be managed at graduated heights for up to an additional 12.5m on either side of the 20m swathe for construction activities and to allow the conductors to be installed onto the arms of the existing pylons. Vegetation would be permanently managed to achieve operational safety clearances during operation as is currently undertaken with the existing overhead line. No heavy good vehicle access would be undertaken within the woods.	This would avoid additional vegetation management within the SSSI as a result of the works.
EM-AB13	The temporary access route through Hintlesham Woods SSSI will use protective matting (such as trackway) to facilitate works to the existing overhead line and will be microsited using data gathered during the arboricultural and habitat surveys within the 20m coppiced area.	This would avoid the more sensitive areas of woodland being impacted by the temporary works.

3.4 Construction Works and Timing at Hintlesham Woods

- 3.4.1 This section sets out the construction methodology, which is based on the Proposed Alignment presented on ES Figure 4.1: The Project (**application document 6.4**). It should be noted that the permanent aspects of the project, including pylon locations, are not fixed and could be located anywhere within the Limit of Deviation as defined on the Work Plans (**application document 2.5**) unless a commitment, such as the embedded measures in Table 3.1 have been made otherwise.

Enabling Works

- 3.4.2 The enabling works would include vegetation removal, which would be undertaken in accordance with good practice measure B02 in the CoCP (**application document 7.5.1**), which states that vegetation with the potential to support breeding birds would be programmed to be removed outside of breeding bird season (March to August inclusive), where practicable. If any vegetation clearance is required during the breeding bird season, vegetation would be checked by an ecologist prior to removal. Appropriate protection measures would be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the ecologist.

Works Outside of Hintlesham Woods SSSI

- 3.4.3 The vegetation would be cleared from the working area and demarcation fencing would be installed 15m away from the tree trunks within the SSSI, to avoid any works (excavation, soil storage etc) within the root protection area (RPA) of the ancient woodland. The vegetation would be cleared beneath the route of the proposed overhead line to the north and west of the woods. This is assumed to be a 20m coppiced gap where it would cross a hedgerow or tree belt (no removal of the roots), as shown on the Trees and Hedgerows to be Removed or Managed Plans (**application document 2.9**).
- 3.4.4 The temporary access route would be made of stone and installed to the north of the woods connecting the working areas to the local road network. Where the temporary access route needs to cross a hedgerow, this would require a 5m gap including excavation of the roots and soil excavation. The Proposed Alignment shows that the temporary access routes would lie within the 20m coppiced gap required for the proposed overhead line. Existing gaps in hedgerows would be used where available and practicable. The topsoil and relevant depth of subsoil would be stripped and stored separately in accordance with the good practice measures outlined within the CoCP (**application document 7.5.1**) and the CEMP (**application document 7.5**).

Works within Hintlesham Woods SSSI

- 3.4.5 The Order Limits have been narrowed to 45m through the SSSI, as shown on the Works Plans (**application document 2.5**). The enabling works would include coppicing of trees within Hintlesham Woods along the existing operational maintained swathe beneath the existing 400kV overhead line, which would have a 20m swathe coppiced to ground level (no removal of roots). The trees would be managed at graduated heights for an additional 12.5m on either side of the 20m swathe to accommodate installing the conductors onto the arms of the pylons (EM-AB13 in Table 3.1). The installation of the temporary access route would take place outside of bird breeding season (EM-AB09). The current programme assumes that this would be undertaken over winter 2024/25.

Main Works

Pylon Construction (Works Outside of Bird Breeding Season)

- 3.4.6 The new pylons (4YL012B to 4YL017A) to the north and west of Hintlesham woods would be constructed offline (these do not require a planned electrical outage) and outside of bird breeding season. The pylon bases would require a 40x40m working area for a suspension (line) pylon and 80x80m for a tension (angle) pylon. These pylons may require piled foundations and would require a crane to lift the pylon into position. All works would be located at least 15m away from the tree trunks along the SSSI boundary.
- 3.4.7 The main steelwork for the pylons would be bolted together on the ground before assembling the pylon in sections beginning with each leg being fastened to one of the stubs. The pylon is lifted into position using a mobile crane and bolted together. The insulators and associated fittings would then be attached to the pylons in preparation for installing the conductors. These works would be undertaken outside of bird breeding season and it is currently assumed this would be in autumn/winter 2025.

Installation of Conductors (Works Typically Outside of Bird Breeding Season)

- 3.4.8 A pulling site (to pull conductors from one pylon to the next) would be established at one end of the section with the conductors running out from a tensioning site at the other end of the section, to keep the wires off the ground. Pilot wires are used to pull conductors between pylons. These are usually installed using a tractor winch and spreader bar, which pulls each bond out in turn. When the conductor is fully 'run out', it would be fastened at its finished tension and height above ground by linesmen working from platforms on the pylons and suspended from the conductors.
- 3.4.9 The current programme assumes that the conductors would be installed after the new pylons are constructed in February 2026. There is the potential that installation of the conductors could extend into March 2026.

Transposition of the Overhead Line (Works within Bird Breeding Season)

- 3.4.10 The existing 400kV overhead line would need to be transposed onto the new pylons to the north and west of Hintlesham Woods SSSI during bird breeding season. This would require a temporary diversion of the existing line during construction to allow construction of pylon RB11 (which is located within the path of the existing 400kV overhead line) and 4YLA12A which are located approximately 260m and 375m away from the edge of the SSSI respectively. It is assumed that this would be undertaken in May 2027 under an agreed electrical outage window.
- 3.4.11 The temporary pylon (RB12T) would be constructed to the north-east of the woods, approximately 200m from the edge of the SSSI at the nearest point. Whilst the foundations of this pylon would be constructed outside of the bird breeding season, the assembly of the above ground pylon structure would be constructed in March 2027 within an electrical outage for safety reasons, as this is located within 50m of the existing operational 400kV overhead line. Once the temporary pylon (RB12T) is in place, the existing conductors would be diverted onto the temporary line (during a planned electrical outage window) and is assumed to be spring 2027.
- 3.4.12 As pylon 4YL12A is located on the alignment of the existing operational 400kV overhead line it would need to be constructed during a planned outage (currently assumed to be May 2027). The existing pylon, 4YL12 would be removed at the same time.

- 3.4.13 It is then anticipated that the conductors between RB12 and RB18 would be installed, this includes the section of overhead line along the existing operational maintained swathe through the woods. The conductors would also be transferred onto 4YLA12A and 4YLA12B. These conductor works would be undertaken during a planned electrical outage window and is assumed to take place in spring/summer 2027.

Demobilisation and Reinstatement

- 3.4.14 Demobilisation of the majority of the working area around Hintlesham Woods would take place outside of bird breeding season. It is currently assumed that the majority of this work would occur during autumn 2027.
- 3.4.15 Access would remain in place to temporary pylon (RB12T), which it is assumed would be removed in the April 2028 as part of a planned electrical outage window. The pylon would be dismantled by unbolting the sections and lowering these to the ground and the foundations removed to a depth of 1.5m below ground level. The topsoil would then be reinstated and the remaining temporary works would be removed once the pylon is dismantled.
- 3.4.16 The landscape contract for the project, is likely to commence in the autumn of 2028; although areas may be reinstated earlier if the site has been completed and subject to landowner consent. Landscape planting would typically take place in the autumn / winter which is the preferred time of year for planting.

3.5 Operation and Maintenance

- 3.5.1 The proposed overhead line would reuse the pylons at Hintlesham Woods. This would avoid impacts on new areas of woodland within the SSSI by limiting works to within the existing operational maintained swathe. Vegetation along the swathe would need to be maintained to achieve the required safety clearances, as per the current maintenance regime undertaken for the existing overhead line.

4. Assessment

4.1 Introduction

4.1.1 This chapter assesses the potential effects of the project on the SSSI based on the proposed construction methodology and embedded measures described in Chapter 3.

4.2 Effects on Habitats (including Ancient Woodland)

During Construction

4.2.1 The proposed works on the existing pylons either side of the SSSI would be undertaken in accordance with the commitments made in Table 3.1. EM-AB12 details the limitation of works to a 20m wide area within the existing operational maintained swathe with graduated cutting for 12.5m on both sides. EM-AB12 also commits to no heavy goods vehicle access through Hintlesham Woods, with an additional commitment to use appropriately positioned protective matting to avoid the most sensitive features where vehicle access is essential (EM-AB13).

4.2.2 While there would be coppicing to ground level within the existing operational maintained swathe resulting in a short term modification of habitat, this area would re-establish post construction such that in the long term there would be no additional impact via habitat loss, degradation or modification from the project, when compared to the existing maintenance regime.

4.2.3 Three new pylons would be routed along the north-western boundary of Hintlesham Woods SSSI for approximately 1km. The construction activities associated with these would be located at least 15m away from the edge of the woodland to avoid habitat degradation and direct impacts on the RPA. EM-AB10 also commits to the exclusion of heavy vehicles or material storage within this boundary area. As such, any potential impact on Hintlesham Woods via this pathway would be avoided.

4.2.4 Combined, there would be a short term small impact upon the ancient woodland interest feature of Hintlesham Woods SSSI, resulting in a **minor** adverse effect which would be **not significant**.

During Operation

4.2.5 Ongoing woodland management within the existing operational maintained swathe to maintain the safety distance between the overhead line and the woodland would be required. This would be undertaken annually to maintain the operational safety clearances between the vegetation and overhead line. This is the same as is what is currently undertaken to maintain the existing overhead line operational safety distance. As such, there is expected to be no change in the level of impact upon the habitats of Hintlesham Woods SSSI during operation of the project, resulting in a **neutral** effect which would be **not significant**.

4.3 Effects on Breeding Birds

During Construction

- 4.3.1 The main potentially disturbing construction activities to breeding birds, comprise vegetation clearance around the existing pylons and within the existing maintained swathe through Hintlesham Woods, construction of the foundations of the pylons along the north and western boundaries of Hintlesham Woods and construction of the temporary pylon RB12T to the north of Hintlesham Woods. These would not be constrained by planned electrical outages, and an embedded measure (EM-AB09) has been made to programme these activities outside of the bird breeding season, avoiding any potential disturbance impact.
- 4.3.2 As noted in Table 3.1, EM-AB09 lists the works around Hintlesham Woods SSSI that need to occur during a planned electrical outage window and therefore would unavoidably occur during the bird breeding season. These works would be limited to:
- Install conductors / transposition works;
 - Construction of pylon 4YL12A and removal of the existing 4YL12; and
 - Assembly and removal of temporary pylon RB12T.
- 4.3.3 These activities could cause disturbance to the breeding bird assemblage present at Hintlesham Woods SSSI at the time of works. However, conductor stringing would involve a small team in a light goods vehicle to access the newly built pylons and climb the pylons to tie in the conductors. As such, disturbance to breeding birds would be limited.
- 4.3.4 The construction of pylon 4YL12A would be located approximately 365m north of the SSSI boundary and removal of the temporary pylon RB12T would be approximately 200m north of the SSSI boundary. The breeding bird survey of Hintlesham Woods identified the highest densities of bird presence along the eastern woodland edge of Ramsey Wood and rides within the woodland where the open tree canopy promoted the growth of a scrubby understory. The species recorded along the eastern boundary of Ramsey Wood comprised a range of typical woodland bird species but also a primary area for nightingale. Relatively few bird records were made along the north-western boundary of Hintlesham Little Wood. No Schedule 1 bird species were identified as breeding on any of the eastern boundary of Ramsey Wood or north-western boundary of Hintlesham Little Woods (i.e. those facing the potentially disturbing activities).
- 4.3.5 All the areas identified as having peak density of bird presence would be retained. The distance between the highest density of bird records and the removal of the temporary pylon would be over 400m. The distance between the highest density of bird records and the construction of pylon 4YL12A would be nearly 500m.
- 4.3.6 Although there is limited published guidance on disturbance thresholds for woodland birds there is published work advising on 100m to 250m buffer considerations for a range of British raptor species such as red kite, buzzard and hobby (Goodship *et al.*, 2002). There is also a study on the effects of construction noise for waterbirds that has identified 70dB and above as generating an impact to bird activity which includes movement away from their resting location (Cutts *et al.*, 2009).
- 4.3.7 Noise assessment for the project has identified an average sound power level for pylon construction (including piling activities, where required) of 86dBA at 10m from the source,

78dBA at 25m, 72dBA at 50m, 66dBA at 100m and 60dBA at 200m as set out in Table 2.2 in ES Appendix 14.1: Construction Noise and Vibration Data (**application document 6.3.14.1**). At 300m distance from origin, the sound pressure level is reduced to 56dBA which is comparable to existing ambient and background noise levels of around 50dB in the Order Limits as described in ES Chapter 14: Noise and Vibration (**application document 6.2.14**).

- 4.3.8 The sound pressure levels suggests that the closest proposed pylon works necessary within the bird breeding season at approximately 200m from Hintlesham Woods is unlikely to generate a response from any breeding birds within which would result in leaving the nest based on Goodship (*et al.*, 2022) and Cutts (*et al.*, 2009). It would also be expected that breeding birds within the woodland itself would be additionally buffered from many of the potentially disturbing activities outside of the woodland by trees. Especially as visual disturbance is an important additional feature necessary to generate a disturbance response by birds.
- 4.3.9 The furthest Lowest Observed Adverse Effect Level for vibration has been modelled at 170m for foundation piling for pylon construction as presented in Table 2.5 in ES Appendix 14.1: Construction Noise and Vibration Data (**application document 6.2.14.1**). No groundworks within the bird breeding season are proposed within this distance.
- 4.3.10 Therefore, although works would unavoidably need to be scheduled during bird breeding season, the potentially disturbing construction activities would be at distance where disturbance to breeding birds would be limited. As a result, there would be an impact of small magnitude which would result in a **minor** adverse effect, which is **not significant**. This would reduce to neutral once coppiced vegetation had re-established.

During Operation

- 4.3.11 It is considered unlikely that birds using the woodland would be at risk of collision with the new overhead line in this location. Woodland birds are agile species that could easily avoid these features in flight.
- 4.3.12 The impact of this relatively short section of new overhead line in a landscape of existing similar infrastructure is unlikely to generate more than a small magnitude impact on breeding birds resulting in a **minor** adverse effect which is **not significant**.

4.4 Mitigation

- 4.4.1 No significant effects upon the Hintlesham Woods SSSI, nor its designated features are anticipated as a result of the project, given the implementation of the embedded measures set out in Table 3.1. Therefore, no additional mitigation is proposed.
- 4.4.2 Across the project as a whole, a likely significant effect has been identified on lowland mixed deciduous woodland through habitat degradation and permanent modification as described in ES Chapter 7: Biodiversity (**application document 6.2.7**). As such, additional mitigation has been identified to compensate for woodland affected by the project. In order to maximise the benefits of this mitigation, woodland habitat is provided in larger, fewer areas in locations connected to existing woodlands. Proposed mitigation areas for woodland planting have been identified around Hintlesham Woods (see ES Figure 16.1: Embedded Measures and Mitigation Proposals (**application document 6.4**)).

- 4.4.3 Mitigation area MM10 would provide an enhanced habitat connection between the southern aspects of Ramsey Wood and Hintlesham Little Wood. This includes natural regeneration of woodland habitats. Although this takes longer to create, this method was agreed with RSPB, Natural England and the relevant planning authorities in a meeting on 1 November 2021 as generating the best outcome for biodiversity, allowing the existing woodland to expand and limit the introduction of non-local/invasive species. The establishment phase would also have value and would provide additional habitat for species such as nightingale that prefer scrub type vegetation.
- 4.4.4 MM09 is a larger habitat mosaic that aims to create habitat connectivity between Ramsey Wood and other component parts of the Hintlesham Woods SSSI; Wolves Wood and Keeble's Grove to the north-west.

5. Conclusion

5.1 During Construction

- 5.1.1 The assessment has concluded that during construction there would be a short term small impact upon the ancient woodland interest feature of Hintlesham Woods SSSI, as construction activities would either lie outside of the 15m RPA of the woodland or would lie within the maintained swathe beneath the existing overhead line. This would result in a short term **minor** adverse effect which would be **not significant**, which would reduce to neutral once coppiced vegetation had re-established.
- 5.1.2 The assessment has concluded that although there would be activities which could potentially disturb breeding birds, these would either be undertaken outside of bird breeding season or at a distance away from the woodland that a significant level of disturbance is considered unlikely. A precautionary short term **minor** adverse is concluded, which would be **not significant**.
- 5.1.3 Overall, the assessment presented in this report has shown that although there would be works in and around Hintlesham Woods SSSI, this would only have a minor adverse effect on the interest features (ancient woodland and breeding bird assemblage) during construction when taking into account the embedded measures in Table 3.1 and that this would be **not significant**.

5.2 Effects During Operation

- 5.2.1 The assessment has concluded that there would be no change in the level of impact upon the ancient woodland habitats during operation of the project, when compared to the maintenance regime undertaken as part of the existing 400kV overhead line. This would result in a **neutral** effect which would be **not significant**.
- 5.2.2 The assessment also concluded that the new overhead line was unlikely to create a collision feature for the agile woodland passerine bird species breeding or passing over the woods. A precautionary **minor** adverse impact is concluded which is **not significant**.

5.3 Overall Conclusion

- 5.3.1 The embedded measures described in Table 3.1 that underpin the assessment presented in this report, are contained within the REAC which is Appendix B of the CEMP (**application document 7.5.2**). These embedded measures are secured through Requirement 4 of the draft DCO (**application document 3.1**).
- 5.3.2 As the assessment has not identified any significant adverse effects on the SSSI, or on the site's notified special interest features, and as further measures are proposed around the SSSI that would enhance the overall SSSI, the project is considered to be in accordance with paragraph 5.3.11 of EN-1 which requires the '*conservation and enhancement of the site's biodiversity or geological interest*'.

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