




Department for
Energy Security
& Net Zero

Habitats Regulations Assessment for an Application Under the Planning Act 2008

SUNNICA ENERGY FARM

Regulation 63 of The Conservation of
Habitats and Species Regulations 2017

July 2024



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List of abbreviations

Term	Abbreviation
(draft) Development Consent Order	(d)DCO
Adverse Effect on Integrity	AEoI
Appropriate Assessment	AA
Cambridgeshire County Council	CCC
Change Request	CR
Code of Construction Practice	CoCP
Construction Environment Management Plan	CEMP

Decommissioning Environment Management Plan	DEMP
Detailed Archaeological Mitigation Strategy	DAMS
East Cambridgeshire District Council	ECDC
Environment Agency	EA
Environmental Impact Assessment	EIA
Environmental Statement	ES
European Economic Area states	EEA states
Examining Authority	ExA
ExA's written question	ExQ
Functionally Linked Land	FLL
Habitats Regulations Assessment	HRA
Hectare	ha
(outline) Historic Environmental Management Plan	(o)HEMP
In-combination Effect	ICE
Interested Parties	IPs
Issue Specific Hearing	ISH
Joint Nature Conservation Committee	JNCC
(outline) Landscape and Ecology Management Plan	(o)LEMP
Likely Significant Effect	LSE
Megawatt	MW
National Site Network	NSN
Nationally Significant Infrastructure Project	NSIP
Natural England	NE
Nitrogen Oxide	NOx
Operational Environment Management Plan	OEMP

Photovoltaic	PV
Planning Inspectorate	PINS
Relevant Representation	RR
Report on the Implications for European Sites	RIES
Report to Inform Appropriate Assessment	RIAA
Royal Society for the Protection of Birds	RSPB
Public Rights of Way	PRoW
Say No To Sunnica	SNTS
Special Area of Conservation	SAC
Special Protection Area	SPA
Statement of Common Ground	SoCG
Statutory Nature Conservation Body	SNCB
Suffolk County Council	SCC
Sulphur Dioxide	SO ₂
Supplementary Advice on Conservation Objectives	SACOs
The Secretary of State	The Secretary of State for Energy Security and Net Zero
West Suffolk Council	WSC
Written Representation	WR

1 Introduction

1.1 Background

This is a record of the Habitats Regulations Assessment (HRA) that the Secretary of State for Energy Security and Net Zero (the Secretary of State) has undertaken under the Conservation of Habitats and Species Regulations 2017¹ (the Habitats Regulations) as amended in respect of the Development Consent Order (DCO) for the Sunnica Energy Farm and its associated infrastructure (the Project). The Examining Authority (ExA) defines this as the “Proposed Development”. It is defined as the Project within this HRA. For the purposes of these Regulations the Secretary of State is the competent authority.

The Project would comprise the construction, operation, maintenance and decommissioning of a generating station with a gross electrical output capacity of over 50 megawatts (MW), comprising ground mounted solar photovoltaic (PV) panel arrays; one or more battery energy storage systems (BESS) with a gross storage capacity of over 50 MW; connection to the UK electricity transmission system and other associated and ancillary development. The Project is described in more detail in Section 2.

The Project constitutes a nationally significant infrastructure project (NSIP) as defined by s. 14(1)(a) of the Planning Act 2008² as it is for an onshore generating station in England with a capacity over 50MW.

The Project was accepted by the Planning Inspectorate (PINS) on 16 December 2021 and a panel of three inspectors was appointed as the Examining Authority (ExA) for the application on 8 March 2022. The Examination of the Project application began on 28 September 2022 and concluded on 28 March 2023. The ExA submitted its report of the Examination, including its recommendation (the ExA’s Report) to the Secretary of State on 28 June 2023. Numbered references to the ExA’s Report are presented in the format “[ER *.*]”.

Following receipt of the ExA’s Report the Secretary of State invited Interested Parties (IPs) to provide additional updates, information and responses to information, including relating to potential impacts on qualifying features of UK National Site Network (NSN) sites. The Secretary of State’s consultation letters referred to throughout this report are referenced in Section 2.3.

This HRA contains a consideration of the potential effects of the Project upon protected sites in European Economic Area (EEA) States (transboundary sites). This is recorded under the transboundary assessment section of the report (Section 6).

¹ <https://www.legislation.gov.uk/ukxi/2017/1012/contents/made>

² <http://www.legislation.gov.uk/ukpga/2008/29/contents>

1.2 Habitats Regulations Assessment

The Habitats Regulations aim to ensure the long-term conservation of certain species and habitats by protecting them from possible adverse effects of plans and projects. In the UK, the Habitats Regulations apply as far as the 12 nautical miles (nm) limit of territorial waters.

The Habitats Regulations provide for the designation of sites for the protection of habitats and species of international importance. These sites are called Special Areas of Conservation (SACs). They also provide for the classification of sites for the protection of rare and vulnerable birds and for regularly occurring migratory species within the UK and internationally. These sites are called Special Protection Areas (SPAs). SACs and SPAs together form part of the UK's NSN.

The Convention on Wetlands of International Importance 1972 (the Ramsar Convention) provides for the listing of wetlands of international importance. These sites are called Ramsar sites. Government policy is to afford Ramsar sites in the United Kingdom the same protection as sites within the NSN (collectively referred to in this HRA as "protected sites").

Candidate SACs (cSACs), SACs and SPAs are afforded protection as protected sites. As a matter of policy³ the Government affords potential SPAs (pSPAs) the same level of protection.

Regulation 63 of the Habitats Regulations provides that:

...before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in-combination with other plans or projects), and (b) is not directly connected with or necessary to the management of that site, [the competent authority] must make an appropriate assessment of the implications for that site in view of that site's Conservation Objectives.

And that:

In the light of the conclusions of the assessment, and subject to regulation 64 [IROPI], the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).

This Project is not directly connected with, or necessary to the management of a protected site. The Habitats Regulations require that, where the Project is likely to have a significant effect (LSE) on any such site, alone or in-combination with other plans and projects, an appropriate assessment (AA) is carried out to determine whether or not the Project will have an adverse effect on the integrity (AEoI) of the site in view of that site's Conservation Objectives. In this report, the following steps are referred to as the HRA:

- Stage 1: Assessment of LSE; and
- Stage 2: AA to determine whether there is an AEoI of any protected site.

³ NPS EN-1 para 5.3.9

The Secretary of State has had regard to relevant guidance on the application of HRA published by the PINS (2022) (Advice Note 10)⁴, guidance produced by Defra (2021)⁵ and the European Commission (2019)⁶, together with recently published joint guidance by Defra, Natural England (NE), the Welsh Government and Natural Resources Wales (2021) on 'Habitats Regulations Assessment: protecting a European site' (the "2021 joint guidance")⁷.

There are no parallel consents required for the Project which would require additional HRA to be carried out by any other competent authority.

1.3 Site Conservation Objectives

Where an AA is required in respect of a protected site, regulation 63(1) of the Habitats Regulations requires that it be an AA of the implications of the plan or project for the site in view of its Conservation Objectives. Government guidance also recommends that in carrying out the LSE screening, applicants must check if the proposal could have a significant effect on a protected site that could affect its Conservation Objectives.

Defra guidance⁸ indicates that disturbance to a species or deterioration of a protected site must be considered in relation to the integrity of that site and its Conservation Objectives. It states that *"the integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was designated"*.

Conservation Objectives have been established by NE. When met, each site will contribute to the overall favourable conservation status of the species or habitat feature across its natural range. Conservation objectives outline the desired state for a protected site, in terms of the interest features for which it has been designated. If these interest features are being managed in a way which maintains their nature conservation value, they are assessed as being in a 'favourable condition'. An AEoI is likely to be one which prevents the site from making the same contribution to favourable conservation status for the relevant feature as it did at the time of its designation. There are no set thresholds at which impacts on site integrity are considered adverse. This is a matter for interpretation on a site-by-site basis, depending on the designated feature and nature, scale, and significance of the impact.

⁴ The Planning Inspectorate (2022): Advice Note Ten: Habitats Regulations Assessment Relevant to Nationally Significant Infrastructure Projects.

⁵ https://consult.defra.gov.uk/marine-planning-licensing-team/mpa-compensation-guidance-consultation/supporting_documents/mpacompensatorymeasuresbestpracticeguidance.pdf

⁶ European Commission (2019) Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC: https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/EN_art_6_guide_jun_2019.pdf

⁷ Defra, NE, the Welsh Government and Natural Resources Wales (2021) 'Habitats Regulations Assessment: protecting a European site': <https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site>

⁸ <https://www.gov.uk/guidance/appropriate-assessment>

NE has issued generic Conservation Objectives⁹ which should be applied to each interest feature of the site. Supplementary advice on Conservation Objectives (SACOs) for each site underpins these generic objectives to provide site-specific information and give greater clarity to what might constitute an adverse effect on a site interest feature. SACOs are subject to availability and are updated on a rolling basis.

Where supplementary advice is not yet available for a site, NE advises that HRAs should use the generic objectives and apply them to the site-specific situation. For SPAs, the overarching objective is to avoid the deterioration of the habitats of qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving the aims of the Habitats Regulations. This is achieved by, subject to natural change, maintaining and restoring:

- the extent and distribution of the habitats of the qualifying features;
- the structure and function of the habitats of the qualifying features;
- the supporting processes on which the habitats of the qualifying features rely;
- the populations of the qualifying features; and
- the distribution of the qualifying features within the site.

For SACs, the overarching objective is to avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving favourable conservation status of each of the qualifying features. This is achieved by, subject to natural change, maintaining or restoring:

- the extent and distribution of the qualifying natural habitats and habitats of qualifying species;
- the structure and function (including typical species) of qualifying natural habitats;
- the structure and function of the habitats of qualifying species;
- the supporting processes on which qualifying natural habitats and habitats of qualifying species rely;
- the populations of qualifying species; and
- the distribution of qualifying species within the site.

The relevant Conservation Objectives were set out in Table 3-2 of the Report to Inform Appropriate Assessment (RIAA) [REP5-045]. Following a request by the ExA in ExQ1 [PD-017], this table was updated at Deadline 3 [REP3-009] to reflect the correct conservation status of each identified site. NE confirmed [REP7-104] that it was satisfied that the Applicant had identified the correct conservation objectives. No other IPs commented on Conservation Objective matters.

The Conservation Objectives and, where available, SACOs have been used by the Secretary of State to consider whether the Project has the potential to have an AEol of sites, either alone or in-combination with other plans or projects.

⁹ <http://publications.naturalengland.org.uk/publication/6734992977690624?cache=1656417868.31>

The SACOs relevant to this HRA Report, as published by NE and the Joint Nature Conservation Committee (JNCC), are referenced in Table 1 and where relevant in Section 5 of this HRA Report.

1.4 The Report on the Implications for European Sites (RIES) and statutory consultation

Under Regulation 63 (3) of the Habitats Regulations the competent authority must, for the purposes of an AA, consult the statutory nature conservation body (SNCB) and have regard to any representation made by that body within such reasonable time as the authority specifies.

NE is the SNCB for England and for English waters within the 12 nm limit.

The ExA [ER 5.1.5] had been mindful throughout the Examination of the need to ensure that the Secretary of State has such information as may reasonably be required to carry out his duties as the competent authority. The ExA sought evidence from the Applicant and the relevant IPs, including NE, through written questions and oral questions at Issue Specific Hearings (ISHs).

The ExA, with support from the Inspectorate's Environmental Services Team, produced a Report on the Implications for European Site (the RIES) [PD-027]. The purpose of the RIES was to compile, document and signpost information submitted by the Applicant and IPs during the Examination (until Deadline 6 on 30 January 2023). It was issued to ensure that IPs, including NE as the SNCB under Regulation 5 of the Habitats Regulations, had been formally consulted on Habitats Regulations matters in respect of the Application for the Project during the Examination.

The RIES was published on the PINS NSIP web page¹⁰ and the ExA notified IPs that it had been published. Consultation on the RIES was undertaken between 13 February 2023 and 13 March 2023. The Applicant [REP8-024], NE [EP8-057] and Say No To Sunnica (SNTS) [REP8-050] provided comments on the RIES at Deadline 8 (13 March 2023).

The ExA recommended [ER 5.2.2] that the RIES, and consultation on it, may be relied upon by the Secretary of State as an appropriate body of information to fulfil his duties under Regulation 63(3) of the Habitats Regulations. He agrees with the ExA in this regard.

1.5 Structure of this HRA

The remainder of this HRA Report is presented as follows:

- Section 2: provides a general description of the Project;
- Section 3: presents an assessment of the extent to which the Project is likely to have a significant effect on protected sites and qualifying features on its own or in-combination with other plans or projects;
- Section 4: provides a description of the AA methodology;
- Section 5: presents an AA of the effects of the Project on protected sites and qualifying features, on its own and in-combination with other plans or projects;

¹⁰ <https://infrastructure.planninginspectorate.gov.uk/projects/eastern/sunnica-energy-farm/?ipcsection=docs>

- Section 6: presents a consideration of transboundary impacts; and
- Section 7: presents the Secretary of State's conclusions.

2 Project description

The Project is a generating station with arrays of ground-mounted solar panels with a generating capacity of more than 50 MW. The Project would comprise:

- solar photovoltaic (PV) panels;
- PV module mounting structures;
- inverters;
- transformers;
- switchgear;
- cabling (including high and low voltage cabling);
- one or more BESS (expected to be formed of lithium-ion batteries storing electrical energy) on Sunnica East Site A, Sunnica East Site B, and Sunnica West Site A;
- an onsite substation comprising a substation and control building (Sunnica East Site A, Sunnica East Site B, and Sunnica West Site A only);
- Burwell National Grid Substation Extension;
- office/warehouse buildings (Sunnica East Site A and Sunnica East Site B only);
- fencing and security measures;
- drainage;
- internal access roads and car parking;
- landscaping including habitat creation areas; and
- construction laydown areas.

The Project would generate and store electricity over an operational lifetime of 40 years. After 40 years of operation the Project would be decommissioned, expected to take between 12 and 24 months in phases. All installed infrastructure equipment would be removed and recycled or disposed of in accordance with good practice and market conditions at that time.

Chapters 2 [APP-034] and 3 [V.2 REP2-022] of the Applicant's ES provide a characterisation of the location and full description of the Project respectively, including the design parameters used for the ES assessment.

2.1 Project location

The Project is situated across four sites within the administrative areas of Cambridgeshire County Council (CCC); Suffolk County Council (SCC); East Cambridgeshire District Council (E CDC); and West Suffolk Council (WSC). The sites are Sunnica East Site A; Sunnica East Site B, Sunnica West Site A and Sunnica West Site B, with areas of approximately 223 hectares (ha), 319 ha, 373 ha and 66 ha respectively. The Project includes a cable route corridor and extension to the Burwell National Grid Substation (Figure 1).

Sunnica East Site A has an agricultural land use, with a mix of pig and arable farming based around Lee Farm. The surrounding area comprises several small rural villages including Isleham to the north-west and West Row to the north-east. There are also some industrial/commercial land uses within the immediate vicinity and agricultural uses to the south and east.

Land use across Sunnica East Site B is predominantly agricultural with a mix of pig and arable farming. The surrounding area comprises several small villages including Worlington, Barton

Mills, Red Lodge and Freckenham, with the A11 to the east. Industrial land uses adjoin the A11 to the south of the Site and a 7.5 MW peak capacity solar farm is situated 400 metres (m) to the south-east. The Bay Farm Power Ltd Anaerobic Digestion plant is also located to the south. The operational area of Worlington Quarry is also adjacent to the south-east and a kennels and cattery is located to the west, north of Elms Road.

Land use across Sunnica West Site A is agricultural, consisting of arable farming. The surrounding area includes the A11 east of the majority of the Site and the A14 south of the Site. Chippenham village is 1 kilometre (km) to the north with Snailwell 300 m west. Leisure and retail uses nearby include The Wild Tracks Outdoor Activity Park, which is immediately west of the A11 350 m north of Sunnica West Site A, and the La Hogue Farm Shop is approximately 330 m to the north of Sunnica West Site A.

Land use across Sunnica West Site B is agricultural, consisting of arable farming. The River Snail adjoins this site to the west. To the west of Sunnica West Site B there are also commercial and industrial land uses along the A142 (Newmarket Road and Fordham Road) and to the south of Snailwell Road. Snailwell village is located approximately 0.5 m south of this part of the Site.

The Application as submitted includes two grid connection routes. Grid Connection Route A connects the two parts of Sunnica East and then connects them to Sunnica West and is mainly agricultural land. The cable corridor crosses the B1102 between Sunnica East Site A and Sunnica East Site B, the River Kennett and Haveacre Meadows and Deal Nook County Wildlife Site (CWS) to the south of Sunnica East Site B. The northern section of the Grid Connection Route A is surrounded by agricultural land. The southern section of this corridor is 250 m west of the A11 at its closest point and 300 m west of Red Lodge village.

Grid Connection Route B connects the two parts of Sunnica West and then connects them to the Burwell National Grid Substation and is mainly agricultural, but it crosses Chippenham Road, B1102 and A142 and various Public Rights of Way (PRoW). South of Fordham it crosses employment developments and, west of Fordham, the national rail network. The villages of Snailwell and Fordham are close to Grid Connection Route B. Burwell Wastewater Treatment Works is to the south of the cable corridor where it passes under Broads Road and First Drove. Goosehall Solar Farm is northwest of the village of Burwell and Grid Connection Route B would pass to the east of this settlement.

The Application as submitted included two options to connect to the Burwell National Grid Substation by means of a Burwell National Grid Substation Extension. Land use within the two proposed sites is agricultural. The existing Burwell National Grid Substation is south of Newnham Drove and the village of Burwell is located to the west. Option 1 was located 200 m to the east in the village of Burwell, whilst Option 2 was 350 m to the east in the village of Burwell.

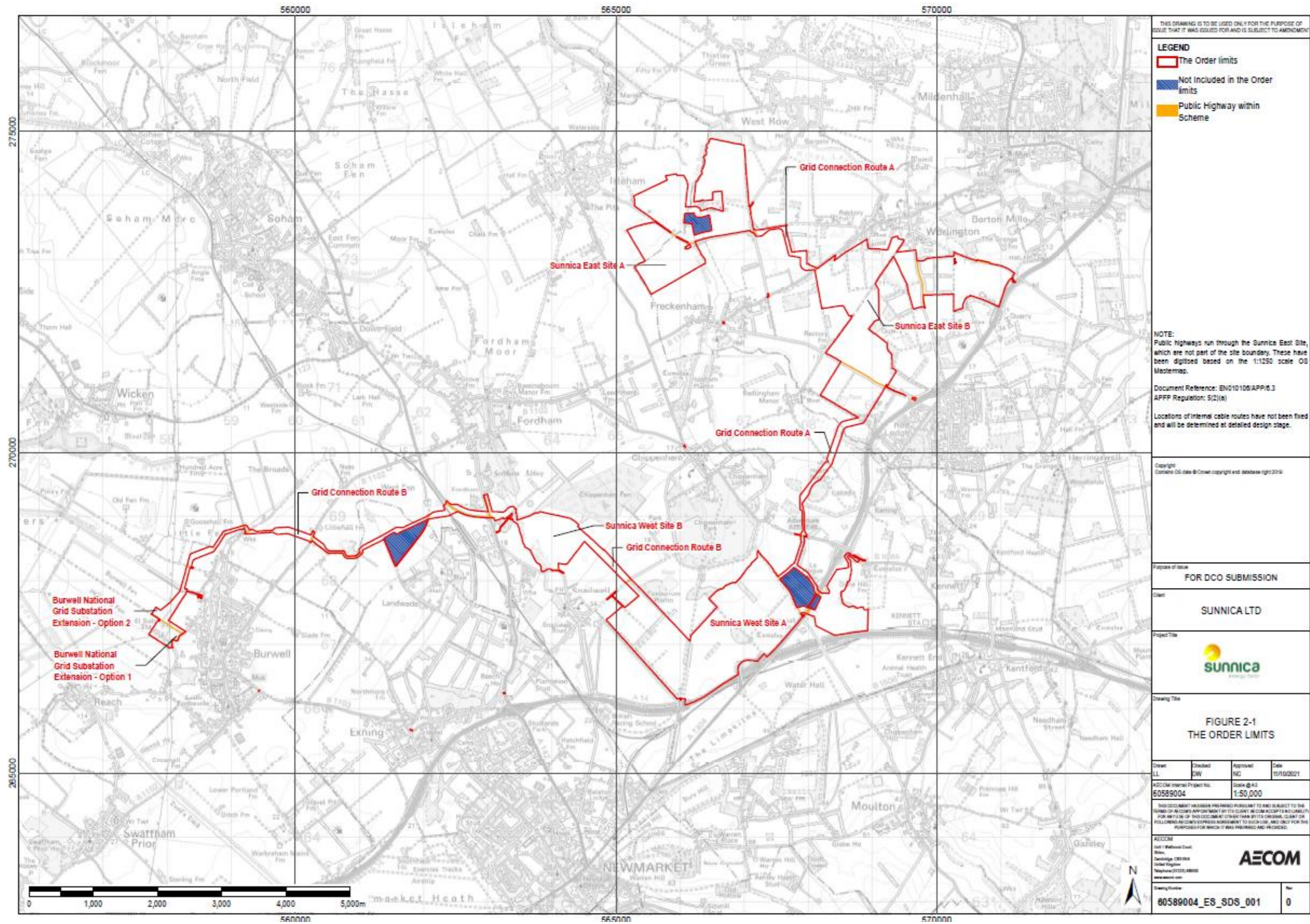


Figure 1: The Order Limits of the Project at Application.

2.2 Changes to the Application during Examination

Following submission of the Application, two change requests (CRs) were made by the Applicant to alter the Project. The Applicant formally submitted CR1 on 30 August 2022. The CR1 document [AS-243] contained an environmental appraisal of each of the identified changes, namely:

- Change 1: Removal of Option 1 National Grid Substation Extension;
- Change 2: 400kV cabling within Grid Connection Routes A and B; and
- Change 3: 33kV to 400kV transformers at the onsite substations.

Changes 2 and 3 facilitate a new substation connection option 3, involving connection to the existing Burwell National Grid Substation. The Applicant determined that the proposed changes would not generate new or different likely significant effects. The conclusions of the Applicant's RIAA [APP-092] were not altered. The ExA [ER 2.2.5] was satisfied that the information provided was of a satisfactory standard for Examination and there was sufficient time for the proposed changes to be properly and fairly examined.

The Applicant gave notice in its Deadline 3 submission 'Update by the Applicant on Heritage Matters and Substation Connection' [REP3A-037] of its intention to make further changes to the application. The Applicant formally submitted CR2 at D5 [REP5-059] on 13 January 2023. The Applicant proposed four changes to the Project.

- Change 1: Removal of the Burwell National Grid Substation Extension Option 2 from the Project;
- Change 2: Removal of Sunnica West Site B (shown in Figure 1);
- Change 3: Inclusion of two new archaeological offset areas, at parcel E05 to remove the crash crater and in parcel W04, an area of concentrated archaeological features; and
- Change 4: Removal of Cable Route Access L and use of the campus access road to Hermes Property Unit Trust's (HPUT) premises, being an access option for the cable route corridor between what was West Site B and Burwell Substation (following negotiations with HPUT and its tenants).

In relation to the Option 2 land (Change 1) the Applicant sought to retain Compulsory Acquisition powers for rights to enable cabling to pass through that land to connect to Burwell substation. In relation to Sunnica West B it would still require a cable corridor to connect to the substation and there would still be a need for the cable route corridor to traverse along the northern boundary of parcel W04 to the north of the additional area of protection. The document [REP5-059] identified that the changes proposed were due to feedback the Applicant received in the Examination. They involved removing land (including the extent of Compulsory Acquisition) and elements of the Project, thereby reducing impacts rather than changing or expanding them. CR2 contained a statement fully describing and setting out the need for the proposed changes, a schedule of application documents and plans, including those related to the compulsory acquisition and temporary possession use of land, listing consequential revisions. The conclusions of the Applicant's RIAA [APP-092] were not altered. The findings of the environmental appraisal of each requested change confirmed that the likely significant

environment effects had been adequately assessed in the ES submitted with the application and that the environmental information contained in the ES met the publicity requirements of Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. The Applicant also noted that the changes did not require a new Protected Species licence, nor reflect an impediment to the grant of any other consent or licence required outside the DCO. CR2 removed some of the identified pathways to effects on Chippenham Fen Ramsar Site and Fenland SAC, which are adjacent to the Order limits. To maintain a similar generation capacity from a smaller land area, the reduction in developable area would be mitigated by adopting 575 W panels across the Project site such that the overall output would remain relatively unchanged ([REP3A-037]). Therefore, there was no predicted material change to the carbon benefit of the Project as a result of the changes as the carbon benefit is relative to the level of electricity produced.

At each Deadline (D1 to D11) the Applicant updated its Guide to the Application, the most recent being that submitted at Deadline 11: Guide to the Application – Appendix A DCO Examination Document Schedule (Clean) [REP11-002]. This details several iterations of parts of the ES, providing references to updated chapters, appendices, and figures. The Applicant updated framework plans where appropriate to secure advance information of likely environment effects in relevant areas, together with the environmental controls required to ensure such environmental effects are not materially worse than those assessed in the ES.

The Applicant had explained which elements of the Project have yet to be finalised, and the reason why. Where flexibility is sought in the consent, the ExA [ER 4.5.21] was satisfied that the Applicant has reasonably assessed the likely worst-case environmental and socio-economic effects of the Project.

The ExA [ER 2.2.12] concluded that the changes proposed in CR2 considered individually or collectively, separately or cumulatively, would not result in any material changes to the underlying Project to which the Application related. Therefore, the ExA issued a Procedural Decision in its letter of 25 January 2023 [PD-023] accepting the proposed changes into the Examination of the Application as non-material changes. The Project as referred to subsequently takes into account CR1 and CR2 unless specifically stated.

2.3 Documents referred to in this HRA

This HRA has taken account of, and should be read in conjunction with, the documents produced as part of the Application and Examination which are available on the PINS NSIP web page¹⁰. In particular:

- The ExA's Report;
- The RIES [PD-027];
- The Applicant's assessment of effects, including:
 - Document 6.2: Environmental Statement - Appendix 8M - Habitats Regulations Assessment - Report to Inform an Appropriate Assessment ([APP-092, as updated by [REP3-009 and REP5-045]);
 - Document 8.2: Proposed Changes to the Application [AS-243] provided as part of CR1 and accepted into the Examination [PD-016]. Table 2-3 contains information relevant to HRA;

- Document 8.74: Second Change Application [REP5-059], accepted into the Examination [PD-023]. Table 4-1 contains information relevant to HRA, provided as part of CR2;
- Document 6.2: Environmental Statement - Appendix 10I: Outline Landscape and Ecology Management Plan (four revisions to version 4 [REP10-012 to REP10-013]);
- Document 6.2: Environmental Statement - Appendix 16C: Framework Construction Environment Management Plan (seven revisions to version 7 [REP10-014 to REP10-015]);
- Document 6.2: Environmental Statement - Appendix 16F: Framework Operation Environmental Management Plan (five revisions to version 5 [REP10-016 to REP10-017]); and
- Document 6.6: Offsetting Habitat Provision for Stone-Curlew Specification (two revisions to version 1 [REP5-046 to REP5-047])
- The final Statement of Common Ground (SoCG) with NE [REP10-027], the Environment Agency (EA) [REP8-030], the host Local Planning Authorities [REP8-028], Suffolk Wildlife Trust (SWT) [REP8-034] and SNTS [REP8-040]; and
- Responses to the Secretary of State's consultation letters (the consultation letters), published on:
 - 27 July 2023¹¹; and
 - 23 August 2023¹².

Plus, other information submitted during the Examination and during the Secretary of State's consideration of the Project. Key information from these documents is summarised in this HRA. The final signed SoCG between the Applicant and NE [REP10-027, revision 4] was submitted at Deadline 10 (24 March 2023). The SoCG confirmed that all matters, including relating to HRA, were agreed between the two parties.

¹¹<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010106/EN010106-005691-Sunnica%20-%20Letter%20from%20Secretary%20of%20State%20-%20Request%20for%20info%20-%202027%20July.pdf>

¹²<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010106/EN010106-005732-Sunnica%20-%20information%20request%20August%202023.pdf>

3 Stage 1: Screening for Likely Significant Effects

Under regulation 63 of the Habitats Regulations, the Secretary of State must consider whether a development will have an LSE on a protected site, either alone or in-combination with other plans or projects.

The purpose of this section is to identify any LSEs on protected sites that may result from the Project and to record the Secretary of State's conclusions on the need for an AA.

3.1 Protected sites

The application site is within the zone of influence of seven protected sites illustrated in Figure 2.

Section 3.2 of the RIAA [REP5-045] described the process used to identify sites and features for inclusion in the assessment. The Applicant used EA guidance¹³ on large power generation developments greater than 50 MW, which advises a 15 km radius of search as appropriate for identifying relevant protected sites that may be affected by a Project. The Applicant states [REP5-045], however, that the RIAA considered a search radius of 10 km as appropriate for this Project as it does not involve the stack emissions that can be connected with large power generation developments. Nevertheless, the RIAA also states that while a 10 km radius was used, there are no other protected sites within 15 km of the Project. There are no sites designated for highly mobile species within 30 km of the Project.

Ecological surveys have been undertaken of the Order limits and appropriate zones of influence. The results of these surveys are presented in Appendix 8A-8K of the Environmental Statement [APP-077 to APP-090] and data relevant to HRA are summarised in the RIAA ([REP5-045] Section 3.3).

¹³ Environment Agency (2023). Air emissions risk assessment for your environmental permit. Available online: <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>

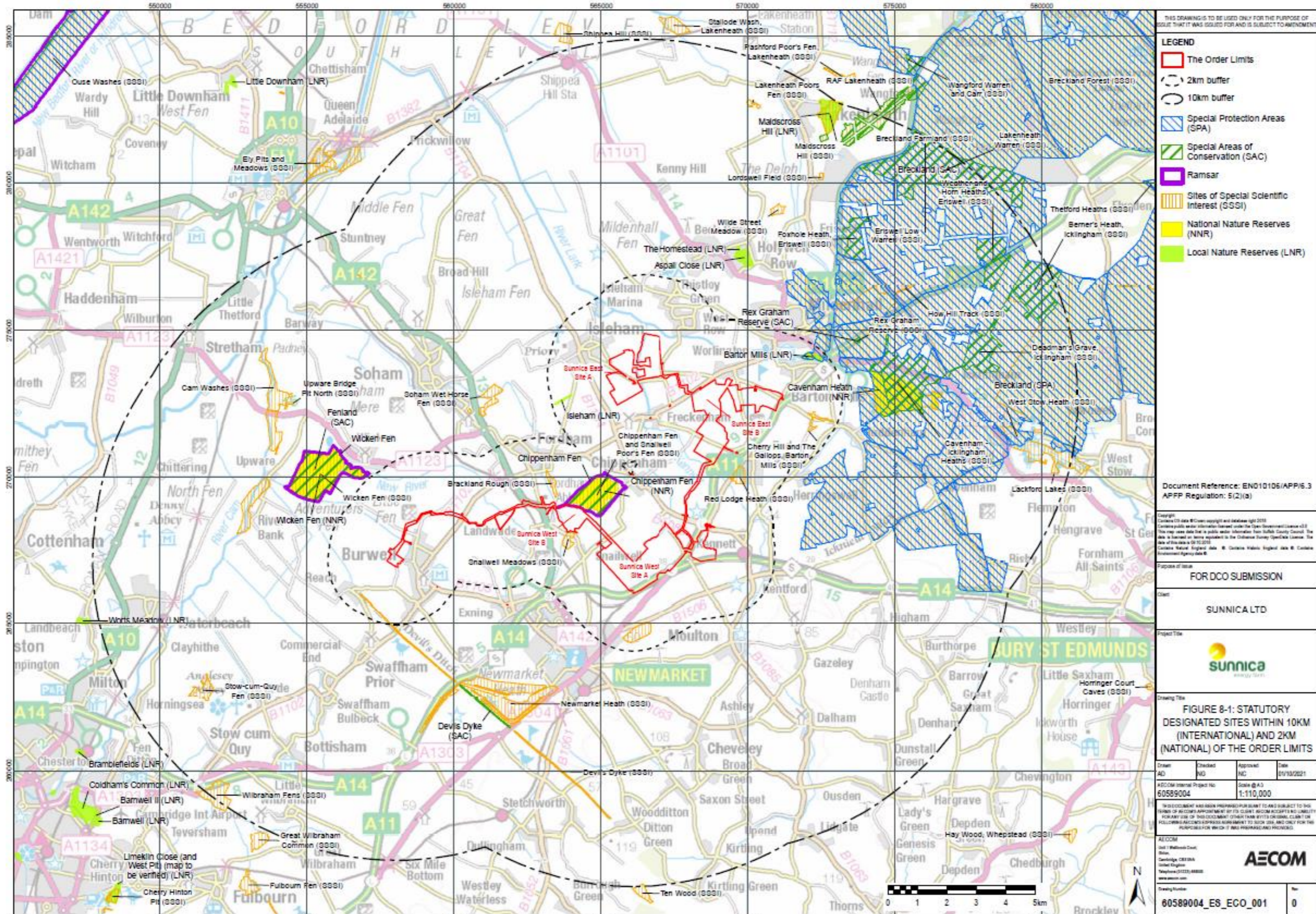


Figure 2: The location of the Project in relation to protected sites.

The protected sites and qualifying features that were considered in the Applicant's screening exercise are presented in Section A17.3 and Tables A17-1 to A17-4 of the RIAA [REP5-045]. The Applicant's RIAA sets out the methodology applied to determining what would constitute a 'significant effect'. The Applicant screened in the following protected sites:

- Fenland SAC;
- Chippenham Fen Ramsar Site;
- Breckland SPA;
- Wicken Fen Ramsar Site;
- Rex Graham Reserve SAC;
- Breckland SAC; and
- Devil's Dyke SAC.

The baseline evidence and potential construction, operational and decommissioning effects on the protected sites are identified in Section 3, Tables 4-1 and 4-2 of the RIAA.

The following were considered as having the potential to have an effect on the qualifying features (and / or the supporting habitats of qualifying species) for the construction / decommissioning phase:

- habitat loss and / or degradation – loss of, or degradation to designated habitats.
- physical displacement of stone curlew – loss of nesting and foraging habitat within the Scheme used by stone curlew occurring outside the designated site boundary.
- noise and visual disturbance – disturbance to sensitive species occurring within or outside the designated site boundary.
- non-physical disturbance – indirect light-pollution on sensitive habitats and species.
- habitat contamination – soil and groundwater contamination from surface water pollution, resulting in pollution of surface water entering watercourses hydrologically linked to SAC habitats, and dust deposition resulting in smothering of sensitive SAC / Ramsar habitats.
- physical disturbance of groundwater – disruption or changes to baseflows and inflows of groundwater to and from designated sites.

The following were considered as having the potential to have an effect on the qualifying features (and / or the supporting habitats of qualifying species) for the operational phase:

- physical displacement of stone curlew – loss of nesting and foraging habitat within the Scheme used by stone curlew occurring outside the designated site boundary.
- noise and visual disturbance – disturbance to sensitive species occurring within or outside the designated site boundary.
- non-physical disturbance – indirect light-pollution on sensitive habitats and species.
- physical displacement of aquatic invertebrates – attraction of aquatic invertebrates associated with designated sites to solar panels.

The Applicant's screening conclusions for each protected site, feature and impact pathway identified above are presented in Section 4 and Tables 4-1 and 4-2 of the RIAA [APP-167, amended by AS-014] and [REP5-045]. The detail behind this summary was presented in the HRA Screening Matrices [APP-169, superseded by AS-012] and HRA Screening Report [APP-168, amended by AS-015]. Screening matrices are provided in RIAA Annexes B1 to B7 for each

of the protected sites. Each matrix includes footnotes that set out evidence to support the Applicant's conclusions in relation to LSEs.

The ExA report, the RIES and the RIAA provide further information regarding the protected sites and features and impact pathways which were considered but for which LSEs were screened out, notably for:

- Eversden and Wimpole Woods SAC¹⁴;
- Wicken Fen Ramsar¹⁵;
- non-physical disturbance during all phases – light spill¹⁶
- habitat contamination and groundwater disturbance¹⁷;

¹⁴ The Applicant considered the potential for sites designated for mobile species such as bats within 30 km of the Project, but stated [REP5-045, paragraph 3.2.4] that none were identified. At D3A, SNTS noted that the Eversden and Wimpole Woods SAC lay within 26.7 km of the Order limits [REP3a-051]. This site has one qualifying feature, barbastelle bat (*Barbastella barbastellus*). SNTS considered that this site should be included in the assessment on the basis of the species' wide foraging range and its presence in the Applicant's baseline survey results presented in Appendix 8J of the ES [APP-087]. The Applicant responded at D4 [REP4-036] and again at D10 [REP10-030] that evidence on the foraging range of bats from the SAC demonstrated that no functional link existed between the Project and the SAC. The Applicant also noted at D10 that with the removal of panels at Sunnica West Site B in CR2, that the SAC would also be over 30 km from any permanent development that could affect habitat used by barbastelle bat. At ExQ3 [PD-025], the ExA invited NE to comment on the identification of this site. NE responded [REP7-104] that it did not consider there to be potential for impacts on this SAC due to the distance of the Project, and the intervening built development. This was reiterated in its response to the RIES [REP8-057] and identified by the Applicant [REP8-024] as a matter of agreement with NE. SNTS maintained [REP8-050] that it disputed the robustness of NE's position due to the identification of barbastelle bat in the Applicant's field surveys, a lack of known roosts for the species locally and the known dispersal range for the species.

¹⁵ Agreement was reached by D2 that there were no LSE's on Wicken Fen Ramsar Site, although NE noted [REP2-090] that the Applicant's assessment did not fully consider that Wicken Fen Ramsar Site is also designated for its invertebrate assemblage. Nevertheless, NE was satisfied that this would not alter the conclusions of no LSE at Wicken Fen Ramsar Site and no further representations on this site were received during Examination.

¹⁶ The Applicant concluded ([APP-092], Screening Matrix B1, B2) no potential for LSE as a result of light spill. This was due to the presence of a buffer of vegetation between the Project and Chippenham Fen Ramsar Site and Fenland SAC. NE initially requested [RR-1291] further information on noise and light spill contour maps and modelling data for sensitive habitats within Chippenham Fen Ramsar site to validate those conclusions. However, in light of CR2, the ExA queried with NE at ExQ3 [PD-025] whether this impact pathway still remained. In its response [REP7-104] and subsequently in response to the RIES at D8 [REP8-057], NE confirmed its agreement that the removal of the solar panels directly adjacent to the Fen eliminated potential for LSE from either light spill or noise. No other IPs commented on this impact pathway.

¹⁷ The Applicant concluded ([APP-092], Screening Matrix B1, B2) no potential for LSE on qualifying features from habitat contamination or groundwater disturbance from installation of Grid Connection Route B or solar panels at Sunnica West Site B. This infrastructure was proposed to be installed on land adjacent to Chippenham Fen Ramsar Site / Fenland SAC. This was on the basis of all structures and grid connection route B being above the depth of the chalk aquifer that feeds the Fen. In its updated HRA Report at D3 [REP3-009], the Applicant stated that there would be no piling below 12 m in depth. The Local Authorities [REP1-024], SWT [REP2-049] and SNTS [REP3a-045] disputed the Applicant's original conclusions. Due to the potential hydrological impacts, they suggested that solar panels should be removed from Sunnica West site B. NE had concluded [REP2-090 and AS-313] that it was satisfied there would be no LSE on the hydrology of this site or its qualifying features following submission of additional information from the Applicant in relation to hydrological linkages to the Breckland Rough SSSI component of the SAC / Ramsar site. CR2, outlined at D3a [REP3a-037] by the Applicant and later submitted [REP5-059], removed all solar panel infrastructure

- potential impacts on aquatic invertebrates¹⁸; and
- Fenland SAC - potential impacts on great crested newts¹⁹.

Having reviewed the evidence and assessments for these protected sites, features and impact pathways and noting that the conclusion of no LSE was agreed with IPs [ER 5.8.2], the Secretary of State is satisfied to adopt the rationale and conclusions of the ExA and Applicant for those protected sites and features screened out.

The ExA [ER 5.8.4] was satisfied, on the basis of the information provided, that the correct impact-pathways on each site have been assessed for LSE and was satisfied with the approach to the assessment of alone and in-combination LSE.

The Secretary of State has considered the potential effects of the Project on all qualifying features of the protected sites, taking into account their Conservation Objectives, to determine whether there will be LSEs.

from Sunnica West B, but retained Grid Connection Route B within the Order limits adjacent to the Fen. The Applicant concluded [REP5-059] that this would resolve concerns about the habitat contamination and groundwater disturbance impact pathway to Chippenham Fen Ramsar site and Fenland SAC. With the removal of solar panels from Sunnica West B, the Applicant confirmed [REP-059] that the nearest above-ground infrastructure to Chippenham Fen Ramsar site/ Fenland SAC would be over 1km away. However, several IPs remained concerned (SWT, CCC) about the potential for LSE from the Grid Connection Route B and sought further information to confirm the potential impacts on peaty soils [REP4-019, REP4-137]. At D5, [REP5-057], the Applicant responded that the small diameter and nature of the cabling in this area would prevent hydrological effects. The Applicant's Design Principles document [REP6-037] confirms the parameters of the cabling in conjunction with Works Plans [REP6-006]. At D8, it confirmed that agreement had been reached with the Local Authorities [REP8-029] and SWT [REP8-034] that the cabling was sited in an appropriate location and would not affect the small area of peaty soils. The final SoCGs submitted by the Applicant at D8, (The Local Authorities [REP8-029], SWT [REP8-034] and NE [REP8-031 and REP8-057] demonstrate that this matter was resolved to the satisfaction of all IPs.

¹⁸ The Applicant concluded ([APP-092] Screening Matrix B1, B2) no potential for LSE from egg-laying aquatic invertebrates being attracted to solar panels at Chippenham Fen. It cited the distance of panels and the presence of natural barriers between Sunnica West B and the Fen as factors which would prevent invertebrates from reaching the panels. NE agreed [RR-1291, paragraph 4.3.1 and REP4-017] with the Applicant's conclusions. However, SCC, CCC, WSDC and ECDC [REP1-024] considered there was insufficient evidence to support the conclusion of no LSE to this feature. The conclusions of no LSE were also disputed by SWT [RR-1142 and REP2-049] who also indicated that long term monitoring of invertebrates should be required. The Applicant supplied further evidence ([REP2-037 and REP2-038], Appendix C, Review of impact of Sunnica energy farm on aquatic invertebrates) concluding that given the behavioural nature of the invertebrate assemblage and the natural barriers in place between Chippenham Fen and the Project, no LSE would arise. The Applicant [REP3A-037] noted its proposed CR would remove solar panels from Sunnica West Site B altogether and concluded that this should resolve concerns around potential LSE. This position is supported in the final SoCGs at D8 (The Local Authorities [REP8-029], SWT [REP8-034] and NE at D10 [REP10-027]).

¹⁹ In its RIAA, the Applicant identified one record for GCN 250 m north-west of Sunnica East Site B [APP-092, paragraph 3.3.19], concluding that there was therefore no link between GCN populations and Fenland SAC and thus no LSE on this qualifying feature. SNTS [REP2-240e and REP3A-051] identified an additional record (GCN licence return) for GCN at Chippenham Fen not identified in the Applicant's baseline. At D7, this issue was resolved. The Local Authorities confirmed [REP7-074] that further investigation with NE, as the site manager for Chippenham Fen, had established that the identified record was an error in the dataset and as such, they were comfortable that GCN were not present at Chippenham Fen and thus there is no potential for LSE. SNTS agreed with this position in its D7 and 8 responses [REP7-076, REP8-024].

With regards to the ruling of the European Court of Justice (ECJ) in *People Over Wind, Peter Sweetman v Coillte Teoranta (C-323/17)* (the “Sweetman Judgement”)²⁰, in reaching his conclusions regarding LSE, the Secretary of State took no account of measures intended to avoid or reduce effects on any protected site.

3.1.1 Functional linkage of stone curlew of the Breckland SPA

The Project does not directly affect the Breckland SPA, but the Applicant’s initial consultation with the Royal Society for the Protection of Birds (RSPB) identified land within the Order limits as potentially supporting populations of stone curlew at Breckland SPA, indicating a functional linkage between the two sites. This was initially also the position of NE [RR-1291].

At D2, however, NE noted [REP2-090] that its own investigation had established that the stone curlew populations within the Order Limits were not the same population found at Breckland SPA, and therefore concluded ([REP2-090], Table 2 of part III) that there was no functional link to the stone curlew qualifying feature at Breckland SPA, which therefore no longer required consideration in the HRA.

At D4, NE stated [REP4-139] that there was potential for an AEoI of the stone curlew qualifying feature from physical displacement from outside the designated site boundary during operation and that this impact pathway should therefore be considered in the Applicant’s assessment, nevertheless. NE considered that additional mitigation above that already being proposed was not required. The Applicant’s updated HRA Report [REP5-045] as referred to above, assesses this impact pathway and maintains its conclusions of no AEoI on stone curlew on the basis of the proposed mitigation measures.

The ExA asked NE to clarify its position on the apparently conflicting advice over the inclusion of Breckland SPA in the HRA at ExQ2 [PD-021] and ExQ3 [PD-025]. NE confirmed [REP5-096] that it considered that the stone curlew and the supporting habitat within the Order limits and 500 m of the Order limits were not functionally linked to Breckland SPA, but that it had agreed with the Applicant in a meeting of the 9 January 2023 that mitigation would continue to be considered through the mechanism provided by the AA. NE stated this did not need to be considered when preparing the RIES. A summary of the research findings supporting this position was subsequently supplied by NE at D7 [REP7-104] and is reproduced hereafter:

Functionally linked land (FLL), or functional habitat, is the term given to an undesignated area of land or sea lying beyond the boundary of a protected site which is, nevertheless, used for some function (e.g. foraging, roosting, bathing etc.), by individuals belonging to populations of one or more species for which the site is designated. In some circumstances, the use of FLL may be essential in meeting a species’ needs and, consequently, meeting a site’s conservation objectives. Therefore, damage, deterioration or loss of access to this habitat could impact upon the designated population and thus the conservation objectives of the site.

NE stated that, in a recent study, stone curlew travelled up to 4 km whilst foraging from active nest sites and roamed up to 13 km to forage post-breeding (Hawkes et al. 2021)²¹. Therefore,

²⁰ ECJ case reference C-323/17, available:

<http://curia.europa.eu/juris/document/document.jsf?docid=200970&doclang=EN>

²¹ Hawkes, R.W., Smart, J., Brown, A., Green, R.E., Jones, H. and Dolman, P.M., 2021. Effects of experimental land management on habitat use by Eurasian Stone-curlews. *Animal Conservation*, 24(5), pp.743-755.

theoretically, a pair of birds nesting within the SPA might forage up to 4 km beyond a site boundary whilst nesting, and up to 13 km from a roost location post-breeding. It should be noted, however, that firstly, the majority of optimal stone curlew habitat within the region is contained within the SPA boundary and, secondly, these distances represent the maximum recorded. NE consider that it would seem unlikely for these distances to be associated with birds nesting / roosting immediately on the periphery of the SPA.

Stone curlew pairs will often nest close to the location of a previous year's nest. On semi-natural habitat with consistent management, nesting locations will not change. On arable farmland, however, the location of fields with suitable nesting conditions will be affected by routine inter-annual change in agricultural practice. When multiple years' survey data are mapped, a single breeding pair can produce a cluster of nest records. Where such clusters span an SPA boundary, it can legitimately be argued that the same pair of birds that nest in fields within the SPA the majority of years must, logically, still be considered SPA birds when the arable rotation and availability of suitable nesting habitat dictates they nest in a field outside the SPA boundary in the minority of years. It is anticipated that such non-SPA nesting locations used by SPA birds would typically be located no further from the SPA than the field immediately adjacent to the site boundary.

It is, therefore, NE's advice that birds nesting at a distance greater than one field away from the boundary of the SPA are not considered to be SPA birds.

In 2008 a secondary buffer was introduced, which was a 1.5 km buffer around 1 km grid squares that showed records of 5 or more nests. In some cases, this acted to effectively double the buffer to 3 km. However, this secondary buffer was never intended to imply that stone curlews nesting 3 km from the boundary of the SPA were linked to SPA populations.

The stone curlew nests found during the surveys carried out by the Applicant are all over 4 km away from Breckland Farmland SSSI, the component part of Breckland SPA designated for stone curlew. NE therefore does not consider these birds to be part of the SPA population.

This response noted that the full document was only available as a draft and not ready for external publication. This remained NE's position at the close of the Examination.

SNTS questioned [REP8-050 Appendix D] whether NE's conclusions were consistent with published guidance²² on functional linkages. SNTS consider that the approach taken to the determination of functional linkage by NE in this case differs from its approach at other protected sites, and within its own guidance on this issue.

The ExA [ER 5.12.20] considered that evidence submitted in relation to whether there is a functional linkage between the Breckland SPA stone curlew population and the Order limits was not sufficiently detailed or conclusive for a functional linkage to be ruled out. The ExA therefore considered that the precautionary principle should apply and that there is a possibility of AEoI on the Breckland SPA.

²² CHAPMAN, C. & TYLDESLEY, D. 2016. 'Functional linkage: How areas that are functionally linked to European sites have been considered when they may be affected by plans and projects - a review of authoritative decisions'. Natural England Commissioned Reports, Number 207. Available: <https://publications.naturalengland.org.uk/publication/6087702630891520>

In his consultation letter of 27 July 2023, the Secretary of State invited NE to confirm whether the draft evidence document as referred to in [REP5-096, REP7-104] had been made publicly available, and if not, when it intends to do so. NE responded²³ on 4 August 2023, stating: *“The draft evidence document, which will provide advice on whether populations of stone curlew are functionally linked to Breckland SPA is not yet publicly available and we are not currently able to provide a date by which it will be published.*

However, our advice remains consistent that the birds found within the order limits and within 500m of the order limits, are not functionally linked to the SPA and therefore do not need to be considered within the scope of the Habitats Regulations Assessment.”.

In a further update on 10 January 2024, NE²⁴ advised: *“Natural England has not yet completed the draft evidence document regarding its research into the functional linkage of stone curlew populations of the Breckland SPA and therefore it is not publicly available. There is further work required but we do not have any timescales for this or the date of publication. The report as published is unlikely to change our advice provided to date for this proposed development.”.* The Secretary of State acknowledges representations from IPs²⁵ in response to NE’s advice, which raise concern that NE’s advice introduces uncertainty and asserts a conclusion whilst acknowledging that research is ongoing.

Regarding SNTS’s [REP8-050] concern that NE’s advice contradicts its own standing advice on functional linkages, the Secretary of State considers that the generic advice must be applied with due consideration to the particularities of specific cases, and with regard to changing circumstances over time (Section A.11)²². Notably, NE advise that the impact of development on stone curlew is an ongoing area of research for NE. The Secretary of State therefore considers that the most up-to-date and project specific advice of NE should be given greater weight than generic standing advice. He also notes that NE refers to buffer zones from the Breckland SPA which NE and the RSPB have previously advocated and which have been accepted, as reported in the standing advice²², and which had been calculated based on scientific survey and analysis including historical records of breeding attempts. He notes NE’s view that, as the Project is approximately 4 km from the component of the Breckland SPA designated for stone curlew, the population is not deemed to be functionally linked to the SPA. In this regard however, the Secretary of State acknowledges SNTS’s concern that NE’s advice appears to focus on whether the individual stone curlew in the Order Limits are SPA birds, whereas a definition of FLL as in the standing advice, is land which can play a role in supporting an SPA population (i.e. not necessarily the same individual birds moving between the land and the SPA during the breeding season).

The Secretary of State attributes substantial weight to the advice of NE as the SNCB and considers it unlikely that the publication of the evidence document in full would change NE’s

²³<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010106/EN010106-005696-Natural%20England%20-%20Response%20to%20further%20information%20request%20from%20the%20Secretary%20of%20State.pdf>

²⁴<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010106/EN010106-005907-Natural%20England.pdf>

²⁵<https://infrastructure.planninginspectorate.gov.uk/projects/eastern/sunnica-energy-farm/?ipcsection=docs&stage=6&filter1=Secretary+of+State+Consultation+6>

advice. However he acknowledges that the supporting evidence is still unavailable, and that precaution should be applied.

Therefore, whilst the Secretary of State notes that NE is content that stone curlew at the Project site and within 500 m of the Order limits are not functionally linked to the Breckland SPA and do not need considering in the HRA, noting the ExA's recommendation, that the Applicant has assessed the potential for impacts on stone curlew in its final updated RIAA [REP5-045] and the responses of all IPs^{26,25} to the Secretary of States consultation letters, the Secretary of State has proceeded to consider stone curlew in the AA on the basis that potential for a functional linkage cannot be excluded, on a precautionary basis (see Section 5.6).

²⁶<https://infrastructure.planninginspectorate.gov.uk/projects/eastern/sunnica-energy-farm/?ipcsection=docs&stage=6&filter1=Secretary+of+State+Consultation+2>

Table 1: Protected sites for which the Secretary of State cannot exclude LSEs.

Protected site	Supplementary Advice on Conservation Objectives (SACOs)	Distance from protected site boundary to the Project	Qualifying features	Impact Pathway and Development Phase (C,O) C = construction; O = operations and maintenance; D = decommissioning;
Fenland SAC	See footnote ²⁷	Directly adjacent to the north of the Grid Connection Route B	Calcareous fens with Great Fen-sedge <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i> . Calcium rich fen dominated by Great Fen-sedge (saw sedge). <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) (Purple moor-grass meadows).	Habitat loss and / or degradation - through airborne pollutants (C,D)
Chippenham Fen Ramsar	N/A		Ramsar criteria 1 ²⁸ , 2 ²⁹ and 3 ³⁰ . Breeding bird assemblage ³¹ .	
Breckland SAC	See footnote ³²	3.1 km east of the Sunnica East Site B	Inland dunes with open <i>Corynephorus</i> and <i>Agrostis</i> grasslands. Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> – type vegetation. European dry heaths. Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>). Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (*important orchid sites).	Habitat loss and / or degradation - through airborne pollutants (C,D)

²⁷ <https://publications.naturalengland.org.uk/file/5534383369093120>

²⁸ A spring-fed calcareous basin mire with a long history of management, which is partly reflected in the diversity of present-day vegetation.

²⁹ The invertebrate fauna is very rich, partly due to its transitional position between Fenland and Breckland. The species list is very long, including many rare and scarce invertebrates characteristic of ancient fenland sites in Britain.

³⁰ The site supports diverse vegetation types, rare and scarce plants. The site is the stronghold of Cambridge milk parsley (*Selinum carvifolia*).

³¹ The breeding bird assemblage is also listed under 'noteworthy fauna'. Breeding birds include *Gallinago gallinago*, *Scolopax rusticola*, *Luscinia megarhynchos*, *Locustella naevia* and *Acrocephalus* spp.

³² <https://publications.naturalengland.org.uk/file/6754976231849984>

Rex Graham Reserve SAC	See footnote ³³	3.0 km northeast of the Sunnica East Site B	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (*important orchid sites).	Habitat loss and / or degradation - through airborne pollutants (C,D)
Devil's Dyke SAC	See footnote ³⁴	4.5 km southwest of the Burwell National Grid Substation	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (*important orchid sites).	Habitat loss and / or degradation - through airborne pollutants (C,D)

³³ <https://publications.naturalengland.org.uk/file/4980492009472000>

³⁴ <https://publications.naturalengland.org.uk/file/5578993114021888>

3.2 Likely Significant Effects in-combination

Under the Habitats Regulations, the Secretary of State must consider whether other plans or projects in-combination with the Project might affect protected sites.

The Applicant addressed potential in-combination effects (ICEs) arising from the Project in Section 4.4 of the RIAA, which sets out the methodology applied. Details of the other plans and projects included in the in-combination assessment are provided in Table 4.3.

When assessing the implications of a plan or project in light of the Conservation Objectives for protected sites, it is necessary to consider the potential for ICEs (i.e., the effects of the project combined with potential effects of other planned projects), as well as effects due to the project in isolation.

PINS Advice Note 10⁴ provides guidance on what should be considered within in-combination assessments and, states that other plans or projects should include:

- projects that are under construction;
- permitted application(s) not yet implemented;
- submitted application(s) not yet determined;
- all refusals subject to appeal procedures not yet determined;
- projects on the PINs programme of projects; and
- projects identified in the relevant development plan (and emerging development plans - with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited and a degree of uncertainty may be present.

To inform the AA process, a number of surrounding plans and projects have been consulted by the Applicant to determine LSEs that could arise from the Project in combination with these other plans and projects. With reference to Appendix 5A of this ES [APP-055] including Figure 5-1, these were selected because they were the main land use plans and projects that are located within 10km of the Scheme and may interact with the protected sites considered in the RIAA discussed in this report. Projects selected were those that:

- had similar components that may lead to similar impact pathways, e.g. other solar schemes;
- were of a scale and extent which may lead to significant changes in land use and therefore, similar impact pathways, e.g. residential development and urban expansion; and
- were of a geographical extent similar to that of the Project, whereby features associated with designated sites may interact with both the Project and one or more of the screened projects.

The Applicant discussed and agreed the full long list of cumulative development with WSC and ECDC. The schemes listed in Table 4-3 [REP5-045] were given particular consideration owing to their proximity to the Project, application status and potential for cumulative effects, due to similar impacts on protected sites.

The Applicant concluded that, due to the distance from the Project in all cases, no in-combination LSE would arise on any sites and qualifying features.

The disputed in-combination effects on the following three protected sites were considered together as the concerns raised by IPs were the same in all cases. The Applicant's conclusions of no LSE were disputed on the grounds that the A11 and A14 pass close to all three sites; these routes would be used by construction traffic.

- Breckland SAC
 - Inland dunes with open *Corynephorus* and *Agrostis* grasslands.
 - Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* – type vegetation.
 - European dry heaths.
 - Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*).
 - Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites).
- Rex Graham Reserve SAC
 - Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites).
- Devil's Dyke SAC
 - Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites).

In its Relevant Representation (RR), NE [RR-1291] stated it did not agree with the Applicant's methodology for the in-combination construction impacts, and that further assessment was required on the impact of vehicular traffic associated with the construction of the project on sites outside the Order Limits (Breckland SAC, Devil's Dyke SAC, Rex Graham Reserve SAC). It reiterated its position at Deadline 4 [REP4-017].

The Applicant's response [REP3-009] initially clarified that its assessment conclusions used data and outputs of the air quality presented in the ES [APP-046]. It restated its position that there was no in-combination LSE on the basis of this assessment. It also indicated that this position had been discussed with NE.

The Applicant subsequently changed its position in the updated HRA Report [REP5-045, Table 4-1] which identifies the potential for LSE from construction traffic associated with the Project elevating levels of air pollution and deposition of harmful pollutants on sensitive habitats and plant communities.

At D2 [REP2-090], NE commented on the potential for in-combination effects on air quality sensitive features at Breckland SPA. The ExA questioned [ExQ3, PD-025] the inclusion of Breckland SPA in relation to air quality impacts. NE subsequently confirmed [REP7-104] that the reference to this impact-pathway (habitat loss / degradation) to Breckland SPA during construction was an error and it did not therefore need to be considered in the Applicant's in-combination air quality assessment.

Following the publication of the RIES, the Local Authorities also raised a further aspect of the HRA which they considered to be unresolved [REP7-074]. In response to ExQ3 [PD-025], the Local Authorities identified that Table 4-3 of the HRA Report omits an assessment of the potential for in combination LSE on Breckland SPA with site SA4 allocated in the Site Allocations Local Plan (2019) for the Forest Heath area of West Suffolk.

The Applicant provided a response to these queries [REP8-023] and concluded that there was no reason to believe there would be any additional effect on stone curlew from this allocated site 1.4 km east of the Project, and that sufficient land had been embedded to offset any loss in nesting opportunities within the Order Limits. No further comments were received on this matter after this Deadline.

Despite NE's comments, the sites and features for which LSE were identified were not disputed by any IPs including NE; at the close of the Examination, NE stated [REP10-074] that it was satisfied that all relevant sites and their qualifying features had been taken into consideration. The ExA was satisfied [ER 5.8.4, ER 5.14.6] that the correct protected sites and qualifying features had been identified for the purposes of the assessment, and that all potential impacts which could give rise to significant effects had been identified.

3.3 Likely Significant Effects conclusion

The Secretary of State agrees with the recommendations of the ExA in accordance with the Applicant's assessment and concludes that LSEs cannot be excluded at the protected sites listed in Table 1, when the Project is considered alone and in-combination. The Secretary of State concludes the LSEs can be excluded for the Breckland SPA. These sites are taken forward to the AA to consider whether the Project alone and in-combination will result in an AEoI of these sites.

4 Appropriate Assessment Methodology

The requirement to undertake an AA is triggered when the competent authority determines that a plan or project is likely to have a significant effect on a protected site either alone or in combination with other plans or projects. Guidance³⁵ states that the purpose of an AA is to assess the implications of the plan or project in respect of the site's Conservation Objectives, either individually or in combination with other plans and projects, and that the conclusions should enable the competent authority to ascertain whether the plan or project will adversely affect the integrity of the site concerned. The focus is therefore specifically on the species and / or habitats for which the protected site is designated.

In line with the requirements of Regulation 63 of the Habitats Regulations:

“In considering whether a plan or project will adversely affect the integrity of the site, the competent authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which it proposes that the consent, permission or other authorisation should be given.”

The purpose of this AA is to determine whether AEol of the features of the six protected sites as a result of the Project alone or in combination with other plans or projects in can be excluded, in view of the site's Conservation Objectives and using the best scientific evidence available.

In accordance with the precautionary principle embedded in the integrity test (AA) and established through case law, the Secretary of State may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the protected site, and this must be demonstrated beyond all reasonable scientific doubt³⁶. If the Secretary of State cannot exclude AEol of the affected protected sites beyond all reasonable scientific doubt, then he can only agree to a plan or project if it complies with the requirements of Regulation 64 of the Habitats Regulations. Regulation 64 provides that the Secretary of State may agree to the plan or project only if satisfied that there are no alternative solutions, and that the plan or project must be carried out for IROPI. In addition, Regulation 68 requires compensatory measures to be secured which maintain the overall coherence of the NSN.

³⁵ <https://www.gov.uk/guidance/appropriate-assessment#what-must-an-appropriate-assessment-contain>

³⁶ CJEU Case C-127/02 Waddenzee 7 September 2004, Reference for a preliminary ruling from the Raad van State (Netherlands) in the proceedings: Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij.

5 Stage 2: Appropriate Assessment

The Secretary of State has undertaken an objective scientific assessment of the implications of the Project on the qualifying features of the protected sites identified in his screening assessment, using best scientific evidence available. The assessment has been made in light of the site's Conservation Objectives, which are set out in Table 1, Section 1.3 and the following sections of this HRA Report.

5.1 Impact pathways

The impact pathway considered to have the potential to result in LSE during construction / decommissioning is:

- habitat loss and/or degradation - degradation to designated habitats through airborne pollutants.

There are no impact pathways considered to have the potential to result in LSE during operation

5.2 Key findings

The RIAA concluded that the Project would not result in an AEoI of any protected sites, alone or in-combination. Section 5 of the RIAA [REP5-045] explains that certain sites and features were brought forward in the assessment because of the need to take mitigation into account before forming conclusions on AEoI. Section 5 set out the sites taken forward for assessment where mitigation measures could not be applied to address potential impacts at the screening stage. Sections 5.1 to 5.3 detail the impact pathways, the mitigation measures considered and the conclusions on AEoI that were reached by the Applicant. This was supported by matrices provided in Annex C of [APP-092], [REP3-009] and [REP5-045].

Mitigation measures relied upon in the RIAA [REP5-045] are secured in the DCO as follows:

- Landscape and Ecology Management Plan (LEMP) – Schedule 2, Requirement 8;
- Construction Environmental management Plan (CEMP) – Schedule 2, Requirement 14;
- Operational Environmental Management Plan (OEMP) – Schedule 2, Requirement 15;
- Decommissioning Environmental Management Plan (DEMP) – Schedule 2, Requirement 22; and
- Stone Curlew Nesting Plots and foraging habitats – Works no. 10, Schedule 2, Requirement 10 (also detailed within the CEMP and LEMP).

The Secretary of State has requested and had sight of the unredacted versions of the oLEMP [REP10-12] and the ES 6.6 Offsetting Habitat Provision for Stone-Curlew Specification document [REP5-046] (as appended to the oLEMP at Annex F). Where mitigation measures have been relied upon in reaching his conclusions, the Secretary of State describes these in the following sections. Where reference is made to the CEMP, at the point of decommissioning mitigation will be included within the Framework DEMF.

At the close of the Examination, NE stated [REP10-074] that it was satisfied that all relevant sites and their qualifying features had been taken into consideration. It also concluded that it was satisfied there would be no AEol of any of the protected sites and qualifying features identified by the Applicant with appropriate mitigation measures in place.

The conclusions in the Applicant's RIAA were subject to Examination through ExA's Written Questions, an ISH and a Rule 17 request [ER 1.4.39 App. C].

The ExA [ER 5.12.20, 5.13.2, 5.14.7] was not satisfied on the basis of the information available at the end of Examination, that an AEol of The Breckland SPA could be excluded beyond reasonable scientific doubt for land within the Order limits that is used by breeding stone curlew and which may be functionally linked to The Breckland SPA.

The Secretary of State's consideration of protected sites and qualifying features is presented in the following site-specific sections.

5.3 Chippenham Fen Ramsar

Chippenham Fen Ramsar is located directly adjacent to the north of the Grid Connection Route B. The Project will involve construction works within 100 m of Chippenham Fen.

The site is of international importance for its wide range of wetland habitats and associated flora, birds and insects. Areas of tall and often rich fen, fen grassland and basic flush have developed over shallow peat soils. The site also contains calcareous grassland, neutral grassland, woodland, mixed scrub and open water. More than 300 species of flowering plants have been recorded, including very rare, regionally rare or local species, as have several rare invertebrates (moths). A notable assemblage of breeding birds includes Common Snipe (*Gallinago gallinago*), Eurasian Woodcock (*Scolopax rusticola*), Common Nightingale (*Luscinia megarhynchos*), warblers (species of *Acrocephalus*), and Common Grasshopper Warbler (*Locustella naevia*). Scrub is periodically removed, and the fen meadows are mown.

The Information Sheet on Ramsar Wetlands (March 1992)³⁷ for Chippenham Fen Ramsar site states that the site qualifies for the following reasons:

- Ramsar criterion 1 – A spring-fed calcareous basin mire with a long history of management, which is partly reflected in the diversity of present-day vegetation.
- Ramsar criterion 2 – The invertebrate fauna is very rich, partly due to its transitional position between Fenland and Breckland. The species list is very long, including many rare and scarce invertebrates characteristic of ancient fenland sites in Britain.
- Ramsar criterion 3 – The site supports diverse vegetation types, rare and scarce plants. The site is the stronghold of Cambridge milk parsley *Selinum carvifolia*.
- Noteworthy fauna – Breeding bird assemble, including *Gallinago gallinago*, *Scolopax rusticola*, *Luscinia megarhynchos*, *Locustella naevia* and *Acrocephalus* species.

The Applicant in its RIAA provided information for an AA for the following potential impact pathway:

³⁷ <https://jncc.gov.uk/jncc-assets/RIS/UK11014.pdf>

- Habitat loss and/or degradation – degradation to designated habitats through airborne pollutants.

The Secretary of State has considered the potential for the Project to constitute an AEoI for each feature for which a significant effect is likely, in view of the site's Conservation Objectives.

5.3.1 Ramsar criteria 1, 2, 3, and breeding bird assemblage.

5.3.1.1 Habitat loss and / or degradation (C,D)

The RIAA [APP-092, section 5.3 and Matrix C2] provide an assessment of the potential for AEoI. Chippenham Fen Ramsar is directly adjacent to the Project boundary and the Project will involve construction works within 100 m of Chippenham Fen. In the absence of mitigation, the Project could have an AEoI of the Ramsar Criterion 1 habitat 'A spring-fed calcareous basin mire with a long history of management', Criterion 2 'rich invertebrate fauna including many rare and scarce invertebrates characteristic of ancient fenland sites in Britain', Criterion 3 'diverse vegetation types, rare and scarce plants, including Cambridge milk parsley (*Selinum carvifolia*)' and the breeding bird assemblage through dust deposition, for the following reasons:

- the Project site area is greater than 10,000 m², and therefore the potential dust emissions magnitude associated with earthworks and for construction activities is considered to be large; and
- the number of construction related heavy-duty vehicle movements generated by the entire Project is estimated to exceed 50 vehicles per day during the peak of the construction. Considering the size of the Order limits and the soil type, the potential dust emissions magnitude for trackout is assumed to be large, although for construction movements south of Chippenham Fen, along Grid Connection Route B this will be considerably lower in terms of duration and spatial extent.

Dust emissions during construction could therefore affect all Ramsar criteria that lie relatively close to the works (i.e. within 200 m), by coating vegetation and thus affecting evapotranspiration and photosynthesis. It is impossible to quantify the amount of dust soiling that would occur at any given time in the absence of mitigation. Plant communities near short-term works are likely to recover within a year of the dust soiling stress ceasing³⁸. Therefore, the scale of any adverse effect even in an unmitigated situation is expected to be small. Nonetheless, in the absence of controlling measures, coating of dust on vegetation close to the works area would potentially result in an adverse effect that could affect the integrity of the Ramsar.

No in-combination effects have been identified for this impact pathway on this protected site, due to the distances from the protected site to the projects identified for consideration in-combination, and nature of the projects, i.e. solar installations, and the likelihood that the same standard dust mitigation measures would be in place for those projects.

Due to the sensitivity of the vegetation, the proximity of the works and the potential scale of dust generating activities, specific mitigation measures will be required. Considerable effort has been

³⁸ Guderian, R. (1986). Terrestrial ecosystems: particulate deposition. In: Air Pollutants and Their Effects on the Terrestrial Ecosystem (Legge AH, Krupa SV, eds). *Advances in Environmental Science and Technology*, Vol. 18. 339-363, Wiley, New York, USA.

devoted over the years by various bodies to developing measures to control dust generation and dissemination. There is high confidence in the effectiveness of these measures based upon many years of practice. The measures that will be deployed on the Project are incorporated into the framework CEMP and will be finalised prior to construction and approved by the relevant local planning authority. The measures in the CEMP will then be applied in practice by the appointed contractors wherever dust generation is a concern. The contractor will need flexibility to determine which measures are most effective in a given situation, i.e. when undertaking cable preparation and laying works along Grid Connection Route B in proximity to Chippenham Fen and will include, where appropriate the measures listed in the Institute of Air Quality Management guidance on assessment of dust from demolition and construction³⁹:

- implement wetting of dust generating activities, which are usually incorporated into a Dust Management Plan (where necessary) produced by the contractor;
- undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust and record inspection results;
- increase the frequency of inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions;
- locate dust causing activities away from receptors, as far as is possible;
- use intelligent screening where possible – e.g. locating site offices between potentially dusty activities and the receptors;
- erect solid screens or barriers around the site boundary if necessary;
- fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period where operations are within 100m of receptors;
- remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site;
- depending on the duration that stockpiles will be present and their size, cover, seed, fence or water to prevent wind whipping;
- sheeting of vehicles carrying dusty substrates;
- ensure all vehicles switch off engines when stationary – no idling vehicles;
- impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas;
- only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction;
- re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible;
- use enclosed chutes, conveyors and covered skips, where practicable;
- minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate; and
- ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

³⁹ IAQM (2014). Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management.

These are considered to be long-standing tried and tested measures, which are recommended in guidance produced by the Institute of Air Quality Management as being measures that will normally reduce dust effects to an insignificant level. Hence the residual effect will normally be 'not significant'. Given this, the Applicant considers that high level of confidence can be placed in a conclusion of no adverse effect on integrity with their deployment. The Applicant concludes that, with dust control measures secured through the framework CEMP [APP-123], there would be no AEol on any qualifying feature of the Chippenham Fen Ramsar Site from habitat loss / degradation.

In its SoCG with the Applicant [REP2-046], NE confirmed it agreed with the conclusion of no AEol and confirmed that measures within ES Chapter 14 - Air Quality [APP-046] and the framework CEMP would be appropriate to control the potential adverse effects of the Project. No other IPs commented on this matter [ER 5.11.5].

The ExA [ER 5.11.6] was satisfied that this LSE pathway will not result in an AEol of Chippenham Fen Ramsar from the Project.

The Secretary of State agrees with the Applicant and NE and is satisfied that the mitigation measures secured are sufficient such that an AEol of Chippenham Fen Ramsar from habitat loss and / or degradation resulting from the Project alone and in-combination can be excluded beyond all reasonable scientific doubt.

5.4 Fenland SAC

The Fenland SAC is located directly adjacent to the north of the Grid Connection Route B. The Project will involve construction works within 100 m of Fenland SAC.

The SAC is composed of three individual sites: Wicken Fen, Woodwalton Fen, and Chippenham Fen.

Each of these sites hold areas of calcareous fens, with a long and well-documented history of regular management. Some areas have been dug for peat extraction with drainage ditches being currently managed for water levels control particularly in the summer. The three sites that comprise the Fenland SAC are located within the Fens National Character Area in Cambridgeshire, but they are located some 43.5 km apart. They all overlie peat soils of varying depth and all are primarily calcareous fen with areas of grassland and woodland.

There is a full range from species-poor Great Fen-sedge *Cladium mariscus*-dominated fen to species-rich fen with a lower proportion of great fen-sedge and containing such species as Black Bog-rush (*Schoenus nigricans*), Tormentil (*Potentilla erecta*) and Meadow Thistle (*Cirsium dissectum*). There are good transitions to the tall herb-rich East Anglian type of Purple Moor-grass *Molinia caerulea* – meadow thistle fen meadow and rush pastures, all set within a mosaic of reedbeds and wet pastures. This SAC has a high number of notable species including macroinvertebrates and plants.

The SAC qualifying features for which the site is designated, and which have been carried forward to consideration of AEol are:

- Calcareous fens with Great Fen-sedge and species of the *Caricion davallianae*. Calcium rich fen dominated by Great Fen-sedge; and

- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (Purple moor-grass meadows).

The Applicant in its RIAA provided information for an AA for the following potential impact pathway:

- Habitat loss and / or degradation – degradation to designated habitats through airborne pollutants.

In addition to the generic Conservation Objectives for SACs presented in Section 1.3, NE has published SACOs²⁷ for the features of the sites.

The Secretary of State has considered the potential for the Project to constitute an AEoI for each feature for which a significant effect is likely, in view of the site's Conservation Objectives.

5.4.1 Calcareous fens with Great Fen-sedge *Cladium mariscus* and species of the *Caricion davallianae*. Calcium rich fen dominated by Great Fen-sedge (saw sedge); *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) (Purple moor-grass meadows): Alone and in-combination

5.4.1.1 Habitat loss and / or degradation (C,D)

The RIAA [APP-092, section 5.2 and Matrix C1] provided an assessment of the potential for AEoI. In the absence of mitigation, the Project could have an AEoI through dust deposition impacts on both qualifying features, for the same reasons as for the Chippenham Fen Ramsar (see Section 5.3).

Similarly, the Applicant concluded that, with dust control measures secured through the framework CEMP [APP-123], there would be no AEoI on any qualifying feature of the Fenland SAC from habitat loss / degradation, with the same justification as for the Chippenham Fen Ramsar.

No in-combination effects have been identified due to the distances from the protected site to the projects identified in Table 4-3 and nature of the projects, i.e. solar installations, and the likelihood that the same standard dust mitigation measures would be in place for those developments.

In its SoCG with the Applicant [REP2-046], NE confirmed it agreed with the conclusion of no AEoI and confirmed that measures within ES Chapter 14 - Air Quality [APP-046] and the framework CEMP [APP-123] would be appropriate to control the potential adverse effects of the Project.

CCC raised general concerns [REP1-024] about the level of detail provided in the framework CEMP. In relation to the *Molinia* meadows qualifying feature, at D4 [REP4-137] CCC also requested further information on the location of the proposed off-site daily inspections for dust monitoring, as part of its consideration of effects on the *Molinia* qualifying feature.

CCC's concerns were highlighted to the Applicant at ExQ3 [PD-025]. The Applicant responded [REP7-055] and provided an updated Framework CEMP [REP7-032] to include a commitment for monitoring of the relevant *Molinia* communities within Chippenham Fen (Fenland SAC) with details of locations of this monitoring to be finalised in the detailed CEMP and to be subject to approval by CCC.

No further comments were received on this matter from IPs during the later stages of the Examination.

The ExA [ER5.11.13] was satisfied that this LSE pathway will not result in AEol of Fenland SAC from the Project.

The Secretary of State agrees with the Applicant and NE and is satisfied that the mitigation measures secured are sufficient such that an AEol of Fenland SAC from habitat loss and / or degradation resulting from the Project alone and in-combination can be excluded beyond all reasonable scientific doubt.

5.5 Breckland SAC

The Breckland SAC is located approximately 3.1 km east of the Sunnica East Site B.

The SAC spans 7,548.06 ha across the Norfolk / Suffolk border and is situated within the Brecks National Character Area. A significant part of the SAC coincides with the Breckland SPA.

Breckland's history of windblown sand has left one of the best-preserved systems of inland sand dune vegetation in the UK. This habitat type, which is in part characterised by the nationally rare grey hair-grass is associated with open conditions and with active sand movement. The site shows the colonisation sequence from open sand to acidic grass-heath.

The heathland is representative of European dry heaths in East Anglia, which developed under a semi-continental climate. They largely fall into the sand sedge-dominated community, which is also typical of areas of blown sand, but is a very unusual feature of this location. Among the chalk grassland communities present is the largest remaining area of the rare CG7 *Festuca ovina* – *Hieracium pilosella* – *Thymus praecox* grassland. This grassland supports a large number of rare species some of which are confined to Breckland or have their core UK distribution there. The structural and floristic characteristics of this community are more typical of a continental climate, with low rainfall and free-draining soils, than almost any other semi-natural dry grassland found in the UK.

Along the river valleys occasional wet woodland dominated by alder and willow occurs beside rivers and streams in the floodplains. These woods rely on high water levels and sometimes surface flooding and are typically present on moderately base-rich, eutrophic soils subject to periodic inundation. Some stands are dominated by tall herbs, reeds and sedges while others consist of lower-growing communities.

Aquifer-fed fluctuating meres are a feature of the Norfolk Breckland. These unique water bodies have an intrinsic regime of extreme fluctuation in water level, with periods of complete or almost complete drying out as part of the natural cycle. They are directly connected to the underlying groundwater system and periodically empty and recharge via swallow holes or smaller openings in their beds.

The SAC qualifying features for which the site is designated, and which have been carried forward to consideration of AEol are:

- Inland dunes with open *Corynephorus* and *Agrostis* grasslands;
- Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* – type vegetation;
- European dry heaths;

- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*); and
- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites).

The Applicant in its RIAA provided information for an AA for the following potential impact pathway:

- Habitat loss and / or degradation – degradation to designated habitats through airborne pollutants.

In addition to the generic Conservation Objectives for SACs presented in Section 1.3, NE has published SACOs³² for the features of the site.

The Secretary of State has considered the potential for the Project to constitute an AEoI for each feature for which a significant effect is likely, in view of the site's Conservation Objectives.

5.5.1 Inland dunes with open *Corynephorus* and *Agrostis* grasslands; Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* – type vegetation; European dry heaths; Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*); Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites): Alone and in-combination

5.5.1.1 Habitat loss and / or degradation (C,D)

The RIAA [REP5-045, section 5.6, Matrix C5] provided an assessment of the potential for AEoI.

The only pollutant likely to be associated with construction of the Project is Nitrogen Oxide (NO_x) which will be primarily determined by the associated traffic movements (both relating to on-site and commuter traffic) and any diesel plant required for construction. An initial assessment of the traffic likely to be associated with the Scheme has been conducted [REP5-045]. The greatest number of vehicle movements will occur in the construction phase of the Project. A Transport Assessment has been undertaken to determine the effects of the construction phase on the transport network, which includes a description of current and future baseline conditions, calculates the construction traffic flows and the likely routes to be taken by site traffic and abnormal traffic loads. This is presented in the Chapter 13: Transport and Access of this Environmental Statement [APP-045] and Appendix 13B of the Environmental Statement [EN010106/APP/6.2].

With reference to Chapter 13: Transport and Access of this Environmental Statement [APP-045] there are no protected Sites within 200 m of the Affected Road Network and the evidence suggests that emissions from site vehicles do not have a significant impact on local air quality. Following written representations (WRs) on the disputed conclusions of LSE from NE ([RR-1291], [REP2-090]), the Applicant amended its HRA Report at D5 ([REP5-045], section 5.6 and Matrix C5) to include an assessment of AEoI from in-combination air quality effects due to construction traffic in relation to Breckland SAC, Rex Graham Reserves SAC and Devil's Dyke SAC.

Air quality modelling [REP5-045, section 5.6 and Annex D] (transects 2 and 3) identified that the mean critical level for NO_x and critical load for nitrogen deposition were exceeded when

contributions are considered in-combination with future baseline traffic levels. The Project on its own does not exceed relevant thresholds.

The Applicant states that in most cases the critical level ($30 \mu\text{g}/\text{m}^3$) is not forecast to be exceeded in 2023. Even where it is forecast to be exceeded (only within c. 10 m of the roadside) APIS identifies that negative effects of NO_x / NO_2 in atmosphere (as distinct from its role in nitrogen deposition) are most likely to arise in the presence of equivalent concentrations of sulphur dioxide (SO_2). Vehicle exhausts do not emit SO_2 and APIS indicates that background SO_2 concentrations at these SSSIs are very low (c. $1 \mu\text{g}/\text{m}^3$) compared to critical levels for SO_2 of 10-20 $\mu\text{g}/\text{m}^3$. Since the SO_2 concentrations are so low no synergistic effect with NO_x is expected. Critical loads for ammonia, nitrogen and acid were predicted not to exceed 1 % of the mean critical level / load threshold in most cases, except for one location where nitrogen levels increased slightly above the critical load at Transect 2 ([REP5-045], Annex D, Appendix A, Figure 3).

For all other pollutants (ammonia, nitrogen and acid) the critical level or critical load is generally forecast to be exceeded in both 2019 and 2023. However, in all cases the contribution of the Project is well below the '1% of the critical level/load threshold'. For example, a maximum of $0.02 \mu\text{g}/\text{m}^3$ for ammonia compared to a screening threshold of $0.03 \mu\text{g}/\text{m}^3$, and a typical nitrogen deposition below $0.1 \text{ kgN}/\text{ha}/\text{yr}$ compared to a screening threshold on those transects of 0.10 - $0.15 \text{ kgN}/\text{ha}/\text{yr}$. There is only one location where nitrogen deposition due to the project exceeds $0.10 \text{ kgN}/\text{ha}/\text{yr}$ (10.95 m from the road on Transect T2) and even there it only does so marginally (being $0.11 \text{ kgN}/\text{ha}/\text{yr}$) falling below $0.10 \text{ kgN}/\text{ha}/\text{yr}$ by 20 m from the road.

In addition to the contribution of the Project being very small indeed, they are also temporary, being forecast to last for c. 2 years. The Applicant considers that this is relevant because over short timescales all pollutant concentrations fluctuate considerably around the annual average values used for critical levels/loads due to normal variations in traffic flows and matters such as meteorology. For example, scrutiny of ammonia data from the UKEAP national ammonia monitoring network for a range of sites covering 2010-2019 shows that the normal variation in ammonia concentrations throughout a year can be as high as 3 - $4 \mu\text{g}/\text{m}^3$ (100-133 % of the critical level), and even at rural sites concentrations generally fluctuate by more than $1 \mu\text{g}/\text{m}^3$ (33 % of the critical level) throughout the year.

The Applicant concluded that as the contribution of the Project to ammonia, nitrogen and acid deposition in combination with other plans or projects was very small, below the 1% of the critical level / load threshold, that there was no potential for the Project to affect the ability of the SAC to meet its Conservation Objectives.

At D6 [REP6-070], NE noted that an in-combination assessment had been carried out for air pollution as a result of increased traffic during construction and the results of this have been discussed within the RIAA [REP5-045]. NE was satisfied with the discussions in sections 5.5 – 5.7 and agreed that there continues to be no AEoI of protected sites alone or in-combination from this impact pathway.

The ExA [ER5.11.21] was satisfied that this LSE pathway will not result in an AEoI of Breckland SAC from the Project.

The Secretary of State agrees with the Applicant and NE and is satisfied that an AEoI of Breckland SAC from habitat loss and / or degradation resulting from the Project alone and in-combination can be excluded beyond all reasonable scientific doubt.

5.6 Breckland SPA

The Secretary of State considers it unlikely that the Order limits and 500 m buffer around the order limits is land functionally linked to the Breckland SPA for stone curlew. However, noting the concerns of IPs and that the supporting evidence upon which NE bases its advice is still in preparation and may be subject to change, the Secretary of State has proceeded to consider impacts to stone curlew of the Breckland SPA if the affected land is considered FLL.

The Breckland SPA is located approximately 1.4 km northeast of the Sunnica East Site B.

The SPA is located in parts of both Norfolk and Suffolk in the heart of East Anglia. The remnants of the dry heath and grassland that remain within the SPA today support populations of Annex 1 heathland breeding birds, where grazing by sheep and rabbits is sufficiently intensive to create short turf and open ground. The Annex 1 breeding bird species have also adapted to live in arable and forestry habitats, which cover extensive areas of the SPA. In addition to the arable and grass heath habitats, a significant part of the Breckland SPA is characterised by large-scale commercial conifer plantations. Most of the forestry was planted during the first half of the 20th Century on land that was either heathland, old rabbit warrens and poor agricultural ground. It now forms the largest area of lowland conifer forest in England.

The regular, rotational clear-felling of select areas of plantation forest creates suitable breeding habitat for SPA bird species which utilise the early years of re-planted blocks. Whilst this commercial practice seeks to secure a more even timber supply through smoothing out peaks and troughs, it also supports SPA species. Areas of heathland created and maintained within the forestry areas create more permanent areas suitable for breeding and feeding of all three SPA species (stone curlew, European nightjar, woodlark), with an open mosaic of forest and heath.

The Breckland SPA consists of several component SSSIs, many of which are also components of the Breckland SAC. Breckland Farmland SSSI is the component designated for stone curlew and is 100 % in favourable condition⁴⁰. When classified, the SPA supported 115 breeding pairs of stone curlew (5 year mean 1994 – 1998) which represented 60.1% of the GB population,

The SPA qualifying feature for which the site is designated and which has been carried forward to consideration of AEol is:

- Stone curlew *Burhinus oedichnemus*.

The Applicant in its RIAA provided information for an AA for the following potential impact pathways:

- physical displacement from FLL - displacement of stone curlew through loss of nesting and foraging within the Order limits (C,O,D);
- noise and visual disturbance - disturbance to sensitive species occurring within or outside the designated site boundary (C,O,D); and

⁴⁰<https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S2000442&SiteName=Breckland&countyCode=&responsiblePerson=&unitId=&SeaArea=&IFCAAarea=>

- non-physical disturbance (light spill) - disturbance to sensitive species occurring within or outside the designated site boundary (C).

In addition to the generic Conservation Objectives for SACs presented in Section 1.3, NE has published SACOs^{Error! Bookmark not defined.} for the stone curlew feature of the site. These are to:

- maintain the size of the breeding stone curlew population above 144 breeding pairs, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent;
- ensure the frequency, duration and / or intensity of disturbance affecting nesting and / or foraging birds should not reach levels that significantly affect the stone curlew population;
- restore as necessary the concentrations and deposition of air pollutants to below the site-relevant Critical Load or Level values given for the supporting habitat of this feature of the site on the Air Pollution Information System (www.apis.ac.uk);
- maintain the safe passage of breeding stone curlew moving between nesting and feeding areas;
- maintain management (whether within and/or outside the site boundary as appropriate) necessary to maintain the structure, function and supporting processes associated with the feature and its supporting habitat;
- maintain the distribution, abundance and availability of key prey items (e.g. beetles, grasshoppers, flies, earthworm, snails, and slugs) at prey sizes preferred by stone curlew;
- maintain the area of open and unobstructed terrain around nesting, roosting and feeding sites used by breeding stone curlews;
- maintain the proportion of short <2 cm to 5 cm grass heath vegetation. Maintain bare / sparsely vegetated ground of between 5-20 % within nesting areas on grass heath;
- maintain the extent, distribution and availability of suitable breeding habitat which supports the breeding stone curlew feature for all necessary stages of its breeding cycle (courtship, nesting, feeding);
- reduce the predation of and disturbance to breeding stone curlew caused by native and non-native predators; and
- maintain the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site.

The Secretary of State has considered the potential for the Project to constitute an AEoI for each feature for which a significant effect is likely, in view of the site's Conservation Objectives.

5.6.1 Stone curlew: Alone and in-combination

5.6.1.1 Physical displacement from FLL (C,O,D)

The physical displacement of stone curlew from FLL through loss of nesting and foraging opportunities within the Order limits during construction and operation was addressed by the Applicant in its RIAA [REP5-045, Section 5.4 and Matrix C3] and ES Chapter 8 [APP-040].

Stone curlew is a ground nesting bird which breeds on downland, heathland and arable farmland in the south and east of England. Within the Brecks area, the birds prefer areas of short, sparse vegetation on light, stony soils, ideally associated with dry, sandy, semi-natural 'breck' heaths, but this may also include fallow land or spring-sown crops on arable farmland. Within and around the Breckland SPA this has been achieved by the establishment of stone curlew plots, which are

generally 2 ha areas of cultivated land within arable crops, or in some cases within pastures, which are kept free of crops and other vegetation before the arrival of the stone curlew in March.

The population occurring in and around the Order limits use a combination of fallow, spring-sown crops, such as beet and onions, bare ground associated with poultry farming and fields margins. Where possible, the RSPB works with a number of landowners in and round the Order limits to create stone curlew plots. From the Applicant's observations and discussions with the RSPB, this is usually a maximum of one plot annually. Stone curlew is, therefore, reliant on the cropping regime in any given year and the availability of suitable areas of fallow and spring-sown crops to be able to nest. This is reflected in the observations of stone curlew occurrence and distribution noted in surveys undertaken by the Applicant in 2019 and 2020 and detailed in Table 3-3 of the RIAA [REP5-045].

Data on stone curlew nesting records dating back to 2009 were obtained for an area up to 2 km from the Order limits. Following examination of these data and targeted stone curlew surveys of the Order limits and a 2 km buffer undertaken by the Applicant in 2019, 2020 and 2021 (Table 3-3 [REP5-045]), it was established that up to five pairs of stone curlew regularly breed within the Order limits and / or surrounding area. NE [REP10-027] agree that the scope, coverage and timing of surveys undertaken to establish the baseline conditions and sensitive features and receptors are in line with best practice and appropriate to inform the assessment of direct and indirect effects reported in [APP-040]. Specifically, NE is satisfied that the identified number of stone curlew for the site is accurate.

Although this population is outside the SPA, if the Order limits are considered to be FLL, the Project would result in a net reduction in breeding opportunities for the species which could affect the ability of Breckland SPA to achieve its Conservation Objectives, such as through increased competition for resources.

The Applicant's discussions with NE and the RSPB in preparing its RIAA identified that the mitigation objective should be to ensure no net loss of breeding pairs in Breckland SPA by embedding sufficient areas within the Project design to offset the loss of potentially suitable arable farmland through erection of solar arrays. The Applicant considered that, since the arable farmland used by nesting stone curlew to be lost is outside the SPA boundary itself, the provision of replacement habitat does not class as 'compensation'. In other words, the replacement stone curlew habitat does not constitute 'compensation' for adverse effects on the stone curlew population of Breckland SPA but is intended to avoid an adverse effect on the SPA population by ensuring that there is no decline in nesting and foraging opportunities for the overall Brecks population, which might otherwise result in increased competition for resources with the SPA birds. The Project design has embedded sufficient land to offset any potential reduction in arable farmland, that may, in any given year, be used by stone curlew. This consists of two components:

Nesting plots

Ten 2 ha plots will be created across Sunnica East Sites A and B, in fields where stone curlew have been recorded during surveys. To maximise the potential for take up two plots have been allocated per pair. Plots unoccupied for nesting will contribute an important resource for foraging pairs. Three are proposed in ECO1, three in ECO2 and four across ECO3. Details of plot creation and management in the Brecks are provided in the RSPB information Note

'Managing nest plots for stone-curlews'⁴¹, with further requirements set out in the Countryside Stewardship Higher Tier 'AB4: Nesting plots for stone curlew' guidance note⁴². Plots will be a minimum of 100 m apart. Various cultivation techniques will be used to create a rough tilth and / or areas of bare ground, depending on ground conditions and other environmental factors or constraints. The new plots will be provided in advance of the loss of any existing habitat. This will mean that the new plots will be available in the breeding season prior to construction commencing.

Foraging habitat

Recent research has shown that the creation of bare ground provides an important foraging resource for breeding stone curlew, particularly if this is located near to the nesting site; most foraging by stone curlew occurs within 1 km of the nest²¹. As well as providing suitable nesting opportunities, the plots, delivered in advance of the loss of any existing habitat and located within areas shown by surveys to be used by stone curlew, will also deliver important foraging areas in close proximity to the nest site (approximately 100 m).

As well as the bare ground plots, approximately 108 ha of predominantly arable farmland have been embedded within the Project for reversion to grassland, specifically managed to create a close-cropped sward, suitable for stone curlew. Small areas of existing acid grassland have also been retained within the Project design in Sunnica East Site B and these will form the basis of reverting adjacent areas in Sunnica East Site B to semi-natural grassland, characteristic of the Breckland heaths. In time this will provide a high-quality habitat, offering both nesting and foraging opportunities for stone curlew. The disturbed plots will be retained within these established grassland areas for the lifespan of the project. Within Sunnica East Site A the offsetting area will be sown with a chalk grassland mix and managed specifically for stone curlew, i.e. maintaining a close-cropped sward. The plots will be retained within these established grassland areas for the lifespan of the project.

Stone curlew has a fluid distribution within the farming landscape of the Order limits and surrounding area and is reliant on the cropping regime in any given year to provide suitable areas of fallow and spring-sown crops to be able to nest. As such, the nesting locations can vary annually depending on this availability. The Project has taken this fluid nesting distribution into consideration and sought to avoid blocks of land where regular nesting attempts have been observed e.g., those in ECO3. This principle of avoidance has guided the locations of the offsetting areas which have taken into account not only the species existing distribution, but also the design and construction elements of the Project (e.g., to minimise construction disturbance), the location of residential areas and the ability to be able to secure large continuous blocks of land to maximise delivery of habitat creation and nesting plot opportunities and allow for efficient management. Alternative mitigation measures, including the creation of stone curlew nesting plots in arable fields outside the Order limits were considered, but the ability of the Project to incorporate the creation of grasslands with managed nesting plots within the Order limits and thus not requiring third party land, was considered the optimal solution for not only providing, but

⁴¹ RSPB information Note. 'Managing nest plots for stone-curlews', Version 2 – Eastern England. [Available online: <https://www.rspb.org.uk/globalassets/downloads/documents/conservation-projects/guidance-on-plot-management-in-the-brecks.pdf>].

⁴² Natural England (2018) Countryside Stewardship grants Higher Tier 'AB4: Nesting plots for stone curlew' guidance note.

securing, long term, high quality nesting and foraging habitat for the stone curlew population occurring within and surrounding the Order limits. The use of nesting plots is a proven method for providing suitable nesting habitat for stone curlew in Breckland.

The Applicant concluded that there would be no AEol on the stone curlew feature of Breckland SPA as there is a high degree of confidence that the stone curlew plots and foraging habitat will be utilised as it is to be provided in suitable areas regularly used by stone curlew, and the habitat, including nesting plots, is being designed and delivered following what has been successful with the other similar habitat and nesting plots around the Breckland area. The provision of this habitat will ensure no net loss of breeding territories within the Order limits. Further information regarding the establishment and management of the mitigation is provided in the outline LEMP [REP10-012] and the Offsetting Habitat Provision for Stone Curlew Specification [REP5-046] appended at Annex F of the oLEMP.

In its RR [RR-1291, paragraph 3.4.3], NE agreed that there would be no AEol on the stone curlew feature of the Breckland SPA but that the provision, management and monitoring of mitigation measures for stone curlew required further clarification.

The Local Authorities' position in their joint Local Impact Report [REP1-024] was a lack of confidence in the amount of offsetting land being provided such that a precautionary approach should be to remove solar panel infrastructure from land parcels with known recent locations for stone curlew nests, as well as to provide additional stone curlew mitigation measures.

In its response to ExQ1, SWT [REP2-079] noted that while it agreed in principle with the types of habitat proposed, it did not agree that the measures were adequate or realistic to retain stone curlew numbers or breeding pairs. It considered that while stone curlew would not be excluded from operational areas, nesting success would be affected due to human disturbance and an increased risk of predation from a reduction in sight lines. It noted the proximity of offsetting areas for stone curlew to roads, houses and PRoW that reduced the suitability of offsetting sites for stone curlew. 5.12.8. It also noted a lack of detail, such as in the preparation, timing of cultivation and timing of the other mitigation measures such as grassland establishment, in order to be satisfied that the proposed stone curlew plots would provide suitable mitigation.

Notwithstanding its position in relation to FLL (Section 3.1.1), at D6, NE [REP6-070] advised that it was satisfied with the Applicant's estimates of the numbers of pairs of stone curlew within and close to the Order limits. It also confirmed its agreement to the area of offsetting habitat for stone curlew provided, the methods for creating and managing the habitat and that its monitoring proposals were also acceptable. NE noted that management measures such as mowing should be preceded by stone curlew surveys, and that this should be secured in the relevant environmental management plan. The Applicant's final updated oLEMP [REP10-012] includes this requirement. NE confirmed [REP8-031] that it was satisfied with the Applicant's mitigation measures for stone curlew, as reflected in its final SoCG with the Applicant at D10 [REP10-027]. In its comments on the RIES [PD-027], NE commented [REP8-057] on the likely consequences in the event that stone curlew mitigation is not successful or sub-optimal. It stated that the Framework OEMP [REP7-036] sets out the monitoring requirements of the stone curlew offsetting areas. This includes annual monitoring of the offsetting areas with reports being provided to the Ecology Advisory Group. The EAG, as set out within the oLEMP [REP7-015], will be able to advise on measures required to improve the provision should it be found to be inadequate. These monitoring measures are also within the applicants RIAA [REP5-045]. NE is

therefore satisfied that suitable required offsetting habitat will continue to be provided throughout the scheme.

The oLEMP [REP10-012] details the commitment to monitoring and adaptive management of the stone curlew offsetting areas. The objective of the offsetting areas is to ensure that there is no net loss in breeding population by ensuring there is no reduction in nesting opportunities for the stone curlew population. The success of this will be measured as: An average of 50% of the Stone-curlew plots to be in use (i.e., equivalent of 5 breeding pairs) in the first 5 years post construction and then in the 5-year periods following, until decommissioning.

The following monitoring will be undertaken during construction and operation to establish the baseline populations of stone curlew present within the Order limits and 500 m buffer. This population will also be consisted in the context of the wider Breckland population and the species national trend.

Construction related monitoring is detailed and secured in the Framework CEMP. This will consist of pre-commencement surveys being undertaken in advance of works commencing and will cover the Order limits and 500 m buffer. The survey methods will follow those recommended by the RSPB. Construction will be phased so that areas within 500 m of the new habitat provisions are developed outside the stone curlew breeding season of March to October and that the replacement nesting plot provisions are ready for use by stone curlew by the breeding season at the start of construction. Monitoring during construction will be undertaken of the stone curlew offsetting areas, including the condition of these habitats, in the context of providing optimal nesting and foraging habitat. The monitoring will additionally include those areas within 500 m of construction where there is suitable nesting habitat during the breeding season.

Operational monitoring is detailed and secured in the Framework OEMP. The use of the stone-curlew offsetting areas will be monitored annually for the lifetime of the Project, along with the population present within 500 m of the Project. Monitoring will include both the occupancy of the offsetting habitats by stone curlew and the condition of these habitats, in the context of providing optimal nesting and foraging habitat. Annual monitoring reports will be submitted for review and consultation with EAG, to allow any remedial actions to be identified and agreed. Any remedial actions agreed with the EAG will be implemented as a commitment by the Project.

The ExA noted [ER 5.12.13] that the position of NE on the acceptability of the proposed mitigation differs to that of other IPs. In responses to ExQ2 [PD-021], CCC [REP5-079], ECDC [REP5-080], SCC [REP5-084] and WSC [REP5-085] considered a potential conflict to exist between areas of preservation and management of archaeological assets and the management of stone curlew plots, including the requirements for a reduction of nutrient levels prior to the establishment of grassland, management of bare ground nesting plots; and management / grazing of grassland, with particular reference to plot ECO1. It remained a concern of these IPs whether archaeological constraints would restrict the Applicant's ability to deliver habitat for stone curlew. These concerns were reiterated in the CCC response [REP6-057] to the updated Stone Curlew Offsetting Specification [REP5-046].

In its comments on the Applicant's Deadline 5 submissions, CCC [REP6-057] also considered that the proposed grassland creation and establishment, along with proposed fencing within the LEMP was inconsistent with the Offsetting Habitat Provision for Stone-Curlew Specification [REP5-046]. Inconsistencies between the LEMP and the offsetting specification were also commented on by SCC [REP6-075] and WSC [REP6-080].

In its comments on the Applicant's revised Stone Curlew Offsetting Specification [REP5-046], CCC [REP6-057] and WSC [REP6-080] considered that there remained concerns over conflict with the management of archaeological assets, the minimum number of replacement nesting plots, compliance of the proposed offsetting with national guidance for stone curlew habitat, and optimal mitigation preparation and post-construction maintenance associated with mowing or other vegetation management processes.

At D8 [REP8-051], the Local Authorities' positions remained that the issues around archaeology, recreational and operational disturbance meant they could not be confident that stone curlew mitigation proposed would be effective. WSC [REP7-088] considered that the Applicant should have a credible contingency plan in place to allow for the situation where the objectives of the offsetting land ECO1, ECO2 and ECO3 for SC are not met. WSC remained concerned that the conflicts between the preservation of archaeology within ECO1, ECO2 and ECO3 and the delivery and maintenance of stone curlew offsetting have not been reconciled and it is currently not certain that the ten 2 ha disturbed ground plots can be delivered. The D8 submissions did, however, demonstrate agreement with the Applicant's proposed annual monitoring programme.

SWT's final position [REP8-034] was that, whilst it agreed that the working methods during construction would prevent disturbance to stone curlew, it did not agree that the offsetting measures were adequate to conclude no AEoI on land functionally linked to the Breckland SPA.

The ExA [ER 5.14.7] was not satisfied that adequate evidence had been presented to demonstrate beyond reasonable scientific doubt that there will not be an adverse effect on land supporting stone curlew and functionally linked to Breckland SPA. The ExA gives further recommendations on stone curlew mitigation in Chapter 4 of its Report, and the Secretary of State has considered these here, where they are relevant to HRA matters. The ExA [ER 4.8.96 et seq.] considered that, although mitigation measures including the provision of offsetting land have been proposed by the Applicant, there is no guarantee that the stone curlew will use it and therefore there is no certainty that it will be successful or that there will not be an impact on breeding.

As far as the provision of replacement stone curlew habitat for foraging and breeding purposes is concerned, the ExA considered the concerns raised by the local authorities [REP4-131] [REP6-057], SNTS [REP8-050] and SWT [REP2-079] which suggest that the proposed mitigation habitat is inadequate or unsuitable due to potential management issues, namely the proximity of public recreational access in the vicinity and landscape screening, the conflicting requirements of land providing mitigation for both archaeological and ecological (stone curlew) purposes and the management of the wider grassland areas in terms of sward height and density. On balance the ExA [ER 4.8.98] considered that the Project has the potential to cause significant harm to the stone curlew population within and adjacent to the site and that it has not been demonstrated that the proposed mitigation measures will give adequate protection against adverse harm to the local stone curlew population.

5.6.1.2 Secretary of State's conclusions

The Secretary of State notes that the responses of the Applicant to IPs on some aspects of disagreement regarding stone curlew mitigation are not reported by the ExA in its Report [ER 4.8.95 – 4.8.98, ER 5.12.20, ER 5.13.2, ER 6.1.10]. This causes the Secretary of State to question whether the ExA has taken account of all important and relevant information in coming to its recommendation. The Secretary of State makes it clear that he has carefully considered

the views and representations of all IPs, including the Applicant, in coming to his conclusions. He has had sight of the unredacted versions of the oLEMP including Annex F [REP10-012] [REP10-013] and ES 6.6 Offsetting Habitat Provision for Stone-Curlew Specification' document [REP5-046] [REP5-047].

Regarding the ExA's [ER 4.8.96] recommendation that "*Although mitigation measures including the provision of offsetting land have been proposed by the Applicant, there is no guarantee that the stone curlew will use it ...*", the Secretary of State considers that it is neither appropriate nor reasonable to judge the measures against a 'guarantee' of use of the plots by curlew given the interannual variability in stone curlew breeding site locations (as referenced by the Applicant), and noting that the same argument could be made generally of ornithological habitat provisions. The Secretary of State considers it more appropriate to consider the likelihood of success of the measure, and in doing so he does not agree with the ExA that "*... there is no certainty that it will be successful or that there will not be an impact on breeding*". He notes that bare-ground stone curlew nesting plots generally are well-defined in terms of ecological requirements, establishment and maintenance methods and are a practiced measure especially around the Breckland SPA. He also notes that the Applicant has engaged with NE and the RSPB in developing the outline plan for curlew mitigation and that the creation and management of offsetting plots in ECO2 and ECO3 will follow good practice including RSPB information Note 'Managing nest plots for stone-curlews', with further requirements set out in the Countryside Stewardship Higher Tier 'AB4: Nesting plots for Stone-curlew' guidance note⁴³. The Secretary of State notes that the Applicant has adapted the stone curlew mitigation and offsetting plans throughout Examination in response to comments of IPs. For example, the councils in their Joint Local Impact Report [REP1-024] stated that based on the current survey effort and taking a precautionary approach, a minimum of at least ten 2 ha stone curlew plots should be provided as opposed to a maximum of ten 2 ha plots as initially suggested. The Applicant responded [REP7-057] and updated the oLEMP to commit to the creation of at least ten 2 ha plots.

Regarding WSCs [REP7-088] concern in the absence of a contingency plan to address the lack of effectiveness of the proposed mitigation, the Applicant [REP8-023] does not agree that the additional text on remedial actions suggested by WSC is necessary to secure the successful meeting of the objectives for stone curlew offsetting areas, as set out in section 6.1.7 of the oLEMP, which states 'An average of 50% of the Stone-curlew plots to be in use (i.e., equivalent of 5 breeding pairs) in the first 5 years post construction and then in the 5 year periods following, until decommissioning'. Compliance with this objective is adequately secured by a function of the EAG in section 6.2.13 'if the commitments and outcomes in this oLEMP are not being met, agree reasonable actions that the Applicant must implement in an agreed period of time (which may, but are not required to, include updating and amending the detailed LEMPs), in order to meet the relevant commitments and outcomes'. Any remedial action will be undertaken when considered appropriate by the EAG on reviewing the relevant information and, if necessary, seeking additional advice, such as understanding the wider picture of stone curlew population trends. As such, the Applicant considers that it is not necessary or practicable to include a fixed timeframe for any remedial actions. The Secretary of State notes that the objective of the proposed offsetting measures as secured in the oLEMP is to ensure no net loss in breeding

⁴³<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010106/EN010106-005754-Letter%20to%20DESNZ%2030%20August%202023.pdf>

population by ensuring there is no reduction in nesting opportunities, and that monitoring (within the Order limits and 500 m buffer) and adaptive management is proposed to help achieve this. In commenting on the likely consequences in the event that stone curlew mitigation is not successful or suboptimal, NE stated [REP8-057] that: “*the Framework Operation Environmental Management Plan [REP7-036] sets out the monitoring requirements for the stone curlew offsetting areas. This includes annual monitoring of the offsetting areas with reports being provided to the Ecology Advisory Group. The Ecology Advisory Group, as set out within the Landscape and Ecology Management Plan (LEMP) [REP7-015], will be able to advise on measures required to improve the provision should it be found to be inadequate. These monitoring measures are also within the applicants Report to Inform an Appropriate Assessment [REP5-045]. Natural England is, therefore, satisfied that suitable required offsetting habitat will continue to be provided throughout the scheme*”. Therefore, notwithstanding that NE does not consider the land within the Order limits is FLL (Section 3.1.1), NE is content that the proposed mitigation will continue to be provided throughout the lifetime of the Project. The Secretary of State is satisfied (noting his consideration of IPs concerns below) with the arrangement for ongoing management of the stone curlew mitigation as secured and he therefore agrees with the Applicant that an alternative contingency arrangement is not necessary in this instance.

Regarding the ExA’s [ER 4.8.96] recommendation that the proposed mitigation habitat is inadequate or unsuitable due to potential management issues, including the proximity of public recreational access in the vicinity and landscape screening, the conflicting requirements of land providing mitigation for both archaeological and ecological purposes and the management of the wider grassland areas in terms of sward height and density, the Secretary of State notes that these are concerns of the Local Authorities, SNTS and SWT and he has carefully considered them, along with the responses of the Applicant (such as [REP3-019] [REP5-056] [REP7-057] [REP8-023] [REP10-031] to the Local Authorities and SNTS / SWT (such as [REP5-058] [REP6-036] [REP7-056] [REP8-022] [REP10-030]). He considers the Applicant’s responses to be reasonable and that they adequately address the concerns of the Local Authorities regarding the proposed stone curlew mitigation. He disagrees with the ExA’s recommendation that the proposed mitigation is unsuitable due to potential management issues and he considers that the reasons and justification of the ExA are not robustly made in its Report. The Secretary of State particularly notes the following, in considering these concerns:

Proximity of public recreational access in the vicinity and landscape screening

WSC had concerns regarding recreational disturbance of the offsetting plots that other introduced factors might affect the efficacy of the offsetting land at ECO3 such as the introduction of a permissive footpath route, the recreational attraction of open grassland, potential impact of strategic development at West Suffolk site allocation SA4 within 1.5 km of ECO3, and habitat establishment and management of translocated turf from E13. The Applicant responded [REP8-023] that there is no evidence to suggest that stone curlew will avoid solar panels, and with specific reference to the Project site, stone curlew are nesting successfully in close proximity to residential areas (Worlington and Freckenham), roads (B1102 and B1104), PRoW (U6006), woodland belts, tree lines and mature hedgerows. In addition, stone curlew are subject to the regular presence of farm machinery and personnel, events which will cease or be greatly reduced during operation of the Project. The Applicant considers [REP5-057] that a number of measures have been implemented to reduce disturbance to stone curlew by members of the public. The creation of a circular access route around E05 will provide a focus for recreational users and along with appropriate signage will raise awareness of sensitive ecological receptors,

as detailed in the oLEMP [REP10-012]. In addition, permanent anti-predator fencing will be erected around ECO1, ECO2 and ECO3 which will be electrified during the nesting season to prevent access to stone curlew areas when birds are present. This is set out in the updated oLEMP. The Applicant also responded [REP8-023] that, as set out in sections 4.1.31-4.1.35 of Appendix F Offsetting Habitat Provision for Stone-curlew Specification of the oLEMP and shown on the Environmental Masterplans, the permissive path south of Worlington is over 200 m away from the core stone curlew offsetting area in ECO3 and is screened by existing tree line and hedgerow. In addition, permanent fencing around ECO1, ECO2 and (part of) ECO3, will prevent intrusion to and recreational use of these areas. The Applicant has no reason to believe that there will be any potential impact to stone curlew offsetting areas within the Order limits from the strategic development at West Suffolk site allocation SA4, 1.5 km to the east of the Project.

The Secretary of State considers the Applicants case to be reasonable and sees no compelling evidence to suggest that recreational disturbance effects would be likely to reduce the efficacy of the proposed stone curlew mitigation.

Conflicting requirements of land providing mitigation for both archaeological and ecological purposes

Regarding WSCs concerns regarding arable conversion in ECO1 potentially affecting archaeology, the Secretary of State notes the Applicants response [REP7-057] that, in terms of confirming previous soil disturbance, data available from Defra indicate that EC01 was harvested for a Beet crop in 2021 and winter wheat in 2021⁴⁴. The Applicant understands that although these crops can be direct drilled, it is beet harvesting which creates the greater disturbance of soil horizons as shear blades are set at a depth of 200 mm – 250 mm to minimise damage to the crop. This is equivalent to a deep topsoil strip throughout the entire area of harvest. The Applicant's proposed 'one off' soil preparation method for EC01 will disturb the uppermost 75 mm of this disturbed soil horizon and therefore not affect any in-situ archaeological features. This is detailed in the oLEMP.

Regarding WSC's view that archaeological interest within ECO3 had not been fully investigated, the Applicant [REP7-057] stated that the geophysical survey results for EC03 correlate with the 2nd edition OS map 1886 –1913 (Environmental Statement - Appendix 7F - Sunnica East and West Geophysics Report Map Book - Zone C [APP-065]) indicating the presence of gravel extraction pits of probable late 19th and early 20th century date. EC03 has also recently been subject to root crop agriculture⁴⁴ resulting in a reworking of the topsoil to at least 250 mm. This will have significantly disturbed the soil horizons throughout EC03 likely removing any archaeological features within the reworked 'topsoil' and certainly to a much greater depth than the 75 mm depth required for proposed soil preparation for grassland habitat. Despite the evidence for previous impact to the upper soil horizons, the Applicant agreed that, should topsoil strip be required in order to establish grassland habitat, trench evaluation within the proposed strip area could be undertaken post-consent. The Applicant understood that SCC would produce a brief for this requirement by Deadline 7. Should topsoil strip not be required in EC03, trench evaluation could be undertaken within the proposed Stone-curlew plots, again subject to a brief being provided by SCC. The Secretary of State also notes that the Applicant [REP8-023] has discussed appropriate methods for creating and managing Stone-curlew plots with relevant

⁴⁴ <https://environment.data.gov.uk/dataset/f0f54bc1-b77a-42c8-b601-2f4aaf4dd851>

archaeology consultees within the Local Authorities and the changes made to the oLEMP [REP10-012] including the appending of the outline Historic Environmental Management Plan (oHEMP) at Annex E. She notes the agreement of NE in this regard [REP10-027].

In the consultation letter of 23 August 2023, the Secretary of State queried whether a brief for trench evaluation in ECO3 had been provided by SCC and agreed by the Applicant subsequent to the close of Examination. SCC⁴⁵ responded that it understood that it was agreed with the Applicant that an archaeological brief can only be provided once there is certainty as to whether implementation of the stone curlew plots requires a topsoil strip, as the methodology would affect the expected level of archaeological impact. The council will provide an archaeological brief to the Applicant once the methodology has been settled in due course (likely to be through submission of materials pursuant to requirements 8 or 10 of the DCO). The Applicant⁴³ responded similarly, stating that it does not consider that a brief from SCC is required at this stage as the OHEMP (Appendix E to the Outline LEMP [REP10-012]) secures the requirement for site specific HEMPMS in areas where Stone-curlew offsetting habitat will be provided to be approved by the Local Authorities (in paragraph 1.1.3 of the OHEMP). In addition, any archaeological investigations will be the subject of Site-Specific Written Schemes of Investigation approved by Local Authorities pursuant to the Detailed Archaeological Mitigation Strategy (“DAMS”) [REP10-052] (requirement 13 of the draft Development Consent Order secures the DAMS). The Secretary of State also asked the Applicant to clarify which archaeological consultees it was referring to in stating that it “*has discussed appropriate methods for creating and managing Stone-curlew plots with relevant archaeology consultees within the LPAs*” [REP8-023], and to provide evidence of the agreement reached with such consultees. The Applicant⁴³ confirmed that this referred to CCC and SCC and highlighted that the SoCG with the Local Authorities does not indicate any concern in respect of the oHEMP. In response, the Local Authorities⁴⁶ reiterated that they remain unconvinced that the measures in areas which are archaeologically sensitive are acceptable for both preservation of archaeology and stone curlew nesting plots.

The Secretary of State considers the Applicants case to be reasonable and he sees no compelling evidence to suggest that stone curlew plots could not be delivered due to conflicts with archaeology. Nevertheless, he notes that the plans are subject to further development post-consent and that the mechanism provided by the relevant Local Authorities approving the LEMP and CEMP in consultation with the SNCB, gives the Local Authorities an opportunity to resolve any remaining concerns they may have regarding the conflict between the offsetting plots and archaeology.

Management of grassland areas

Regarding the management of the wider grassland areas in terms of sward height and density, the Local Authorities had concerns that optimal management of the site will not be delivered, due to proposed mowing within the first 5 years. The Applicant responded [REP7-057] [REP10-031] that, to establish the grassland on areas of current arable farmland there will need to be an element of mowing in the initial years to manage the sward, before sheep grazing can be

⁴⁵<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010106/EN010106-005742-Suffolk%20County%20Council.pdf>

⁴⁶<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010106/EN010106-005811-Cambs%20CC,%20E%20Cambs%20CC,%20Suffolk%20CC,%20W%20Suffolk%20CC.pdf>

implemented. If there is the opportunity to introduce grazing before year 5 then this will be taken up. This has been included in the oLEMP (paragraph 5.12.39). Ensuring the successful establishment of the grassland in the early years is essential for the long-term provision of optimal grassland for foraging stone curlew (and other biodiversity). Light tillage and sowing an appropriate seed mix will provide for early grazing. Regarding the Local Authority's query regarding the possible use of rabbits for grassland management, the Applicant responded [REP10-031] that, whilst rabbits may be an option as part of the management regime, particularly in the longer term, the Applicant does not believe that they can be relied upon particularly in the early stages of grassland development and management to deliver the habitat and sward objectives. The grazing will be achieved in ECO3 using sheep which are:

- a much more reliable and controllable herbivore than rabbits, the latter being prone to predation and occasional disease;
- able to be used to be used straightaway to ensure the correct sward is established in the first few years; and
- uncontroversial in an area of intensive arable agriculture.

In addition, rabbits have a potentially destructive impact on below ground archaeology; the presence / absence of which in EC03 is yet to be fully confirmed. EC03 has been subjected to geophysical survey which does not indicate the presence of significant archaeological remains (APP-063). However, the proposed plots are expected to be subjected to trench evaluation in agreement with an SCC brief post-consent. The results of the evaluation will feed into a fencing strategy to be confirmed in the post-consent Heritage Management Plan Method Statement.

Regarding WSC's concern that stone curlew offsetting at ECO1 and ECO2 will not provide grass heath, which is the habitat used by stone curlew in the Brecks, the Applicant responded [REP8-023] that it is important to note that stone curlew occurring within the Order limits are not using grass heath habitats currently, but rather arable farmland. The key requirement is that the grassland is maintained at a particular height, i.e., approximately 5 cm, as set out in the oLEMP. This provides the required foraging conditions and assemblages and abundance of invertebrate prey. The type of grassland is not the critical factor. The Secretary of State also notes NE's advice [REP6-070] that it is satisfied with the proposed methods for creating and managing the offsetting habitat. NE did advise that any mowing conducted during the growing season must be preceded by surveys for stone curlew and should not be carried out if there are nesting stone curlew within the area to be mown, and that this point should be made clear in the relevant environmental management plan. This point was also made by the Local Authorities in their comments on the oLEMP. The Applicant responded [REP7-056] [REP10-031] and included the requirement for stone curlew and other ground nesting bird surveys by an ecologist prior to any mowing being undertaken in the updated oLEMP [REP10-012] and the Framework OEMP [REP10-016]. If an active nest is found, the nest should be monitored and mowing delayed until the chicks have fledged.

In commenting on the D7 oLEMP, the Local Authorities queried why only half of each nesting plot would be cultivated each year rather than the entire nesting plot. The Applicant responded [REP10-031] that section 5.12.53 of the oLEMP outlines that the whole 2 ha plot will be cultivated, but that it is proposed that only half (1 ha) will be subject to a mid-spring herbicide application. This has been included to benefit notable Breckland and arable flora; the evidence

suggests (e.g. Hawkes et al. 2019⁴⁷; Hawkes et al. 2021²¹) that using various treatments within each plot, e.g., rotating the cultivation of parts of each plot biannually or using creation and management techniques which are different within a given year, improves the biodiversity value of plots as well as providing suitable nesting and foraging habitat for stone curlew. However, the management of individual plots can be agreed with the EAG. The plots have been described as remaining fixed because the evidence suggests that stone curlew will re-use plots when made available in consecutive years. However, this does not preclude altering their locations within ECO3 should it be agreed by the EAG that there is a benefit in doing so.

The Secretary of State considers the Applicants case to be reasonable and sees no evidence to suggest that there would be any shortcomings in wider grassland management which would be likely to limit the efficacy of the proposed stone curlew mitigation.

Overall, having carefully considered the representations of all IPs including the Applicant and giving appropriate weight to the advice of the SNCB, the Secretary of State is satisfied that the stone curlew offsetting provisions are appropriate to adequately mitigate impacts to stone curlew, and that the Development Consent Order secures provision of the plans to be progressed and finalised post consent and agreed by the relevant Local Authority in consultation with NE. He is satisfied with the provisions for monitoring and management of the mitigation for the lifetime of the Project, including the role of the Ecological Advisory Group in determining appropriate remedial actions. He sees no evidence to suggest that management issues could render the proposed mitigation habitat inadequate or unsuitable and he sees no compelling reason to disagree with the advice of the SNCB in this instance. Therefore, the Secretary of State is satisfied that the mitigation measures secured are sufficient such that an AEoI of Breckland SPA from displacement effects on stone curlew resulting from the Project alone and in-combination can be excluded beyond all reasonable scientific doubt.

5.6.1.3 Noise and visual disturbance (C,O,D) and non-physical disturbance (C)

The consideration of disturbance effects on populations of stone curlew was addressed by the Applicant in its RIAA [REP5-045, Section 5.4 and Matrix C3] and ES Chapter 8 [APP-040].

Stone curlew breed outside the SPA within the Order limits and surrounding farmland. The Applicant considered that these populations of stone curlew would have the potential to be disturbed by increased vehicular movements and human disturbance during, and by non-physical sources such as construction lighting. Disturbance impacts would have the potential to cause stress, which may result in a reduction in their resilience and breeding success. In extreme cases disturbance may result in the abandonment of breeding territories and nest sites. During operation the Project will require regular maintenance visits, which if occurring within the nesting season have the potential to disturb breeding stone curlew.

The Applicant [REP5-045] considered that these pathways could arise from any construction works within 500 m⁴⁸ of nesting locations or newly created habitats that are undertaken during

⁴⁷ Hawkes, R.W., Smart, J., Brown, A., Jones, H., Lane, S., Wells, D. and Dolman, P.M., 2019. Multi-taxa consequences of management for an avian umbrella species. *Biological conservation*, 236, pp.192-201.

⁴⁸ Considered to be the distance at which recreational activities may disturb stone curlew. Taylor, E.C., Green, R.E., Perrins, J., 2007. Stone-curlews *Burhinus oediconemus* and recreational disturbance: developing a management tool for access. RSPB. *Ibis* (2007), 149 (Suppl. 1), 37–44.

the breeding season and which represent a level of activity that exceeds the current levels to which those locations are exposed. If construction was to occur within this distance of nesting locations or the new provision of habitat, then it would have an AEol of the SPA by causing any nesting stone curlew pair to abandon their nest or avoid using the new habitat provisions.

The primary effective mitigation measures will consist of ensuring that the construction is phased so that areas within 500 m of the new habitat provisions are developed outside the stone curlew breeding season of March to October and that the replacement provisions are ready for use by stone curlew by the breeding season at the start of construction. This will also avoid the potential for any construction lighting potentially spilling into areas used by stone curlew. All construction staff working within Sunnica East Sites A and B will also be given a toolbox talk regarding the sensitivity of stone curlew. Where possible, maintenance within 500 m of the offsetting areas will be scheduled between November and February. These measures are included in the Framework CEMP and Framework OEMP, which will be finalised prior to construction. With these measures in place, it is considered that no construction or operation related disturbance of nesting stone curlew would occur since stone curlew will not be present at the time when the most potentially disturbing works take place. As such, no AEol of the SPA would arise through these pathways.

NE confirmed [REP8-031] that it was satisfied with the Applicant's mitigation measures for stone curlew, as reflected in its final SoCG with the Applicant [REP10-027]. NE [REP6-070] welcomed all of the measures included within the Framework OEMP to monitor the stone curlew population within and around the order limits, and to ensure that maintenance works will not impact on nesting birds. It is also welcomed the measures included in the oLEMP to protect stone curlew, including the carrying out of maintenance outside of breeding season where possible.

SWT agreed [REP8-034] that the working methods during construction and operation would prevent disturbance to stone curlew that might nest within the Project area.

The Local Authorities reached agreement with the Applicant [REP8-029] on the monitoring arrangements for stone curlew set out in the oLEMP but not on the Applicant's assessment of construction, operation and decommissioning effects on stone curlew.

In terms of the proposed stone curlew mitigation, the ExA [ER 4.8.97] noted that that the Applicant had improved the measures set out in the oLEMP to prevent disturbance from construction and operational work and for monitoring and that there is now general agreement in relation to these. The ExA was content that the proposed measures are now satisfactory.

The Secretary of State agrees with the Applicant and NE and is satisfied that the mitigation measures secured are sufficient such that an AEol of Breckland SPA from noise and visual and non-physical disturbance on stone curlew resulting from the Project alone and in-combination can be excluded beyond all reasonable scientific doubt.

5.7 Rex Graham Reserve SAC

The Rex Graham Reserve SAC is located approximately 3 km northeast of the Sunnica East Site B. The SAC lies entirely within the Breckland SPA.

The SAC covers approximately 2.67 ha. It comprises a small disused chalk pit, together with surrounding grassland and woodland, supports the largest population of Military Orchid (*Orchis militaris*) in the UK, comprising more than 95% of the current total population. Only two other

wild populations of this plant are known in the UK and the Rex Graham Reserve population is by far the largest. The SAC sits within Thetford Forest, the largest lowland conifer forest in England, in an area where light, sandy acid and calcareous soils overlie chalk, on a gently south-facing slope in the valley of the River Lark. Military orchids were first found in the pit in the 1950s, and since then conservation management has maintained a high population.

The open sides and floor of the pit are covered with a mixture of plants typical of calcareous grassland and scrub transitions such as mouse-ear hawkweed *Pilosella officinarum*, twayblade *Listera ovata*, adder's-tongue fern *Ophioglossum vulgatum*, ploughman's spikenard *Inula conyza*, mullein *Verbascum thapsus*, and hemp agrimony *Eupatorium cannabinum*. The pit also contains a large number of bushes of mezereon *Daphne mezereum* which occurs here as a wild plant. Management aims to keep the pit largely free of scrub and trees, control coarse herbaceous vegetation, and create small bare chalk surfaces to aid the regeneration of military orchid.

The SPA qualifying feature for which the site is designated and which has been carried forward to consideration of AEol is:

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites).

The Applicant in its RIAA provided information for an AA for the following potential impact pathway:

- Habitat loss and / or degradation – degradation to designated habitats through airborne pollutants.

In addition to the generic Conservation Objectives for SACs presented in Section 1.3, NE has published SACOs³³ for the semi natural dry grasslands and scrubland facies on calcareous substrates feature of the site.

The Secretary of State has considered the potential for the Project to constitute an AEol for each feature for which a significant effect is likely, in view of the site's Conservation Objectives.

5.7.1 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites): Alone and in-combination

5.7.1.1 Habitat loss and / or degradation (C,D)

The RIAA provided an assessment ([REP5-045, section 5.5, Matrix C4] of the potential for AEol. Following WRs on the disputed conclusions of LSE from NE ([RR-1291], REP2-090)), the Applicant amended its RIAA at Deadline 5 ([REP5-045], section 5.5 and Matrix C5) to include an assessment of AEol from in-combination air quality effects.

The Applicant's assessment [REP5-045, section 5.5 and Matrix C4] identified an exceedance of the mean critical level for NOx and critical load for nitrogen at Transect 4 ([REP5-045, Annex D, Appendix A, Figure 4] when contributions are considered in combination with future baseline traffic levels. The Project on its own does not exceed the relevant thresholds.

The Applicant identified that the negative effects of NO_x were most likely to arise in the presence of SO₂ and that as background concentrations of SO₂ at the SAC's component SSSIs are very low, that no synergistic effect with NO_x was expected.

For ammonia, nitrogen and acid, the assessment identified that critical loads / levels were already exceeded although the Applicant concluded that the contribution of the Project would be below 1% of the threshold. The Applicant concluded that as the contribution of the Project to ammonia, nitrogen and acid deposition in combination with other plans or projects was very small, there was no potential for the Project to affect the ability of the SAC to meet its conservation objectives. The reasoning and assessment of air quality impacts is similar to that provided for Breckland SAC (see Section 5.5).

At D6 [REP6-070], NE noted that the Applicant had provided an in-combination assessment and confirmed it was satisfied with the conclusion of no AEoI from this impact pathway.

The ExA [ER 5.11.29] was satisfied that this LSE pathway will not result in an AEoI of Rex Graham Reserve SAC.

The Secretary of State agrees with the Applicant and NE and is satisfied that an AEoI of Rex Graham Reserve SAC from habitat loss and / or degradation on semi-natural dry grasslands and scrubland facies on calcareous substrates resulting from the Project alone and in-combination can be excluded beyond all reasonable scientific doubt.

5.8 Devil's Dyke SAC

The Devil's Dyke SAC is located approximately 4.5 km southwest of the Burwell National Grid Substation.

Devil's Dyke covers 8.02 ha and is situated to the south-west of Newmarket close to the boundary between Cambridgeshire and Suffolk in the East Anglian Chalk National Character Area. It is an ancient linear earthwork, thought to be of Anglo-Saxon origin comprising a deep ditch and high bank which extends for around 7 miles from Woodditton south of Newmarket to Reach, north-west of the town, across open chalk country. In the past sheep would have grazed Devil's Dyke and this management encouraged the development of grassland rich in a diversity of plants and animals originating from the surrounding chalk grassland, much now degraded or destroyed. For this reason, the Dyke is important as one of the few remaining areas still supporting the relict chalkland vegetation communities. It holds one of the best and most extensive area of species-rich chalk grassland in the area, of a type characteristic of south, central and eastern England and represents a habitat now very restricted in distribution and extent throughout its British range. A PRoW runs along the top of the Dyke bank for the whole of its length and is very popular for the dramatic effect of the elevated route, extensive views across the countryside and the rare plants and animals to be found.

This site hosts the priority habitat type "orchid rich sites". In the UK, examples of this feature are generally found on thin, well-drained, lime-rich soils associated with chalk and limestone. They occur predominantly at low to moderate altitudes in England and Wales, extending locally into upland areas in northern England, Scotland and Northern Ireland. Most of these agriculturally unimproved calcareous grasslands are maintained by grazing. A large number of rare plants can be associated with this habitat.

The SPA qualifying feature for which the site is designated, and which has been carried forward to consideration of AEol is:

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites).

The Applicant in its RIAA provided information for an AA for the following potential impact pathway:

- Habitat loss and / or degradation – degradation to designated habitats through airborne pollutants.

In addition to the generic Conservation Objectives for SACs presented in Section 1.3, NE has published SACOs³⁴ for the semi-natural dry grasslands and scrubland facies on calcareous substrates feature of the sites.

The Secretary of State has considered the potential for the Project to constitute an AEol for each feature for which a significant effect is likely, in view of the site's Conservation Objectives.

5.8.1 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid sites): Alone and in-combination

5.8.1.1 Habitat loss and / or degradation (C,D)

The RIAA provided an assessment ([REP5-045, section 5.7, Matrix C6] of the potential for AEol. Following WRs on the disputed conclusions of LSE from NE [RR-1291], REP2-090]), the Applicant amended its RIAA at D5 ([REP5-045, section 5.7 and Matrix C6] to include an assessment of AEol from in-combination air quality effects. The Applicant's assessment identified an exceedance of the critical level for NO_x and critical load for nitrogen at Transect 1 [REP5-045], Annex D Appendix A Figure 2) when contributions are considered in combination with future baseline traffic levels.

The Applicant identified that the negative effects of NO_x were most likely to arise in the presence of SO₂ and that as background concentrations of SO₂ at the SAC's component SSSI are very low, that no synergistic effect with NO_x was expected.

For ammonia, nitrogen and acid, the critical loads / levels were already exceeded although the Applicant concluded that the contribution of the Project would be below 1 % of the threshold.

The Applicant concluded that as the contribution of the Project to ammonia, nitrogen and acid deposition in combination with other plans or projects was very small, there was no potential for the Project to affect the ability of the SAC to meet its Conservation Objectives. The reasoning and assessment of air quality impacts is similar to that provided for Breckland SAC and Rex Graham Reserve SAC (see Section 5.5 and 5.7 respectively).

At D6 [REP6-070], NE noted that the Applicant had provided an in-combination assessment and confirmed it was satisfied with the conclusion of no AEol from this impact pathway.

The ExA [ER5.11.37] was satisfied that this LSE pathway would not result in an AEol of Devil's Dyke SAC.

The Secretary of State agrees with the Applicant and NE and is satisfied that an AEol of Devil's Dyke SAC from habitat loss and / or degradation on semi-natural dry grasslands and scrubland

facies on calcareous substrates resulting from the Project alone and in-combination can be excluded beyond all reasonable scientific doubt.

5.9 Appropriate Assessment conclusions

The Applicant concluded that, on the basis of the mitigation measures as secured, an AEoI of any protected site can be excluded alone and in-combination.

At the close of the Examination, NE advised [REP10-074] that it was satisfied that all relevant protected sites and their qualifying features had been taken into consideration and that it was satisfied there would be no AEoI of any of the protected sites and qualifying features identified by the Applicant with appropriate mitigation measures in place.

On the basis of the information before the ExA and having regard to the mitigation measures to be secured in the dDCO, the ExA [ER 5.13.2, 5.14.6] was of the view that the Project would not result in an AEoI of: Fenland SAC; Chippenham Fen Ramsar Site; Breckland SAC; Rex Graham Reserve SAC; and Devil's Dyke SAC, either alone or in-combination with other plans or projects.

However, the ExA [ER 5.13.2 and 5.14.7] recommended that it was not satisfied that adequate evidence had been presented to demonstrate beyond reasonable scientific doubt that there will not be an adverse effect on land supporting stone curlew and which may be functionally linked to Breckland SPA.

The Secretary of State has carefully considered all information available to him, including the recommendations of the ExA, the advice of NE as the SNCB, the views of all other IPs and the Applicant's case regarding impacts on stone curlew. The Secretary of State acknowledges that NE consider the order limits are not functionally linked to the SPA. Nevertheless, the Secretary of State has considered impacts on the Breckland SPA stone curlew if the affected land was considered FLL in the AA on a precautionary basis. He is satisfied that the proposed measures to mitigate impacts to stone curlew are appropriate and that an AEoI of the Breckland SPA due to displacement of stone curlew within the Order limits if this was to be considered functionally linked to the SPA can be excluded beyond all reasonable scientific doubt, subject to the provision of stone curlew plots and other mitigation measures as secured by Requirements 8, 10, 14, 15 and 22 of the DCO. He is satisfied that the Project will not hinder the achievement of the Conservation Objectives for the Breckland SPA.

The Secretary of State concludes that an AEoI of any protected site can be excluded beyond all reasonable scientific doubt and that further steps of assessment as set out in the Habitats Regulations are not required.

6 Transboundary assessment

The Secretary of State believes that it is important to consider the potential impacts on protected sites in other European Economic Area (EEA) states, known as transboundary sites⁴⁹. Further information on transboundary impacts and processes is available in PINS Advice Note 12⁵⁰. The ExA also considered the implications for transboundary sites, in the context of looking at the wider EIA considerations. The conclusions of the ExA's considerations and the Secretary of State's own views on this matter are presented below.

On 27 September 2019, following the Applicant's request for an EIA scoping opinion, the Planning Inspectorate undertook a transboundary screening and consultation [OD-001] on behalf of the Secretary of State pursuant to Regulation 32 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and the United Nations Environment Programme Convention on Biological Diversity 1992. A second and final screening was undertaken on 06 January 2022 following acceptance of the Application.

On both screening occasions, PINs was of the view that the Project is not likely to have a significant effect on a transboundary site. No transboundary consultations were undertaken.

The RIAA [REP5-045] and ES Chapter 5 [APP-037, paragraphs 5.3.2 to 5.3.4] confirmed that neither the Order limits, nor its effects overlap with areas of devolved administrations or with those of transboundary sites and did not identify any LSE on transboundary sites.

No impacts on transboundary sites were raised for discussion by any IP during the Examination [ER 5.3.7]

The Secretary of State has not been presented with any evidence to demonstrate that transboundary impacts would have an LSE on any protected site in other EEA states. As such, the Secretary of State is satisfied that the Project, either alone or in-combination with other plans or projects, would not have any LSEs on any transboundary protected site and further stages of a transboundary assessment are not required.

⁴⁹https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/408465/transboundary_guidelines.pdf

⁵⁰<https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-twelve-transboundary-impacts-and-process/>

7 Conclusion

The Secretary of State has carefully considered all information available to him, including the recommendations of the ExA, the advice of NE as the SNCB, the views of all other IPs including Local Authorities, SWT, SNTS and the Applicant's case. The Secretary of State concludes that LSEs cannot be excluded at six protected sites, when the Project is considered alone or in-combination with other plans or projects. As the competent authority under the Habitats Regulations for this Application under the Planning Act 2008, the Secretary of State has undertaken an AA in respect of the Conservation Objectives of these protected sites to determine whether the Project, either alone or in-combination with other plans or projects, will result in an AEoI.

The Secretary of State agrees with the recommendation of the ExA, in accordance with the advice of the NE that, based on the information available to him, an AEoI can be excluded beyond all reasonable scientific doubt due to habitat loss and / or degradation of:

- Fenland SAC;
- Chippenham Fen Ramsar;
- Breckland SAC;
- Rex Graham SAC; and
- Devil's Dyke SAC.

Regarding impacts to stone curlew of the Breckland SPA, the Secretary of State acknowledges that NE consider the order limits are not functionally linked to the SPA. Nevertheless, the Secretary of State has considered impacts to stone curlew if the affected land was considered FLL in the AA on a precautionary basis. In this instance the Secretary of State agrees with the Applicant in accordance with the advice of NE, that an AEoI of the Breckland SPA due to physical displacement, noise / visual and non-physical disturbance impacts on stone curlew can be excluded beyond all reasonable scientific doubt, subject to the provision of stone curlew plots and other mitigation measures as secured by Requirements 8, 10, 14, 15 and 22 of the DCO.

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