



The Planning Inspectorate
Yr Arolygiaeth Gynllunio

The Planning Act 2008

EAST ANGLIA ONE NORTH OFFSHORE WIND FARM

Examining Authority's Report
of Findings and Conclusions

and

Recommendation to the Secretary of State for
Business, Energy & Industrial Strategy

VOLUME 1

Examining Authority

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6 October 2021

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OVERVIEW

File Ref: EN010077

The application, dated 15 October 2019, was made under section 37 of the Planning Act 2008 and was received in full by The Planning Inspectorate on 25 October 2019.

The applicant is **East Anglia ONE North Limited**.

The application was accepted for Examination on 22 November 2019.

The Examination of the application began on 6 October 2020 and was completed on 6 July 2021.

The development proposed comprises the following:

The construction and operation offshore of up to 67 wind turbine generators (WTGs) with a maximum tip height of up to 282 metres, together with up to four offshore electrical platforms, an offshore construction, operation and maintenance platform, a meteorological mast, inter-array cables linking the WTGs to each other and to the offshore electrical platforms, platform link cables and up to two export cables to take the electricity generated by the WTGs from the offshore electrical platforms to landfall.

The construction and operation onshore of landfall connection works north of Thorpeness in Suffolk, underground cables running from landfall to a new onshore substation located at Grove Wood, Friston, Suffolk, together with a new National Grid substation and National Grid overhead line realignment works including the reconstruction and/or relocation of up to three pylons, construction of up to one additional pylon and the construction of up to three permanent sealing end compounds.

Summary of Recommendation:

The Examining Authority recommends that the Secretary of State should make the Order in the form attached.

REPORT GUIDE

This Report is divided into three volumes.

Volume 1: This Volume

- Introductory Matters and Context
 - Chapters 1 - 4
- Initial analysis
 - Chapter 5: Need
- Onshore Analysis
 - Chapter 6: Flooding and Drainage
 - Chapter 7: Landscapes and Visual Amenity
 - Chapter 8: Onshore Historic Environment
 - Chapter 9: Seascapes
 - Chapter 10: Onshore Ecology
 - Chapter 11: Coastal Physical Effects
 - Chapter 12: Onshore Water Quality and Resources
 - Chapter 13: Noise, Nuisance and Health Effects Onshore
 - Chapter 14: Transport and Traffic
 - Chapter 15: Socio-economic Effects Onshore
 - Chapter 16: Land Use
 - Chapter 17: Other Onshore Matters

Volume 2

- Offshore Analysis
 - Chapter 18: Offshore Ornithology
 - Chapter 19: Marine Mammals
 - Chapter 20: Other Offshore Biodiversity Effects
 - Chapter 21: Marine Physical Effects and Water Quality
 - Chapter 22: Offshore Historic Environment
 - Chapter 23: Offshore Socio-economic and Other Effects
- Overarching Analysis
 - Chapter 24: Habitats Regulations Assessment
 - Chapter 25: Alternatives
 - Chapter 26: Good Design
 - Chapter 27: Other Overarching Matters
- The Planning Balance
 - Chapter 28: Conclusions on the Case for Development Consent
- Land, Rights and Statutory Provisions
 - Chapter 29: Compulsory Acquisition and Related Matters
 - Chapter 30: The Draft Development Consent Order and Related Matters
- Conclusions
 - Chapter 31: Summary of Findings and Conclusions

Volume 3

- Appendices
 - Appendix A
 - Appendix B
 - Appendix C
 - Appendix D

The total Report comprises all three volumes, all of which need to be read to provide the basis for the findings and recommendations that have been made.


Each volume has its own table of contents, providing page references for the Chapters and Sections within it.

Relationship with the East Anglia TWO Report

This Report was submitted simultaneously with another report relating to an application for development consent for the East Anglia TWO offshore wind farm, EN010078, (the other East Anglia project). That application was made and examined simultaneously with this application by an Examining Authority (ExA) and comprised the same members as the ExA responsible for this Examination and this Report. Each application was made separately. Each requires to be decided separately and on its own merits and so there are two separate Reports to the Secretary of State (SoS).



However, there are common elements to the Proposed Development in both cases. It follows that there are also common elements to the matters, issues, questions and evidence considered in both Examinations and reported on in both Reports.


In common with a convention adopted by both ExAs during both Examinations:

- Where this Report contains a Chapter or section that is unique to it and is not shared with the other East Anglia project Report, that Chapter or section is marked with a yellow icon  beside its title.
- Where there is material that is unique to this Report within a Chapter or section that is otherwise broadly shared with the other East Anglia project Report, the relevant sentence, paragraph or body of text is marked with a yellow highlight in the manner shown here.
- Where a Chapter, section or text has no yellow icon or highlight, then its content is shared and can be found in the equivalent part of both reports.

Both Reports need to be read individually in order to obtain an understanding of the individual and shared findings that contribute towards the recommendations in both cases. However, it will assist readers to know that shared content is just that: identical in both reports.

VOLUME 1 TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1.	INTRODUCTION TO THE EXAMINATION.....	1
1.2.	APPOINTMENT OF THE EXAMINING AUTHORITY	2
1.3.	THE PERSONS INVOLVED IN THE EXAMINATION	2
1.4.	THE EXAMINATION AND PROCEDURAL DECISIONS	3
1.5.	ENVIRONMENTAL IMPACT ASSESSMENT	14
1.6.	HABITATS REGULATIONS ASSESSMENT	15
1.7.	UNDERTAKINGS, OBLIGATIONS AND AGREEMENTS	15
1.8.	OTHER CONSENTS	15
1.9.	STRUCTURE OF THIS REPORT	16
2.	THE PROPOSAL AND THE SITE	17
2.1.	INTRODUCTION	17
2.2.	THE APPLICATION AS MADE 	17
2.3.	THE APPLICATION AS EXAMINED 	17
2.4.	RELEVANT PLANNING HISTORY.....	18
2.5.	OTHER MAJOR PROJECTS AND PROPOSALS	20
3.	LEGAL AND POLICY CONTEXT.....	21
3.1.	INTRODUCTION	21
3.2.	THE PLANNING ACT 2008.....	21
3.3.	NATIONAL POLICY STATEMENTS	22
3.4.	MARINE AND COASTAL ACCESS ACT 2009	22
3.5.	EUROPEAN LAW AND RELATED UK REGULATIONS	23
3.6.	OTHER LEGAL PROVISIONS.....	27
3.7.	EMERGING POLICY AND GUIDANCE.....	30
3.8.	MADE DEVELOPMENT CONSENT ORDERS	31
3.9.	TRANSBOUNDARY EFFECTS.....	31
3.10.	THE NATIONAL PLANNING POLICY FRAMEWORK	32
3.11.	LOCAL IMPACT REPORTS.....	33
3.12.	THE DEVELOPMENT PLAN	33
4.	THE PLANNING ISSUES	35
4.1.	INTRODUCTION	35
4.2.	MAIN ISSUES IN THE EXAMINATION	35
4.3.	CORONAVIRUS (COVID-19) PANDEMIC.....	37
5.	FINDINGS & CONCLUSIONS IN RELATION TO NEED	39
5.1.	INTRODUCTION	39
5.2.	POLICY CONSIDERATIONS	39
5.3.	THE APPLICANT'S CASE	41
5.4.	PLANNING ISSUES	42
5.5.	ExA RESPONSE	45
6.	FINDINGS & CONCLUSIONS IN RELATION TO FLOODING & DRAINAGE.....	49
6.1.	INTRODUCTION	49

6.2.	POLICY CONSIDERATIONS	49
6.3.	The APPLICANT’S CASE.....	51
6.4.	PLANNING ISSUES	54
6.5.	ExA RESPONSE	62
6.6.	CONCLUSION	68
7.	FINDINGS & CONCLUSIONS IN RELATION TO LANDSCAPES & VISUAL AMENITY	70
7.1.	INTRODUCTION	70
7.2.	POLICY CONSIDERATIONS	70
7.3.	THE APPLICANT’S CASE	72
7.4.	PLANNING ISSUES	84
7.5.	EXA RESPONSE.....	95
7.6.	CONCLUSIONS.....	107
8.	FINDINGS & CONCLUSIONS IN RELATION TO ONSHORE HISTORIC ENVIRONMENT	110
8.1.	INTRODUCTION	110
8.2.	POLICY CONSIDERATIONS	110
8.3.	THE APPLICANT’S CASE	113
8.4.	PLANNING ISSUES	122
8.5.	EXA RESPONSE.....	139
8.6.	CONCLUSIONS.....	152
9.	FINDINGS & CONCLUSIONS IN RELATION TO SEASCAPES 	156
9.1.	INTRODUCTION	156
9.2.	POLICY CONSIDERATIONS	156
9.3.	THE APPLICANT’S CASE	158
9.4.	PLANNING ISSUES	168
9.5.	ExA RESPONSE	170
9.6.	CONCLUSIONS.....	172
10.	FINDINGS & CONCLUSIONS IN RELATION TO ONSHORE ECOLOGY	173
10.1.	INTRODUCTION	173
10.2.	POLICY CONSIDERATIONS	173
10.3.	THE APPLICANT’S CASE	174
10.4.	PLANNING ISSUES	176
10.5.	ExA RESPONSE	189
10.6.	CONCLUSIONS ON ONSHORE ECOLOGY.....	202
11.	FINDINGS & CONCLUSIONS IN RELATION TO COASTAL PROCESSES.....	204
11.1.	INTRODUCTION	204
11.2.	POLICY CONSIDERATIONS	204
11.3.	THE APPLICANT’S CASE	205
11.4.	PLANNING ISSUES	207
11.5.	ExA RESPONSE	210
11.6.	CONCLUSION ON COASTAL PROCESSES	213
12.	FINDINGS & CONCLUSIONS IN RELATION TO ONSHORE WATER QUALITY & RESOURCES.....	214
12.1.	INTRODUCTION	214

12.2.	POLICY CONSIDERATIONS	214
12.3.	THE APPLICANT'S CASE	215
12.4.	PLANNING ISSUES	217
12.5.	ExA RESPONSE	218
12.6.	CONCLUSION ON WATER QUALITY AND RESOURCES.....	221
13.	FINDINGS & CONCLUSIONS IN RELATION TO NOISE, NUISANCE & HEALTH EFFECTS ONSHORE	223
13.1.	INTRODUCTION	223
13.2.	NOISE EFFECTS	224
13.3.	AIR QUALITY	244
13.4.	LIGHT POLLUTION.....	252
13.5.	IMPACTS ON HUMAN HEALTH	255
13.6.	COMMON LAW NUISANCE AND STATUTORY NUISANCE.....	263
13.7.	CONCLUSIONS.....	265
14.	FINDINGS & CONCLUSIONS IN RELATION TO TRANSPORT & TRAFFIC.....	267
14.1.	INTRODUCTION	267
14.2.	POLICY CONSIDERATIONS	267
14.3.	THE APPLICANT'S CASE	269
14.4.	PLANNING ISSUES	274
14.5.	EXA RESPONSE.....	291
14.6.	CONCLUSIONS.....	294
15.	FINDINGS & CONCLUSIONS IN RELATION TO SOCIO ECONOMIC EFFECTS ONSHORE	296
15.1.	INTRODUCTION	296
15.2.	POLICY CONSIDERATIONS	296
15.3.	THE APPLICANT'S CASE	297
15.4.	PLANNING ISSUES	302
15.5.	ExA RESPONSE	308
15.6.	CONCLUSIONS.....	313
16.	FINDINGS & CONCLUSIONS IN RELATION TO LAND USE EFFECTS	316
16.1.	INTRODUCTION	316
16.2.	POLICY CONSIDERATIONS	316
16.3.	THE APPLICANT'S CASE	317
16.4.	PLANNING ISSUES	322
16.5.	EXA RESPONSE.....	325
16.6.	CONCLUSIONS.....	328
17.	FINDINGS & CONCLUSIONS IN RELATION TO OTHER ONSHORE MATTERS.....	329
17.1.	INTRODUCTION	329
17.2.	CONSIDERATION & ExA RESPONSE.....	329
17.3.	CONCLUSIONS.....	329

INTRODUCTORY MATTERS & CONTEXT

- Chapter 1: Introduction
- Chapter 2: The Proposal and The Site
- Chapter 3: The Legal and Policy Context
- Chapter 4: The Planning Issues

1. INTRODUCTION

1.1. INTRODUCTION TO THE EXAMINATION

- 1.1.1. The Application for the construction and operation of **East Anglia ONE North Offshore Wind Farm (the Proposed Development) EN010077** was submitted by **East Anglia ONE North Limited** (the Applicant) to the Planning Inspectorate on 15 October 2019 under section 31 (s31) of the Planning Act 2008 (PA 2008) and accepted for Examination under section 55 of the PA 2008 on 22 November 2019 [PD-001].
- 1.1.2. The Proposed Development comprises:
- The construction and operation of up to **67** wind turbine generators (WTGs) with a maximum tip height of up to 282 metres, together with up to four offshore electrical platforms, an offshore construction, operation and maintenance platform, a meteorological mast, inert-array cables linking the WTGs to each other and to the offshore electrical platforms, platform link cables and up to two export cables to take the electricity generated by the WTGs from the offshore electrical platforms to landfall.
 - The onshore works include landfall connection works north of Thorpeness in Suffolk, underground cables running from landfall to a new onshore substation located at Grove Wood, Friston, Suffolk together with a new National Grid substation and National Grid overhead line realignment works including the reconstruction and/or relocation of up to three pylons, construction of up to one additional pylon and the construction of up to three permanent sealing end compounds.
- 1.1.3. The location of the Proposed Development is shown in the Environmental Statement (ES) [APP-049 to APP-575] and Land Plans, final updated versions of which were received at Deadline 3 (D3), Land Plans (Offshore) [REP3-005] and at D11, Land Plans Onshore [REP11-003]. The onshore element of the site lies within the administrative county of Suffolk and also within the administrative district of East Suffolk Council (ESC) and is wholly in England.
- 1.1.4. The legislative tests for whether the Proposed Development is a Nationally Significant Infrastructure Project (NSIP) were considered by the then Secretary of State (SoS) for the Department of Communities and Local Government (DCLG) in its decision to accept the Application for Examination in accordance with section 55 of PA2008 [PD-001].
- 1.1.5. On this basis, the Planning Inspectorate agreed with the Applicant's view as stated in the application form [APP-002] that the Proposed Development is an NSIP, as it is a project which consists of the construction and operation of a generating station and the installation of an electric line above ground (PA2008 s14(1)(a) and (b)) in England and waters adjacent to England up to the seaward limits of the territorial sea and in a Renewable Energy Zone.

- 1.1.6. PA2008 s15(1), (3) and (4) provide that the construction of a generating station offshore with an installed capacity of more than 100 megawatts and again, in England and waters adjacent to England up to the seaward limits of the territorial sea and in a Renewable Energy Zone, is an NSIP. PA2008 s16(1)(a) provides that the construction of an electric line above ground that is not subject to relevant thresholds defined in s16(3) is also an NSIP. The Proposed Development therefore meets the definition of an NSIP set out in s14(1)(a) and (b) and s15 and s16 of PA2008.

1.2. APPOINTMENT OF THE EXAMINING AUTHORITY

- 1.2.1. On 13 December 2019, Examining Inspectors Mike Harris, Caroline Jones, Jessica Powis, Guy Rigby and Rynd Smith were appointed as the Examining Authority (ExA) for the application under s61 and s65 of PA2008 [PD-005], with Rynd Smith appointed as Lead Member of the ExA.
- 1.2.2. Subsequent to this, Mike Harris submitted his resignation as a member of the ExA under s66(3) of the Infrastructure Planning (Examination Procedure) Rules 2010. With effect from 26 June 2020 Jonathan Hockley was appointed as a member of the ExA which then consisted of Rynd Smith as Lead Member, Jonathan Hockley, Caroline Jones, Jessica Powis and Guy Rigby [PD-012].

Technical advisors

- 1.2.3. The Examination was assisted by two further Examining Inspectors, Michael Hayes and Gavin Jones. These Inspectors were not members of the ExA. Their work was subject to direction by and decisions of the ExA. All findings and recommendations in this report are those of the ExA alone.

1.3. THE PERSONS INVOLVED IN THE EXAMINATION

- 1.3.1. The persons involved in the Examination were:
- Persons who were entitled to be Interested Parties (IPs) because they had made a Relevant Representation (RR) or were a statutory party who requested to become an IP.
 - Affected Persons (APs) who were affected by a Compulsory Acquisition (CA) and / or temporary possession (TP) proposal made as part of the Application and objected to it at any stage in the Examination.
 - Other Persons: the Office of Gas and Electricity Markets (OFGEM) and National Grid Electricity System Operator (NG ESO) who were invited to participate in the Examination by the ExA [PD-008] because they had particular expertise that the ExA considered to be necessary to inform the Examination. In addition, see paragraphs 1.4.54 and 1.4.55 of this Report regarding parties being granted Other Person status during the Examination.

1.4. THE EXAMINATION AND PROCEDURAL DECISIONS

- 1.4.1. The Examination process for the Proposed Development took place simultaneously with the Examination of the **East Anglia TWO** project (hereafter referred to as the other East Anglia project). The ExAs appointed to examine both proposals consisted of the same people. Annex A of the Rule 6 letter of 21 February 2020 [PD-006] (the first Rule 6 Letter) set out parallel Examination processes under which common matters and issues were examined together, and singular Examination processes where distinct matters that were relevant to an individual identified application could be examined separately, if required.

Response to the Coronavirus Pandemic

- 1.4.2. The following changes to Examination arrangements were made in response to the effects of the Coronavirus (COVID-19) pandemic:
- postponement of the start of the Examination from March to October 2020;
 - virtual Examination procedures, replacing the use of large public gatherings for the Preliminary Meeting and hearings, to enable the Examination to commence;
 - Access Required Site Inspections and Unaccompanied Site Inspections to replace Accompanied Site Inspections; and
 - extension of the Examination period from six to nine months, from closure in April to closure in July 2021, to enable completion of outstanding processes and investigations.

This section records the procedural changes made and concludes on related procedural questions raised by IPs.

Postponement of the start of the Examination

- 1.4.3. The first Rule 6 Letter [PD-006] had anticipated that the Examination would commence on 25 March 2020. In response to the Coronavirus pandemic, substantial public health measures were introduced by the Government¹ during March 2020. Social distancing and travel restrictions were in place by the time that the Examination was originally scheduled to begin. These meant that by mid-March 2020, large public gatherings that had been planned for as part of the Examination process could no longer be delivered.
- 1.4.4. On 17 March 2020 [PD-009], as a result of the Coronavirus pandemic and in common with all Planning Inspectorate casework reliant on physical arrangements for hearings and site inspections that could not immediately be socially distanced, the start of the Examination was postponed. This postponement enabled the development and testing of alternative, largely virtual Examination processes by the Planning Inspectorate. The ExA encouraged the Applicant and IPs to use this time

¹ <https://www.gov.uk/coronavirus>

to continue to comment on RRs and to develop and submit Statements of Common Ground (SoCGs).

Use of Virtual Events

- 1.4.5. On 13 May 2020, the Secretary of State for Housing, Communities and Local Government (SoSHCLG) made a Written Ministerial Statement (WMS)² expressing the Government's expectation that NSIP Examinations should continue to operate during the pandemic by replacing physical events such as hearings with virtual events of appropriate design. By this point, the Planning Inspectorate had developed and tested virtual processes that were able to manage public events of the scale required for this Examination. In summary, these consisted of:
- The use of the Microsoft Teams application to run virtual events that were equally accessible from analogue telephones and a wide range of digital devices (computers, tablets, smart televisions and equivalents) via generic internet browsers;
 - The provision of familiarisation events by the Planning Inspectorate to ensure the widest possible acquisition of technology skills to support IP participation, before Examination events were held;
 - The livestreaming and recording of all Examination events, so that in circumstances where network capacity or other technical issues limited real-time participation, catch-up participation and the provision of written submissions would always be possible (noting that NSIP Examinations are primarily written procedures and that written contributions have in principle equal standing to oral contributions); and
 - Provision of opportunities for IPs to raise specific concerns about participation, with a view to making reasonable adaptations to Examination procedures to ensure effective, fair and full engagement on an ongoing basis.
- 1.4.6. Steps were taken to seek views from the Applicant and IPs about participation in virtual events.
- 1.4.7. On 21 May 2020, an electronic questionnaire about future involvement was sent to all IPs with an email address known to the ExA. A physical letter was sent to all IPs for whom no email address was known. A frequently asked questions (FAQ) document³ was published, explaining how the Planning Inspectorate's virtual events proposals might work and how people with a diverse range of access to technology and skills could become involved. Views on participation were sought by 11 June 2020.
- 1.4.8. Responses to this consultation identified that there were substantial concerns about whether digital technology could be used to conduct public hearings, aligned with many requests that the start of the Examination should be postponed until public health measures

² Written Ministerial Statement on [Virtual Working and Planning](#), SoSHCLG, 13 May 2020

³ [FAQ v1](#)

preventing large public gatherings were no longer in force. Concerns were expressed about the adequacy of internet infrastructure in rural East Suffolk and about the ability of some IPs to use or access the technology needed to participate in virtual events. However, responses also identified that the great majority of IPs did have access to devices that would enable participation in virtual events.

- 1.4.9. The ExA took account of the responses provided by IPs and the WMS. Ongoing adaptations were made to the Planning Inspectorate's virtual events testing programme. Also, the piloting of virtual events for other NSIP Examinations demonstrated the feasibility of virtual event designs that could address the concerns raised. The ExA decided that the Examination could commence using appropriately configured virtual methods in the short to medium term, whilst retaining the flexible potential for the use of blended⁴ and physical events later in the Examination. Specific submissions would be sought from IPs who considered that they were unable to participate in virtual events for individual reasons and reasonable procedural adaptations were made to address their circumstances. As a consequence of these changes, the ExA was satisfied that, where a meeting or a hearing was a necessary procedure, the proposed virtual methods could provide all IPs with a reasonable opportunity to be heard.
- 1.4.10. On 16 July 2020 a second Rule 6 Letter was sent [PD-013], proposing arrangements to commence the Examination using virtual events. A substantial programme of support for IPs to familiarise event participants with the digital and telephone systems necessary for event participation was also delivered. The events provided for in the second Rule 6 Letter proceeded as arranged and further relevant information about them is set out in the balance of this Chapter. Further to the arrangements proposed in the second Rule 6 Letter, the Examination began on 7 October 2020.
- 1.4.11. The ExA monitored the relationship between proposed Examination procedures and the Coronavirus public health controls and guidance throughout the Examination. The following principles of event planning were applied:
- that virtual events were demonstrated to be generally fit for purpose and deliverable, even under the strictest of public health controls;
 - that individual concerns about participation in virtual events could be and were met by reasonable procedural adaptations; and
 - that events requiring physical public attendance would not be planned unless the public health controls and guidance in force at the point where notice was required to be served supported such events, and the infection trajectory provided reasonable confidence that they would be able to proceed without further postponements.
- 1.4.12. Whilst the second Rule 6 Letter had anticipated that some blended or physical events might be able to be held in the second half of the

⁴ A 'blended' event is one that blends elements of virtual and physical delivery.

Examination, the emergence of the second wave of Coronavirus infection in late 2019 and the implementation of national lockdowns from 5 November 2020 and 6 January 2021, combined with the application of the event management principles, meant that the conditions necessary for the delivery of blended or physical events were not met at any point during the Examination. All meetings and hearings were conducted as virtual events.

Amended Site Inspection Arrangements

- 1.4.13. The Examination arrangements initially proceeded on the basis that Accompanied Site Inspections (ASIs) would be held in January 2020. ASIs were originally programmed and nominations of locations for inspection were sought at Deadline 1. However, by January 2021, Coronavirus public health controls and guidance in force by the anticipated ASI dates enabled essential travel for work by the ExA but did not support travel by a substantial number of IPs on the basis that it was not required for work. Household mixing and public events were still prohibited. For these reasons, the ExA decided to hold the following site inspections to replace the originally anticipated ASIs:
- Access Required Site Inspections were held on private land, where attendance was limited to the ExA plus the landowner, occupier or the delegate or agent. Attendance was on a strictly socially distanced basis and attending landowners, occupiers, delegates or agents' roles were limited to the provision of access (ensuring that gates were opened and closed) and indicating the location of and direction to key physical features. Detailed itineraries were published and all other IPs who may otherwise have attended ASIs to these locations were invited to make written submissions to identify matters that should be observed.
 - Where landowners or occupiers agreed that the ExA could access land without anyone being present, a further Unaccompanied Site Inspection (USI7) was held by the ExA alone.
- 1.4.14. The Access Required Site Inspection and USI7 events proceeded as arranged and further relevant information about them is included in the report on site inspection arrangements set out later in this Chapter.

Extension of Examination Period

- 1.4.15. There has been an Examination period of nine months, inclusive of a three-month extension granted by the Secretary of State for Business, Energy and Industrial Strategy (SoSBEIS), and hereafter referred to as the Secretary of State (SoS), using the powers available to them under s98(4) of PA2008 to change the Examination deadline. The change to the Examination deadline was communicated in a letter dated 30 March 2021 [PD-037] and was announced by the SoSBEIS in a Written Ministerial Statement, pursuant to s98 of the PA2008. As a result of this extension the Examination was completed on 6 July 2021.

- 1.4.16. The principal components of, and events around, the Examination are summarised below. A fuller description, timescales and dates can be found in Appendix A of this Report.

The Preliminary Meeting

- 1.4.17. On 21 February 2020, the ExA wrote to all Interested Parties (IPs), Statutory Parties and Other Persons under Rule 6 of the Infrastructure Planning (Examination Procedure) Rules 2010 (EPR) (the first Rule 6 Letter) inviting them to a Preliminary Meeting (PM) [PD-006]. However, due to the rapid onset of public health regulations and controls in response to the Coronavirus pandemic in early March 2020 the first proposed PM was unable to proceed, and a decision was taken by the ExA on 17 March 2020 to postpone it [PD-009].
- 1.4.18. The ExA took steps to ensure that a reinstated PM and anticipated Examination events could be delivered in a manner that was compliant with public health controls and guidance and reasonably accessible (see from paragraph 1.4.5 in this Chapter). On 16 July 2020 the ExA wrote again to all IPs, Statutory Parties and Other Persons under Rule 6 of the EPR inviting them to the re-arranged PM that was to be held virtually in two stages taking place on 16 September 2020 (PM Part 1) and 6 October 2020 (PM Part 2) [PD-013] (the second Rule 6 letter). This letter also outlined:
- the arrangements and agenda for the PM;
 - an introduction to the PM;
 - notification of hearings to be held in the early stage of the Examination;
 - an Initial Assessment of the Principal Issues (IAPI);
 - the draft Examination Timetable;
 - the ExA's procedural decisions; and
 - availability of RRs and application documents.
- 1.4.19. Responses to the second Rule 6 Letter were received and published at two procedural deadlines. Procedural Deadline A (13 August 2020) was for submissions relevant to the first part of the PM (published as [PDA-001] to [PDA-003]). Procedural Deadline C (29 September 2020) enabled persons attending PM Part 1 or responding to the livestream or published recordings of PM Part 1 to make written procedural submissions for consideration at PM Part 2 (published as [PDC-001] to [PDC-043]).
- 1.4.20. The PM took place in a virtual format using Microsoft Teams on 16 September 2020 (PM Part 1) and 6 October (PM Part 2) 2020. Video recordings and a note of the meeting [EV-002b to EV-002i] were published on the Planning Inspectorate National Infrastructure website⁵.
- 1.4.21. The ExA's Rule 8 letter was published on 12 October 2020 [PD-016]. The ExA's procedural decisions and the Examination Timetable took full

⁵ <https://infrastructure.planninginspectorate.gov.uk/projects/eastern/east-anglia-one-north-offshore-windfarm/>

account of matters raised at the PM. A Statement of Reasons for Procedural Decisions was provided to accompany the Rule 8 Letter [PD-017].

Key Procedural Decisions

- 1.4.22. The procedural decisions (PDs) made by the ExA are set out in a Log of Procedural Decisions [PD-021]. This was updated during the Examination with the final version being contained in Annex B of [PD-050].
- 1.4.23. Some of the PDs arose before the start of the Examination as a result of the CoronavirusD-19 pandemic necessitating postponement of the PM and associated hearings.
- 1.4.24. Most of the procedural decisions set out in the Rule 8 Letter and Statement of Reasons [PD-016 and PD-017] related to matters that were confined to the procedure of the Examination and did not bear on the ExA's consideration of the planning merits of the Proposed Development. Further, they were generally complied with by the Applicant and relevant IPs. The decisions can be obtained from the Rule 8 Letter [PD-016] and so there is no need to reiterate them here.
- 1.4.25. The PDs that arose after the issuing of the Rule 8 letter related to the management of hearings and site inspections or were required because of material and non-material changes to the application requested by the Applicant. Again, these were generally complied with by the Applicant and relevant IPs. The decisions can be obtained from the Procedural Decisions Tracker (Annex B of [PD-050]) and there is no need to reiterate them here.

Site Inspections

- 1.4.26. Site Inspections are held in PA2008 Examinations to ensure that the ExA has an adequate understanding of the Proposed Development within its site and surroundings and its physical and spatial effects.
- 1.4.27. Where the matters for inspection can be viewed from the public domain and there are no other considerations such as personal safety or the need for the identification of relevant features or processes, USIs are held. Where inspections must be made on land requiring consent to access, there are safety or other technical considerations and / or there are requests made to accompany an inspection, an ASI is normally held. However, for reasons related to the Coronavirus pandemic recorded from paragraph 1.4.13 in this Chapter, an intended ASI had to be amended to an Access Required Site Inspection, enabling it to be delivered by the ExA and a minimum number of other attendees in a socially distanced manner.
- 1.4.28. The ExA held the following site inspections:
 - USI1, 20 and 21 January 2020 [EV-005];
 - USI2, 15 and 16 July 2020 [EV-006];
 - USI3, 13 and 14 August 2020 [EV-007];

- USI4, 12 and 13 October 2020 [EV-007a];
- USI5, 30 October 2020 [EV-007b];
- USI6, 6 and 7 January 2021 [EV-007c];
- Access Required Site Inspections and USI7 25, 26 and 27 January 2021 [EV-007d]; and
- USI8, 22 and 23 April 2021 [EV-007e].

1.4.29. A site note providing a procedural record of each USI can be found in the Examination Library under the above references.

1.4.30. The ExA has had regard to the information and impressions obtained during its site inspections in all relevant sections of this Report.

Hearing Processes

1.4.31. Hearings are held in PA2008 Examinations in two main circumstances:

- To respond to specific requests from persons who have a right to be heard - in summary terms:
 - where persons affected by CA and/ or TP proposals (Affected Persons) object and request to be heard at a Compulsory Acquisition Hearing (CAH); and/ or
 - where IPs request to be heard at an Open Floor Hearing (OFH).
- To address matters where the ExA considers that a hearing is necessary to inquire orally into matters under Examination, typically because they are complex, there is an element of contention or disagreement, or the application of relevant law or policy is not clear.

1.4.32. Throughout the course of the Examination restrictions on large gathering were in place due to the Coronavirus pandemic. Consequently, the ExA held a number of virtual hearings to ensure the thorough Examination of the issues raised by the Application.

1.4.33. Issue Specific Hearings (ISHs) under s91 of PA2008 were held on the subject matter of the draft DCO on:

- ISH6, 29 January 2021 [EV-079 to EV-087];
- ISH9, 19 February 2021 [EV-115 to EV-121];
- ISH15, 19 March 2021 [EV-129 to EV-138]; and
- ISH17, 28 May 2021 [EV-151 to EV-158].

1.4.34. The following other ISHs were held:

- ISH1, Biodiversity and Habitats Regulations Assessment, 1 December 2020 [EV-034a to EV-034e];
- ISH2, Onshore siting, design and construction, 2 December 2020 [EV-034f to EV-034x];
- ISH3, Biodiversity and Habitats Regulations Assessment, 19 January 2021, [EV-046 to EV-050];
- ISH4, Onshore environment, construction, transport and operational effects, 20 January 2021 [EV-051 to EV-059];

- ISH5, Social, economic, land and sea use effects, 21 January 2021 [EV-060 to EV-068];
- ISH7, Biodiversity and Habitats Regulations Assessment, 17 February 2021 [EV-101 to EV-107];
- ISH8, Seascapes, 18 February 2021 [EV-108 to EV-114];
- ISH10, Health and social well being, 9 March 2021 [EV-122a to EV-122g];
- ISH11, Flood risk and drainage, 10 March 2021 [EV-123a to EV-123g];
- ISH12, Noise 11 March 2021 [[EV-124a to EV-124i];
- ISH13, Traffic and transport, 12 March 2021 [EV-125a to EV-125i];
- ISH14, Biodiversity and Habitats Regulations Assessment, 16 and 17 March 2021 [[EV-126a to EV-126k]; and
- ISH16, Proposed substations site, 26 May 2021 [EV-142 to EV-150].

1.4.35. The following CAH were held under s92 of PA2008:

- CAH1, 1 December 2020 [EV-036 to EV-040];
- CAH2, 16 February 2021 [EV-092 to EV-100]; and
- CAH3, 18 March 2021 [EV-127a to EV-127i].

1.4.36. All persons affected by CA and/ or TP proposals (Affected Persons or APs) were provided with an opportunity to be heard. We also used these hearings to examine the Applicant's case for CA and/ or TP in the round.

1.4.37. OFHs were held under s93 of PA2008 on the following occasions:

- OFH1, 7 October 2020 [EV-010 to EV-011];
- OFH2, 8 October 2020 [EV-012 to EV-013];
- OFH3, 9 October 2020 [EV-014 to EV-015];
- OFH4, 5 November 2020 [EV-024 to EV-025];
- OFH5, 6 November 2020 [EV-026 to EV-027];
- OFH6, 22 January 2021 [EBV-069 to EV-073]; and
- OFH7, 28 January 2021 [EV-074 to EV-078].

Written Processes

1.4.38. Examination under PA2008 is primarily a written process, in which the ExA has regard to written material forming the Application and arising from the Examination. All this material is recorded in the Examination Library (Appendix B) and published online. Individual document references to the Examination Library in this report are enclosed in square brackets []. For this reason, this Report does not contain extensive summaries of all documents and representations, although full regard has been had to them in the ExA's conclusions. The ExA has considered all important and relevant matters arising from them.

1.4.39. A Procedural Decision [PD-004] was issued that, among other matters, set out a colour coding system for the documentation. Documents that applied only to EA1N are colour coded yellow, documents that applied to only EA2 are colour coded blue and those that apply to both EA1N and EA2 are colour coded with both yellow and blue. Furthermore, because of the need for consistency between the exam library (EL) referencing for

EA1N and EA2 there are some EL references that do not contain any document or submission. This occurs when a submission has been made for one of these projects but not for the other one.

1.4.40. Key written sources are set out further below.

Relevant Representations (RRs)

1.4.41. 879 RRs were received by the Planning Inspectorate [RR-001 to RR-919] that related either to EA1N and EA2 collectively or to EA1N uniquely. However, because of the need for consistency in numbering of these between the two ELs for EA1N and EA2, 40 RR references in the EA1N EL relate to RRs that raise matters of exclusive relevance to EA2 and are 'not in use' in the EA1N EL.

1.4.42. Those submitting RRs received the Rule 6 Letter and were provided with an opportunity to become involved in the Examination as IPs. All RRs have been fully considered by the ExA. The issues that they raise are considered in terms of setting the planning issues framework for analysis in Chapter 4 and then in detailed terms in all following Chapters of the Report.

Written Representations and Other Examination Documents

1.4.43. The Applicant, IPs and Other Persons were provided with opportunities to:

- make written representations (WRs);
- comment on WRs made the Applicant and other IPs;
- summarise their oral submissions at hearings in writing;
- make other written submissions requested or accepted by the ExA; and
- comment on documents issued for consultation by the ExA including:
 - A Report on Implications for European Sites (RIES) [PD-033] published on 4 March 2021 and an update to the RIES [PD-051] was published on 16 June 2021.
 - A commentary on the draft Development Consent Order (dDCO) [PD-031] was published on 12 February 2021. A further commentary on the dDCO [PD-048] was published on 20 May 2021.

1.4.44. All WRs and other Examination documents have been fully considered by the ExA. The issues that they raise are considered in Chapters 5 to 31 of this Report.

Local Impact Report

1.4.45. A Local Impact Report (LIR) is a report made by a relevant local authority (or authorities) giving details of the likely impact of the Proposed Development on the authority's area (or any part of that area) that has been invited and submitted to the ExA under s60 PA2008.

- 1.4.46. One Joint LIR was received from East Suffolk Council and Suffolk County Council [REP1-132]. The LIR has been taken fully into account by the ExA in all relevant Chapters of this Report.

Statements of Common Ground (SoCG)

- 1.4.47. A SoCG is a statement agreed between the Applicant and one or more IPs, recording matters that are agreed between them.
- 1.4.48. By the end of the Examination, the following bodies had concluded signed SoCGs with the Applicant:
- Anglian Water Services Limited [REP8-103];
 - Chamber of Shipping [REP8-121];
 - Civil Aviation Authority (CAA) [REP8-122];
 - Commercial Fisheries Working Group (CFWG) [REP8-120];
 - Diamond Transmission Partners Galloper Limited [REP1-055];
 - East Anglia THREE Limited [REP4-050];
 - East Suffolk Council (ESC) and Suffolk County Council (SCC) [REP12-070];
 - East Suffolk Internal Drainage Board (ESIDB) [REP8-129];
 - Eastern Inshore Fisheries Conservation Authority (EIFCA) [REP8-135];
 - EDF Energy Nuclear Generation Limited [REP8-126];
 - Environment Agency (EA) [REP12-071];
 - Greater Gabbard OFTO plc [REP1-074];
 - Highways England (HE) [REP8-117];
 - Historic England (HistE) (onshore) [REP8-127];
 - HistE (offshore) [REP8-128];
 - **Interconnector (UK) Limited [REP1-396]**
 - Marine Management Organisation (MMO) [REP12-073];
 - Maritime and Coastguard Agency (MCA) [REP8-133];
 - Ministry of Defence (MOD) [REP8-106];
 - National Federation of Fishermen's Organisations (NFFO) and National Association of Producer Organisations in Dutch Demersal Fisheries (VisNed) [REP8-119];
 - National Grid Electricity System Operator Limited [REP8-115];
 - National Grid Electricity Transmission plc [REP8-116];
 - National Grid Ventures [REP8-113];
 - NATS (En Route) plc [REP12-072];
 - Natural England (NE) (onshore) [REP8-108];
 - NE (offshore) [REP8-109];
 - NE (offshore ornithology) [REP8-110];
 - NNB Generation Company (SZC) Limited [REP13-026];
 - Nuclear Decommissioning Authority and Magnox Ltd [REP8-130];
 - Office for Nuclear Regulation [REP8-118];
 - Rijkswaterstaat [REP8-107];
 - Royal Society for the Protection of Birds (RSPB)(onshore) [REP8-104];
 - RSPB (offshore) [REP8-105];
 - Substation Action Save East Suffolk (SASES) [REP9-030];
 - Suffolk Coast and Heaths AONB Partnership [REP8-125];
 - Suffolk Preservation Society (SPS) [REP8-111];
 - The Wildlife Trust (TWT) [REP8-123]; and

- Trinity House [REP8-134].

1.4.49. The SoCG(s) have been taken fully into account by the ExA in all relevant Chapters of this Report.

Written Questions

1.4.50. The ExA asked three rounds of written questions.

- First written questions (ExQ1) [PD-018] were issued on 12 October 2020;
- Second written questions (ExQ2) [PD-030] were issued on 12 February 2021; and
- Third written questions (ExQ3) [PD-049] were issued on 20 May 2021.

1.4.51. The following requests for further information and comments under Rule 17 of the EPR were issued on:

- 16 December 2020 [PD-025] (R17QA);
- 17 March 2021 [PD-034] (R17QB);
- 29 April 2021 [PD-038] (R17QC);
- 6 May 2021 [PD-041] (R17QD);
- 13 May 2021 [PD-042] (R17QE); and
- 18 June 2021 [PD-052] (R17QF).

1.4.52. All responses to the ExA's written questions and Rule 17 responses have been fully considered and taken into account in all relevant Chapters of this Report.

Requests to Join and Leave the Examination

1.4.53. The following persons who were not already IPs requested that the ExA should enable them to join the Examination at or after the PM:

- UK Chamber of Shipping: granted OP status due to the Applicant submitting a draft SoCG [REP1-069];
- Great Glemham Parish Council: granted OP status by ExA using its discretion to accept D1 submission [REP1-141];
- Robert Rusack: granted OP status by the ExA using its discretion for him to make an oral representation at OFH4 [EV-025].
- Albeburgh Business association: granted OP status by the ExA using its discretion for organisation to make an oral representation at OFH7 [EV-075].
- New Anglia Local Enterprise Partnership: granted OP status by the ExA using its discretion to accept their additional submission [AS-072].
- Mulbarton Parish Council: granted OP status by the ExA using its discretion to accept their additional submission [AS-123].

1.4.54. During the Examination, there were a number of parties that had only registered as an IP for this Proposed Development, rather than both. This became evident through the submissions made during the Examination, where it became clear that some IPs wished to make written

representations against both projects. In these instances the ExA granted them OP status for the project they had not previously registered their interest in. For this project the ExA used their discretion to grant OP status to:

- Anthony Easton, on 13 November 2020 following submission received for D4 [REP4-130]

1.4.55. The following named individuals were all accepted as Interested Parties following acceptance of their s102A application, namely Narina Nichols, Wardens Trust, Gareth Williams, Helen Walton and St. Peter's Parochial Church Council. These individuals were granted their status for both this Proposed Development and the other East Anglia project.

1.4.56. During the Examination, as a consequence of discussion at hearings and/or discussions between relevant IPs/ APs/ Other Persons and the Applicant, the following persons wrote to the ExA to inform it that their issues were settled and their representations were withdrawn:

- Cadent Gas Limited, an Affected Person in the Examination. All objections raised [AS-007 and REP1-224] were completely withdrawn on 5 February 2021 [AS-073] after reaching agreement with the Applicant which addresses its previous concerns.
- Network Rail Infrastructure Limited, an Affected Person in the Examination. All objections raised [RR-060 and REP1-174] were completely withdrawn on 14 April 2021 [REP9-070].
- EDF Energy Nuclear Generation Limited, an Affected Person in the Examination. Relevant representation [RR-037] was fully withdrawn on 6 May 2021 [REP10-046] after reaching a satisfactory side agreement with the Applicant.

1.5. ENVIRONMENTAL IMPACT ASSESSMENT

1.5.1. The Proposed Development is development for which an Environmental Impact Assessment (EIA) is required (EIA development).

1.5.2. On 9 November 2017, the Applicant submitted a Scoping Report to the Secretary of State (SoS) under Regulation 10 of the of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) in order to request an opinion about the scope of the ES to be prepared (a Scoping Opinion). It follows that the Applicant is deemed to have notified the Secretary of State under Regulation 8(1)(b) of the EIA Regulations that it proposes to provide an ES in respect of the Project.

1.5.3. On 20 December 2017 the Planning Inspectorate, on behalf of the Secretary of State, provided a Scoping Opinion. In accordance with Regulation 6(2)(a) of the EIA Regulations, the Proposed Development was determined to be EIA development, and the application was accompanied by an ES.

1.5.4. On 10 February 2020, the Applicant provided the Planning Inspectorate with certificates confirming that s56 and s59 of PA2008 and Regulation 16 of the EIA Regulations had been complied with [OD-010 and OD-011].

1.5.5. Consideration is given to the adequacy of the ES and matters arising from it in subsequent Chapters of this Report.

1.6. HABITATS REGULATIONS ASSESSMENT

1.6.1. The Proposed Development is development for which a Habitats Regulations Assessment (HRA) Report or Reports has been provided.

1.6.2. Consideration is given to the adequacy of the HRA Report, associated information and evidence and the matters arising from it in subsequent Chapters 24, 28 and 31 of this Report.

1.7. UNDERTAKINGS, OBLIGATIONS AND AGREEMENTS

1.7.1. By the end of the Examination, the following bodies had entered into formal undertakings, obligations and / or agreements with the Applicant that are important and relevant considerations for the SoS:

- ESC and ScottishPower Renewables (UK) Limited, Memorandum of Understanding [REP10-028];

1.7.2. These memoranda of understanding have been taken into account by the ExA, but their lack of legal status and limited weight for decision making purposes should be noted.

1.7.3. By the end of the Examination, there were no other matters subject to any separate undertakings, obligations and / or agreements.

1.8. OTHER CONSENTS

1.8.1. The Application documentation [APP-048] and questions during this Examination have identified the following consents and licences that, if necessary, the Proposed Development has obtained or must obtain, in addition to Development Consent under PA2008. The latest position on these is recorded below.

- Appropriate Assessment and Habitats Regulations Assessment, Habitats Regulations, part of the development consent process to run in parallel with it;
- Coastal Station Radio Licence, Wireless Telegraphy Act 2006, post DCO;
- Decommissioning Scheme, Energy Act 2004, post DCO;
- Energy Generation Licence, Electricity Act 1989, application made and decision awaited;
- European Protected Species Licence, Habitats Regulations, post DCO;
- F10 Notification of construction project, Construction (Design and Management) Regulations 2015, post DCO;
- Safety Zones, Energy Act 2004, post-DCO;
- Building Regulations, Building Regulations 2010, post DCO;

- Environmental Permit, Environmental Permitting (England And Wales) Regulations 2016, post DCO;
- Licence for work affecting badgers, Protection of Badgers Act 1992, post DCO;
- Flood Defence Consent, , Environmental Permitting (England And Wales) Regulations 2016, post DCO;
- Notice of street works, Traffic Management Act 2004, post DCO;
- Permit for transport of abnormal loads, Road Vehicles (Authorisation of Special Types)(General) Order 2003/Road Traffic Act 1988, post DCO;
- Temporary Traffic Regulation Orders, Road Traffic Regulation Act 1984, post DCO;
- Land Drainage Consent, Land Drainage Act 1991, post DCO;
- Water Abstraction Licence, Water Resources Act 1991, post DCO;
- Section 16 Wildlife and Countryside Act 1981, post DCO.

1.8.2. In relation to the outstanding consents recorded above, the ExA has considered the available information bearing on these and, without prejudice to the exercise of discretion by future decision-makers, has concluded that outstanding matters do arise in respect of appropriate assessment and Habitats Regulations Assessment, European Protected Species licensing for badgers and these are addressed in Chapter 10.

1.9. STRUCTURE OF THIS REPORT

1.9.1. This report consists of three volumes. The structure of this report is summarised at the start of each volume in the Guide to This Report, which in this volume is found at pages (ii) and (iii).

1.9.2. Volume 1 (this volume) and Volume 2 contain the substantive reasoning. Preliminary, procedural, factual and onshore findings can be found in this volume. Offshore findings, Habitats Regulations Assessment (HRA), the planning balance, CA, the Development Consent Order (DCO) and conclusions found in Volume 2.

1.9.3. This report is supported by the following Appendices found in Volume 3:

- **Appendix A** –Examination Events.
- **Appendix B** –Examination Library.
- **Appendix C** – List of Abbreviations.
- **Appendix D** – The Recommended DCO.

2. THE PROPOSAL AND THE SITE

2.1. INTRODUCTION

2.1.1. This Chapter records:

- The Application as made;
- The Application as Examined;
- Relevant planning history; and
- Other major projects and proposals.

2.2. THE APPLICATION AS MADE

2.2.1. The Proposed Development comprises:

- The construction and operation of up to 67 wind turbine generators (WTGs) with a maximum tip height of up to 300 metres, together with up to four offshore electrical platforms, an offshore construction, operation and maintenance platform, a meteorological mast, inert-array cables linking the WTGs to each other and to the offshore electrical platforms, platform link cables and up to two export cables to take the electricity generated by the WTGs from the offshore electrical platforms to landfall.
- The onshore works include landfall connection works north of Thorpeness in Suffolk, underground cables running from landfall to a new onshore substation located in Grove Wood, Friston, Suffolk together with a new National Grid substation and National Grid overhead line realignment works including the reconstruction and/or relocation of up to three pylons, construction of up to one additional pylon and the construction of up to three permanent sealing end compounds.

2.2.2. More detail can be found in the Environmental Statement (ES) [APP-049 to APP-571], the Land Plans [APP-009] and the Works Plans [APP-010 and APP-011].

2.3. THE APPLICATION AS EXAMINED

2.3.1. At Deadline 1 (D1) the Applicant sought to make changes to the Proposed Development. The Applicant applied for the Inclusion of Additional Land [REP1-037] and a Notice of Intent to Make Non-Material Changes to the submitted Applications [REP1-039]. The proposed changes fell into the following two groups:

- Changes that reduced the land (including sea) and/or airspace sought to be used by the Proposed Development and which were recorded in section 2 of [REP1-039] (the section 2 changes); and
- Changes that sought additional land to be included in the Order land and that are recorded in section 3 of [REP1-039] (the section 3 changes).

- 2.3.2. The ExA considered in [PD-020] that the section 2 changes of [REP1-039] were non-material and would be considered as part of the Examination process. The ExA concurred with the Applicant's view that the section 3 changes engaged the CA Regulations and also concluded that elements of these changes were material changes. The ExA decided to accept the section 3 changes into the Examination [PD-020].
- 2.3.3. At D7 the Applicant submitted a further set of proposed changes to the application. These are set out in [REP7-004, REP7-012 and REP7-013] and entailed removal of Plot 3 from the landfall area and reducing the required width of the onshore cable route at Plot 54 (the crossing of the Hundred River). The ExA considered that these changes were non-material and accepted them into the Examination [PD-035].

2.4. RELEVANT PLANNING HISTORY

- 2.4.1. A number of offshore wind farms are located or proposed off the south-eastern to north-eastern coast of Great Britain. Some of these have been fully constructed, some are in the process of being constructed, and others have been consented but construction work has not started or are currently within the consenting regime for NSIPs.

Early Offshore Wind Farm Development (Rounds 1 & 3)

Greater Gabbard

- 2.4.2. The Greater Gabbard offshore wind farm was approved in October 2007.

Gallopier

- 2.4.3. The Gallopier Wind Farm Order 2013 was made on 24 May 2013. Subsequently, The Gallopier Wind Farm (Amendment) Order 2015 was made on 2 July 2015.

The East Anglia Offshore Zone (Round 3)

- 2.4.4. The Crown Estate Commissioners awarded Vattenfall Wind Power Ltd exclusive rights in December 2009 to develop approximately 7,200MW of wind capacity within the East Anglia Zone.

East Anglia ONE

- 2.4.5. A Development Consent Order (DCO) for the East Anglia ONE offshore wind farm was made on 16 June 2014. Changes to this DCO were subsequently made on 24 March 2016 in the East Anglia ONE Offshore Wind Farm (Corrections and Amendments) Order 2016. This Order made non-material changes to the 2014 Order, which included the authorisation of a High Voltage Alternating Current (HVAC) transmission system. An application for a non-material change to the made DCO was submitted on 30 March 2021. The application sought to change some of the offshore design parameters. At the closure date for this Examination, the Secretary of State (SoS) had not issued a decision in respect of that change application.

East Anglia THREE

- 2.4.6. A DCO for the East Anglia THREE offshore wind farm was made on 7 August 2017. Changes to this DCO were subsequently made on 15 April 2021 in The East Anglia THREE Offshore Wind Farm (Amendment) Order 2021. This Order made non-material changes to the 2017 Order, which included reducing the maximum number of wind turbine generators from 172 to 121, whilst increasing the maximum tip height from 247m to 262 relative to Lowest Astronomic Tide.

Norfolk Vanguard

- 2.4.7. The Examination for the Norfolk Vanguard offshore wind farm closed on 10 June 2019. Following an Order of the High Court made on 18 February 2021, the decision of the SoS, dated 1 July 2020, to make the DCO has been quashed.

Norfolk Boreas

- 2.4.8. The Examination for the Norfolk Boreas offshore wind farm closed on 12 October 2020. Following the High Court's decision to quash the Norfolk Vanguard Offshore Wind Farm Order 2020, the Secretary of State has published a letter inviting comments from all the Interested Parties to the Norfolk Vanguard and Norfolk Boreas Examinations. The deadline for comments was 20 May 2021.

East Anglia TWO (the other East Anglia project)

- 2.4.9. The other East Anglia project was submitted and Examined in parallel with the Proposed Development. Both projects would share the same landfall location and onshore cable route. Although there would be separate substations for each project they would both be located within the same overall area at Friston. Both projects would share elements of the proposed mitigation and in terms of cumulative and/or in-combination effects EA2 has been taken into account in the worst case scenario for effects arising from the Proposed Development as set out in the Applicant's ES.

Other offshore wind farms

Hornsea Three

- 2.4.10. A DCO for the Hornsea Three offshore wind farm was made on 31 December 2020.

London Array

- 2.4.11. Consent for the offshore works was granted in December 2006.

Kentish Flats

- 2.4.12. The Kentish Flats offshore wind farm commenced operation in 2005.

Kentish Flats Extension

- 2.4.13. A DCO for the Kentish Flats Extension was made on 19 February 2013.

Thanet

- 2.4.14. Consent for the Thanet offshore wind farm was granted in December 2006.

Thanet Extension

- 2.4.15. The SoS refused development consent on 2 June 2020.

2.5. OTHER MAJOR PROJECTS AND PROPOSALS

Sizewell A & B Nuclear Power Stations

- 2.5.1. Sizewell A nuclear power station (SZA) was a Magnox nuclear power station at Sizewell, operational between 1966 and 2006. Since 2007 it has been under the control of the Nuclear Decommissioning Authority (NDA) through its wholly owned subsidiary Magnox Ltd. The site is undergoing defueling as a first step in decommissioning, a process that is likely to continue throughout the construction and operational phases of the Proposed Development. The ExA has ensured that the NDA has been engaged with the Examination and able to raise any relevant matters about the relationship between the Proposed Development, EA1N/EA2, other relevant nuclear construction and operation and the SZA decommissioning process.
- 2.5.2. Sizewell B nuclear power station (SZB) is a Pressurized Water Reactor (PWR) nuclear power station at Sizewell, operational since 1995. It is operated by EDF Energy Nuclear Generation Ltd [RR-037] and is likely to remain in operation throughout the construction and much of the operational phase of the Proposed Development. The ExA has ensured that EDF Energy Nuclear Generation Ltd has been engaged with the Examination and able to raise any relevant matters about the relationship between the Proposed Development, EA1N/EA2 and other relevant nuclear construction and decommissioning and SZB operations, though the withdrawal of that body's RR at Deadline 10 [REP10-046] must also be recorded.
- 2.5.3. The ExA has similarly engaged with the Office for Nuclear Regulation [RR-062], with SCC [RR-007] in relation to emergency planning and with the Sizewell A & B Sites Stakeholder Group [RR-072] in relation to SZA and SZB and their relationships with the Proposed Development, EA1N/EA2 and other relevant nuclear construction, operation and decommissioning.

Sizewell C New Nuclear Power Station

An application for an Order granting Development Consent for the Sizewell C Project (SZC) (broadly adjacent to the northern boundary of the existing SZB site) was received by the Planning Inspectorate on 24 June 2020 from EDF (NNB Generation Company Ltd.) [RR-038]. A Rule 8 letter by an Examining Authority appointed to examine SZC was published on 21 April 2021 and the Examination timetable indicates that the SZC Examination is due to be completed on 14 October 2021.

3. LEGAL AND POLICY CONTEXT

3.1. INTRODUCTION

- 3.1.1. This Chapter provides a summary record of the legal and policy context applicable to the Examination and to the SoS' decision.

3.2. THE PLANNING ACT 2008

- 3.2.1. The application is for a Development Consent Order (DCO) under PA2008. The application is for a Nationally Significant Infrastructure Project (NSIP) because the Proposed Development is located in England or in waters in or adjacent to England and would be an offshore generating station with a capacity of greater than 100MW. The Proposed Development therefore meets the definition of an NSIP set out in section 14(1)(a) and section 15(3) of PA2008 and so requires development consent in accordance with section 31 of the Act.

- 3.2.2. The Proposed Development also includes overhead line realignment works: the installation of an electric line above ground in England is also an NSIP under section 14(1)(b) and 16(1)(a) of the Act unless it falls within the exclusions in section 16(3) of the Act. The Proposed Development therefore also meets the definition of an NSIP set out in section 14(1)(b) and section 16 of PA2008 and so requires development consent in accordance with section 31 of the Act.

- 3.2.3. This is an application where there are National Policy Statements (NPSs) to be considered. The application is therefore examined under section 104 of PA2008 which sets out the matters the SoS must consider as follows:

- any national policy statement which has effect in relation to development of the description to which the application relates (section 104(2)(a));
- any relevant marine policy documents, determined in accordance with section 59 of the Marine and Coastal Access Act 2009 (section 104(2)(aa));
- any local impact report submitted to the SoS before the specified deadline (section 104(2)(b));
- any matters prescribed in relation to development of the description to which the application relates (section 104(2)(c)); and
- any other matters which the SoS thinks are both important and relevant to the decision (section 104(2)(d)).

- 3.2.4. Section 104(3) of PA2008 requires the SoS to decide the application in accordance with any relevant NPS, except to the extent that one or more of the exceptions in subsections (4) to (8) applies. The exceptions are that the SoS is satisfied that:

- deciding the application in accordance with any relevant NPS would lead to the United Kingdom being in breach of any of its international obligations (subsection (4));

- deciding the application in accordance with any relevant NPS would lead to the SoS being in breach of any duty imposed on the SoS by or under any enactment (subsection (5));
- deciding the application in accordance with any relevant NPS would be unlawful by virtue of any enactment (subsection (6));
- the adverse impact of the Proposed Development would outweigh its benefits (subsection (7)); and
- any condition prescribed for deciding an application otherwise than in accordance with a NPS is met (subsection (8)).

3.2.5. This Report sets out the ExA's findings and recommendations taking these matters into account and applying the approach set out in section 104 of PA2008.

3.3. NATIONAL POLICY STATEMENTS

3.3.1. The National Policy Statements (NPSs) which are relevant in this case are:

- Overarching National Policy Statement for Energy (July 2011) (NPS EN-1);
- National Policy Statement for Renewable Energy Infrastructure (July 2011) (NPS EN-3); and
- National Policy Statement for Electricity Networks Infrastructure (July 2011) (NPS EN-5).

3.3.2. NPS EN-1 sets out the Government's policy for the delivery of major energy infrastructure. It is part of a suite of NPSs for the energy sector which are to be read in conjunction with NPS EN-1 where they are relevant.

3.3.3. Part 4 of NPS EN-1 states that: *"Given the level and urgency of need for infrastructure of the types covered by the energy NPSs set out in Part 3 of this NPS, the [decision maker] should start with a presumption in favour of granting consent to applications for energy NSIPs. That presumption applies unless any more specific and relevant policies set out in the relevant NPSs clearly indicate that consent should be refused."*

3.3.4. NPS EN-3 sets out additional policy, which is specific to renewable energy applications, including offshore wind generating stations exceeding 100MW. Paragraph 2.1.1 of NPS EN-3 states that: *"The policies set out in this NPS are additional to those on generic impacts set out in EN-1 and do not replace them."*

3.3.5. NPS EN-5 sets out policy in relation to electricity transmission and distribution systems. It is therefore relevant to the provision of the substation and both onshore and offshore cables and related infrastructure connecting the Proposed Development to the National Grid.

3.4. MARINE AND COASTAL ACCESS ACT 2009

- 3.4.1. The Marine and Coastal Access Act 2009 (MCAA) introduced the production of marine plans and designation of Marine Conservation Zones (MCZs) in UK waters.

UK Marine Policy Statement

- 3.4.2. Under section 104(2)(aa) of PA2008 the SoS must have regard to "*the appropriate marine policy documents (if any), determined in accordance with section 59 of the Marine and Coastal Access Act 2009;*". The marine policy documents in this case are the Marine Policy Statement (MPS) and the adopted East Inshore and East Offshore Marine Plans (EIEOMP).

- 3.4.3. The MPS provides the high-level policy context within which marine plans will be developed, implemented and monitored. It is intended to provide consistency in marine planning across the UK marine area, including the territorial seas and offshore area adjacent to the UK. It provides the overarching policy context for the ExA's consideration of the offshore works and the Deemed Marine Licences (DML) that would be created by the DCO.

East Inshore and East Offshore Marine Plans

- 3.4.4. The EIEOMP were adopted on 2 April 2014. The Proposed Development would be within both the East Inshore and the East Offshore areas. The East Inshore Marine Plan applies to the landfall and the offshore cable route from mean high water out to 12nm. The East Offshore Marine Plan applies to the remainder of the offshore cable route and the offshore infrastructure.

- 3.4.5. Taken together, the plans contain several policies that must be taken into consideration. The policies elaborate on the ten objectives of the EIEOMP and cover economic growth and employment benefits, renewable energy, support for communities, conservation of heritage assets and seascape, conservation of the marine ecosystem, protection of and recovery of biodiversity, support for Marine Protected Areas (MPAS), support for climate change adaptation and mitigation, and integration with other plans.

- 3.4.6. The relevant objectives and policies of EIEOMP are addressed in subsequent Chapters of this Report.

Marine Conservation Zones

- 3.4.7. As indicated in [APP-017] the Orford Inshore Marine Conservation Zone (MCZ) is located 11.4 km to the south of the proposed offshore cable route. The Applicant in Chapter 9 [APP-057] that there would be no impact from the Proposed Development on the site's designated features of subtidal mixed sands and gravels [para 157 of APP-057].

3.5. EUROPEAN LAW AND RELATED UK REGULATIONS

Leaving the European Union

3.5.1. The UK left the European Union on 31 January 2020 (exit day) and, at the end of the Examination, the 11-month transition period which finished on 31 December 2020 was complete. There were no changes to the application of European law during the transition period, and [no further changes were made prior to the close of the Examination] so the main effect is that the body of European law that applied to NSIP casework prior to exit day remains applicable unless it is specifically amended or repealed by UK legislation. This includes:

- strategic environmental assessment of policies and programmes;
- project environmental impact assessment;
- the protection of defined habitats and species including the Natura 2000 network of sites – Habitats Regulations Assessment; and
- other European environmental protection regimes setting objectives, targets and levels in relation to emissions to the receiving environment, including the Water Framework Directive and the Ambient Air Quality Directive.

3.5.2. This report has been drafted on the basis that relevant European Union law will be incorporated into UK law at the point when the SoS decides this application.

The EIA Directive

3.5.3. Council Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (the EIA Directive) defines the procedure by which information about the environmental effects of a project is collated and taken into account by the relevant decision-making body before consent is granted for a development. It applies to a wide range of defined public and private projects. The Proposed Development falls to be considered under the UK legislation related to 2011/92/EU.

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

3.5.4. For reasons explained in Chapter 4, the transitional provisions set out in the 2017 Regulations apply and consequently the 2009 Regulations remain the operative regulations for this application. The Proposed Development falls within Schedule 2, paragraph 3(i) of the Regulations. The location, scale and nature of the Proposed Development may have the potential to give rise to significant effects on the environment and is considered to be EIA development. The DCO application is therefore required to be accompanied by an Environmental Statement (ES) prepared in accordance with the EIA Regulations. The Applicant has provided an ES [APP-049] to [APP-079] (Figures and appendices [APP-080] to [APP-575]) as part of the submitted application.

The Habitats Directive

3.5.5. The Habitats Directive (92/43/EEC) is a European nature conservation policy measure. It provides for a network of protected sites and a system of species protection.

- 3.5.6. The European Union and the UK have obligations to conserve a range of natural habitats and associated flora and fauna under the Bern Convention and the Convention on Biological Diversity. These obligations are met through Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora (the Habitats Directive). This requires the identification and designation of Special Areas of Conservation (SAC) for habitats that are listed in Annex I and species that are listed in Annex II. Relevant matters are discussed in Chapters 10, 18, 19 and 24.

The Birds Directive

- 3.5.7. The European Union and the UK have obligations for the protection of wild birds and their habitats as agreed under the Ramsar Convention, Bern Convention and Bonn Convention. These obligations, together with more general duties, are met through Directive 2009/147/EC on the conservation of wild birds (the Birds Directive). This requires the identification and classification of Special Protection Areas (SPA). Relevant matters are considered in Chapters 10, 18 and 24.

The Habitats Regulations 2017

- 3.5.8. In England and Wales the Conservation of Habitats and Species Regulations 2017 (SI 2017/1012) consolidated earlier legislation and transposed the obligations of Birds Directive and Habitats Directive into domestic legislation (the Habitats Regulations). Together these sites form a pan-European network of protected areas known as the Natura 2000 (N2K) network. Relevant matters are considered in Chapters 10, 18, 19, and 24.

The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2017

- 3.5.9. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2017 transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and Council Directive 2009/147/EC on the conservation of wild birds (Birds Directive) into national law. These regulations apply to the UK's offshore marine area which covers waters beyond 12nm, within British Fishery Limits and the seabed within the UK Continental Shelf Designated Area.

The Marine Environment (Amendment) (EU Exit) Regulations 2018

- 3.5.10. These regulations ensure that UK and EU legislation relating to the marine environment, in particular marine strategy, continue to be operable after the UK left the EU.

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

- 3.5.11. During the course of the Examination, the Habitats Regulations were amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 which came into force on Implementation Period Completion Day, 31 December 2020. These amendment regulations

reflect the arrangements in light of the UK's departure from EU, including the introduction of new terminology with reference to the National Site Network rather than the Natura 2000 network (which remains the collective term for sites in the European Union).

Ramsar Convention 1971

- 3.5.12. Ramsar sites comprise wetlands of international importance which are listed under the Ramsar Convention which resulted from the Convention on Wetlands of International Importance held in Ramsar, Iran in 1971. The main aim of the convention is the conservation and wise use of all wetlands as a contribution towards achieving global sustainable development goals.

The Water Framework Directive

- 3.5.13. Directive 2000/60/EC establishing a framework for Community action in the field of water policy (the Water Framework Directive or WFD) sets objectives to prevent and reduce pollution, improve aquatic ecosystems and mitigate the effects of floods. It provides for the production of River Basin Management Plans for the sustainable management of rivers. The Directive is transposed into law in England and Wales by The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Relevant matters are considered in Chapters 6, 12, and 21.

The Air Quality Directive

- 3.5.14. Council Directive 2008/50/EC on ambient air quality and cleaner air for Europe (the Air Quality Directive) requires Member States to assess ambient air quality with respect to sulphur dioxide (SO₂), nitrogen dioxide (NO₂), oxides of nitrogen (NO_x), particulate matter (PM₁₀ and PM_{2.5}), lead, benzene, carbon monoxide and ozone. The Directive aims to protect human health and the environment by avoiding, reducing or preventing harmful concentrations of air pollutants. It sets legally binding concentration-based limit values as well as target values to be achieved for the main air pollutants and establishes control actions where these are exceeded. It is transposed into UK law through the Air Quality Standards Regulations 2010 made under the Environment Act 1995.

The UK Air Quality Strategy

- 3.5.15. The UK Air Quality Strategy establishes the UK framework for air quality improvements. The UK Air Quality Strategy establishes a long-term vision for improving air quality in the UK and offers options to reduce the risks to health and the environment from air pollution. Individual plans prepared under its framework provide more detailed actions to address limit value exceedances for individual pollutants. In turn, these plans set the framework for action in specific local settings where limit value exceedances are found, including the designation of Clean Air Zones and more localised Air Quality Management Areas where Air Quality Management Plans are prepared by local authorities.

- 3.5.16. The environmental non-governmental organisation ClientEarth has brought various proceedings against the UK Government for breaching the Air Quality Directive. Judgments by the Supreme Court have ordered the Secretary of State for Environment, Food and Rural Affairs to prepare new air quality plans to achieve NO₂ limit value compliance as soon as possible. Air quality is discussed in Chapter 13.

Environmental Permitting Regulations

- 3.5.17. The Environmental Permitting (England and Wales) Regulations 2016 (as amended) implement the EU Directive 2008/1/EC concerning Integrated Pollution Prevention and Control. They define activities that require the operator to obtain an Environmental Permit from the Environment Agency and transpose the requirements of the Directive into UK legislation.

3.6. OTHER LEGAL PROVISIONS

- 3.6.1. Relevant matters in connection with these legal provisions are considered in subsequent Chapters of this Report

United Nations Environment Programme (UNEP) Convention on Biological Diversity 1992

- 3.6.2. Responsibility for the UK contribution to the Convention on Biological Diversity lies with the Department for Environment, Food and Rural Affairs which promotes the integration of biodiversity into policies, projects and programmes within Government and beyond. As required by Regulation 7 of the Infrastructure Planning (Decisions) Regulations 2010, the UNEP Convention on Biological Diversity must be taken into account in consideration of the likely impacts of the Proposed Development and of suitable objectives and mechanisms for mitigation and compensation.

National Parks and Access to the Countryside Act 1949

- 3.6.3. The National Parks and Access to the Countryside Act 1949 provides the framework for the establishment of National Parks and Areas of Outstanding Natural Beauty. It also establishes powers to declare National Nature Reserves and for local authorities to establish Local Nature Reserves. The Act is relevant to the application because the onshore cable route would pass through an Area of Outstanding Natural Beauty and because of nature conservation sites identified in the ES [APP-070].

The Wildlife and Countryside Act 1981

- 3.6.4. The Wildlife and Countryside Act 1981 (as amended) protects certain habitats and species in the UK. It provides for nature conservation, countryside protection, National Parks, Public Rights of Way and the notification, confirmation, protection and management of Sites of Special Scientific Interest (SSSI). If a species protected under the Act is likely to be affected by the development, a protected species licence will be required from Natural England. The effects of development on the rights

of way network are also relevant. The Act is relevant to the application due to the sites and species identified in the ES [APP-070].

Natural Environment and Rural Communities Act 2006

- 3.6.5. The Natural Environment and Rural Communities Act 2006 (as amended) makes provision for bodies concerned with the natural environment and rural communities, including in connection with wildlife sites and SSSIs. It includes a duty that every public body must, in exercising its functions have regard, so far as is consistent with the proper exercising of those functions, to the purpose of biodiversity. In complying with the biodiversity duty, regard must be had to the UNEP Convention on Biological Diversity.

The Countryside and Rights of Way Act 2000

- 3.6.6. The Countryside and Rights of Way Act 2000 (as amended) includes provisions in respect of Public Rights of Way and access to land.

The Planning (Listed Buildings and Conservation Areas) Act 1990

- 3.6.7. The Planning (Listed Buildings and Conservation Areas) Act empowers the SoS to maintain a list of built structures of historic or architectural importance and sets out the principal statutory provisions that must be considered in the determination of any application affecting listed buildings and conservation areas. As required by Regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010, the ExA has had regard to the desirability of preserving any listed buildings or their settings or any features of special architectural or historic interest which they possess.

Ancient Monuments and Archaeological Areas Act 1979

- 3.6.8. The Ancient Monuments and Archaeological Areas Act provides for Scheduled Monuments to be protected and for the maintenance of a list of Scheduled Monuments. It also imposes a requirement for Scheduled Monument Consent for any works of demolition, repair, and alteration that might affect a designated Scheduled Monument.

Environmental Protection Act 1990

- 3.6.9. Section 79(1) of the Environmental Protection Act 1990 identifies a number of matters which are considered to be statutory nuisance.

Control of Pollution Act 1974

- 3.6.10. The Control of Pollution Act 1974 provides the main legislation regarding demolition and construction site noise and vibration. If noise complaints are received, a section 60 notice may be issued by the local planning authority with instructions to cease work until specific conditions to reduce noise have been adopted. Section 61 provides a means for applying for prior consent to carry out noise generating activities during construction.

Water Resources Act 1991, Flood and Water Management Act 2010, Water Act 2003 and 2014, Land Drainage Act 1991

- 3.6.11. The above Acts set out the relevant regulatory controls that provide protection to waterbodies and water resources from abstraction pressures, discharge and pollution, and for drainage management related to non-main rivers. The application would have implications for land drainage, flood risk and water quality and further consents may be needed under the above Acts.

The UK Biodiversity Action Plan

- 3.6.12. Priority habitats and species are listed in the UK Biodiversity Action Plan.

Electricity Act 1989

- 3.6.13. The Electricity Act 1989 allowed for the privatisation of the electricity supply industry in Great Britain and provided a transmission licence to National Grid (NG). Under this NG are required to develop and maintain an efficient, coordinated and economical electricity transmission systems and to facilitate competition in the supply and generation of electricity.

The Public Sector Equality Duty

- 3.6.14. The Equalities Act 2010 established a duty (the Public Sector Equality Duty (PSED)) to eliminate discrimination, advance equality of opportunity and foster good relations between persons who share a protected characteristic and persons who do not. The PSED is applicable to the SoS in reaching a decision on the application.

The Climate Change Act 2008 (2050 Target Amendment) Order 2019

- 3.6.15. On 26 June 2019, the Climate Change Act 2008 (2050 Target Amendment) Order 2019 was made (SI 2019 No.1056), coming into force the following day. Article 2 amends the Climate Change Act 2008 by replacing the 80% target with 100%.

Other relevant provisions

- 3.6.16. Section 1.8 of this Report identified additional consents, beyond PA2008, that would or may be required to implement the Proposed Development. In most cases the relevant statutory provisions have already been covered above. In addition, the following are relevant:

- The Energy Act 2004 in respect of a decommissioning scheme and safety zone notices;
- The Construction (Design and Management) Regulations 2015 in respect of the notification of a construction project;
- The Protection of Badgers Act 1992 in respect of possible need for a licence;
- The Traffic Management Act 2004 in respect of any Notice of Street Works;
- The Building Regulations;

- The Road Vehicles (Authorisation of Special Types) (General) Order 2003/ Road Traffic Regulation Act 1984 in respect of permits for the transport of abnormal loads; and
- The Road Traffic Act 1984 in respect of temporary traffic regulation orders.
- Weeds Act 1959; and
- Wild Mammals (Protection) Act 1996.

3.7. EMERGING POLICY AND GUIDANCE

Energy White Paper: Powering our Net Zero Future, December 2020

- 3.7.1. The Energy White Paper: Powering our Net Zero Future, among other matters, sets out: *"The compelling case for tackling climate change"*. It references the Prime Minister's Ten Point Plan which in regard to offshore wind states that: *"By 2030 we plan to quadruple our offshore wind capacity so as to generate more than all our homes use today, backing new innovations to make the most of this proven technology and investing to bring jobs and growth to our ports and coastal regions."*

Planning Act 2008: Guidance on the process for carrying out a review of existing National Policy Statements⁶

- 3.7.2. Section 6 of the Planning Act 2008 sets out the process for reviewing a National Policy Statement. This guidance intends to provide further clarification on the process for carrying out such a review. As regards the transition between National Policy Statements, this Guidance states that: *"Where a review is undertaken and a decision is made not to suspend the existing National Policy Statement (in whole or in part), it will continue to have effect for the purposes of the Planning Act. Any emerging draft National Policy Statements are potentially capable of being important and relevant considerations in the decision-making process, but the extent to which they are relevant is a matter for the relevant Secretary of State to consider with regard to the specific circumstances of each Development Consent Order application."*

BEIS Energy National Policy Statements review on the scope of Appraisal of Sustainability and approach to Habitats Regulation Assessment

- 3.7.3. On 23rd April 2021 BEIS published a series of reports on the Appraisal of Sustainability and approach to the Habitats Regulations Assessment for consultation in advance of the Government's planned review of National Policy Statements for energy infrastructure. On 6 September 2021, this was followed by draft replacement energy NPSs and a consultation paper⁷. The transitional guidance in the accompanying consultation paper at page 11 makes clear that the assessment of and decision-making about NSIP applications in progress should continue to be made with

⁶ Guidance on the National Policy Statements Review process, MHCLG, 20/05/21

⁷ [NPS EN suite review](#), 6 September 2021

reference to the currently designated NPS EN suite of policies, which remain in force.

BEIS Offshore Transmissions Networks Review

- 3.7.4. In July 2020 the Secretary of State for BEIS launched the Offshore Transmission Network Review to support the Government's ambition of delivering net-zero emissions by 2050. Formal final conclusions from this review have not yet been published.

3.8. MADE DEVELOPMENT CONSENT ORDERS

- 3.8.1. The ExA has considered a number of made development consent orders:

- East Anglia Three Offshore Wind Farm Order 2017;
- Dogger Bank Teesside A/ Sofia Offshore Windfarm (formerly Dogger Bank Teesside B⁸);
- Port of Immingham Improvement Development Consent Order 2015; and
- Hornsea Two Offshore Wind Farm Order 2016.
- Triton Knoll Offshore Wind Farm Order 2013;
- Burbo Bank Extension Offshore Wind Farm Order 2014;
- Walney Extension Offshore Wind Farm Order 2014 (as amended);
- Silvertown Tunnel Order 2018;
- Eggborough Gas Fired Generating Station Order 2018;
- A19/A184 Testo's Junction Alteration Development Consent Order 2018;
- Wrexham Gas Fired Generating Station Order 2017;
- Dogger Bank Creyke Beck Order 2015;
- National Grid (Richborough Connection Project) Order 2017; and
- North Wales Wind Farms Connection Order 2016.
- The Able Marine Energy Park Development Consent Order 2014
- National Grid (Hinkley Point C Connection Project) Order 2016
- The Port of Tilbury (Expansion) Order 2019

3.9. TRANSBOUNDARY EFFECTS

- 3.9.1. Under Regulation 24 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, the Inspectorate (on behalf of the SoS) has undertaken three screenings. The first screening was undertaken on 26 June 2018 following the Applicant's request for a Scoping Opinion [OD-001]. It was concluded that significant effects on the environment of European Economic Area states were likely. A notice was placed in the London Gazette [OD-002] and the following states were notified:

- Belgium;
- Denmark;
- France;
- The Netherlands;
- Germany; and

⁸ Referred to in our questions as Dogger Bank Teesside A and B

- Sweden.

- 3.9.2. Responses were received from Denmark [OD-003], France [OD-004], the Netherlands [OD-005] and Sweden [OD-006]. Denmark confirmed that it had no comments on the Proposed Development and did not want to participate in the ongoing process. France confirmed that it did wish to participate in the Examination process. The Netherlands asked to be kept informed and involved, and Sweden asked for an extension of time for its response. Germany and Belgium did not respond.
- 3.9.3. Following the acceptance of the application for Examination, the second screening was undertaken on 16 December 2019 [OD-001]. Consultation letters were sent to the states which had previously requested further involvement, offering the opportunity for them to register as Interested Parties. No additional states were identified as being likely to have significant effects on their environment. On a precautionary basis, notification letters were re-sent to the states which did not respond to the previous Regulation 24 notification.
- 3.9.4. A third screening was undertaken on 23 March 2021 following the acceptance by the ExA of various change requests.
- 3.9.5. Potential transboundary impacts were considered in the ES Transboundary Impacts Screening [APP-456] with relevant matters carried forward to the individual topic Chapters of the ES.
- 3.9.6. Chapter 27 of this Report concludes on Transboundary considerations.

3.10. THE NATIONAL PLANNING POLICY FRAMEWORK

- 3.10.1. The National Planning Policy Framework (February 2019) and its accompanying Planning Practice Guidance set out the Government's planning policies for England and how these are expected to be applied, for the purposes of making Development Plans and deciding applications for planning permission under the Town and Country Planning Act 1990 (as amended).
- 3.10.2. Paragraph 5 of the Framework makes clear that it does not contain specific policies for nationally significant infrastructure projects. These are to be determined in accordance with the decision-making framework in PA2008 and relevant national policy statements for major infrastructure, as well as any other matters that are relevant. The National Planning Policy Framework may be one such matter.
- 3.10.3. During the Examination period a further draft text of the NPPF was published for consultation on 30 January 2021; consultation closed on 27 March 2021. Following closure of the Examination, a new NPPF based on the consultation draft was published on 20 July 2021. This now replaces the February 2019 NPPF.
- 3.10.4. Whilst the National Planning Policy Framework is a relevant matter, in the main the parties framed their submissions in relation to NPS EN-1 and NPS EN-3. There are matters identified in the individual Chapters of this

Report where NPSs identify that a former Planning Policy Statement (or equivalent document) and any successor are to be referred to in determining relevant policy tests. In such instances, the ExA has had direct regard to the NPPF.

- 3.10.5. It should be noted that because the Applicant and the IPs did not refer to the July 2021 NPPF during the Examination, there are circumstances in respect of which the SoS may wish to consult them on content that has changed since the February 2019 NPPF.

3.11. LOCAL IMPACT REPORTS

- 3.11.1. Section 104(2) of PA2008 states that in deciding an application for development consent where an NPS has effect the SoS must have regard to any Local Impact Report (LIR) within the meaning of section 60(3) submitted to the SoS before the deadline specified in a notice under section 60(2). Under section 60(2) of PA2008 there is a requirement to give notice in writing to each local authority falling under section 56A inviting them to submit LIRs. This notice was given in the Rule 8 Letter [PD-016] which required LIRs to be submitted by Deadline 1.
- 3.11.2. A joint LIR was submitted by East Suffolk Council and Suffolk County Council [REP1-132].
- 3.11.3. The matters raised in the joint LIR are discussed in the relevant Chapters of this Report.

3.12. THE DEVELOPMENT PLAN

- 3.12.1. NPS EN-1 (para 4.1.5) states that policies contained within Development Plan documents and other Local Development Framework documents may be considered important and relevant in decision making.
- 3.12.2. The onshore cable route and associated onshore development falls within the boundary of East Suffolk Council as the District Planning Authority and also within Suffolk County Council.
- 3.12.3. East Suffolk Council was created on 1 April 2019 by Parliamentary Order. It covers the former districts of Suffolk Coastal District Council and Waveney District Council.
- 3.12.4. The current local plans in force are:
- East Suffolk Council - Suffolk Coastal Local Plan, adopted by East Suffolk Council on 23 September 2020 [REP11-104];
 - East Suffolk Council - Waveney Local Plan, adopted by Waveney District Council (now East Suffolk Council) on 20 March 2019 and relates to the former Waveney local planning authority area [REP11-105]; and
 - Suffolk Minerals and Waste Local Plan, adopted by Suffolk County Council on 9 July 2020.

- 3.12.5. The joint LIR submitted by East Suffolk Council and Suffolk County Council [REP1-132] made various references to Development Plan policies, and to other local policy matters considered to be relevant, and provided commentary on policy compliance. Where the joint LIR has identified a potential conflict, this is discussed in the relevant Chapter(s) of this Report.

4. THE PLANNING ISSUES

4.1. INTRODUCTION

- 4.1.1. This Chapter identifies the planning issues in the Examination. It notes the Examining Authority's (ExA) initial assessment of principal issues [PD-006] (Annexe B) and then indicates how these issues evolved from discussion at the Preliminary Meeting and during the Examination.
- 4.1.2. It briefly provides a record of the issues arising from Examination processes including Local Impact Reports (LIRs), Written submissions, Oral processes, and Site inspections. These matters are considered further in their relevant Chapters.
- 4.1.3. Mention is also made of decision considerations arising from the following matters:
- Conformity with relevant National Policy Statements (NPSs) and other legislative requirements in the context of PA2008;
 - Conformity with the Marine Policy Statement (MPS) and relevant Marine Plans;
 - Conformity with Development Plans; and
 - The application of other policies.

As well as the application of processes relevant to Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA)

These matters are considered in detailed analysis in their relevant Chapters.

4.2. MAIN ISSUES IN THE EXAMINATION

- 4.2.1. As required by s88 of PA2008 and Rule 5 of the Infrastructure Planning (Examination Procedure) Rules 2010, the ExA made an Initial Assessment of Principal Issues (IAPI) arising from the application within 21 days following receipt of the s58 certificate of compliance (s56 notice) under the PA2008.
- 4.2.2. The IAPI was first set out in Annex C of the Rule 6 letter [PD-006]. Following the postponement of the PM a subsequent Rule 6 letter was issued [PD-013]. The IAPI were again set out in Annex C of [PD-013] for Part 2 of the PM and comprised the following headings:
- Aviation;
 - Biodiversity, Ecology and Natural Environment;
 - CA, TP and other land or rights considerations;
 - Construction;
 - Draft Development Consent Order (dDCO);
 - Electricity connections, infrastructure and other users;
 - Environmental Statement general;
 - Flood risk, water quality and resources;
 - Historic environment;
 - Land use;

- Landscape and visual impact;
- Marine and coastal physical processes;
- Marine effects;
- Nuisance and other public health effects;
- Other projects and proposals;
- Project description and site selection;
- Seascape, landscape and visual amenity;
- Socio Economic effects; and
- Transportation and traffic.

4.2.3. As a consequence of the ExA's consideration of the issues arising in written representations (WRs) throughout the Examination, in the joint LIR submitted by ESC and SCC [REP1-132] and arising from oral hearings and site inspections, the issues framework and chapters of the report was adapted as shown below. Issues of Alternatives are considered in the overarching analysis towards the end of the report and cumulative effects are considered in each chapter. The matter of Good Design is also a topic and an overarching theme. The need for the Proposed Development is considered initially.

Initial Analysis

- Need

Planning Issues: Onshore

- Flooding and Drainage
- Landscapes and Visual Amenity
- Onshore Historic Environment
- Onshore Archaeology
- Seascapes
- Onshore Ecology
- Coastal Physical Effects
- Onshore Water Quality & Resources
- Noise, Nuisance and Health Effects
- Transport & Traffic
- Socio-economic effects
- Land Use
- Other Onshore Matters

Planning Issues: Offshore

- Offshore Ornithology
- Marine Mammals
- Other Offshore Biodiversity Effects
- Marine Physical Effects and water quality
- Offshore Historic Environment
- Offshore Socio-economic Effects

Habitats, Overarching Analysis, CA, TP and Development Consent Considerations

- HRA
- Alternatives
- Good Design

- CA & TP
- The draft Development Consent Order (dDCO)

4.2.4. All important and relevant considerations are recorded and assessed within a Chapter structure based on this framework. Planning merits issues arising are assessed in detail in Chapters 5 to 23 of this Report. Habitats Regulations Assessment (HRA) matters are considered in Chapter 24. Chapter 25 considers Alternatives, and Chapter 25 concerns Good Design. Chapter 27 considers other overarching matters while Chapter 28 sets out the planning balance. Matters relating to CA and TP are considered in Chapters 29 and 30.

4.2.5. The joint LIR submitted by ESC and SCC [REP1-132] highlighted a number of areas for comment and/or concern. These matters are discussed in more detail in subsequent Chapters of this Report and particularly within the consideration of planning merits in Chapters 5 to 23. Conformity with the applicable NPS EN-1, NPS EN-3 and NPS EN-5 are considered topic by topic from Chapter 5 onwards, as are important and relevant considerations arising from the NPPF and from applicable Development Plan and other policy documents in force. Consideration (in relation to all Chapters that address marine considerations) is provided to the application of and consistency with the Marine Policy Statement (MPS). The Proposed Development would be within both the areas covered by the East Inshore and East Offshore Marine Plans (EIEOMP). Where applicable, the conformity with relevant EIEOMP policy is considered in subsequent Chapters of this Report.

4.3. CORONAVIRUS (COVID-19) PANDEMIC

4.3.1. This Examination has taken place during the COVID-19 pandemic. However, the ExA considers that it is too early to assess with any degree of certainty what the longer-term environmental, traffic and socio-economic implications of the pandemic will be and whether consequences of the pandemic (if any) are relevant to the Examination.

INITIAL ANALYSIS

- Chapter 5: Need

5. FINDINGS & CONCLUSIONS IN RELATION TO NEED

5.1. INTRODUCTION

- 5.1.1. This Chapter addresses the renewable generating capacity, carbon and climate contribution of the Proposed Development to meet need identified in policy, in the context of the changing policy environment.

5.2. POLICY CONSIDERATIONS

- 5.2.1. NPS EN-1 section 3.1 (at paragraph 3.1.4) states that the decision maker should give substantial weight to the contribution which projects would make towards satisfying need as identified in the NPS.
- 5.2.2. NPS EN-1 section 3.4 establishes a strong need case for renewable electricity generation development, to assist in the reduction of UK CO₂ emissions and to mitigate climate change. The need for and benefits of a project that proposes to establish a substantial volume of renewable electricity generating capacity in compliance with NPS policy is not a matter that normally requires detailed consideration in policy terms. Nevertheless, the ExA did seek and consider such submissions both orally and in writing, because it was conscious that NPS EN-1 frames renewable energy development need in a rapidly changing policy context.
- 5.2.3. NPS EN-1 sections 2.2 and 3.3 identify the need for renewable electricity generating capacity being driven by:
- reducing power sector carbon emissions;
 - replacing old and higher carbon generating capacity;
 - supporting transition to a low carbon economy;
 - meeting the increasing demand for electricity arising in part from decarbonisation measures elsewhere in the economy;
 - supporting electricity market reform; and
 - improving the security of electricity supply.
- All of these policy drivers remain as relevant today as they did when NPS EN-1 was designated.
- 5.2.4. The context set in NPS EN-1 reflects the (then) Department for Energy and Climate Change (DECC) UK Renewable Energy Strategy (2009) and Committee on Climate Change (UK-CCC) advice (2011) that renewable electricity generation should rise from 6.7% in 2009 to 30% by 2020. Offshore wind is identified in paragraph 3.4.3 as *'expected to provide the largest single contribution towards the 2020 renewable energy generation targets.'*

- 5.2.5. By the time the project entered Examination however, the achievement of the 2020 renewables targets and further delivery in addition to them was a matter of historical record rather than policy direction⁹.
- 5.2.6. Whilst NPS EN-1 remains as the primary statutory policy source in respect of which the need for and effect of the Proposed Development must be judged, policy development in relation to climate and renewable electricity generation in the period between 2011 (when the NPS EN suite was designated) and 2021 is in principle important and relevant.
- 5.2.7. It is important to note that whilst the renewable electricity generation and offshore wind deployment targets addressed within NPS EN-1 have now been met and exceeded, subsequent recommendations and now policy and legislation have also uprated the relevant targets, to a point where the Proposed Development would help to meet a greater need than that envisaged for the NPS in 2011. Updated decarbonisation targets since NPS EN-1 was published in 2011, point to the fact that the NPS EN-1 expressions of these targets are not (and never realistically were) endpoints. They are waystations towards higher targets that express rising and greater need.
- 5.2.8. The pace of policy and delivery change is now so swift that the policy position articulated in the ES in October 2019 and the position before the ExA during the Examination were different, with greater need for more renewable electricity generating capacity now being more strongly asserted than it was, even at the time the ES was drafted. In turn it is likely that the position expressed in this report will pass out-of-date quite rapidly, as further policy changes can be anticipated by the time the SoS is likely to decide this application.
- 5.2.9. The direction of travel is clearly in favour of there being a need for additional renewable electricity generation capacity, over and above that identified in NPS EN-1 and in the Applicant's ES policy and need analysis. It is also of offshore wind forming an important component of meeting that rising need.
- 5.2.10. In this context, the Proposed Development provides a substantial volume of renewable electricity generating capacity meeting a materially significant volume of projected national need and targets. In scalar terms, ES Chapter 2 [APP-050] indicatively calculates that, if developed, East Anglia ONE North would deliver some 2.5TWh/ year of effectively zero carbon renewable electricity. The Applicant's calculations (section 2.2.2 of [APP-050] indicate that the Proposed Development has the potential to meet approximately 3.5% of the UK cumulative deployment target for 2030, although the ExA does not adopt a precise percentage figure for a number of reasons. The ES Chapter 2 [APP-050] calculations are based on the project contribution to the need to meet National Infrastructure Commission (NIC) 2018 recommendations, the UK CCC

⁹ Renewables' share of electricity generation was 47.2% in Quarter (Q) 1 2020 and 41.6% in Q 1 2021 ("Energy Trends UK, January to March 2021", BEIS Statistical Release, 29 June 2021.

2019 recommendation to meet net zero by 2050 and the fifth carbon budget offshore wind deployment target of 30GW.

- 5.2.11. However, since the ES was drafted, the UK Government has legislated¹⁰ a target to achieve net zero emissions by 2050 (raising the Climate Change Act 2008 s1 emissions reduction target from 80% to 100%) and strengthened policy to raise the 2030 offshore wind deployment target to 40GW (positions addressed by policy change in the Energy White Paper 2020 and through initiatives in the National Infrastructure Strategy 2020). It follows that the project contribution to the legislated and policy supported trajectory is now smaller than it was originally calculated to be in the ES (when the project was facing a 30GW offshore deployment recommendation and an 80% emissions reduction target).
- 5.2.12. It is important to note that whilst the individual project contribution to change targets is smaller than when the ES was drafted, the underlying need to be met and which the generating capacity proposed to be formed by the project will form a part is greater than it was when the project was conceived, and the ES was drafted. There is now even greater urgency in meeting the need to achieve carbon reduction targets, as expressed in government policy, than there was when the project was first conceived (as a contribution to net zero by 2050 as opposed to an 80% fall by 2050).
- 5.2.13. It is also important to note that whilst the ES describes the effects on the receiving environment offshore of proposed generating station, it does not commit to a maximum renewable electricity yield for the Proposed Development. The Application Form [APP-002] identifies that the Proposed Development is expected to have a generating capacity of over 100MW (essential if the development is to be considered an NSIP under PA2008) but reserves adaptability around precise selection of turbine blades and generators, with a view to maximising the installed generating capacity and yield within the expected market framework of a Contract for Difference (CfD) auction.
- 5.2.14. In terms of future policy change, noting the emergence of a revised draft replacement NPS EN suite for consultation after the closure of the Examination (albeit that this is not yet the policy framework for the SoS' decision) and outcomes from the BEIS Offshore Transmission Network Review, the ExA makes no observations on policy change that it could not review before the closure of the Examination, but again notes that if these changes do emerge as formal policy before a decision is made, the SoS may wish to take them into account.

5.3. THE APPLICANT'S CASE

¹⁰ Paragraph 2 of the Climate Change Act 2008 (2050 Target Amendment) Order 2019.

- 5.3.1. The Applicant's identification of need for the Proposed Development and its contribution within the UK's broader carbon reduction strategy is set out in Chapter 2 of the ES [APP-050].
- 5.3.2. ES section 2.2 identifies the following drivers which underpin the need for renewable energy and are argued to be positively addressed by the Proposed Development:
- reducing greenhouse gas emissions;
 - increasing energy generation from low carbon sources to replace high carbon energy sources such as coal and gas;
 - increasing energy security of supply for the UK market, including:
 - securing safe, affordable, reliable energy, preferably generated in the UK; and
 - replacing existing ageing energy generation infrastructure;
 - meeting expected electricity demand whilst meeting climate change commitments;
 - maximising social and economic opportunities for the UK from energy infrastructure investment (responded to the Clean Growth Strategy (DBEIS 2017) and the UK "Offshore Wind Sector Deal" (DBEIS 2019); and
 - increasing the UK's offshore wind capacity to 30GW by 2030.
- 5.3.3. Noting the emergence of additional drivers between the drafting of the ES and Examination period, The Applicants updated their positions on relevant policy including in oral submissions at ISH2 [REP3-085]. Its general response to changes in the need for renewable electricity generation and the scope for offshore wind in general and the Proposed Development in particular to contribute towards this was (or 'is') to highlight the substantial extent to which new and emerging targets have reinforced the need case set out in NPS EN-1. If the need case emerging from the NPS is strong, then the need case augmented by subsequent policy and target change is argued to be stronger.
- 5.3.4. In response to the potential effects of the (ongoing) BEIS Offshore Transmission Networks Review, the Applicant has made clear its view that this bears on the means by which connections might be made and not on the principle of use and development. It highlights that NPS EN-3 states (paragraph 2.6.34) that "*Applicants for consent for offshore wind farms will have to work within the regulatory regime for offshore transmission networks established by Ofgem. Under the regime offshore transmission will be a licensed activity regulated by Ofgem*" [REP3-085]. Unless the regulatory regime is formally changed before the SoS decides the application, the Applicant considers that it is entitled to consideration of the Proposed Development without weight being given to the prospective content of the Review.

5.4. PLANNING ISSUES

- 5.4.1. The desirability of reducing CO₂ emissions to mitigate climate change and of achieving net zero emissions in the UK by 2050 was broadly noted and

supported by the great majority of IPs. Similarly, the raising of the UK government target to achieve 40GW of offshore wind capacity by 2030 (as distinct from the previous 30GW target) was noted and broadly supported. The engineering and economic maturity of offshore wind as a technology, capable of making a substantial contribution to the meeting of national need for emissions reduction and renewable electricity were again not matters of controversy between IPs and the Applicant. Nor was there widespread concern that the Proposed Development did anything other than address government carbon, climate and offshore wind development targets.

- 5.4.2. IPs concerns with this element of the policy framework were principally related to the articulation of questions about the effects of onshore development (as distinct from the principle of use and development in general, and from the development approach at sea). IPs were concerned about whether the Applicant had been sufficiently alive to the possibility of change in policy relating to the transmission connection, and of sharing transmission connection development between the Proposed Development and the other East Anglia project. There were extensive concerns from SASES, SEAS and many individual local resident IPs (discussed in more detail below) that the Applicant had not sought to adapt the transmissions connection onshore to meet concerns emerging from the BEIS Offshore Transmission Review.
- 5.4.3. The ExA considered that it was important to form a view on the degree to which the Applicant might reasonably be expected to coordinate the East Anglia ONE North and the other East Anglia project transmission connection development, to address issues emerging from the BEIS Offshore Transmission Review, that proposed offshore developments might develop innovative 'pathfinder' approaches to transmission connection design and development.
- 5.4.4. In this regard, the ExA invited Ofgem to attend ISH2. In its oral and subsequent written submissions [REP4-096], Ofgem made clear its view that *'... we do not think East Anglia 1 North (EA1N) and East Anglia 2 and other developments already in the planning processes are likely to be impacted by the work of the Offshore Transmission Network Review (OTNR).'* In this regard, Ofgem also clarified that it did not consider that this position was changed as a consequence of the publication of the Energy White Paper.
- 5.4.5. On this point, reference was also made to correspondence between the Energy Minister Kwasi Kwarteng MP, SASES and SEAS ([REP2-017] at Appendix 2 and 4). The Energy Minister issued letters dated 1 September and 18 September 2020 which sought to clarify the government's position as regards the BEIS review.
- 5.4.6. The letter of 1 September 2020 included the following observations:
- *"The ToR [of the BEIS review] clearly establishes two separate strands of the review, one to focus on the medium term to explore what can be done within the existing framework, and one to design*

and implement an enduring regime for the longer term. This approach is designed to account for the different stages of development of projects already in the pipeline. Due to the long lead times for offshore wind projects (8-10 years) many projects connecting before 2025 are either already consented or nearing the end of the consenting process. Introducing regulatory uncertainty and changing plans for well advanced projects would increase costs for consumers and make meeting ambitious 2030 and 2050 targets even more challenging. However, the review does commit to consider opportunities for projects at an earlier stage of development, and how these can be incentivised."

- *"Our intention regarding the enduring regime is to communicate the direction of travel during 2021; as you rightly state, this is a very complex issue that touches on many policy areas across several organisations. We do, however, expect that a significant portion of the work will be completed during 2021, so that clarity can be provided for those projects connecting after 2030."*
- *"Finally, regarding the current DCO applications [the Projects], as these will be for the Secretary of State to determine, I cannot comment on these specific applications. However, as outlined above, the timing of the review and the outputs are not expected to have an impact on projects at an advanced stage in the planning process."*

5.4.7. The letter of 18 September 2020 included the following observations:

- *"The ambition of the medium-term work stream is to enable and incentivise as much coordination as possible within the bounds of the existing regime. However, as you will appreciate, it is not possible for us to mandate projects to alter existing plans given that they have been designed and funded based on the existing regime. Not only would changes to some projects at a later stage of development incur significant additional costs for consumers, it could also have a detrimental impact on investor confidence in the UK offshore wind industry and jeopardise our long-term goal to achieve net zero emissions by 2050."*
- *"As previously mentioned, we are not in a position to mandate changes to projects already in the pipeline under the existing regime and it will be up to individual developers as to whether or not they wish to make changes. This will need to be considered in terms of the costs and delays that will be incurred for a specific project, versus the potential benefits that may be realised."*

5.4.8. SASES' position in respect of this advice was twofold:

- That the Applicant had still insufficiently adapted the design or delivery of either of the East Anglia ONE North or the other East Anglia project Proposed Developments to meet the potential for greater coordination of transmission connection development, in turn providing scope for reducing the impact of the each and both proposed connections onshore.
- That it was likely that outputs from the BEIS Review would emerge in Examination or before decision and that the Applicant (and the SoS) should respond to them.

- 5.4.9. It flowed that in SASES view, the Applicant should be prepared to adopt a 'pathfinder' approach to delivery of its transmission connection and that this should be co-ordinated between both the East Anglia ONE North and the other East Anglia project [EV-055]. It noted that whilst Ofgem had expressed a view that the Proposed Development would continue to be delivered within the framework of the current regulatory regime for transmission connection, because East Anglia ONE North and the other East Anglia project are both proposed to be delivered by subsidiaries of SPR, there would be no regulatory barrier to a combined "pathfinder" approach to the transmission connections for both [EV-034u]. In the absence of the Applicant's preparedness to deliver a "pathfinder" proposal, SASES considered that specific regard should be had to a rerouting of the onshore transmission alignment and connection to Bramford [REP5-107].
- 5.4.10. SEAS' position was similar to that of SASES, noting that in its view, the adverse effects of the Proposed Development onshore were sufficient to outweigh the carbon and climate benefits of the Proposed Development in the round [REP5-114]. (The specifics of these adverse effects are examined individually in subsequent Chapters). SEAS also called for in effect a 'split decision', enabling the offshore development of both the Proposed Development or the other East Anglia project to proceed (addressing carbon and climate policy objectives), whilst also enabling additional siting and design work to be undertaken to mitigate in SEAS' view the unacceptable adverse effects of the Proposed Developments in combination and of this project alone onshore.
- 5.4.11. The position adopted by SEAS was held by multiple stakeholders, as expressed in summary by the Rt Hon Dr Thérèse Coffey MP (in her capacity as constituency MP for East Suffolk) [REP10-070] [REP11-165]. In her view, the Applicant had failed to adapt the design or delivery of this or both Proposed Developments onshore to the emerging concerns addressed in the BEIS Offshore Transmission Review and, as a consequence, whilst the carbon and climate benefits of the offshore aspects of both Proposed Developments should not be gainsaid, there was a substantial case for a 'split decision', consenting offshore development whilst not consenting the onshore transmission connection works.

5.5. ExA RESPONSE

- 5.5.1. It is important to acknowledge that, at the time of writing this report, the primary policy sources guiding this element of the SoS' consideration remain as the NPS EN (energy) suite: NPS EN-1 and NPS EN-3, as designated in 2011. As recorded in section 5.2 (policy), a substantial range of policy developments have taken place in the succeeding decade, but the general thrust and direction of these has been to additionally emphasise the importance of development that delivers renewable energy and enables the UK to reduce its CO₂ emissions. These changes are important and relevant considerations that, in the ExA's view enhance and augment the need case set out in NPS EN-1. They certainly do not detract from it.

- 5.5.2. So, in this respect, it is important to record the ExA's finding that although NPS EN-1 is old, there are no considerations arising pursuant to subsequent policy change and capable of consideration under PA2008 s104 (2)(d) that indicate anything other than that carbon and climate considerations are principle matters that should be accorded high positive weight in favour of a grant of development consent.
- 5.5.3. It has not been a matter widely raised in submissions by IPs that the harm caused by the Proposed Development onshore in relation to the transmission connection development and/ or to the failure of the Applicant to adopt an innovative 'pathfinder' approach to the integrated delivery of transmission connection shared between East Anglia ONE North and the other East Anglia project (in response to matters arising from the BEIS Offshore Transmission Networks Review and or the Energy White Paper) could be sufficient to outweigh the carbon and climate benefits of the Proposed Development entitling a recommendation for refusal under PA2008 s104(7). However, it is important that the ExA should conclude on this point by making a plain finding that the carbon and climate benefits are sufficiently weighty in and of themselves that they, and the degree to which they accord with the NPS EN-1 and NPS EN-3 policy remain as matters of great weight in favour of consenting the Proposed Development.
- 5.5.4. To the extent that a 'split decision' has been raised as a means of accommodating the Proposed Development and its performance in carbon and climate terms to emerging policy, the ExA prefers the reasoning adopted by the Applicant to that placed before it by IPs. It notes, and subsequent Chapters of this report acknowledge, weighty harms arising from the onshore transmission connection development of the East Anglia ONE North and East Anglia TWO projects, both singly and cumulatively. While recognising the constraints of project planning, it notes that the Applicant was unable or unwilling to address the emerging policy direction set by the Energy White Paper and the ongoing work in the BEIS Offshore Transmission Network Review by better coordinating transmission connection development to further mitigate the evident harms of the current proposals onshore.
- 5.5.5. However, at the end of the Examination period; the current policy framework remains as set in NPS EN-1, NPS EN-3 and NPS EN-5; the foreshadowed review of NPS policy has been published for comment, but is not designated and transitional guidance reinforces the need for decisions in process to be made within the framework of designated policy; and there are no concrete final outcomes from the BEIS Offshore Transmission Network Review. In this context, the ExA also finds that the Applicant's submissions hold good. It is entitled to have this Proposed Development evaluated under the policy framework in force, rather than the prospect of a new one. The great weight to be accorded to the delivery of substantial and timely carbon and climate benefits from the Proposed Development also indicate in favour of not taking a split decision driven by other elements of further possible policy changes that have yet to come to fruition.

5.5.6. The ExA notes that the current policy position remains dynamic. These findings are made on the basis that, at the time the Examination closed there were no concrete outputs from the NPS EN suite review or the BEIS Review. Consultation drafts of the NPS EN suite were published on 6 September 2021 but these make clear that the existing designated NPSs would continue to apply for decision-making purposes. Should BEIS Review outcomes emerge before the decision by the SoS, they are in principle capable of being matters of importance and relevance that should be the subject of consultation with the IPs before a final decision is taken. However, as matters currently rest, there are no emerging policy counterbalances against the weighty carbon and climate benefits of the Proposed Development as a whole, or as a reason to split any element of it in a way that might run the risk of slowing delivery. Material carbon and climate benefits are most weighty in that they can be delivered in a timely manner.

- The carbon and climate benefits of the Proposed Development are matters that the ExA accords high positive weight in favour of the Proposed Development.
- To the extent that carbon and climate benefits delivered at scale and sooner rather than later are of greatest benefit, with the policy context as it stands at the point of submitting this report, the ExA does not find the harms argued as emerging from the onshore transmission development, or the failure to coordinate between the East Anglia ONE North and East Anglia TWO projects to deliver a transmission 'pathfinder' are sufficient to outweigh the carbon and climate benefits of the Proposed Development. Nor are they sufficient to justify a split decision in which the onshore works do not proceed.
- The policy framework in force at the time of writing supports the immediate delivery of policy compliant development. That being said, the ExA does recommend to the SoS that, if relevant policy changes relating to carbon and climate benefits emerge before the decision is taken, including outcomes from the BEIS Offshore Transmission Network Review and/ or the NPS EN Suite Review, then these should be the subject of consultation with the IPs and the re-evaluation of these findings as required.

ONSHORE ANALYSIS

- Chapter 6: Flooding and Drainage
- Chapter 7: Landscapes and Visual Amenity
- Chapter 8: Onshore Historic Environment
- Chapter 9: Seascapes
- Chapter 10: Onshore Biodiversity
- Chapter 11: Coastal Physical Effects
- Chapter 12: Onshore Water Quality and Resources
- Chapter 13: Noise, Nuisance and Health Effects Onshore
- Chapter 14: Transport and Traffic
- Chapter 15: Socio-economic Effects Onshore
- Chapter 16: Land Use
- Chapter 17: Other Onshore Matters

6. FINDINGS & CONCLUSIONS IN RELATION TO FLOODING & DRAINAGE

6.1. INTRODUCTION

- 6.1.1. This Chapter addresses the potential impact of the Proposed Development on flood risk which includes, site drainage, conveyance and surface water flooding.

6.2. POLICY CONSIDERATIONS

National Policy

- 6.2.1. Section 5.7 of the Overarching National Policy Statement for Energy (NPS EN-1) relates to flood risk. Paragraph 5.7.3 states that the aims of planning policy on development and flood risk are to ensure that flood risk from all sources of flooding is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding. Preference should be given to locating projects in Flood Zone 1 in England (paragraph 5.1.3). In terms of construction work, paragraph 5.7.10 states that the decision maker will need to be satisfied that the proposed drainage system complies with any National Standards and that the Development Consent Order (DCO) makes provision for the adoption and maintenance of Sustainable Drainage Systems (SuDS).
- 6.2.2. Paragraph 5.7.4 states that applications for energy projects of 1 hectare or greater in Flood Zone 1 in England or Zone A in Wales and all proposals for energy projects located in Flood Zones 2 and 3 in England or Zones B and C in Wales should be accompanied by a Flood Risk Assessment (FRA). Paragraph 5.7.5 goes on to say that the minimum requirements for FRAs are that they should:
- be proportionate to the risk and appropriate to the scale, nature and location of the project;
 - consider the risk of flooding arising from the project in addition to the risk of flooding to the project;
 - take the impacts of climate change into account, clearly stating the development lifetime over which the assessment has been made;
 - be undertaken by competent people, as early as possible in the process of preparing the proposal;
 - consider both the potential adverse and beneficial effects of flood risk management infrastructure, including raised defences, flow channels, flood storage areas and other artificial features, together with the consequences of their failure;
 - consider the vulnerability of those using the site, including arrangements for safe access;
 - consider and quantify the different types of flooding (whether from natural and human sources and including joint and cumulative effects) and identify flood risk reduction measures, so that assessments are fit for the purpose of the decisions being made;

- consider the effects of a range of flooding events including extreme events on people, property, the natural and historic environment and river and coastal processes;
- include the assessment of the remaining (known as 'residual') risk after risk reduction measures have been taken into account and demonstrate that this is acceptable for the particular project;
- consider how the ability of water to soak into the ground may change with development, along with how the proposed layout of the project may affect drainage systems;
- consider if there is a need to be safe and remain operational during a worst case flood event over the development's lifetime; and
- be supported by appropriate data and information, including historical information on previous events.

6.2.3. Paragraph 5.7.13 states that to satisfactorily manage flood risk, arrangements are required to manage surface water and the impact of the natural water cycle on people and property. Site layout and surface water drainage systems should cope with events that exceed the design capacity of the system (paragraph 5.7.20) and should be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project (paragraph 5.7.21).

6.2.4. Paragraph 5.7.6 of NPS EN-1 states that further guidance on FRAs can be found in Planning Policy Statement 25 (PPS25) or its successor documents, which for the purposes of flood risk is the National Planning Policy Framework (NPPF) and the National Planning Practice Guidance (PPG). The NPPF sets out the UK Government planning policies for England. A revised NPPF was published in July 2021. Section 14 of the revised NPPF contains the UK planning policies for managing flood risk and seeks to ensure that flood risk is considered at all stages in the planning and development process, to avoid inappropriate development in areas at risk of flooding and to direct development away from areas at risk of flooding.

6.2.5. The NPPF directs development away from areas at highest risk of flooding via the application of the Sequential Test. If, following application of the Sequential Test, it is not possible for the project to be located in zones with a lower probability of flooding; the Exception Test can be applied if appropriate. The revised Framework comprises a significant change in approach regarding the Sequential Test which should now take account of **all** sources of flooding.

6.2.6. The NPPG on Flood Risk and Coastal Change supports the NPPF with additional guidance on flood risk vulnerability classifications and managing residual risks.

Local Plan and other Relevant Local Policy

6.2.7. Suffolk Coastal Local Plan (SCLP) 3.4 policy of the East Suffolk Council – Suffolk Coastal Local Plan 'Proposals for major Infrastructure Projects' seeks to ensure that appropriate flood risk measures which include the effects of climate change are incorporated into projects to protect the site during construction, operational and decommissioning stages.

- 6.2.8. Policy SCLP9.5 'Flood Risk' states that proposals for new development will not be permitted in areas at high risk from flooding, i.e., Flood Zones 2 and 3, unless the applicant has satisfied the safety requirements in the Flood Risk PPG. The policy emphasises that developments should exhibit the three main principles of flood risk, in that, they should be safe, resilient and should not increase flood risk elsewhere.
- 6.2.9. Policy SCLP9.6: 'Sustainable Drainage Systems (SuDS)', requires this development to utilise sustainable drainage systems which should be integrated into the landscaping scheme, contribute to the design quality of the scheme and deliver sufficient and appropriate water quality and aquatic biodiversity improvements, wherever possible. The policy states runoff rates should be restricted to greenfield runoff rates wherever possible.
- 6.2.10. The Suffolk Flood Risk Management Strategy (SFRMS) sets out guiding principles on tackling flooding and integrates the issue of flooding from surface water runoff and from ordinary watercourses. One of the key objectives is to prevent an increase in flooding as a result of new development by ensuring SuDS are properly considered and incorporated into works. The document notes the importance of aligning with the content of Shoreline Management Plans and River Basin Management Plans to ensure a holistic approach is taken to flood and coastal management and water quality. Appendix A of the Strategy is a local SuDS guide. SFRMS Objective 3 states that planning decisions should be "based on up-to-date information about all flood risks".

6.3. The APPLICANT'S CASE

- 6.3.1. The Applicants assessment of flood risk and drainage is primarily contained in the Environmental Statement (ES) Chapter 20 [APP-068]. The Chapter is supported by Appendix 20.3 FRA [APP-496].
- 6.3.2. The assessment methodology used in this Chapter follows the methodology set out in Chapter 5 of the Environmental Impact Assessment (EIA) Methodology. ES Chapter 20 states that the onshore infrastructure of the Proposed Development is located within the catchment of three surface watercourses that are designated by the Environment Agency (EA) as main rivers for part of their course. These are The Hundred River, Leiston Beck and The Friston Watercourse. For completeness, the Applicant included the coastal fringe as a receptor given that the landfall and a small part of the eastern end of the onshore cable corridor are located in an area of the coastal fringe which drains eastwards into the sea rather than south or westwards into The Hundred River catchment.
- 6.3.3. ES Chapter 20 states that EA flood zone maps (Environment Agency 2012) indicate that the majority of the onshore development area is located within an area of low flood risk (Flood Zone 1) (Figure 20.2). Flood Zone 1 is defined as land which has a less than 1 in 1000 annual probability of river flooding.

- 6.3.4. A more detailed description of the baseline flood risk in the onshore development area is provided in the FRA (Appendix 20.3). The Applicant acknowledges that it is important to note that the EA's flood modelling (as shown in Figure 20.2 [APP-266]) is confined to Main Rivers and does not consider flood risk along Ordinary Watercourses. The area of increased flood risk in Friston could therefore extend northwards beyond the Main River limit and along the upper reaches of the Friston Watercourse, which are designated as an Ordinary Watercourse and located within the onshore development area. This was taken into account in the assessment presented in sections 20.6.1.4 and 20.6.2.1 of ES Chapter 20 and Appendix 20.3.

Flood Risk Assessment

- 6.3.5. The FRA identifies that the onshore development area is located within Flood Zones 1, 2 and 3, as defined by the EA's online Flood Map for Planning (EA undated) (Figure 20.3.1). The Applicant considers that the Sequential Test has been considered in accordance with the NPPF and PPG and as the Proposed Development is considered 'Essential Infrastructure', that which is located within Flood Zones 1 and 2 is deemed acceptable, and that development located within Flood Zone 3 is required to pass the Exception Test.
- 6.3.6. The Applicant considers that the Proposed Development has been sequentially located wherever possible. Above ground compounds / structures would be located within Flood Zone 1, and subterranean development located primarily in Flood Zone 1, with some locations in Flood Zone 2 and 3 where it would be required to pass under existing watercourses.
- 6.3.7. Subterranean development would only be at potential risk of flooding during the construction phase. Once operational, the flood risk would have been mitigated as the cables would be wholly located underground with no interaction with the above ground Flood Zone. Following construction, all temporary construction elements would be removed and land returned to its present state. On this basis, the Applicant considers that the Exception Test is not applicable to the nature of the Proposed Development.
- 6.3.8. The Applicant considers that the sequential approach adopted and the wider benefits associated with the provision of renewable energy ensures that the Proposed Development is in accordance with the guidance related to the Sequential and Exception Test.

Construction Flood Risk

- 6.3.9. In addition to embedded mitigation measures outlined in section 20.3.3 of ES Chapter 20, the Applicant concludes that the potential for impacts associated with changes to surface water runoff and flood risk during construction would be reduced by reinstating existing land drains along the onshore cable route and at the onshore substation. In addition, the pre-construction Surface Water Drainage Management Plan (SWDMP)

would include provisions to minimise water within the working area and ensure ongoing drainage of surrounding land and National Grid (NG) substation site. These measures would be secured within the final Code of Construction Practice (CoCP) which is secured by Requirement (R)22 of the draft Development Consent Order (dDCO).

- 6.3.10. The ES concludes that, following mitigation, the residual impact resulting from the increase in surface water runoff and flood risk during construction would be minor adverse in the Hundred River, Leiston Beck and Friston watercourse catchments and underlying groundwater. The ES identified no impacts on surface water receptors in the coastal fringe.

Operational Flood Risk

- 6.3.11. Embedded mitigation measures for flood risk and drainage are set out in section 20.3.3 of ES Chapter 20. As submitted, the application proposed that the SWDP would include details of SuDs measures, such as attenuation, which would, as a minimum, provide storage up to and including the 1 in 100 year storm event. A development lifetime of 25 years would be assumed with an increase in peak rainfall intensity of 20% to be included with the drainage design to accommodate increases in flow resulting from climate change. Attenuation ponds would be included at the onshore substation and NG substation to provide sufficient attenuation to greenfield run off rates into the closest watercourse or sewer connection.
- 6.3.12. ES Chapter 20 stated that the attenuation pond for the onshore substation would be designed to attenuate flows up to the 1:200 year event (i.e. better than the 1:100 year plus climate change allowance) and would aim to reduce the outflow rate by 20% compared with the existing runoff rate. The Applicant considered that the reduced discharge rate as a result of the construction of the surface water drainage system / SuDS measures would provide a betterment in terms of runoff from the site.
- 6.3.13. ES Chapter 20 states that the attenuation pond for the National Grid substation would be designed to attenuate flows up to the 1:100 year event plus an allowance for climate change as a minimum.
- 6.3.14. The impacts on each receptor resulting from increased surface water runoff, altered subsurface flows and changes to flood risk are summarised in Table 20.19 of ES Chapter 20.
- 6.3.15. In addition to the embedded mitigation measures to intercept site drainage from operational infrastructure that are described in section 20.3.3 (including the attenuation ponds) the potential for impacts associated with changes to surface water runoff and flood risk would be reduced by the following additional measure, as detailed within the Outline Code of Construction Plan (OCoCP) and secured in the dDCO:
- Existing land drains along the onshore cable route and at the onshore substation and National Grid infrastructure substations would be reinstated following construction (or rerouted if underneath

permanent above-ground developments) By using a specialised drainage contractor to undertake surveys to locate drains and create drawings both pre- and post-construction, and ensure appropriate reinstatement; and

- As identified within the OLEMS, the Applicant has committed to further attenuation measures to the north of Friston.

- 6.3.16. Following the implementation of this additional mitigation measure, the ES concludes that the potential for increased surface runoff and flood risk during the operational phase would be reduced to an effect of negligible magnitude in the Friston Watercourse catchment and negligible in the Hundred River and Leiston Beck catchments and underlying groundwater. The Applicant concludes that the residual impact resulting from the increase in surface runoff and flood risk would therefore be minor adverse in the Hundred River, Leiston Beck and Friston Watercourse catchments (although attenuation measures at the substation location will deliver a degree of betterment over existing run off characteristics to downstream receptors in Friston Watercourse) and underlying groundwater (Table 20.19 of ES Chapter 20). No impacts on surface water receptors in the coastal fringe were identified.

Cumulative Impact

- 6.3.17. The Applicant considers that potential cumulative impacts between the Proposed Development and the other East Anglia project, the Sizewell C New Nuclear Power station project and the Sizewell B Power Station Complex project could potentially arise in surface drainage catchments and groundwater bodies where activities from the projects occur.
- 6.3.18. For both the construction and operational phases of the project, the ES concludes that the cumulative impact would not increase from the minor adverse anticipated on the project alone assessment. During decommissioning, the ES concludes that impacts no greater than those identified for the construction phase are expected.

6.4. PLANNING ISSUES

- 6.4.1. The Council's Local Impact Report (LIR) [REP1-132] raised the implications for flood risk in the locality as a key issue. This was echoed by many Interested Parties (IPs) in their Relevant Representations (RRs) (e.g. [RR-463, RR-588, RR-144, RR- 908]) and throughout the Examination both in writing and at Issue Specific Hearing 4 (ISH4) [EV-054], Issue Specific Hearing 11 (ISH11) [EV-123b, EV-123c, EV-123d] and Issue Specific Hearing 16 (ISH16) [EV-142, EV-143, EV-144, EV-145] where flood risk was considered in more detail.
- 6.4.2. In particular, the flood risk posed to the village of Friston during construction and operation was a matter of great concern for the local community including Friston Parish Council and the local action group Substation Action Save East Suffolk (SASES) who engaged throughout the Examination on this matter. The LIR notes that Friston village has been subject to surface water flooding on several occasions, with a notable event in October 2019 which flooded several properties. Videos

of surface water flooding events that occurred prior to and during the course of the Examination were also submitted ([REP1-332, REP1-333, REP2-109, REP2-111, REP5-142], [REP12-105, REP12-112, REP12-113, REP12-114, REP12-115 and REP13-122]).

- 6.4.3. The planning issues raised throughout the Examination on this matter can be broadly categorised into three main topics, the adequacy of assessment, flood risk during construction and flood risk during operation.

Adequacy of Assessment

- 6.4.4. Whilst Suffolk County Council (SCC) as the Lead Local Flood Authority (LLFA) accepted that the production of the FRA satisfied the policy requirements of the Local Plan, the LIR raised a number of concerns regarding its content and the assessment within the ES.
- 6.4.5. In terms of surface water, SCC noted that the existing EA National Mapping for surface water flood risk was not representative of the surface water flow paths which resulted in the internal flooding of properties in Friston in 2019. Following the flood events in Friston, the Council commissioned the production of a SWMP for the catchment of Friston village (Friston SWMP) in June 2020. SCC considered that this now superseded the EA mapping. Whilst the Council accepted that it was not feasible to consider such events given the date of the application, it was their opinion that such events should be considered as part of the assessment. This view was also shared by SASES.
- 6.4.6. SASES also raised a number of concerns regarding the methodology utilised for assessing flood risk. Amongst other things, SASES considered that the Applicant had failed to apply the Source-Pathway-Receptor principle to the village of Friston. Whilst accepting that the Applicant had made some attempt to assess the flood risk source, they considered that no attempt had been made to assess the flood receptors in the village and relied entirely on secondary data sources to assess the pathways of floodwaters into the village.
- 6.4.7. Concerns were also raised that both peak and total flows leaving the proposed substation site had not been considered. At D6 [REP6-017], both issues were considered by the Applicant, utilising the QBAR (1 in 23 year return period) as a maximum rate for discharge, consistent with SCC guidance. However, SASES still rejected this approach on the grounds that as the flooding occurs in Friston more than once every two to three years, the QBAR may still be causing flooding.
- 6.4.8. Policy compliance was discussed at length during ISH11. SASES considered that that there was a fundamental failure to apply the Sequential Test given the RAG assessment, which underpinned the site selection process, did not consider pluvial flood risk at all. They submitted that in applying NPS EN-1, together with the NPPF and local policies, the Proposed Development should be regarded as having failed to apply the Sequential Test and was thus contrary to a fundamental part

of the National Policy Statement (NPS). In its opinion, there are other sites which are not at flood risk which would be suitable for the Proposed Development and it follows that had the Applicant applied the Sequential Test, the inevitable conclusion would be that the Friston site should not be preferred and that development consent should be refused on this basis alone.

- 6.4.9. The absence of any baseline hydrogeological assessment was also a key issue for both SCC and SASES. For example, at ISH11, SASES stated that no attempt had been made to monitor rainfall, nor runoff flow levels of velocities nor determined ground infiltration rates. Although this might be acceptable in a different location with a low pluvial flood risk, given that Friston experienced flooding several times a year and serious flooding every 1 to 2 years, SASES were of the opinion that this was unacceptable and not consistent with Department for Environment, Food and Rural Affairs (DEFRA) guidance.

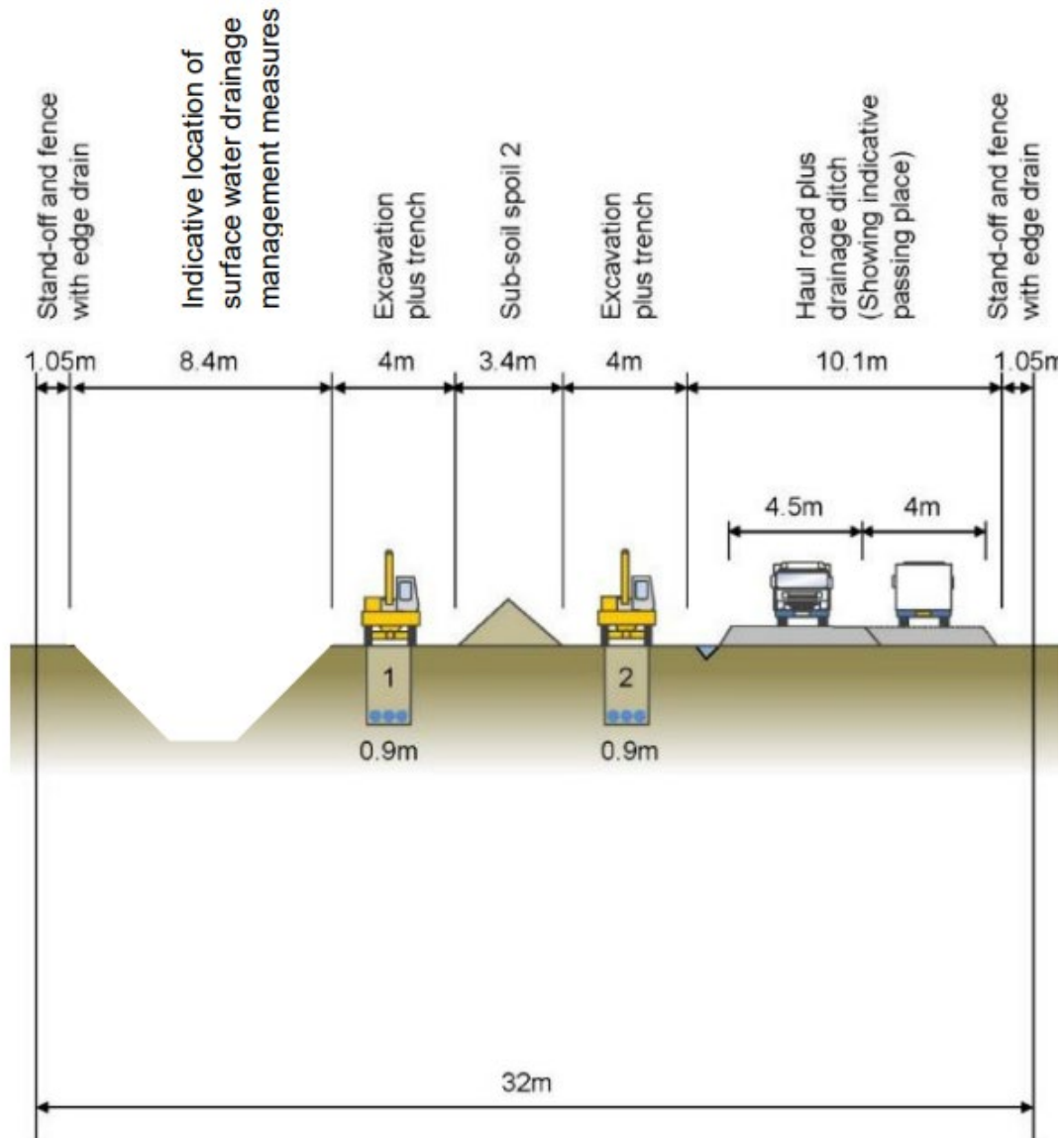
Flood Risk During Construction

- 6.4.10. A Surface Water and Drainage Management Plan (SWDMP) and Flood Management Plan (FMP) would be produced as part of the final CoCP. The proposed control measures are outlined in the OCoCP which was amended during the course of the Examination following comments from IPs and discussions held at ISH4, ISH11 and ISH16.
- 6.4.11. SCC considered that the principles contained within the OCoCP were generally acceptable to manage surface water flood risk during construction. However, a matter of concern throughout the Examination was whether enough space had been provided within the order limits to prioritise a SuDS strategy for managing surface water. SCC noted that the implementation of the East Anglia One project encountered problems with regards to space for SuDS during construction which resulted in the use of reactive & proprietary measures to manage surface water drainage and that there was nothing to suggest that additional space had been provided on this scheme in comparison to East Anglia One.
- 6.4.12. Both SCC and SASES considered it critical that an assessment to demonstrate that there would be enough space within the order limits to deliver sufficient options to mitigate the potential impacts be submitted. Without such an assessment, there would be no guarantee that sufficient mitigation could be delivered during the construction phase to mitigate the potential impacts. This matter was discussed in detail at ISH11 and again at ISH16. Both parties considered that, as the consequences of flood risk remain the same during construction and operation, the same level of information should be provided for both phases to ensure that surface water would be adequately managed.
- 6.4.13. Although construction related flood risk concerns were raised during the Examination for the cable route, the Council felt that the substation sites presented a more significant surface water flood risk during construction given that the areas used during construction would potentially be far greater than that during operation. Large swathes of land may be

stripped of topsoil at once. Large areas would be used for construction purposes (compounds, storages etc.). All these activities would have the potential to increase surface water runoff rates and generate sediment which could have a detrimental impact to surface water flood risk in Friston.

- 6.4.14. SCC were of the opinion that there should be no increase in offsite surface water flood risk up to and including the 1 in 100 year rainfall event during construction and that the 1 in 30 year rainfall event must be retained within the surface water system. Whilst the Council would permit above ground flooding during the 1 in 100 year rainfall event, it would have to be retained within the order limits. The Council stated that this would be as per the DEFRA Non-Statutory Technical Standards which had been applied to the operational phase [REP8- 176].
- 6.4.15. In response to the concerns raised, the Applicant included an example of how surface water and sediment could be controlled during construction in Plate 11.1 within the OCoCP submitted at D8 [REP8-018]. At ISH16, both SCC and SASES stated that this was not adequate given it was not supported by any further information, such as calculations and as such, on its own, Plate 11.1 (see Figure 6.1 below) was insufficient to demonstrate that sufficient mitigation would be deliverable during the construction phase for both the cable corridor and the sub-station sites. Following ISH16, IPs also raised concerns about the management of surface water flooding at the Aldeburgh Road Cable Route crossing point, for example [REP11-194].

Figure 6.1: Plate 11.1 Example of How Surface Water and Sediment Would be Controlled Within Onshore Cable Route During Construction



- 6.4.16. In addition, SCC did not agree with the Applicants initial proposal to design construction surface water drainage to accommodate a 1:5 rainfall event as this would represent an increase in surface water flood risk to Friston during the construction phase. SCC maintained that construction phase drainage should be designed to accommodate a 1:100 rainfall event, to ensure that surface water flood risk would not be increased during either the construction or operational phase. SCC made reference to the Sizewell C DCO application which states that the surface water drainage network would be designed to retain excess storm water which results from a 1 in 100-year return period rainfall event within the site, for both construction and operation phases.
- 6.4.17. Following discussions at ISH16, the ExA requested that the Applicant provide indicative drawings to demonstrate that the proposed mitigation

measures were capable of being accommodated within the order limits both along the cable corridor and at the substations site. At D11, a revised OCoCP was submitted [REP11-015]. This included an indicative general arrangement for a construction phase temporary surface water drainage scheme broken into 100m length sections of the onshore cable route and for a construction phase temporary surface water drainage scheme at the substations location. These are shown in Figures 6.2 and 6.3 below. In calculating the required storage capacity the Applicant has made the assumption of a 1 in 15 year storm event return period for the substations site and a 1 in 10 year storm event return period for the onshore cable route.

Figure 6.2 Example Construction Surface Water Drainage Scheme at the Substations Location

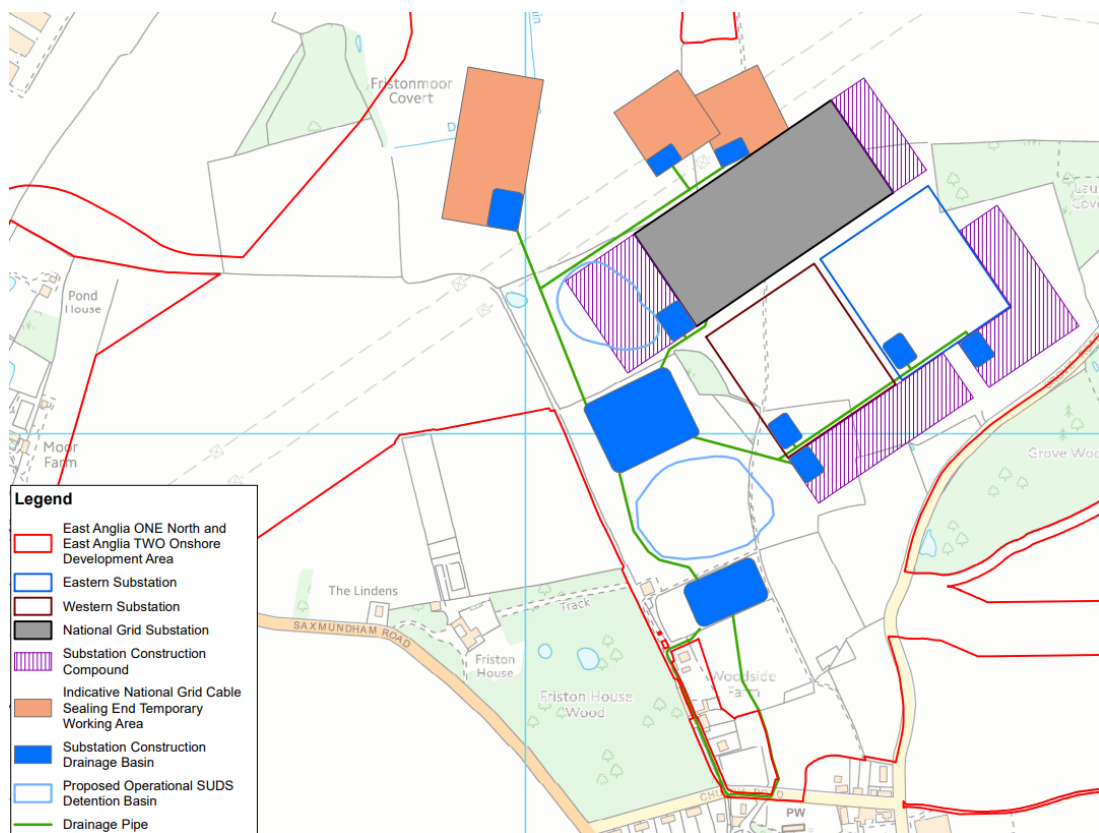
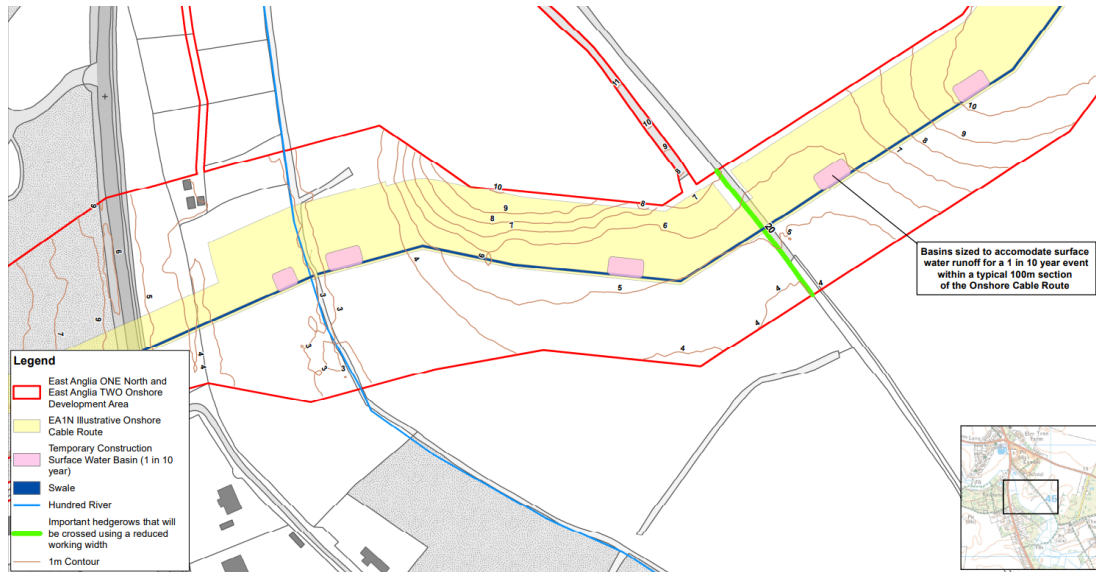


Figure 6.3 Example Construction Surface Water Drainage Scheme for a Section of the Onshore Cable Route



- 6.4.18. However, whilst the Council agreed with the majority of assumptions for the design of the of the construction phase surface water drainage, SCC maintained that the use of a 1 in 15 return rainfall period event would represent an increase in surface water flood risk to the residents of Friston and did not support this approach.
- 6.4.19. SCC considered that in the event of a 1 in 30 rainfall event, the Applicants approach would be unable to retain the surface water volumes within the order limits, which would not only represent an increase in flood risk downstream but also associated pollution in the form of siltation which could potentially be deposited in the Friston Main River, reducing its capacity and in turn further increasing surface water flood risk in Friston.
- 6.4.20. Given that the embedded mitigation within ES Chapter 20 would not be designed for a 1 in 30 year event, the Council did not agree that the residual impacts would be minor adverse. Therefore, despite the additional assessments and figures produced by the Applicant within the OCoCP, at the end of the Examination, SCC maintained its position in relation to this matter:
- "By the Applicants logic, sub-station construction could be close to completion, with all sub-station impermeable areas constructed, accompanied by further construction phase impermeable areas (such as CCS's), yet this infrastructure would only be served by a surface water drainage system capable of coping with a 1:15 rainfall event. This is unacceptable to SCC."* [REP12-098].
- 6.4.21. The EA, in its RR [RR-039], highlighted that the land proposed to be used as a construction laydown area for the bridge strengthening works at Marlesford Bridge (Work No. 37) was within Flood Zone 3. Although the proposed works are likely to be considered 'Essential Infrastructure', and therefore not inappropriate at this location, we were concerned that any

built development or land raising could increase the risk of flooding elsewhere and that risk may not be capable of being sufficiently managed. The flood risk at this site was not considered in the submitted FRA.

Flood Risk During Operation

- 6.4.22. The Councils LIR identified that whilst the FRA proposes to comply with the surface water disposal hierarchy, no infiltration testing had been undertaken, contrary to local policy. The Council were of the opinion that a review of publicly available information and drainage features on site meant that infiltration might be feasible. Concerns were also raised about the proposed discharge to the main river in Friston due to the shallow depth and necessity of the culvert to pass under the road.
- 6.4.23. Following submission of a SuDs Infiltration note by the Applicant at D2 [REP2-012], and subsequent iterations of the Outline Operational Drainage Management Plan (OODMP), both SCC and SASES were clear in their opinion that if infiltration was achievable and viable then this must be pursued in the first instance and prioritised as per national and local policy and guidance. Concerns were raised that this was not being prioritised as a result of insufficient land being available or because land that otherwise would be available was being prioritised for other mitigation. Both the Council and SASES considered that a sub-optimal surface water drainage solution should not be accepted unless it was clearly demonstrated that the optimum solution (i.e. infiltration) would be not be reasonably practicable. This matter was discussed in detail at ISH4, ISH11 and ISH16.
- 6.4.24. In response to the concerns raised, the Applicant conducted infiltration testing at the substations site in April and May 2021 [AS-121 and AS-129]. This enabled the Applicant to further develop the outline design of the SuDs basins as presented within the OODMP.
- 6.4.25. Following the infiltration testing and updated OODMP, SASES remained concerned. Unlike SCC, they did not agree that the test results were sufficient because they did not accord with CIRIA and BRE 365. They considered that the results overestimated the infiltration rates given they were not excavated to the same depths as the proposed basins and that abandoning infiltration without increasing the size of the basins failed to comply with the SuDs hierarchy. They maintained that the reason that infiltration was not being considered was because of the lack of land availability and other landscaping and biodiversity constraints and requirements.
- 6.4.26. SASES also disagreed with the Council that the outfall discharges would be acceptable at QBAR. They considered that QBAR had not been adequately defined and that 1 in 2 year storms do flood the village and therefore restricting flows to QBAR would not ensure flood risk increase would be prevented.

- 6.4.27. SASES could not see how, in terms of the connection to the main river, a pipe 300mm below the existing road surface would work from a flood risk perspective given the depth of the Friston watercourse below the surface of Church Road. SASES submitted a series of photographs which they felt demonstrated that the Friston Watercourse was not sufficiently deep [REP13-060].
- 6.4.28. SASES also raised concerns over the engineering and landscaping of the overflow structures. They considered that overflow structures needed to be properly engineered and that landscaped earthworks were unacceptable as they would erode.
- 6.4.29. Following the addition of R41 to the dDCO, which secures the ODMP, SCC maintained throughout the Examination that, as the LLFA, it should be the discharging authority for this requirement and not ESC.

6.5. ExA RESPONSE

Adequacy of Assessment

- 6.5.1. Both the Council and the EA agree in the final SoCGs that, at the time of submitting the application, the ES and FRA adequately characterise the baseline environment in terms of flood risk. Given that the flooding events in Friston occurred 19 days prior to the submission of the Application, the ExA agrees that it would not have been reasonable to expect those events to have been taken into account. Nonetheless, the ExA do agree with SCC and SASES that it was correct and important for the Applicant to assess the Friston SWMP in the manner/detail that it would have been had it been incorporated into the FRA from the outset. The ExA are satisfied that the Applicant has now adequately assessed the Friston SWMP as part of the OODMP, the final version of which was submitted at D13 [REP13-02].
- 6.5.2. The ExA considers that at the time of submission, the FRA complied with the requirements set out in NPS-EN1 which refers to PPS25 or its relevant successor documents which are the NPPF and PPG. In the FRA, the Applicant considered that the Proposed Development had been sequentially located wherever possible and was in accordance with the guidance related to the Sequential and Exception Test within the NPPF and PPG.
- 6.5.3. At D8 the Applicant submitted a Flood Risk and Drainage Clarification Note [REP8-038] in which they stated that as the proposed works (substations site) are all in flood zone 1, they automatically satisfied the requirement of the Sequential Test as there is no lower zone classification areas that could be utilised and that the residual flood risk from surface water was not covered by the flood zones for planning purposes.
- 6.5.4. However, whilst acknowledging SASES did not agree with this approach, following the close of the Examination, national policy on the application of the sequential approach has significantly changed.

- 6.5.5. The revised NPPF was published in July 2021 and sets strict tests to prevent people and property from **all sources of flooding** and that where these tests are not met new development should not be allowed. It clarifies that the sequential approach and tests should now take account of all sources of flood risk when allocating or permitting development. The inclusion of all sources of flooding means that the need for a Sequential Test may be triggered if a site is located in an area at high risk of surface water or groundwater flooding. The ExA consider that on the basis of the evidence before it, Friston should be considered an area at high risk of surface water flooding.
- 6.5.6. At the time of writing this report, guidance on applying the Sequential Test within the PPG had not been updated to reflect the change within the NPPF, with guidance on the application of the tests focussed upon flood zones associated with river and sea flood risk. It is expected that the Government will be updating the guidance to clarify the relationship between the sequential approach, testing and non-fluvial flood risks soon.
- 6.5.7. As the above change to policy occurred following the close of the Examination, and as the parties have not had an opportunity to comment on this change in approach, the ExA cannot conclude whether the Proposed Development satisfactorily passes the Sequential or Exception Test. Given the significant change in approach and given the clear evidence that surface water is a flood risk to the village of Friston, the ExA consider that, in the interests of fairness, the SoS may wish to consult the parties on the potential implications of the change in policy approach within the NPPF and, if relevant at the time, the PPG before a conclusion can be reached on whether the tests are met.
- 6.5.8. In addition, on 20 July 2021, the EA issued an update to climate change allowances for Flood Risk Assessments, updating the peak river flow allowances and changing the guidance on how to apply peak river flow allowances. The SoS may also want to seek the views of IPs on the implications of this update.
- 6.5.9. Without prejudice to the SoS conclusions on this matter, the remainder of this Chapter considers the impact of the Proposed Development on flood risk during construction and operation.

Flood Risk During Construction

- 6.5.10. Section 11 of the OCoCP [REP13-005] sets out the control measures that would be contained within a SWDMP and FMP which would be produced as part of the final CoCP. The final CoCP is secured by R22 of the dDCO and the SWDMP and FMP would be approved by the relevant discharging authority.
- 6.5.11. In terms of sediment management, a detailed evaluation of each section of the Onshore Development Area would be undertaken prior to construction works commencing and a selection of the most appropriate mitigation measures for each area would be applied. During construction,

the Applicant's contractor would have to ensure that the final CoCP and surface water and drainage management plan are implemented as approved for the section of the works for which they are contracted to deliver.

- 6.5.12. Changes in surface water runoff as a result of the increase in impermeable area from the construction of the Projects would be attenuated and discharged at a controlled rate, in consultation with the LLFA and EA. The controlled runoff rate would be limited to the equivalent greenfield runoff rate. The feasibility for infiltration systems would also be assessed during the detailed design development of the systems required for each phase of the works.
- 6.5.13. The SWDP would be developed and implemented for the whole of the onshore development area to minimise water within the cable trench and ensure ongoing drainage of surrounding land. Where water enters the trenches during installation from surface runoff or groundwater seepage, this would be pumped via settling tanks, sediment basins or mobile treatment facilities to remove sediment, before being discharged into local ditches or drains via temporary interceptor drains in order to prevent increases in fine sediment supply to the watercourses (see Figure 6.3 above).
- 6.5.14. Land drainage systems would be maintained during construction, where possible, and reinstated on completion. Following construction, field drainage systems and ditches would be fully reinstated where possible. Further mitigation includes the use of a specialist, local drainage contractor to undertake surveys to locate drains and develop a strategy and produce drawings for both pre and post-construction and ensure appropriate reinstatement.
- 6.5.15. For the substation area, infiltration or attenuation basins would be included within or close to the onshore substation and National Grid substation to provide sufficient volume to manage infiltration or attenuation of surface water runoff prior to discharge into the closest watercourse or sewer connection. For the cable route, where necessary, topsoil and subsoil storage areas along the onshore cable route would be cleared to accommodate surface water basins. The full specification for the basins would be addressed as part of detailed design during the post consent phase following detailed assessment of each section of the Onshore Development Area (see Figure 6.2 above).
- 6.5.16. In terms of the Hundred River crossing and Aldeburgh Road area, the FRA submitted with the Application considered all works along the cable route area. The Outline Watercourse Crossing Method Statement (OWCMS) [REP11-074] contains detail on the flood risk control measures proposed for the crossing works at the Hundred River including those commitments made within the ES and commitments made during the Examination.
- 6.5.17. In addition, a Flood Risk Activity Permit would be obtained from the EA prior to the crossing works proceeding and this will be based on the final

design. The OWCMS presents an outline of the detail that would be incorporated within the final WCMS which is secured by R22 of the dDCO and approved in writing by the relevant discharging authority.

- 6.5.18. The ExA agree with SCC that the principles contained within the OCoCP are generally acceptable to manage surface water flood risk during construction. However, the ExA remain concerned that there is a vast discrepancy between the Applicants proposed design capacity for the management of surface water during construction and that which the SCC assert is necessary.
- 6.5.19. The Applicant proposes a design capacity for up to 1 in 15 year event at the substations site and 1 in 10 year event for the onshore cable route. On the other hand, SCC have requested that a 1 in 100 year return period is used. The Applicant considers that the use of the 1 in 100 year return period is excessive given the construction programme of up to 48 months at the substations site and 24 months for the cable route and that the provision of a temporary drainage system would enhance the sites drainage capacity.
- 6.5.20. The ExA acknowledges that there are currently no prescribed standards for the provision of construction drainage and that given the construction programme it would not necessarily be unreasonable to assume a design capacity with a return period different to that for operation. However, given the high risk of surface water flooding in Friston and the occurrence of those flood events, the ExA accept SCC's view that the residents should not be exposed to an increase in surface water flood risk during the construction phase when compared to the operation phase.
- 6.5.21. The Applicant states that the recurring chance of an event which would overcome the threshold of the proposed construction basins storage capacity is less than 6.66% and that the temporary drainage system would capture the majority of a 1 in 30 year event. However small, this still represents a risk.
- 6.5.22. Given the established surface water flood risk to Friston, the ExA has real concerns that the Applicant's proposals to design a construction surface water drainage scheme to a 1 in 15 return period for the substations site could result in an increase in surface water flood risk to surrounding receptors, including the village of Friston. However, as an alternative scheme demonstrating that a higher return period could be accommodated is not before the ExA, there is insufficient evidence to enable us to reach a conclusion on the most appropriate return period to be utilised or to be sure that there would be sufficient space within the order limits to accommodate such a return period. For example, the Council state that in the event of a 1 in 30 rainfall event, the Applicant's approach would be unable to retain the surface water volumes within the order limits.
- 6.5.23. Despite this matter being discussed in detail at ISH16 and the submission of further information at the request of the ExA, this matter remained unresolved. Subsequently the ExA is unable to conclude that

the construction drainage scheme would be satisfactory, contrary to NPS-EN1. Given the above, the ExA considers that in order to conclude on whether the proposed measures would satisfactorily manage flood risk during construction and could be accommodated within the order limits, the SoS may wish to engage further with SCC on this matter.

Flood Risk During Operation

- 6.5.24. In the final OODMP [REP13-020] the Applicant has undertaken a tiered approach to selecting the most suitable SuDs to manage surface water at the substations site, which was informed by infiltration testing undertaken in May 2021. The OODMP presents a hybrid infiltration and attenuation design for the onshore substations and an attenuation only design for the National Grid infrastructure.
- 6.5.25. The ExA acknowledge that the Applicant extrapolated the results of their infiltration testing and that extrapolated results are not in accordance with BRE 365 methodology. Nonetheless, SCC are now agreed that the test results obtained contain sufficient detail to determine the initial feasibility of the infiltration at both of the proposed SuDs basin locations [REP12-098]. Whilst acknowledging SASES concerns on this matter, the ExA note that the final surface water drainage would, amongst other things, confirm the final infiltration rate for the SuDs basins through further infiltration testing within the proposed SuDs basin locations at the time of detailed design. This is secured through the OODMP and R41 of the dDCO. Therefore, the ExA is satisfied that sufficient survey data has been collected at this stage.
- 6.5.26. Due to the low infiltration rates of the tests, SCC do not consider that there is sufficient certainty that infiltration would remain a practicable method of surface water disposal for the lifetime of the development and as such support an attenuation only design for the NG substation. Similarly, SCC now support the proposal for a hybrid infiltration/attenuation solution for the proposed substations. Whilst noting concerns that this does not comply with the SuDs hierarchy, the ExA consider that sufficient evidence has been provided by the Applicant to determine the parameters of the outline SuDs design presented in the OODMP and at this stage the Applicants have sufficiently demonstrated that surface water would be discharged as high up the drainage hierarchy as reasonably practicable.
- 6.5.27. The ExA are satisfied that the QBAR flow rates calculated are a suitably conservative rate for this stage which is lower than the QBAR rates permitted within SCC policy. The concerns relating to QBAR and the frequency of flood events are noted. However, it is agreed in the final SoCG with SCC [REP12-070] that the flood event in Friston was a result of multiple flow paths and not a direct result of surface water run off from land associated with the Proposed Development only. Furthermore, the ExA agree with the Applicant that it is not a requirement for the Proposed Development to remove flood risk from Friston but rather not exacerbate it. Given these multiple flow paths, restricting flow from the proposed substation site would not remove flood risk from Friston

entirely, but restricting the flow to greenfield rates would ensure there would be no additional flow to the system downstream.

- 6.5.28. In terms of the culvert, a SuDs outfall concept design to the Friston Watercourse is contained within Appendix 2 of the OODMP [REP13-020].. This matter is shown as agreed in the final SoCG with ESC and SCC [REP12-070]. Whilst the ExA acknowledges the concerns raised by SASES and has had regard to the submitted photographs in [REP13-060], SCC has not raised similar concerns. The ExA has a high level of confidence in the technical quality of the advice given by the LLFA, noting that SCC raised serious concerns on the matter of flood risk throughout the Examination. Therefore, on balance, the ExA agrees with the LLFA that the concept design demonstrated in Appendix 2 is acceptable.
- 6.5.29. The final SoCG with the EA [REP12-071] also confirms that a framework to ensure any additional inspection or maintenance works of the upper section of the Friston main river are appropriately undertaken and will be agreed between the EA and the Applicants. At D13 the Council confirmed that they do not object to this proposal but they would expect to see such an agreement prior to the discharge of R41 [REP13-036].
- 6.5.30. The ExA has carefully considered all concerns raised by IPs throughout the Examination, including those by SASES who contributed significantly on this matter both in writing and at issue specific hearings. Taking everything into consideration, the ExA are satisfied that it has been demonstrated that flood risk during the operational phase of the Proposed Development could be satisfactorily mitigated and accommodated within the order limits. The worst case scenario during operation presented in the assessment for infiltration and attenuation scenarios as set out in the OODMP are all agreed with SCC in the final SoCG. The final ODMP is secured by R41 of the dDCO which must be submitted to and approved in writing by the relevant discharging authority. Given the high risk of flooding in Friston and the complex and technical nature of the ODMP, the ExA have concluded that the most suitable discharging authority would be SCC as the LLFA. This is discussed in more detail in Chapter 30.

Cumulative Impacts

- 6.5.31. In terms of cumulative impact, in [REP8-074] the Applicant states that the NG Substation extensions would enlarge the footprint of the NG substation and that to the south west the extension would encroach further into an existing surface water flow path and possibly into the location of the SuDs basins proposed as part of the Proposed Development. However at this stage, there is the possibility that the existing surface water flow path would be diverted for the Proposed Development and the final size and location of the SuDs basins will not be known until the detailed design stage following further ground investigations. Given the limited information before the ExA in relation to future proposals the ExA consider that at this stage, it is for the Applicant to demonstrate that the Proposed Development would not increase flood risk and that any future proposals at the site would have to meet the

standards, ensuring that cumulatively it would not result in an increase in flood risk to the village of Friston. On the limited amount of information available, the ExA agrees with the Applicant that it is not possible to consider the potential operation phase cumulative impacts in relation to flood risk in detail.

- 6.5.32. In terms of other projects, including the other East Anglia project, the ExA agrees with the Applicant that for both the construction and operational phases of the project, cumulative impact would not increase from the minor adverse anticipated on the project alone assessment.

6.6. CONCLUSION

- 6.6.1. Taking all relevant evidence and policies into account the ExA have concluded:

- For guidance on flood risk, NPS-EN1 refers to PPS25 or its relevant successor documents which are now the NPPF and PPG. The revised NPPF was published in July 2021 and contains a significant change on the sequential approach which should now take account of all sources of flooding.
- As this change in approach came into effect after the close of the Examination, the ExA are unable to reach a conclusion on whether the Proposed Development satisfactorily passes the Sequential or Exception Test.
- For these reasons, if the SoS is minded to make an order based on that attached as Appendix D, the ExA recommends that it should be subject to further consultation with IPs during the decision period and that representations made on the potential implications of the change in policy approach should be taken into account by the SoS before a decision is made.
- There is insufficient evidence to enable a conclusion to be reached on the most appropriate return period to be utilised for the design of the construction surface water drainage scheme and to ensure that there would be sufficient space within the order limits to accommodate such a return period. The ExA are not therefore satisfied that flood risk can be satisfactorily managed during construction.
- For these reasons, if the SoS is minded to make an order based on that attached as Appendix D, the ExA recommends that it should be subject to further consultation with the LLFA during the decision period and that representations made should be taken into account by the SoS before a decision is made.
- Without prejudice to any decision the SoS may make in relation to the sequential or exception test, the ExA is satisfied that there would be no significant effects on flood risk during the operation stage on the basis of the secured OODMP in accordance with NPS-EN1. In arriving at this view, the ExA has taken into account the evidence of the relevant statutory advisors and other IPs with specialist flood risk expertise, including SASES.
- Drawing these matters together the ExA concludes that the potential increased flood risk during construction carries a high negative weighting in the planning balance.

7. FINDINGS & CONCLUSIONS IN RELATION TO LANDSCAPES & VISUAL AMENITY

7.1. INTRODUCTION

7.1.1. This Chapter deals with the landscape and visual effects of the Proposed Development. It reviews the landscape and visual impact assessment (LVIA) of the Environmental Statement (ES) [APP-077].

7.1.2. The Chapter is split into the following sections:

- Policy Considerations
- The Applicant's Case
- Planning Issues
- Examining Authority (ExA) Response
- Conclusion

7.2. POLICY CONSIDERATIONS

National Policy Statements

7.2.1. Paragraph 5.9.1 of the Overarching National Policy Statement for Energy (NPS EN-1) notes that the landscape and visual effects of energy projects will vary on a case-by-case basis according to the type of development, its location and the landscape setting of the Proposed Development.

7.2.2. Paragraph 5.9.5 notes that an applicant should carry out a landscape and visual assessment, which should include reference to any landscape character assessment and associated studies and should take account of any relevant policies based on these assessments in local plans. The applicant's assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character (paragraph 5.9.6).

7.2.3. NPS EN-1 states that landscape effects depend on the existing character of the local landscape, its current quality, how highly it is valued and its capacity to accommodate change; all of these factors need to be considered in judging the impact of a project on the landscape. It notes that virtually all nationally significant energy infrastructure projects will have an effect on the landscape. The aim should be to minimise harm, providing reasonable mitigation where possible and appropriate (paragraph 5.9.8).

7.2.4. Paragraph 5.9.9 notes that Areas of Outstanding Natural Beauty (AONB) have the highest status of protection in relation to landscape and scenic beauty. The specific statutory purposes of an AONB help to ensure their continued protection. Development consent may be granted in such areas in exceptional circumstances where the development is in the public interest, the need for the development and alternatives are

considered and any detrimental effect on the environment and landscape is considered, as well as how it could be moderated.

- 7.2.5. Outside nationally designated areas NPS EN-1 notes that there are local landscapes which may be highly valued locally and protected by a local designation. The Secretary of State should judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits (including need) of the project (paragraph 5.9.14-15). In reaching a judgment, the SoS should consider whether any adverse impact is temporary, such as during construction, and/or whether any adverse impact on the landscape will be capable of being reversed in a reasonable timescale. The SoS should consider whether a project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by reasonable mitigation (paragraph 5.9.16-17).
- 7.2.6. NPS EN-1 notes (paragraph 5.9.18) that all proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites, and the SoS will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project.
- 7.2.7. In terms of mitigation, NPS EN-1 states that reducing the scale of a project can help to mitigate the visual and landscape effects of a proposal but notes that this may reduce function. Within a defined site, adverse landscape and visual effects may be minimised through appropriate siting of infrastructure within that site, through design including colours and materials, and through landscaping schemes, depending on the size and type of the proposed project (paragraph 5.9.21-22) and it may be appropriate to undertake landscaping off site (paragraph 5.9.23).
- 7.2.8. The National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) states that new above ground electricity lines can give rise to adverse landscape and visual impacts but for the most part these impacts can be mitigated. New substations, sealing end compounds and other above ground installations that form connection, switching and voltage transformation points on the electricity networks can also give rise to landscape and visual impacts. Cumulative landscape and visual impacts can arise where new overhead lines are required along with other related developments such as substations (para 2.8.2).
- 7.2.9. NPS EN-3 notes that the impacts and costs of overhead and underground options vary considerably. Opportunities for mitigation of adverse landscape and visual impacts of electricity networks infrastructure include the consideration of network reinforcement opportunities, landscape schemes and screening.

Countryside and Rights of Way Act 2000 (CROW)

- 7.2.10. The CROW provides Natural England with the powers to designate areas as AONBs for the purpose of conserving and enhancing the natural beauty of the area. S85 of the CROW states that relevant public bodies shall have regard to the purpose of conserving and enhancing the natural beauty of an AONB when performing or exercising any functions which may affect land in an AONB. S89 of the CROW states that conservation bodies will prepare and publish a plan which formulates their policy for the management of their AONB and for the carrying out of their functions in relation to it.

Development Plans and other local policies

- 7.2.11. Policy SCLP3.4 of the Suffolk Coastal Local Plan (September 2020) states that in its role as a consultee on Nationally Significant Infrastructure Projects (NSIP) the Council will take into consideration the nature, scale, extent and potential impact of proposals for Major Energy Infrastructure Projects and the need to mitigate impacts arising from them.
- 7.2.12. Policy SCLP10.4 of the same plan states that proposals for development should be informed by, and sympathetic to, the special qualities and features as described in the Suffolk Coastal Landscape Character Assessment (2018), and that development proposals will be expected to demonstrate their location, scale, form, design and materials will protect and enhance:
- *The special qualities and features of the area;*
 - *The visual relationship and environment around settlements and their landscape settings;*
 - *Distinctive landscape elements including but not limited to watercourses, commons, woodland trees, hedgerows and field boundaries, and their function as ecological corridors;*
 - *Visually sensitive skylines, seascapes, river valleys and significant views towards key landscapes and cultural features; and*
 - *The growing network of green infrastructure supporting health, wellbeing and social interaction.*
- 7.2.13. Policy SCLP11.1 states that the Council will support locally distinctive and high quality design that clearly demonstrates an understanding of the key features of local character and seeks to enhance these features through innovative and creative means. It states that permission will be granted where proposals take account of any important landscape or topographical features and retain and/or enhance existing landscaping and natural and semi-natural features on site and include hard and soft landscaping schemes to integrate the development into its surroundings.

7.3. THE APPLICANT'S CASE

Introduction

- 7.3.1. The ES Chapter 29 [APP-077] considers Landscape and Visual Amenity and comprises the Applicant's Landscape and Visual Impact Assessment (LVIA).

- 7.3.2. This Chapter is organised to consider the LVIA methodology first, before considering the effects of the onshore elements of the Proposed Development on landscape and visual receptors. Cumulative effects are then considered.

Scope, Methodology and Existing Environment

- 7.3.3. Some matters were scoped out of the LVIA at a pre-application stage. In summary these were the landscape and visual impacts of the landfall during operation and the impacts of the cable route during operation, aside from an area at a crossing at Aldeburgh Road where woodland is proposed to be removed.
- 7.3.4. Pre-application consultation with regards to LVIA took place from around 2017 with representatives from local Councils and statutory bodies and public information days/meetings. Concerns raised in relation to landscape matters included the visual impact of the proposed substations and proximity to housing, loss of woodland, the character and beauty of the AONB, impacts on Friston, visual impact of cable routing, construction compounds, and re-routing power line, screening concerns and change to historical landscapes.
- 7.3.5. The LVIA study area is a 3km buffer from the onshore development area. This is based on assessment that outside this buffer significant effects are unlikely to arise.

Figure 1: LVIA Study Area



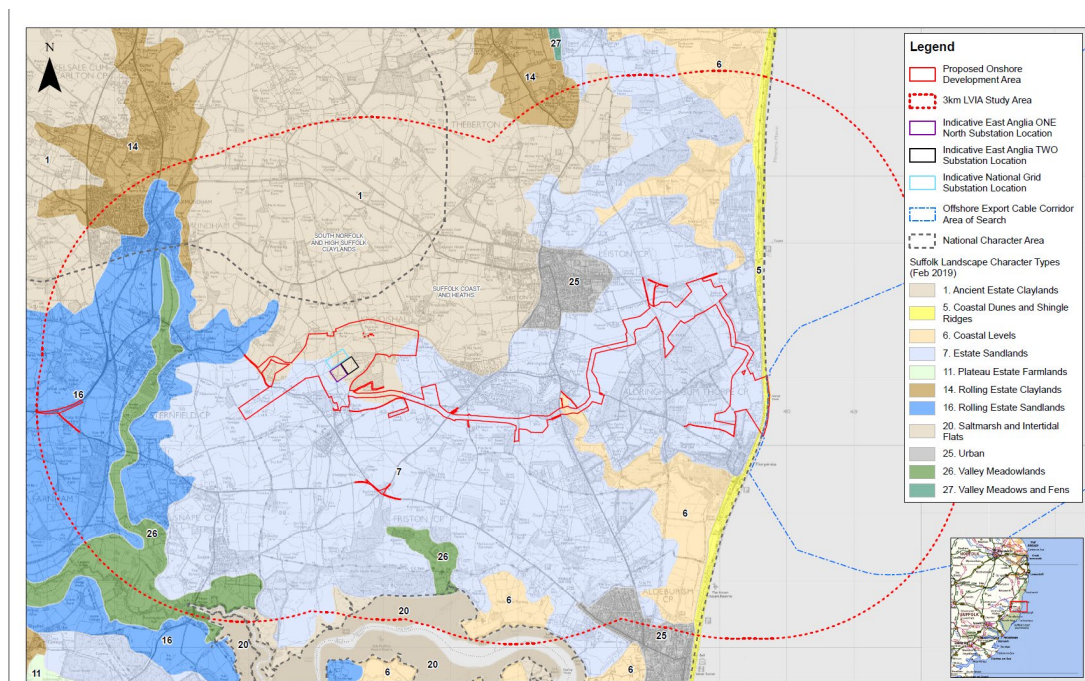
- 7.3.6. Worst case scenarios are used in the LVIA including temporary working areas, access roads, consolidation site sizes, cable route width (32m) and length, substation size (17,100m²), National Grid substation size (44,950m²) and cable sealing ends/compounds (10,000m² for three of them). The LVIA notes that there are two co-located substation locations

for the Proposed Development and the other East Anglia application, but that the draft Development Consent Order (dDCO) has the flexibility for each application to use either onshore substation location.

- 7.3.7. The LVIA states that the sensitivity of the landscape and visual receptors has been a key consideration in the siting and design of the onshore infrastructure and notes that an Outline Landscape and Ecological Management Strategy (OLEMS)[APP-584] is included with the application. Embedded mitigation for the Proposed Development is summarised as following the National Grid's guidelines on substation siting and design (The Horlock Rules) for the process of site selection, undergrounding onshore cables, the OLEMS and its integral Outline Landscape Management Plan (OLMP), the choice of Thorpeness for the landfall site away from the most sensitive areas of the AONB, onshore cable route selection through open agricultural land wherever possible, reducing substation height through the use of external harmonic filters (Table 29.3, [APP-077]) and the design requiring no night time permanent lighting.
- 7.3.8. The ES notes that the onshore substation location benefits from the presence of some substantial existing hedgerows and woodland blocks, particularly Grove Wood and Laurel Covert, considering that these would provide substantial screening of the area north of Grove Wood, particularly in views from the east (Knodishall), north (Knodishall Hall) and south (Snape Road). The ES notes that the OLMP design approach was developed following consultation with a working group including the Councils, Natural England, and Historic England and states that it combines areas of substantial woodland planting near the substation, set back from the main visual receptors to provide screening while retaining the open rural setting.
- 7.3.9. Such woodland is categorised as native core, native edge, native screening, native wet, and native hedgerows. The ES states that such areas will be well established within 5 to 10 years of post-planting and between 10 to 15 years trees are assumed to be generally retaining good vigour and starting to achieve good height to provide noticeable screening. Tree heights at 15 years post planting are used for photomontages included within the ES. Tree and hedgerow proposals focus on reinstatement of historic field boundaries and planting in the form of locally characteristic 'covert' woods and some planting is proposed at the start of the construction stage, around three years prior to proposed completion of the Proposed Development.
- 7.3.10. For the onshore cable route, the ES notes that the route has been designed to avoid and minimise the felling of hedgerows, woodlands and heathland vegetation but that where possible any hedgerows lost will be replanted.
- 7.3.11. The English landscape is classified at the national level into 159 National Character Areas (NCAs). The eastern part of the LVIA study area is located within the Suffolk Coast and Heaths NCA (82) and the western part is within the South Norfolk and High Suffolk Claylands NCA (83)

- 7.3.12. NCA 82 is located on the North Sea coast and forms a long narrow band of coast, heath and farmland landscape that extends inland from the coast. Distinctive features include shingle beaches, cliffs, and lowland heaths, although the ES notes that traditional heath is now highly fragmented. The Sizewell power stations are also located within this NCA.
- 7.3.13. NCA 83 is primarily a farming landscape with a “strong utilitarian and rural character” and irregular field patterns. The area is a long-settled landscape with nucleated villages intermixed with dispersed hamlets and farmsteads. Scattered small woodlands, hedges and hedgerow trees are notable elements in the landscape.
- 7.3.14. The Suffolk County Council Landscape Character Assessment (2011) is summarised in the ES and defines the baseline for the LVIA study area and categorises various different landscape character types (LCT)¹¹.

Figure 2 LCT types in the LVIA area.



- 7.3.15. The LCTs within the LVIA area are:
- Ancient Estate Claylands (LCT 01) – onshore substations;
 - Coastal Dunes and Shingle Ridges (LCT 05) - landfall;
 - Coastal Levels (LCT 06) – onshore cable route crossing of the Hundred River Valley; and
 - Estate Sandlands (LCT 07) – landfall, onshore cable route and partial National Grid substation;
- 7.3.16.** The Ancient Estate Claylands LCT comprises a largely broad and generally flat plateau landscape, which is mainly used as farmland with

¹¹ EA1N ES Figure 29.2 Landscape Character (District and County), Scottish Power Renewables.

medium to large fields enclosed by hedgerows and trees, with some intermittent blocks of woodland. The ES notes that while the plateau landform ensures some longer and more open views occur, a much more intimate character is created by the enclosed nature of much of this landscape.

- 7.3.17.** The Coastal Dunes and Shingle Ridges LCT forms a narrow band along the coastal edge of the LVIA study area and is characterised by flat or gently rolling shingle ridges and coastal dunes, formed through coastal erosion and longshore drift. There is little vegetation, and the coastal landscape is open.
- 7.3.18.** Coastal Levels LCT (marked in yellow on the plan above) occur in one small area in the LVIA study area, associated with the Hundred River. The ES note that while this LCT is principally characterised by the flat and low-lying marshland associated with the coast and estuaries, the area that occurs in the LVIA study area has mostly been reclaimed for farming. Fields are small and geometric with drainage ditches and occasional dykes. Woodland and settlement occur along the edge of the Hundred River making views typically enclosed.
- 7.3.19.** The Estate Sandlands LCT is the predominant LCT in the LVIA study area and is characterised by flat or gently undulating landscape. Natural vegetation is heathland or acid grassland, suited to the sandy soils and the general absence of watercourses. Irrigation has enabled this landscape to be converted into arable farmland, with widespread wooded shelterbelts and plantations.
- 7.3.20.** The ES [APP-077] notes that the Suffolk Coastal LCA provides more detail on LCAs within the LCTs. This identifies the LCAs in which the proposed substations would be located as the Heveningham and Knodishall Estate Claylands (L1) and the Aldringham and Friston Sandlands (K3). Key characteristics are noted as:
- The arrangement of the parish of Friston village, church, village green and detached parishes, such as Fristonmoor.
 - The relationship between Fristonmoor and the village to the south, which is visually connected in views to Friston church and through the existing Public Right of Way (PRoW) between the village and parish.
 - Areas of land with the appearance of common on the village edge.
 - Network of small-scale fields to the north of Friston, with strong hedgerow field boundaries and scattered mature deciduous field boundary trees. Enclosure pattern is noted as generally ancient, but the field patterns tend to be straight and regularised.
 - Quiet farmland, with a simple, rural character but a strong sense of agri-business land use evident amongst the medium to large fields towards Fristonmoor and Little Moor Farm.
 - A network of historic green lanes, most of which have been lost to agricultural intensification, and PRoWs through the field systems.
 - Scattered listed farm buildings contribute to the sense of place.

- Several ancient farms with 'Hall' or 'Manor' in their names, including Friston Hall and Manor Farm. Friston House is a grade II listed building set in mature woodland on the northern edge of the village.
- Large-scale modern agricultural buildings in the local landscape, particularly those at Redhouse Farm
- Gently undulating landform, formed by relatively flat fields to the west of Grove Road/north of Friston, which rises gradually to the north towards Fristonmoor.
- Variety in visual experience, from more open areas around Fristonmoor with views south to Friston, compared to more enclosed areas in and around the edges of Friston and parts of Grove Road, where strong hedgerows and mature woodland provides visual containment.
- Woodland, roadside trees, hedges and field boundary vegetation are often present and form a notable component of the tree cover with numerous woodland blocks.
- A double row of overhead pylons and electrical lines crosses the landscape between the village of Friston and Fristonmoor. These form notable visual elements and due to their larger vertical scale and form tend to distort the sense of scale in the landscape.
- The boundary of Ancient Estate Claylands and Estate Sandlands to the north of Friston is not definitive but suggests a transition in character.

- 7.3.21. There are two landscape designations within the LVIA study area; the Suffolk Coast and Heaths AONB (SCHAONB) and the Hundred River Valley Special Landscape Area (SLA). The Suffolk Heritage Coast is also defined and lies partially within the LVIA area.
- 7.3.22. The eastern part of the LVIA study area lies within the SCHAONB. The AONB is a mainly flat or gently rolling landscape, often open but with few commanding viewpoints (VP(s)). The AONB comprises mainly farmland, with some forestry plantations, low-lying freshwater marshes, intertidal estuaries, heathland, the coast, small villages and iconic coastal market towns. The ES notes that the area is probably best known for the particularly distinctive features of the coast and lowland heath which give the AONB its name. The area's heathland, known as the Sandlings and now much fragmented, follows the line of the coast although large areas that were once Sandlings heath have been converted to farmland or developed for forestry or housing. The SCHAONB is popular for outdoor recreation and tourism and is valued for its tranquillity, the quality of the environment and culture, and for its wildlife.
- 7.3.23. The Hundred River SLA has special landscape attributes which are particularly vulnerable to change, with traditional grazing meadows and marshes.
- 7.3.24. The Suffolk Heritage Coast is largely contained within the SCHAONB and runs from Kessingland to Felixstowe. The ES notes that there are no statutory requirements or powers associated with the Heritage Coast definition, but that it includes objectives for conserving the environmental health and biodiversity of inshore waters and beaches, and to extend opportunities for recreational, educational, sporting and

tourist activities. The ES states that as the purpose of Heritage Coast is similar to that of an AONB the Suffolk Heritage Coast is considered as integral to the AONB assessment.

- 7.3.25. Finally, anticipated trends in baseline condition (future changes of the baseline character of the LVIA study area) are expected as a result of climate change, land use policy, environmental improvements and development pressures. In the study area this could lead to higher sea levels affecting the coastline and droughts and flooding affecting the productivity of agricultural land. Proposals for Sizewell C may cause a notable change to the baseline visual conditions of the Sizewell area.

Potential Effects during Construction

- 7.3.26. The ES considers that the construction of the landfall will result in not significant effects on the landscape character of the Coastal Dunes and Shingle Ridges LCT or the Estate Sandlands LCT as a whole, but notes that due to the Horizontal Directional Drilling (HDD) temporary working bays and construction of transition bays to the north of Thorpeness and loss of hedgerows there would be effects on the Estate Sandlands LCT and the Area of the SCHAONB between Thorpeness and Leiston as:

"a short term significant effect in the very localised landscape within and immediately around the landfall." (ES, Chapter 29 paragraph 142 [APP-077])

- 7.3.27. Similarly, the ES predicts short term significant visual effects of the construction of the proposal on users of the Suffolk Coastal Path (SCP) and the Sandlings Walk where the routes of these walks pass close to the proposed construction area. Not significant effects are considered for residents of Thorpeness, users of the Thorpeness B1353 road and other sections of the above-mentioned paths.
- 7.3.28. For the cable route, short term significant effects in landscape terms are predicted for LCT 07 Estate Sandlands Area 7A (Thorpeness to Aldringham and Friston) within the AONB, and for Area A of the Hundred River Valley SLA (Hundred River Valley, south of Aldringham). In summary this is due to the felling of around 0.9ha of woodland north of Fitches Lane to the west of the Hundred River and on effects on the landscape/scenic quality and wildness/tranquillity special qualities of the AONB. Due to the agricultural nature of much of the route and the limited nature of the works, all other effects are predicted to be not significant.
- 7.3.29. In terms of visual effects short term significant effects are predicted for:
- The residents of Aldeburgh Road/Fitches Lane area of Aldringham;
 - The residents of a group of dwellings on Snape Road on the southern edge of Coldfair Green;
 - Residents on the north edge of Friston;
 - Drivers on a 500m section of B1353 Thorpeness Road to the east of Aldringham;
 - Drivers on a 250m section of the B1122 to the south of Aldringham;

- Drivers on a 500m section of the B1069 to the south Coldfair Green;
- Walkers on the Suffolk Coastal Path on a 1.8km section of path to the north of Thorpeness
- Walkers on the Sandlings Walk of a 2.2km section between Friston and Sloe Lane and 1.7km section between Aldringham Common and Sizewell;
- Cyclists on the Suffolk Coastal Cycle Route on a 500m stretch of Grove Road between Friston and Grove Wood.

Such effects are confined to the areas immediately surrounding the proposed cable route (ES, Chapter 29 Table 29.8 [APP-077]).

- 7.3.30. Landscape effects for the substations' sites (including National Grid infrastructure) are assessed in summary as:

"The physical effect of the construction of the onshore substation and National Grid infrastructure on the agricultural land, hedgerows and a small area of Laurel Covert woodland, is assessed as being not significant, however significant effects on the character of the landscape are assessed as occurring within a localised area of approximately 1km around the onshore substation and National Grid infrastructure" (ES Chap 29 Paragraph 165 [APP-077])

- 7.3.31. The ES notes that construction will result in a large-scale change of the local character of the LCT, due to the onshore substation, temporary working areas and roads and increased activity of vehicles, machinery, cranes and materials stockpiling which will contrast with the quiet rural setting. As the form of the proposed buildings and infrastructure takes shape, changes will result to the "local characteristic relationship of the Parish between Friston and Fristonmoor" (ES, Chapter 29 paragraph 166 [APP-077]).

- 7.3.32. The ES states that effects on the AONB would be not significant due to the site being some 1.6km from the SCHAONB at its closest point.

- 7.3.33. In terms of visual effects the ES states that:

"The undulating agricultural land and large woodland blocks at Grove Wood and Laurel Covert will provide notable visual containment of the onshore substation and National Grid infrastructure in the landscape. In particular, they entirely screen views of the onshore substation and National Grid substation in views from the east, such as from Knodishall/Coldfair Green"

And that:

"In views from areas where the onshore substation and National Grid substation will be visible, Grove Wood and Laurel Covert provide visual containment in terms of the spread of development vertically, since these woodlands are higher than the onshore substation and National Grid infrastructure construction works." (ES Chapter 29, paragraph 168 [APP-077])

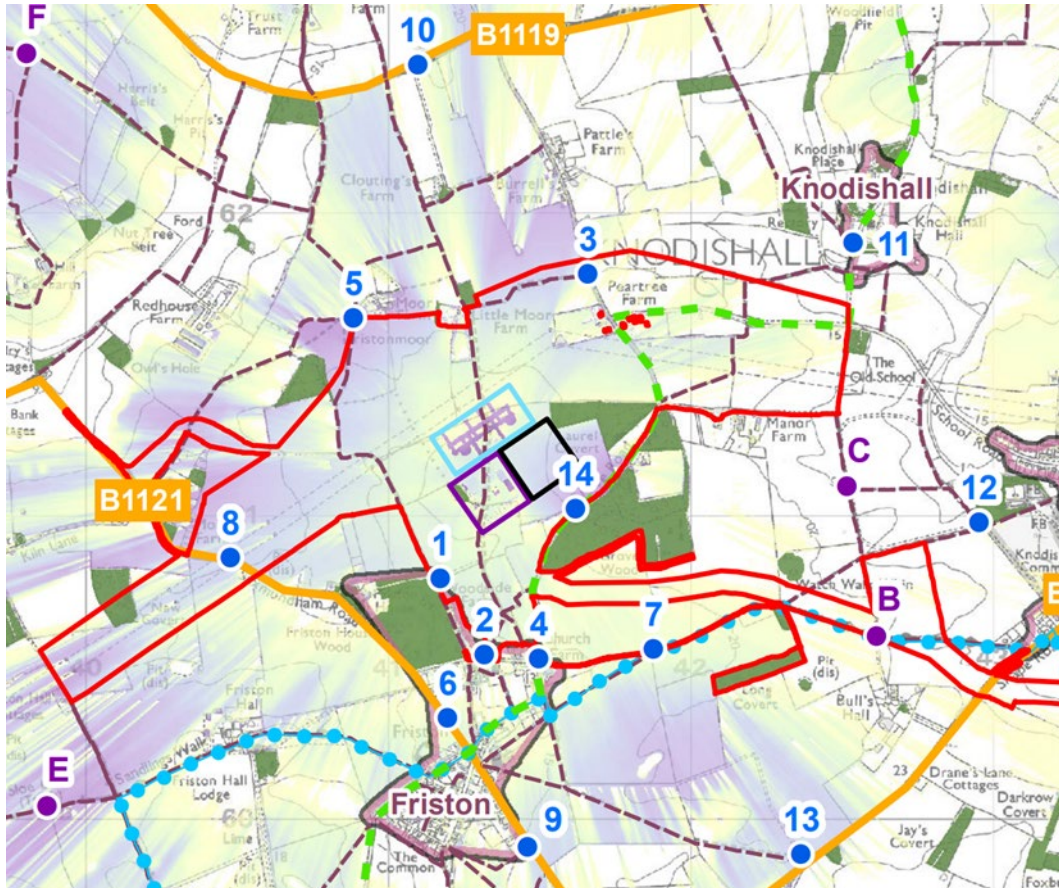
- 7.3.34. Despite this notable screening the ES states that the construction of the substations and infrastructure would have a short-term (1 to 4 years) significant impact on residents of localised areas on the edge of Friston, people walking on the local network of footpaths to the north of Friston, motorists on the B1121 road to the north of Friston and those on Grove Road between Friston and Grove Wood.

Potential Effects during Operation

- 7.3.35. As stated above, the landscape and visual impacts of the landfall during operation and the impacts of the cable route during operation, aside from an area at a crossing at Aldeburgh Road were scoped out of the LVIA at pre-application stage.
- 7.3.36. For this area at Aldeburgh Road (north of Fitches Lane) the ES states that the cable corridor has been reduced to 16.1m to retain as many trees as possible and woodland would be retained to screen between the proposed cable route and residential properties on Fitches Lane. The effect of the cable route during operation is assessed as significant in the first year, however, due to reinstatement (through the establishment of heathland over the cable and woodlands planting on the outer edges) such effect is assessed as not significant, long term and permanent over the remainder of the operational period. Effects on the setting of the SCHAONB are assessed as not significant. Visual effects are assessed as being not significant due to reinstatement proposals (ES, Chapter 29 paragraph 177 [APP-077]).
- 7.3.37. In terms of landscape character for the proposed substations' site, significant effects are assessed as occurring within a localised area of around 1km around the site, with the presence of the development resulting in a large-scale change to the local character of the Ancient Estate Claylands LCT 01. Significant effects are also assessed on the landscape character of the Estate Sandlands within 1km of the National Grid substation, mainly to the south and east. Effects on the SCHAONB are considered to be not significant because of the distance from the substation sites.
- 7.3.38. The ES arrives at this view after considering that the Ancient Estate Claylands LCT has medium value, noting that it does not form a constituent part of the AONB and that it is a relatively widespread and common rural landscape character within East Suffolk with limited recreational value. The ES notes that the local landscape in the Friston area has a strong sense of place and local distinctiveness but that the visual containment of the LCT by extensive woodland blocks, tree belts and hedges reduces the susceptibility to change of the LCT; as does the existing double row of high voltage overhead transmission lines (ES, Chapter 29 paragraph 180 [APP-077]).
- 7.3.39. The ES states that the undulating agricultural land and large woodland blocks at Grove Wood and Laurel Covert would provide notable visual containment of the Proposed Development, but that the proposal would cause significant visual effects to residents of localised areas on the edge

of Friston (VPs 1, 2, 4 and 9), people walking on the local public right of way network to the north of Friston (VPs 2 and 5), residents of scattered rural dwellings near Friston (VPs 5 and 8); and motorists/cyclists travelling on Grove Road immediately passing the onshore substation and National Grid infrastructure (VP 14). Such effects would all be within 1.2km of the proposed infrastructure and would occur in the long term until mitigation was established. The figure below shows the location of these VPs.

Figure 3. Excerpt from Onshore Substation Zone of Theoretical Visibility (ZTV) (Viewpoints and Receptors) [APP-399]



- 7.3.40. The ES separately considers significance of effects at a date range of 15 years post construction. This states that areas of woodland and hedgerows planted as part of the OLMP would be established and providing progressive screening to reduce effects of the Proposed Development upon the local landscape character, with the aim to retain the open setting of existing farms and villages while providing screening. However, the ES considers that the substations and infrastructure would still have a significant long term and permanent effect on the landscape character within 1km of the Proposed Development, due to the change from an essentially open landscape to one where at the local level the landscape character would be strongly influenced by the presence of the Proposed Development within the planted landscape framework.

- 7.3.41. The ES does consider that the visual effects of the Proposed Development would be effectively mitigated 15 years after construction,

due to the screening provided, reducing the effect to not significant to all the identified receptors aside from views from the local footpath network (VP 2 & 5) and for local residents (VPs 2, 4, 5, 8 & 9) where the effect would remain significant.

7.3.42. Significant effects would also remain for residents in Area A and Area C in Friston (Church Road on the northern edge of the Village and Aldeburgh Road).

7.3.43. The ES [APP-077] also considers the potential effects of an alternative onshore substation location; that is if the Proposed Development used the onshore substation proposed in the other East Anglia application. In summary for the construction phase the significance of landscape effects and in terms of visual effects for all receptors is considered to be the same. For the operations phase the significance of landscape effects would be the same but VP4 (Grove Road, Friston) would see a reduction in effects to not significant.

Potential Effects during decommissioning

7.3.44. Decommissioning would depend on the provisions of an Onshore Decommissioning Plan to be agreed as part of the Development Consent Order (DCO). However, the ES considers that as a worst-case scenario impacts would be no greater than those identified for the construction phase.

Cumulative effects

7.3.45. ES Chapter 29 [APP-077] summarises the separate Cumulative Assessment [APP-569]. This summary initially considers the cumulative effects with the other East Anglia application. The two projects share the same landfall and onshore cable corridor, and the substations would be co-located, connecting into the same National Grid substation.

7.3.46. The cumulative impact assessment (CIA) considers two construction scenarios – one in which the Proposed Developments are constructed simultaneously and one where they are constructed sequentially, with the worst-case scenario carried forward to assessment with other potential projects. Scenario 2 is considered to be the worst-case scenario as effects will be longer term than under scenario 1 (paragraph 210, [APP-077]).

7.3.47. For construction effects the following significant effects are anticipated for landscape and visual effects for both receptors and LCTs:

- Landfall
 - LCT 07 Estate Sandlands – Significant, medium term, temporary
 - SCHAONB Area A – Significant, medium term, temporary
 - Suffolk Coastal Path and Sandlings Walk walkers – Significant, medium term, temporary for 1km of the routes
- Onshore cable route

- LCT 07 Estate Sandlands - Significant, medium term, temporary on sections 1, 2 and 4 within and adjacent to the cable route
- Woodland Area A Fitches Lane - Significant, medium term, temporary
- SCHAONB – Significant, medium term, temporary on the landscape/scenic quality and relative wildness/tranquillity of Area A of the AONB.
- Hundred River Valley SLA Area A south of Aldringham - Significant, medium term, temporary.
- Residents of Aldringham, Coldfair Green, Friston - Significant, medium term, temporary for residents close to the proposed cables route.
- Motorists - Significant, medium term, temporary for 500m section of B1353, 250m section of B1122, and a 500m section of B1069 where road coincides with cables route crossings.
- Walkers - Significant, medium term, temporary for a 1.8km stretch of the Suffolk Coastal Path and for two separate 2.2km and 1.7km stretches of the Sandlings Walk.
- Cyclists - Significant, medium term, temporary for a 500m stretch of the Suffolk Coastal Cycle Path
- Onshore substations and National Grid Infrastructure
 - LCT 01 Ancient Estate Claylands - Significant, medium term, temporary on localised area of around 1km around works.
 - LCT 07 Estate Sandlands Area 7A , Significant, medium term, temporary on localised area of around 1km around works.
 - Woodland Area 7A - Significant, medium term, temporary on edge of Laurel Covert
 - VP 1 PRoW Friston – Significant, medium term, temporary for residents and walkers.
 - VP 2 Friston Church Road - Significant, medium term, temporary for residents and walkers.
 - VP 4 Friston Grove Road - Significant, medium term, temporary for residents, walkers, and motorists.
 - VP 5 PROW Moor Farm - Significant, medium term, temporary for walkers and residents.
 - VP 8 B1121 Saxmundham Road- Significant, medium term, temporary for residents and motorists.
 - VP 9 B1121 Aldeburgh Road - Significant, medium term, temporary for residents.
 - VP 14 Grove Road - Significant, medium term, temporary for motorists and cyclists.
 - Friston Area A Northern part - Significant, medium term, temporary for residents.
 - Friston Area C Aldeburgh Road - Significant, medium term, temporary for residents.
 - B1121 Aldeburgh Road Section B North of Moor Farm - Significant, medium term, temporary for motorists.
 - Grove Road Section B Manor Farm - Significant, medium term, temporary for motorists
 - Suffolk Coastal Cycle Route Grove Road - Significant, medium term, temporary for cyclists

- 7.3.48. Cumulative effects during operation for the onshore cables route is assessed as not significant. For the onshore substations and National Grid infrastructure significant effects are considered to be the same as during construction for the first year of operation, aside from VP14 Grove Road and VP8 B1121 Aldeburgh Road. For significance of effect after 15 years, significant effects remain aside for VP1 (walkers and residents) and VP8 (motorists only).
- 7.3.49. The CIA notes that decommissioning would depend on the provisions of an Onshore Decommissioning Plan to be agreed as part of the DCO, and that as for the Proposed Development on its own the ES considers that as a worst-case scenario, impacts would be no greater than those identified for the construction phase.

Cumulative effects – The other East Anglia application and the Sizewell C Project

- 7.3.50. Significant medium-term effects for landscape and visual effects for construction are predicted for (Table 29.16, [APP-077]):
- Landfall
 - Walkers on the Suffolk Coastal Path and the Sandlings Walk in relevant areas.
 - Cables route
 - LCT 07 Estate Sandlands Area A between Thorpeness, Sizewell, Leiston and Aldringham and Area B Sizewell
 - SCHAONB on the character and special qualities of Area A between Thorpeness, Sizewell and Leiston and Area C Sizewell.
 - Walkers on the Suffolk Coastal Path and Sandlings Walk in relevant areas.
 - Cyclists on the Suffolk Coastal Route on relevant sections.
- 7.3.51. No significant cumulative impacts are expected during operation.

Inter-relationships

- 7.3.52. The construction of onshore and offshore elements of the Proposed Development within localised areas of LCT 05, LCT 07 and the SCHAONB near the landfall are predicted to result in inter-related seascape effects. These will be significant in the short term and not significant during operation. Similarly, inter-related visual effects may occur for residents of the northern edge of Thorpeness and walkers using the SCP and Sandlings Walk in the area between Thorpeness and Sizewell. These will be significant during construction and not significant during operation. The ES Chapters concerning onshore ecology (Chapter 22), archaeology and cultural heritage (Chapter 24), and tourism recreation and socio economics (Chapter 30) also identify the occurrence of inter-relationships (ES, Chapter 29 Table 29.18 [APP-077]).

7.4. PLANNING ISSUES

Relevant Representations

- 7.4.1. In their RR Natural England (NE) [RR-059] highlighted the need for considering and potentially committing to simultaneous construction of the onshore cabling for both projects should they be approved. They also considered there to be a limited amount of detail as to how construction activities would proceed in and close to the SCHAONB and how soon after commencement all signs of construction activity would be removed from the AONB.
- 7.4.2. Friston Parish Council stated [RR-011] that the substations would cause severe landscape and visual harm that could not be mitigated, and that the substations would sever a substantial area of tranquil, open and deeply rural countryside, conflict with the prevailing unified character of their surroundings, permanently stop up PRowS and substantially harm the wider PRow network, require an excessively long and wide access road, change completely the character of Friston, and require a 9km long cable route which would impact on numerous receptors. They considered that: planting cannot mitigate development in the wrong location; that, given local soil and climatic conditions, the assumed growth rate of mitigation planting is highly questionable; and that the substations and ancillary infrastructure would be arbitrarily and unsympathetically imposed upon the existing landscape framework, with micro-siting and mitigation unable to minimise potential impacts.
- 7.4.3. The Parish Council also raised concerns regarding the LVIA, including an absence of plans showing the scheme and Friston village together, questionable judgements regarding sensitivity and magnitude of change, the use of Suffolk County LCTs instead of more up to date LCAs from Suffolk Coastal, the lack of justification for subdividing these LCTs, and a lack of detail regarding significant infrastructure components such as the access road. They also raised concerns over the absence of VPs from the footpaths north of the site. These concerns were mirrored by Substation Action Save East Suffolk (SASES) [RR-069].
- 7.4.4. Aldringham-cum-Thorpe Parish Council [RR-008] considered that the extensive area of land required would change the landscape forever, stating that the developer must as a minimum restore the cable route to its state prior to construction.
- 7.4.5. Friston Parochial Church Council (FPCC) stated [RR-043] that the current quiet and restful rural landscape, traversed by footpaths, with the fabric of the church as its backdrop, will be replaced by upwards of 30 acres of industrial scale buildings and the loss would be permanent.
- 7.4.6. Save our Sandlings (SourS) [RR-070] considered that the Proposed Development and the other East Anglia application would drive cable routes the width of a motorway through the Sandlings and the SCHAONB for 4 to 8 years, which is not a temporary timescale, and considered that the size of the substations are not suitable for the landscape around Friston.

- 7.4.7. Suffolk Preservation Society (SPS) [RR-085] stated that their principal concern was the scale of the industrialising effect of the onshore substation within an area where its intrinsic rural character is defined by its historic landscape and buildings. They considered that the ES underestimated the onshore landscape and visual impacts and did not truly reflect the character or the historic significance of the landscape and the harm that would result, stating that such a large alien feature would not integrate with this existing landscape but would dominate in terms of siting, scale and massing, and considering that the effectiveness of the proposed mitigation planting is ambitious and the reliability of the supporting visualisations is questionable. It also considered that in some cases the mitigation planting being proposed is inappropriate and would create further harm to this historic landscape. It believed that a more creative and sympathetic design, and/or consideration of lowering the ground level, rather than adopting generic layouts, would minimise some impacts.
- 7.4.8. Amongst other interested parties, landscape effects were raised frequently, with over 200 relevant representations from members of the public or businesses raising the issue.
- 7.4.9. In response to Friston Parish Council (and SASES), the Applicant reiterated [AS-036] the findings of the ES and stated that the selected onshore substation location avoids all international, national, county and local landscape designations and that the site benefits from existing natural screening. The function of the OLEMS and inbuilt OLMP was also stressed, as well as the Ecological Management Plan. They considered growth rates to be appropriate and achievable. In reply to Aldringham-cum-Thorpe Parish Council, the Applicant [AS-036] agreed that the land used by the proposed onshore cable route should be restored to its state prior to construction.
- 7.4.10. Responding to NE, the Applicant [AS-036] stated that it was not possible for the Proposed Development to carry out the duct installation for the cables for both projects at once due to cost reasons and that further details of a schedule of works would be addressed as part of detailed design.
- 7.4.11. The Applicant acknowledged [AS-036] in response to the SPS that the onshore substation would represent a permanent/long term change to the historic landscape character to the immediate surroundings of the proposed site. It disputed that the landscape at the site had been unchanged for centuries and noted [APP-077] the presence of large-scale modern agricultural buildings in the local landscape; a strong sense of agri-business land use (associated with straight and regularised field patterns to accommodate modern farming practices); and the double row of overhead pylons and electrical lines crossing the landscape. It also noted that the final onshore substation design would be developed post consent.
- 7.4.12. In response to concerns raised over the landscape effects of the cable route from individual stakeholders (including local interest groups), the

Applicant [AS-035] reiterated the findings of the ES, noted the content of the OLEMS and emphasised that the cable route would be reinstated at the end of the construction phase with cable corridors reduced to minimal working widths when crossing important hedgerows.

- 7.4.13. Responding to concerns raised over the substations' site the Applicant notes the embedded landscape mitigation detailed within the ES (Table 29.3), [APP-077], including the existing screening, existing overhead lines and siting in an area of low flood risk (flood risk is considered in further detail in Chapter 6). Reference was also made to proposed additional screening. The Applicant noted concerns relating to the size of the substations and stated that the proposed onshore substation would be a gas insulated switchgear (GIS) substation but that the National Grid substation could be GIS or an Air Insulated installation (AIS). The Applicant's Project Description document [APP-054] noted that GIS substations have equipment contained within a building with a compound size of 190m by 190m, and a maximum height of external equipment of 18m. The National Grid substation would be 145m wide by 310m long with a maximum external equipment height of 16m (AIS), or 140m wide by 120m long with a maximum equipment height of 14m (GIS).

Local Impact Report

- 7.4.14. The East Suffolk Council and Suffolk County Council Joint Local Impact Report [REP1-132] stated their primary areas of concern to be the landscape and visual impacts of the onshore elements of the project, including cumulative impacts with the other East Anglia application. Secondary areas of concern are noted as cumulative effects with Sizewell C; landscape and visual impacts of construction, particularly at cable corridor works at Sizewell Gap and Aldringham; and the loss of hedgerow and woodland trees, particularly at Aldringham and Laurel Covert.
- 7.4.15. The Councils were of the view that it is important to understand whether all reasonable endeavours have been made to minimise the scale of the proposed substations and whether they could be lowered into the ground. They also considered it important to understand whether the proposed mitigation planting and growth rates were capable of being delivered and noted that there would be significant and permanent change to the character of the landscape at the substations site.
- 7.4.16. They considered that the character and significance of some of the features and landscape elements of the site, particularly regarding historic landscape character had not been fully understood. Matters relating to historic character are considered by the ExA in Chapter 8, Onshore Historic Environment, although some elements of the Councils' concerns such as field boundaries and the impact on the character and spatial significance of the settlement pattern are considered below where they relate to landscape as opposed to heritage.
- 7.4.17. The Councils considered that the growth rates proposed for mitigation planting are not reasonably likely to be achievable in the local conditions which include light free draining soils and prolonged dry spells through

the critical spring and summer months. They noted that the growth rates are based on national averages as opposed to local conditions. Consequently, they did not accept that new planting would be approaching maturity after 15 years and therefore considerations in the ES relating to views and impact in the wider landscape were not sound. To address this, they wished to see updated visualisations based on agreed realistic growth rates.

- 7.4.18. The Councils also wished to see further offsite planting in strategic locations to help offset impacts, including the reinforcement of field boundaries and PRowS in the area and suggested a fund was provided for the local community to provide private planting to screen views from individual properties.
- 7.4.19. The Councils accepted that the undergrounding of the cables would provide significant mitigation against visual and landscape impacts but considered that the removal of hedgerow trees would create significant adverse impacts.
- 7.4.20. For the long-term management of the substations' site the Councils wished to see an adaptive maintenance and aftercare regime to potentially extend beyond the 10 years replacement of defective planting proposed by the Applicant. Such a management plan should be accompanied by the establishment of a community liaison group to provide a forum for communication between the site operators and interested local residents.

Later submissions

- 7.4.21. In response to the LIR [REP2-013], the Applicant referred to their ES and pointed out that an Archaeology and Cultural Heritage note had been submitted at Deadline 1 (D1) (this note [REP1-021] considers historic landscape character and is primarily considered in Chapter 8). It considered that extensive planting had been proposed in the OLEMS but stated that a selection of updated visualisations to provide an illustration of a more realistic depiction of mitigation planting at 15 years post construction would be submitted at D3, along with an updated OLEMS.
- 7.4.22. At D2, the Applicant changed some of the parameters of the Proposed Development and stated [REP2-007] that should both the Proposed Development and the other East Anglia application be built sequentially, that when the first project goes into construction, the cable ducting for the second project would be installed along the whole of the onshore cable route in parallel with the installation of the onshore cables for the first project. This would include installing ducting using a trenchless technique at the landfall for both Projects at the same time. A commitment to reduce the scale of the proposed onshore substation was also made.
- 7.4.23. The OLEMS submitted at D3 [REP3-030] reflected this reduction in scale, reducing the size of the substation from 190m by 190m to 190m by 170m. The height of the substation building was also reduced from a

maximum to 14m (from 15m) and external infrastructure to 14m (from 18m). Bunding proposals for Sustainable Urban Drainage (SUDs) basins was also identified, of around 1.5m high.

- 7.4.24. These reductions to the footprint allowed other changes to be incorporated, including the retention of an existing area of established woodland (commonly referred to in the Examination as the 'wooded pit'). Other changes in the D3 OLEMS included further planting to the north of the proposed NG substation and between a SUDs basin and the proposed access road, to the west of the proposed onshore substation site (by virtue of the movement of the SUDs basin), 'covert' planting alongside field boundaries to the north of Friston, and the increase in density of planting along hedgerow boundaries. The OLEMS also identified areas for potential early planting.
- 7.4.25. An adaptive planting maintenance scheme with pre and post construction planting was proposed with a commitment to replace failed woodland planting for 10 years.
- 7.4.26. The effect of these planting changes can be seen in the diagram below. The green areas show proposed new planting areas.

Figure 4 OLMP Proposed Planting Plan OLEMS D3 [REP3-030]



- 7.4.27. East Suffolk Council (ESC) welcomed the changes to the OLEMS and the OLMP [REP4-059], although noted that they remained of the view that the growth rates for mitigation planting were optimistic. They considered that the adaptive landscape management should be flexible, as opposed to being set to 10 years.
- 7.4.28. NE confirmed at D4 [REP4-095] that the simultaneous installation of the cable infrastructure for the Proposed Development and the other East Anglia application overcame their issues relating to the LVIA and the AONB.
- 7.4.29. SASES [REP4-104] noted the proposed reduced footprint and height of the substation but stated that that the area remained substantially larger than the benchmark for similar substations as documented by National Grid Electricity System Operator (NGESO), and that used for other projects. In particular SASES noted the design of the substation for the Rampion scheme which used multiple stacks of harmonic filters to reduce overall height and a different substation layout to fit within existing field boundaries.
- 7.4.30. In an appendix dedicated to landscape issues [REP4-107] SASES noted that while reduced heights for buildings and structures were welcomed, it was the smaller buildings and slenderest of structures that had the greatest reductions. They concluded that while the proposed changes would bring some improvements the development would remain incongruous and out of scale with the receiving landscape, and the changes would not be enough to significantly reduce the magnitude of change for either landscape or visual effects, which in their view would remain as major adverse during construction and through year 1 (for

potentially 6 years or longer), only reducing to moderate/major at year 15, based on optimistic tree growth predictions.

- 7.4.31. At D4 a LVIA Addendum [REP4-031] was submitted by the Applicant, containing updated photomontages to reflect the changes made in the D3 OLEMS [REP3-030]. The updates covered the areas surrounding the proposed substations site. The Addendum stated that these changes would result in magnitude of change after 15 years of operation reducing for VP2 (Church Road, Friston) and VP9 (B1121 Aldeburgh Road south of Friston). For VP9 effects would reduce to not significant. Cumulatively significance of effect largely remained the same.
- 7.4.32. The Addendum concluded that the reduction in visual effects from the design and landscape changes would be most notable from the Friston area to the south. Significant, long term and permanent visual effects are assessed as
- "occurring only on views experienced by people walking on the local PRoW network to the north of Friston, residents of scattered rural dwellings near Friston/Fristonmoor and localised parts of the edges of the village of Friston"*
- 7.4.33. At D5 ESC [REP5-048] welcomed new proposed planting layouts but noted their disappointment that the National Grid substation remained the same proposed size and considered that relatively minor modifications could be made to the Sealing End Compounds (SECs) to allow the retention of existing field boundaries. It accepted that the LVIA Addendum would appear to be beneficial in moderating the adversity of landscape and visual effects, noting that these remained dependent on the successful implementation and establishment of the proposed planting measures.
- 7.4.34. SASES [REP5-097] raised continuing doubt over scheduling and the time taken to construct substations -whether that of the Proposed Development and the National Grid substation or with the substation for the other East Anglia application. It welcomed the new photomontages but disagreed with the Applicant's findings, considering that the revised montages illustrated clearly the impact of the Proposed Development on the distinctive character to the north of the village. They were of the view that there would be a total loss of the current relationship between this landscape to the north and the village of Friston to the south.
- 7.4.35. A further revision of the OLEMS was submitted at D6 [REP6-007], including details of further planting between Fareacres and Little Moor Farm and more extended planting southeast of Little Moor Farm, as well as revisions to SUDs layouts. Further detail was included of the proposed adaptive planting management scheme, including confirmation that it would also apply to the Hundred River area of the proposed cable route.
- 7.4.36. At D7 ESC raised concerns over the precise extent of the coverage of the adaptive scheme [REP7-063]. D8 saw a further revision of the OLEMS submitted [REP8-019]; changes were mostly based around revisions to surface water management as well as responding to the comments of

ESC at D7 on the adaptive landscape scheme. Revised photomontages were also submitted from various VPs. A submitted Substations Design Principles Statement (SDPS) [REP8-082] contained various details considering the individual design of the proposed substations and included a commitment to reduce the visual impact of the substations and SECs where possible during post consent design work (this document is also considered further in Chapter 26). Photomontages of how a GIS National Grid Substation may affect the landscape were also submitted at this deadline.

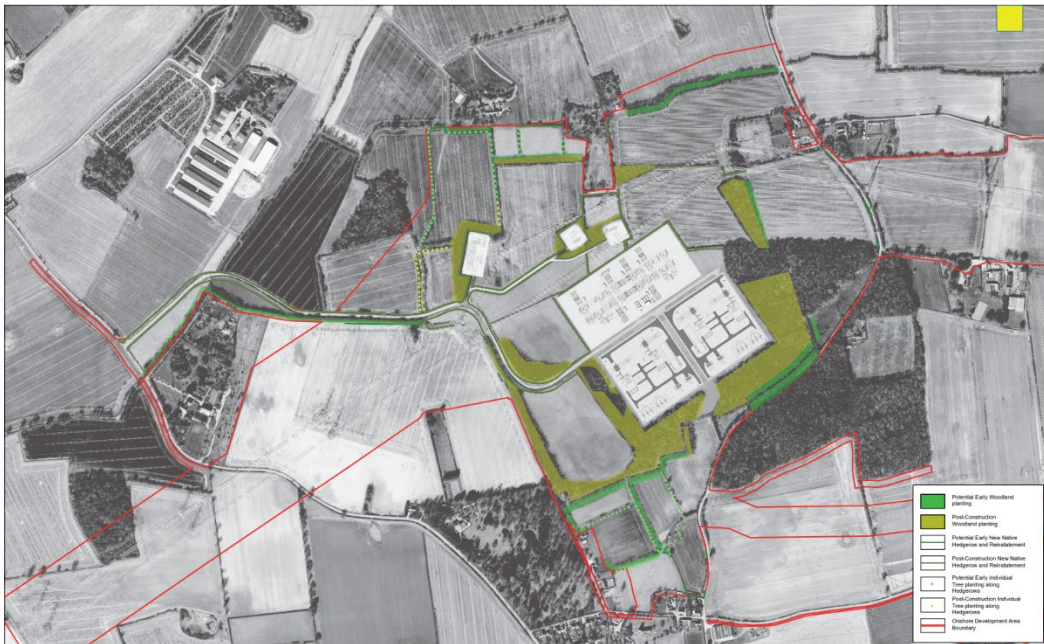
- 7.4.37. A signed Section 111 Agreement between the Applicant and ESC was submitted at D8 [REP8-079]. This contained a commitment for the Applicant to provide £355,000 towards further landscaping, environmental access, amenity improvements and enhancements to Friston and the vicinity. ESC stated that this can be used for strategic off-site planting [REP9-041].
- 7.4.38. A further OLEMS was submitted at D10 [REP10-005], although changes were limited in relation to landscape matters. At D11, the Applicant submitted a LVIA GIS Addendum [REP11-028] and accompanying photomontages. This compared the effects of both a GIS and an AIS NG Substation in LVIA terms and concluded that, although there would be clear differences in visual appearance and aesthetics, there would be no material difference in the assessed levels of visual magnitude of change or significance of visual effects resulting from a NG GIS substation compared to a National Grid AIS substation during construction and operation. The visual appearance and aesthetics differences largely arise from the taller but narrower form of a GIS substation with less complex form than an AIS substation.
- 7.4.39. SASES agreed with this conclusion [REP12-122] that there would be no visual benefit from choosing AIS or GIS for the National Grid substation but noted that the GIS substation would be more visible from Friston and the AIS substation more visible from Fristonmoor.
- 7.4.40. At D13 [REP13-042] FPCC stated that the site chosen is in the heart of the Suffolk Heritage Coast and on the doorstep of a small peaceful village, and that the consequence and impacts of that choice are magnified many times over than if it was located in a more remote or brownfield site. They noted that the sweep of the countryside would be lost by the severance caused by the Proposed Development between the historic buildings to the north and the village and the church to the south, also stating that the existing pylon line will become more dominant and the impacts on the VPs exacerbated by the additional pylon proposed. FPCC also noted concerns over the sequencing of the construction process and reservations over the mitigation planting.
- 7.4.41. SASES stated at D13 [REP13-062] that they considered that the Applicant had materially understated the adverse impacts on the landscape and visual receptors, relied upon visualisations which underrepresent the impact of the projects and failed to include all key

7.4.42. D13 saw a final revision (v7) of the OLEMS [REP13-007]. This noted that trees or shrubs would not be planted inside or within 5m of the functional footprint of SUDs basins and provided final figures, as shown below.

Figure 6 OLMP Proposed Planting Plan [D13-007]



Figure 7 OLMP Timing of Planting [D13-007]



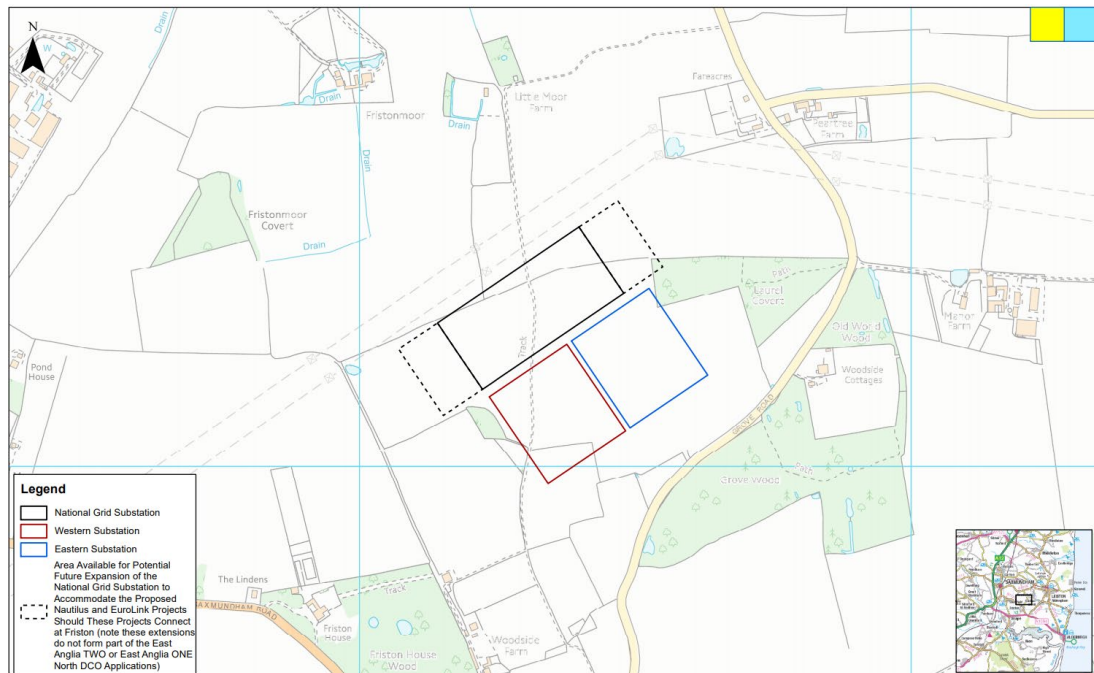
Extension of National Grid Substation Appraisal

- 7.4.43. At D8 and in response to significant concerns from a number of parties (including the Councils') about future projects and CIA, including questions from the ExA, the Applicant submitted an Extension of National Grid Substation Appraisal [REP8-074] and accompanying photomontages. This appraisal briefly assessed the potential effects of extending the National Grid substation to accommodate future projects, namely the Nautilus and EuroLink proposals for interconnectors/

transmission cables to connect the UK to Belgium and the Netherlands respectively.

- 7.4.44. The Appraisal noted that the proposals would enlarge the NG substations and intensify their effects upon the local landscape and visual receptors. An extension to the east would adversely affect Laurel Covert.

Figure 8 Area Available for Potential Future Expansion of the National Grid Substation to Accommodate the Proposed Nautilus and EuroLink Projects [REP8-074]



- 7.4.45. ESC were of the view that a full CIA should have been completed to consider such changes but acknowledged that:

"there are unlikely to be any significant additional impacts on landscape character given that the extensions will be additions, to what will by then be, if consented, a substantial complex of industrial scale infrastructure."
[REP9-040]

- 7.4.46. SASES [REP9-075] noted that the Appraisal does not constitute a CIA and consider this to be a failure. They noted that landfall options are not considered cumulatively. SASES agreed that there would be an intensification of effects, in particular an intensification of the severance of the landscape to the north of the substations from the village of Friston, considering that the lateral spread and influence of the enlarged NG substation would result in notable additional adverse effects on the landscape and visual receptors to the north.

7.5. EXA RESPONSE

- 7.5.1. Unaccompanied Site Inspection (USI)1 [EV-005] carried out on the 20 and 21 of January 2020 enabled the ExA to view landscape and visual matters for the proposed landfall, much of the proposed cable route, and the substations site. USI2 [EV-006] covered much of the same ground

and USI3 [EV-007] also visited the substations site. USI6 [EV-007c] viewed agricultural buildings to the north of Friston at Red House Farm which had been raised in evidence, both in writing and at Issue Specific Hearing (ISH) 2. Further USIs and Access Required Site Inspections (ARSI) were undertaken between 25 to 27 January 2021 [EV-007d]; these included visits to the substations site (in both daylight and evening darkness) and surrounding properties. Cable route locations were also viewed during these inspections.

- 7.5.2. ISH2 [EV-034] considered onshore siting, design and construction including landfall, cable route and substations' site proposals, including overarching siting and design issues and landscape and visual impact. ISH11 [EV-123] on Flood Risk and Drainage included discussions over the interrelationship between drainage proposals on the proposed substations site and landscape impacts. ISH16 [EV-140] on the proposed substations site including discussion of design matters and the relationship of drainage proposals with the OLEMS. Issues relating to the impact of the Proposed Development on the local landscape and visual amenity issues were a recurring theme in the Examination and were raised by many Interested Parties (IPs), both in writing and verbally at the ISHs and at OFHs.
- 7.5.3. The ExAs first written questions (ExQ1) [PD-018] asked a range of questions primarily of the Applicant, focused on mitigation planting and design at the substations site, the size and scale of the proposed substations, issues around Fitches Lane, vegetation growth rates and monitoring/long term care of mitigation planting, pre-construction planting, embedded mitigation at the substations site, the extent of infrastructure such as SECs, access roads and the effect of drainage proposals, and a request for further photomontages to be undertaken following the ExA's site inspections.
- 7.5.4. ExQ2 [PD-030] asked questions including ones related to the OLEMS, planting proposals near High House Farm and provenance of stock, a GIS National Grid substation option, SECs, future growth rates, construction rates and visual impacts.
- 7.5.5. ExQ3 [PD-049] asked further questions about planting proposals, High House Farm, the combined effect of existing pylons and the Proposed Development and returned to the issue of the future of any landscaping given potential future projects.
- 7.5.6. The ExA response below proceeds through the topic in the order of the ES, focusing on the main areas of disagreement between the Applicant and Interested Parties and the ExA's own observations. While the ExA notes the statements within the ES [APP-077] and the provisions of the dDCO on alternative onshore substation location (that is if the Proposed Development used the onshore substation proposed in the other East Anglia application) the ExA response initially considers below the locations as proposed within the respective applications.

Scope, Methodology and Existing Environment

- 7.5.7. ESC and Suffolk County Council (SCC) in their LIR [REP1-132] consider that the Applicant has not fully understood the character and the significance of some of the features and landscape elements of the site, especially regarding the historic landscape character. They state that there is an expectation that the Applicant should have incorporated the SCC Friston and Knodishall Historic Landscape Assessment into the baseline for the overall LVIA. In response the Applicant submitted an Archaeology and Cultural Heritage Clarification Note [REP1-021]. As stated above, this matter is largely considered within the Onshore Historic Environment Chapter (Chapter 8). However, in respect of the LVIA, the ExA consider that the submission of the Clarification Note addresses any deficiencies in the LVIA in respect of cultural heritage. Effects on field boundaries and landscape character are considered below.
- 7.5.8. The ExA note the comments of Friston Parish Council [RR-011] referenced above concerning the landscape character types and areas. However, it is noted that the LVIA refers to the County level LCTs and the more detailed Suffolk Coastal LCAs. The ExA also note that the Councils raise no issue in this regard.
- 7.5.9. The ExA notes and agrees with the summary of the key characteristics of the proposed substations site, as provided above. These accord with the observations of the ExA during the various USIs. In particular, the ExA noted the settlement pattern of Friston and the detached element of the parish at Fristonmoor, the visual relationship between these elements, the network of fields and common land, the quiet simple rural nature of the landscape and its generally flat nature. The character of the landscape is considered in more detail below.

Potential Effects during Construction

Landfall and Cable route

- 7.5.10. The ExA agrees with the assessment of short-term significant harm to the local landscape around the proposed landfall site. The area to the north of Thorpeness where the proposed landfall for the development and the other East Anglia application would be located is an attractive section of coastline located within both the Heritage Coast and the SCHAONB. The effects of the construction of the landfall would have a significant adverse effect on the local landscape and on walkers using the Suffolk Coastal Path and Sandlings Walk, both of which lie close by.
- 7.5.11. Significant landscape effects would be caused to the area of cable route in the Hundred River Valley SLA and around Fitches Lane, the principal areas where trees would need to be felled. The ExA's view accord with the LVIA in this regard. The ExA also agrees with the LVIA's assessment of significant visual effects for various groups close to or transiting over or by the proposed cable route.

Substations' site

- 7.5.12. To avoid repetition, effects during construction for the substations site are considered below in the section for potential effects during operations.

Potential Effects during Operation

Landfall and Cable route

- 7.5.13. As the land would be reinstated following the laying of the cable, operational effects were scoped out of the LVIA, apart from effects of the crossing of Aldeburgh Road (Fitches Lane). Here, the working width of the onshore cable route for a single project is restricted to a maximum of 16.1m by the Applicant [REP3-085] and a maximum working width of 27.1m for the Proposed Development and the other East Anglia application is confirmed [REP3-085].
- 7.5.14. The LVIA assesses the effect of this section of cable route as significant in the first year of operation but due to reinstatement is assessed as not significant over the operational phase and visual effects are assessed as not being significant.
- 7.5.15. Reinstatement would consist of heathland for 2m either side of the cable, with low shrubs for a further metre, small dwarf trees for a further 3m and then mostly deciduous trees. At present the woodland to the north of Fitches Lane generally consists of mature, fairly tall deciduous trees and provides an attractive area of woodland to the side of the Aldeburgh Road and alongside various footpaths which run through the woodland.
- 7.5.16. The ExA consider that the reinstatement proposals, while understandable for operational and maintenance reasons, would introduce a swathe of heathland and surrounding small shrubs/dwarf trees which would appear unnatural and out of place within the wider woodland. This would cause harm to the landscape character of this area of LCT 07 and the Hundred River SLA, as well as causing visual harm for motorists on the Aldeburgh Road and walkers on the Fitches Lane and surrounding local footpaths which cross the proposed cable route.

Substations' site

- 7.5.17. The substations and associated infrastructure would be sited on land to the north of Friston village, between the village and some scattered homesteads/farms located at Fristonmoor. Friston itself has a very distinctive settlement pattern with two main areas; a more concentrated nucleated settlement to the south, located to the west of the Saxmundham Road, and a more dispersed pattern to the north. This area of the village is located largely along the two roads of Church Road and Grove Road to the north and south of the village green and adjacent fields to the east respectively.
- 7.5.18. St Mary the Virgin Church is located on Church Road and thus stands on the northern fringes of the village. The Church nave is set on an east-west axis with fields to the north and south beyond the churchyard. A

footpath leads across these fields to Fristonmoor to the north. In this sense the north side of Friston has a dispersed pattern in common with other rural historically agriculture-based settlements, and one in which the houses at Fristonmoor to the north form part of the parish.

- 7.5.19. The fields to the north of Friston are fairly large and historical evidence within Figure 1 of the OLEMS [REP13-007] shows that field patterns are similar now to those in 1883/84, with some evidence of adjoining fields having been merged to make larger ones. Visual connections are strong across the fields between Friston and Fristonmoor, and views of the Church are common across the land to the north. While it was clear that the area is agricultural, the ExA did not notice a strong sense of agri-business in the area of the proposed substation site. Fields are not excessively large and farm buildings in the localised area such as at Woodside Farm and Little Moor Farm are generally small scale and modest.
- 7.5.20. The ExA noted the more modern large scale barn buildings at Red House Farm to the north west of the site at USI6 [EV-007c]. However, while these buildings have an effect on landscape character, they are not visible from the Proposed Development site and were at a lower elevation than properties on Friston Moor. Furthermore, while clearly modern buildings, these structures were still agricultural in form and function.
- 7.5.21. An existing row of overhead pylons crosses the land between Friston and Fristonmoor. These have a notable vertical visual presence within the local landscape but their open nature and the space remaining beneath the electricity lines and within the pylons allow the views across the landscape to remain largely unencumbered.
- 7.5.22. The Suffolk Coastal LCA notes a key characteristic of the site area as gently undulating. The ExA would emphasise the 'gently' aspect of this characteristic of the Proposed Development site. Ordnance Survey maps show 5m contour lines to be in general widely spaced around the site. The ExA would not consider the site to be undulating as often stated in the ES (paras 122, 168, 185, 246), considering the site to be fairly flat in reality. This means views across the site are often wide ranging, only interrupted by hedgerows, hedgerow trees and Laurel Covert and Grove Wood on the east side of the site.

Landscape Character

- 7.5.23. The LVIA considers that significant effects would occur at around 1km with the presence of the development resulting in a large-scale change to the local character of the landscape (LCT 01 and LCT 07). The ExA agrees with this assessment, although does not consider that the woodland blocks are extensive enough to provide significant screening – screening would be localised and only have substantial benefits in views from the east.
- 7.5.24. The Applicant considers that the Proposed Development would have a significant adverse effect on the landscape at 15 years post construction, as, although screening from mitigation planting will be progressively

effective, there would be a change from an open landscape to one where the landscape would be strongly influenced by the presence of the Proposed Development within the planted landscape framework.

- 7.5.25. The ExA agrees with this assessment. While certain aspects of the Proposed Development may be screened, the wide-ranging views and open character of the local landscape would be significantly adversely impacted by the Proposed Development. The open character of the area would disappear, to be replaced by a large mass of development and surrounding planting. While the planting may be natural, its form and structure would appear out of place and unusual for the area and therefore would be harmful to the character of the area in itself notwithstanding existing patches of wood nearby. The removal of historic field boundaries and footpaths would compound this adverse effect.

Visual Effects

- General

- 7.5.26. It is important to note that during the Examination there was considerable discussion and submission of representations in respect of the likely growth rate of mitigation planting within the lifetime of the project, in terms of both the expected growth rates and the replacement rate of failed plants. In response to concerns from ESC and others, the Applicant revised its photomontages during the Examination [REP3-062] to improve the quality of the images and also to more accurately reflect likely growth rates.

- 7.5.27. The ES Addendum [REP4-031] considered that significant visual effects would remain for VPs 2, 4, 5, 8 but that they would be reduced to not significant for VP9.

- 7.5.28. These images (supplemented by the new images and addendum at D4 to reflect the substation reduced in scale) were accepted by the Councils as being more realistic and any minor issues that remained:

"made little to no difference to the overall representation of the Applicant's claimed screening effects" [REP9-041].

- 7.5.29. The OLEMS [REP13-007] was updated to include an adaptive planting management scheme for trees and works within work areas 19, 24, 29 and 33, which met the Councils concerns over adaptive maintenance and aftercare. The ExA agree that this provision, included within the OLMP, would provide sufficient maintenance and aftercare to planting and replacement woodland planting designed to mitigate the visual impact of the proposed substations'.
- 7.5.30. As noted above, SASES also raised concerns over whether the montages showed the full representation of potential views, considering that certain physical elements may have been missed. The ExA note these disagreements but consider that the montages are realistic enough to be able to gauge the potential impacts of the Proposed Development, even if certain elements of the montages are in disagreement.

- VPs

7.5.31. VP 1 lies on the public footpath to the north of Woodside Farm and looks north east across the Proposed Development site. At present the view is open and wide ranging, with noticeable features of field boundaries and trees, properties at Fristonmoor, and the existing row of pylons. The first year of operation would be dominated by the proposed onshore substation, particularly at its southern end. By the 15th year of operation, the montages show that trees would have grown to fill the view completely. The ExA agrees with the findings of the ES Addendum [REP4-031] for this VP.

7.5.32. VP 2 is on the northern fringes of Friston, to the north of the Church. The view at present looks across an area of open land which has the character of common land to mature trees and hedges. In the distance pylons can be seen, along with some properties at Fristonmoor. At year 1 of operation the view changes to encompass the proposed substation, with the land now appearing to be backed by industrial development. Year 15 provides some more filtering to the view, but the visual effect remains fundamentally different to the present view. The ExA agrees with the findings of the ES Addendum [REP4-031] that significant harm would remain for this VP.

7.5.33. VP 3 lies on Grove Road to the north of Friston, where the access track to Little Moor Farm joins the road. The current view to the south east at the moment takes in the existing pylons marching across the landscape, with Laurel Covert providing a background of trees. Year 1 would see the view significantly altered by an agglomeration of electricity infrastructure, including sealing end compounds. Year 15 would see the view screened by a proposed row of trees, closing off the current view. The ExA agrees with the findings of the ES Addendum [REP4-031] for this VP that harm would be reduced by year 15.

7.5.34. VP 4 lies just off the junction of Church Road and Grove Road, on the north west fringe of the village. The current view to the north is bookended by the last remaining houses on Grove Road to the left and Grove Wood to the right, with open countryside in the middle. Existing pylons are visible in this countryside view. Year 1 of operation would see the range of visible pylons increase significantly, with the onshore substation and the NG substations also clearly visible. By year 15 some additional roadside planting would have grown but the Proposed Development would still be clearly visible providing an industrial aspect to views. The ExA agrees with the findings of the ES Addendum [REP4-031] that significant harm would remain for this VP.

7.5.35. VP 5 is set on a public footpath to the south west of High House Farm and looks south east across open fields towards Friston. This view is set at a slightly higher level than the Proposed Development site and the view is wide ranging and open. The existing pylons cross the view and the church at Friston is clearly visible, along with sporadic properties on the edge of the village. Year 1 would see the view altered dramatically, with sealing end compounds, additional pylons and substations clearly visible. At year 15 screening would have grown to block much of the

eastern range of the view, but to the west the additional infrastructure would be clearly visible. The Proposed Development would completely alter the view, divorcing the receptor at this location in Fristonmoor from the village of Friston. The ExA agrees with the findings of the ES Addendum [REP4-031] that significant harm would remain for this VP.

- 7.5.36. VP 6 is located on Saxmundham Road, on the south side of the village green. The view is largely of the green, backed by the rear of houses on Church Road and the Church on the right-hand side. In the distance two pylons are visible. Due to the screening provided by the properties the Proposed Development would not realistically be visible at either year 1 or year 15 of operation. The ExA agree with the assessment of the ES Addendum on this matter [REP4-031].
- 7.5.37. VP 8 lies on the Saxmundham Road to the north west of Friston, between Friston House and Moor Farm. The VP lies underneath the double row of electricity lines and the view therefore is of open countryside with the electricity lines and pylons marching away from the viewer. Despite this the montage for year 1 of operation shows a significant change, as the substantial development of transmission infrastructure 'fills' the view. Substations are now located on the right-hand side of the view and more infrastructure is on the left-hand side. Year 15 allows for some slight filtering of the view, particularly of the substations but the view continues to be substantially changed. In this respect the ExA agrees with the ES Addendum [REP4-031] that significant harm would remain for this VP.
- 7.5.38. VP 9 lies to the south of Friston and looks north across fields to the Church. Five pairs of pylons are visible on the horizon, with the easterly two pairs largely screened by Grove Wood. Years 1 and 15 of operation shows a change to the pattern of pylons, with the number of pylons increasing slightly and the view becoming slightly more affected by electricity infrastructure. The highest parts of the substation buildings and equipment are also visible in this view. Although the view is moderately impacted and the eye is drawn away from the Church, the ExA consider this effect to be relatively slight and agree with the findings of the ES Addendum [REP4-031] for this VP.

- Summary

- 7.5.39. The ExA agree with the findings of the ES Addendum [REP4-031] for all of the identified VPs. The ExA requested the addition of further VPs at ExQ1 [PD-018] to the south of Little Moor Farm, at a bench to the north of Friston, and on a footpath to the south west of High House Farm. In response the Applicant referred to several existing VPs which they considered were close enough to be similar, one of which was the Cultural Heritage viewpoint 4 (CHVP4). While the CHVPs are considered in the heritage Chapter, this particular VP [REP4-009] is considered below. The additional requested VPs would have been useful to the ExA.

- 7.5.40. CHVP4 lies to the east of Little Moor Farm and looks to the south towards Friston. The existing footpath that links Fristonmoor to Friston is clearly delineated on the right-hand side of the view and is flanked initially by a hedgerow and hedgerow trees on its western side. Electricity lines and

pylons cross the view, and the Church tower can be clearly seen with the footpath seemingly leading directly to it. Year 1 of operations would see the view dominated by substations and electrical infrastructure. The Church has disappeared from view and the footpath seemingly now heads to the substations. By year 15 some screening has been established at the lower levels of the infrastructure but its effect as a screen would be limited. Significant harm would be caused for receptors at this VP.

- 7.5.41. The ExA consider that when taken as a whole the VPs confirm that the site itself is currently reasonably well screened for distant views – the effects on VP 6 from the heart of the village and VP 9 from the south of the village demonstrate this. However, the VPs also confirm that in closer views, at areas around the site and specifically in the area between Fristonmoor and Friston, views are significantly impacted. The Proposed Development would have a highly significant effect on this area of land and would effectively divorce Friston from its northerly satellite. Screening in many such views would either have little effect or would completely block views, which while this may cause limited adverse visual impact would cause harm to the open character of the landscape. In this respect the ExA agree with the view of SASES [REP5-097] that there would be a total loss of the current relationship between this landscape and the village of Friston and a clear separation of Fristonmoor from Friston.

National Grid substation and sealing end compounds.

- 7.5.42. Unlike the substation for the Proposed Development, the scale or mass of the proposed National Grid substation was not altered during the Examination, with design and scale to be considered during the post-consent detailed design process. The location and scale of the proposed SECs also remained unchanged during the Examination. While the SDPS [AS-133] ensures that the layout, scale and external appearance of the NG substation and SECs would need to be approved by ESC and a principle is committed to reduce the visual impact of such infrastructure, the ExA agrees with the concerns of ESC and various IPs that insufficient progress on securing an agreed design for the NG substation was made during the Examination.
- 7.5.43. National Grid played a limited part in the Examination, with appearance at hearings limited to those concerned with the dDCO and correspondence otherwise largely limited to responding to direct questions and action points. Both NG and the Applicant maintained that the Applicant held the responsibility to achieve approval for the NG substation that would be essential to delivering the project. While noting this approach, the ExA regrets that there was limited opportunity for the ExA and IPs to engage with NG in hearings. This did not always help with addressing the concerns of the local community or the ExA.
- 7.5.44. Discussions held late on in the Examination concerned the possibility of the NG substations being GIS as opposed to AIS. Photomontages and assessments of such effects were that to be the case were undertaken by the Applicant (not NG). The Councils and SASES were both of the view

that neither AIS or GIS technology would have a significantly different effect in overall terms – while the GIS option would have a smaller footprint, it would also be taller and more prominent in certain views. The ExA agree with this assessment and also note that given the responses of National Grid to ExQ2 [REP6-110], it appears highly unlikely that National Grid would choose a GIS option given their commitments to reduce their greenhouse gas emissions and to work within the Electricity Act to keep costs to a minimum.

- 7.5.45. The SECs would appear prominently in the landscape, particularly from the northern area of the Proposed Development site and would contribute significantly to adverse visual effects from receptors in Fristonmoor. Following questioning (ExQ2.8.7 [PD-030] and ExQ3.8.3 [PD-049]) there appears to be limited potential to adjust the location and orientation of the SECs to more closely align with field boundaries. While the ExA note the Applicant's view that there is a reasonable prospect that the SECs could be realigned [REP11-090], given the extensive electrical safety requirements [REP6-062] it appears unlikely that this would occur. The SECs would appear alien in the current landscape and of a height that would make it very difficult to provide adequate screening.

Access road

- 7.5.46. The proposed permanent access road would be reasonably substantial, extending from the Saxmundham Road north of Moor Farm across the site, with spurs to the substations' site and the SECs. While the visual impact of such a road may not be significant given proposed hedgerow planting, the introduction of a lengthy access road where no such metalled surface currently exists would have an adverse effect on landscape character.

Drainage proposals

- 7.5.47. Drainage proposals for the Proposed Development altered significantly during the Examination and were in a state of flux until its end. The assessment of such proposals is contained within Chapter 6, but the size and visual appearance of the proposed SUDs have the potential to affect the landscape character of the area and cause visual effects.
- 7.5.48. As can be seen from Figure 5 above the proposed SUDs would be sited on the western side of the site. In early versions of the OLEMs these were proposed to be planted with wet woodland planting, in part to mirror the existing woodland pit on site. Following representations from SCC and SASES it was acknowledged that such planting may affect the SUDs in engineering terms and such planting was removed. Questions at ISH11 and ISH16 established that the SUDs would be large green basins which would be largely grassed. It is likely that they would be surrounded by curved bunds some 1 to 1.5m in height.
- 7.5.49. Despite the Applicant referring to irrigation reservoirs and existing basins in the area, the ExA consider that such SUDs would largely have the appearance of engineered structures which would be somewhat at odds with the surrounding landscape character. Fences and safety signs

around the features would reinforce their status as man-made features built to accommodate and service the Proposed Development. While their location and relatively low height mean that the visual effects of the proposed SUDs would be of limited significance if seen as individual structures (especially in comparison to the adjacent electrical infrastructure) the creation of the bunds would add to the harm caused by the Proposed Development to the landscape character of the local area.

Alternative substation site

- 7.5.50. It is also relevant to note that the Applicants' Response to Rule 17 Questions of 13 May – Design and Layout of the Substations [AS-122] states that if the other East Anglia application is not constructed then the proposed development would utilise the substations site of the other East Anglia application. In this case adverse effects would be slightly different. The ExA's assessment of the effects of a substation on the land identified for the EA2 substation is set out in Chapters 6-17 of the other East Anglia application recommendation report and would be relevant to those circumstances, should they arise.

Construction effects on the substations site

- 7.5.51. The ExA consider that adverse effects during construction would largely be the same as when immediately constructed; that is significant harm would be caused to the character of the landscape and significant effects would be caused to visual amenity. While landscape and visual effects in terms of physical structures and infrastructure may be less during the early stages of construction, this would be countered by the introduction of temporary working areas, site cabins and offices, increased activity of vehicles and machinery, materials stockpiling, and cranes, which would only be screened by the limited amount of pre-construction planting.
- 7.5.52. Concerns were consistently raised during the Examination about the length of the construction phase (including SASES [REP5-096]). The Applicant confirmed that it considered that the National Grid substation would be constructed in parallel with the Proposed Development [REP6-063], as this had been assessed within the ES. The Applicant was unable to provide a commitment to construct the substation for the other East Anglia proposal simultaneously, should it be consented. This was unfortunate as potentially it could lead to the extension of the construction phase but it is noted that this is assessed within the ES.

Cumulative effects

The other East Anglia application

- 7.5.53. Noting the commitment of the Applicant to install cable ducting for the Proposed Development and the other East Anglia application at the same time, the ExA agree that the cumulative effects of the two projects combined would be the same for construction and operation for the landfall site and the cable route as for the Proposed Development on its

own. In this respect, the conclusions of the ExA on the effects of the cable route around Fitches Lane above are noted.

- 7.5.54. For the substations' site, the ExA agree with the conclusions of the ES, as amended by the Addendum [REP4-031] in terms of significant visual effects for VPs 2, 4, 5, 8 and 9. In this respect the additional development of the two proposals combined would increase harm to significance for residents to the south of Friston (VP9). In views from the north, cumulative impacts would be slight and similar to those of the Proposed Development alone because the site layout locates the NG substation to the north of the scheme, so under any scenario it is the most prominent element when viewed from the north. From the south cumulative impacts of the two project substations would have more of an impact, particularly by 'filling the sky' with electrical infrastructure and clutter above the proposed tree line.
- 7.5.55. The cumulative effects of the two schemes would exacerbate the adverse effects of the singular scheme for landscape character and significant harm would be caused to the local areas of LCT01 and LCT07.
- 7.5.56. Above it is noted that the Applicant cannot commit to construct the substations for the two schemes at the same time. Were the schemes to be constructed sequentially then construction effects would be significantly worsened, with a knock-on effect on the overall construction and operational phases of the Proposed Developments.

The other East Anglia application and the Sizewell C Project (SZC)

- 7.5.57. The ExA agrees that cumulative effects with SZC would be confined to walkers on the Suffolk Coastal Path and Sandlings Walk close to the landfall (with potential views of SZC) and on those areas of the cable route in relevant areas. Such effects would be confined to the construction phase of the process.

Extension of National Grid Substation Appraisal

- 7.5.58. As noted above, at D8 the Applicant submitted an Extension of National Grid Substation Appraisal [REP8-074] and accompanying photomontages. The ExA consider that this assessment demonstrates a significant worsening of potential adverse effects for VP 2 (Church Road, Friston), VP5 (PRoW near Moor Farm), VP8 (B1121 Saxmundham Road) and CHVP4 (PRoW to east of Little Moor Farm).
- 7.5.59. For VP2 the extension bay to the west of the NG substation would introduce a new view of electrical infrastructure which was previously largely hidden behind the project substation. Such a view would remain even after 15 years of operation. For VP5 and CHVP4 the extensions would increase the lateral spread of the Proposed Development and further divorce Fristonmoor from Friston, and for VP8 the western extension would bring development closer to the visual receptor.
- 7.5.60. The ExA therefore consider that the extension of the NG substation would intensify and worsen the effects of the Proposed Development on both

the local landscape and on visual receptors. The ExA also consider that the extension of the NG substation would have an adverse effect on the landscape through other effects. The western extension would remove land currently allocated for the proposed northerly SUDs basin. This would presumably need to be relocated elsewhere and enlarged to accommodate the increased physical footprint of the NG substation. While not considered or sited in the Appraisal, it is reasonably self-evident that an enlarged SUDs basin in the landscape would have adverse landscape effects and potentially adverse visual effects too.

Good Design

- 7.5.61. Good design is primarily covered in overarching Chapter 22. However, it is useful to recall the contents of the SDPS [AS-133] which came about as a result of discussions during the Examination. During the Examination the scale and mass of the proposed substation reduced and other aspects of design, such as colour of buildings, was also discussed and secured within the SDPS. Not all changes proposed, such as the reduction in height of harmonic filters proposed by SASES (by providing more stacks at lower heights) were incorporated by the Applicant during the Examination but there remains the possibility for them to do so through detailed design. The changes that were made reduced the impact of adverse effects of the Proposed Development on the landscape. However, aside from noting that the SDPS includes principles for the design of the NG substation and SECs, the design of these elements did not change during the Examination.

Other matters

- 7.5.62. As stated above, a Section 111 Agreement was agreed with ESC by the Applicant. This contains a commitment for the Applicant to provide £355,000 towards further landscaping, environmental access, amenity improvements and enhancements to Friston and the vicinity [REP8-079].
- 7.5.63. The Applicants state that they will not be asking the ExA to attach weight to the s111 Agreement [REP11-086].

7.6. CONCLUSIONS

- 7.6.1. The ExA have concluded:
- The LVIA assessment and addendums made to it through the Examination by the Applicant conforms with the requirements of NPS EN-1.

Landfall and Cable Route

- The ExA agrees that during construction the Proposed Development would cause short term significant harm to the local landscape around the proposed landfall site and to the area of the cable route in the Hundred River Valley SLA and around Fitches Lane
- In addition, for the Hundred River Valley SLA and the landscape character around Fitches Lane and contrary to the ES, the ExA

considers that the reinstatement proposals would cause harm to the landscape character of this area, as well as local visual harm to relevant receptors during both construction and operation.

Substations' site

- The ExA do not agree that the 'embedded mitigation' of modern farm buildings at Red House Farm or the existing pylons significantly reduce the quality of the landscape. Red House Farm is not visually within the character of the Proposed Development site and the pylons, while clearly noticeable, stride across the landscape, leaving space below and between the electrical transmission infrastructure.
- The ExA agree that the Proposed Development would have a significant adverse effect on the local landscape at 15 years post construction.
- The ExA consider that the submitted photomontages are realistic enough to be able to gauge the potential impacts of the Proposed Development, even if certain precise elements are disputed.
- The ExA consider that the growth rates and aftercare management/maintenance of mitigation planting are realistic and appropriate.
- The ExA agree with the assessments of harm to visual effect contained within the ES Addendum [REP4-031] In particular the ExA agrees that substantial harm would be caused to viewpoints 2, 4, 5 and 8. The ExA also consider that significant harm would be caused to visual receptors at CHVP4.
- The ExA consider that when taken as a whole the VPs confirm that the site itself is already fairly well screened when viewed from a distance but that in closer views, at areas around the site and specifically in the area between Fristonmoor and Friston, views are significantly impacted, and that the Proposed Development would have a highly significant effect on this area of land and would effectively divorce Friston from its northerly satellite.
- Harm to local landscape and relevant receptors is increased by the proposed National Grid substation and SECs. Such harm would likely not be altered significantly either way by the use of AIS or GIS technology. In particular the height and positioning of the SECs would cause harm to northerly landscape character and visual receptors.
- Drainage proposals and the access road would add to the harm caused by the Proposed Development to the landscape character of the local area.
- For construction effects, significant harm would be caused to the character of the landscape and significant adverse effects would be caused to visual receptors to similar levels as during the operation of the proposed development.

Cumulative effects

- The ExA agree that the cumulative effects of the Proposed Development and the other East Anglia application combined will be the same for construction and operation for the landfall site and the cable route as for the Proposed Development on its own. In this

respect, the conclusions of the ExA on the effects of the cable route around Fitches Lane above are noted.

- For the substations site, the ExA agree with the conclusions of the LVIA Addendum in terms of significant visual effects for VPs 2, 4, 5, 8 and 9. Harm would be increased to residents to the south of Friston (VP9) from that of a singular project.
- The cumulative effects of the two schemes would exacerbate the adverse effects of the singular scheme for landscape character.
- The Applicant cannot commit to construct the substations for the two schemes at the same time. Were the schemes to be constructed sequentially then construction effects would be significantly worsened by virtue of the longer construction period.
- For the other East Anglia application and SZC C the ExA agrees that cumulative effects with SZC would be confined to walkers on local paths close to the landfall and on the relevant areas of the cable route in relevant areas.
- The extension of National Grid Substation Appraisal [REP8-074] demonstrates a significant worsening of potential adverse effects for relevant VPs and for landscape character. The extension of the NG substation would intensify and worsen the effects of the Proposed Development on both the local landscape and on visual receptors. Such an effect would be added to in an unknown way by the provision of required surface water drainage.

7.6.2. Drawing all these facts together, the ExA concludes that:

- The ExA conclude that the Proposed Development has been designed as carefully as possible and therefore complies with paragraph 5.9.17 of NPS EN-1. Nevertheless, significant harm would occur to the landscape and the proposal would not protect and enhance the special qualities of the area or the visual relationship and environment around Friston and Fristonmoor and as such the proposal would be contrary to Policy SCLP10.4 of the Suffolk Coastal Local Plan.
- The harm caused to the landscape by the Proposed Development has a medium negative weighting to be carried forward in the planning balance.
- Cumulative effects with the other East Anglia application increase this harm.
- The medium weighting is arrived at in recognition of the levels of significant harm that the Proposed Development would cause to the landscape and settlement pattern between Friston and Fristonmoor. This harm is at the higher end of the scale but the fact that the local landscape is not nationally designated means that this weighting does not tip into a high weighting.
- In reaching the above conclusions the ExA has not considered the Extension of National Grid Substation Appraisal [REP8-074], noting that the Applicant acknowledges that the Appraisal is "environmental information" and is not intended to comprise a Cumulative Impact Assessment [REP10-020].

8. FINDINGS & CONCLUSIONS IN RELATION TO ONSHORE HISTORIC ENVIRONMENT

8.1. INTRODUCTION

8.1.1. This Chapter deals with the effects of the Proposed Development on the onshore historic environment. It reviews the Archaeology and Cultural Heritage Chapter of the Environmental Statement (ES) [APP-072].

8.1.2. The Chapter is split into the following sections:

- Policy Considerations
- The Applicant's Case
- Planning Issues
- ExA Response
- Conclusion

8.2. POLICY CONSIDERATIONS

The Infrastructure Planning (Decisions) Regulations 2010

8.2.1. These regulations state that when deciding an application which affects a Listed Building or its setting, the decision-maker must have regard to the desirability of preserving the Listed Building or its setting or any features of special architectural or historic interest which it possesses.

Overarching National Policy Statement for Energy (NPS EN-1)

8.2.2. The NPS states that as part of the ES the applicant should provide a description of the significance of the heritage assets affected by the Proposed Development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset. The applicant should ensure that the extent of the impact of the Proposed Development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents (paragraph 5.8.8).

8.2.3. The NPS notes that in considering applications, the SoS should seek to identify and assess the particular significance of any heritage asset that may be affected by the Proposed Development, including by development affecting the setting of a heritage asset. In considering the impact of a Proposed Development on any heritage assets, the SoS should take into account the particular nature of the significance of the heritage assets and the value that they hold for this and future generations and the desirability of sustaining and, where appropriate, enhancing the significance of heritage assets, the contribution of their settings and the

positive contribution they can make to sustainable communities and economic vitality (paragraphs 5.8.11-13).

- 8.2.4. The NPS states that there should be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be. Once lost heritage assets cannot be replaced and their loss has a cultural, environmental, economic and social impact. Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Loss affecting any designated heritage asset should require clear and convincing justification. Substantial harm to, or loss of, a grade II listed building, park or garden should be exceptional. Substantial harm to, or loss of, designated assets of the highest significance, including Scheduled Monuments; registered battlefields; grade I and II* listed buildings; grade I and II* registered parks and gardens; and World Heritage Sites, should be wholly exceptional (paragraph 5.8.14).
- 8.2.5. Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development, recognising that the greater the harm to the significance of the heritage asset the greater the justification will be needed for any loss. Where the application will lead to substantial harm or total loss of significance of a designated heritage asset the SoS should refuse consent unless it can be demonstrated that the substantial harm or loss of significance is necessary in order to deliver substantial public benefits that outweigh that loss or harm (paragraph 5.8.15).
- 8.2.6. NPS EN-1 states that there are some heritage assets with archaeological interest that are currently designated as scheduled monuments, but which are demonstrably of equivalent significance. The NPS notes that the absence of such designation does not indicate lower significance, and that if the evidence before the SoS indicates that a non-designated heritage asset of the type may be affected by the Proposed Development then the heritage asset should be considered subject to the same policy considerations as those that apply to designated heritage assets (paragraphs 5.8.4-5).

National Planning Policy Framework (NPPF)

- 8.2.7. The NPPF provides definition of relevant terms in NPS EN-1. A heritage asset is defined as:
- "A building, monument, site, place, area or landscape identified as having a degree of significance in planning decisions, because of its heritage interest. It includes designated heritage assets [defined in EN-1] and assets identified by the local planning authority (including local listing)".*
- 8.2.8. The historic environment is defined as:
- "All aspects of the environment resulting from the interaction between people and places through time, including all physical remains of past*

human activity, whether visible, buried or submerged, and landscaped and planted or managed flora.”

- 8.2.9. The setting of a heritage asset is described as the surrounding in which a heritage asset is experienced. The NPPF notes that its extent is not fixed and may change as the asset and its surroundings evolve, noting that elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

- 8.2.10. Finally, significance is defined in the NPPF as:

"The value of a heritage asset to this and future generations because of its heritage interest. The interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting."

Development Plans and other local policies

- 8.2.11. Suffolk Coastal Local Plan Policy (SCLP) 3.4, 'Proposals for Major Energy Infrastructure Projects', requires a robust Heritage Impact Assessment (HIA) to be submitted. The policy also states that impact on the historic environment should be avoided, and if not possible, minimised.
- 8.2.12. Policy SCLP11.3, 'Historic Environment', promotes the conservation and enhancement of the historic environment. The policy requires all development which has the potential to impact on historic assets or their settings to be supported by a HIA and/or an Archaeological Assessment.
- 8.2.13. Policy SCLP11.4, 'Listed Buildings', details a clear set of criteria which must be met if development which affects the setting of listed buildings is to be supported. These include the need to demonstrate a clear understanding of the significance of the building and/or its setting, alongside an assessment of the potential impact of the proposal on that significance.
- 8.2.14. Policy SCLP11.6, 'Non-Designated Heritage Assets', provides that new uses which result in harm to a Non-Designated Heritage Asset, or its setting, will be considered based on the wider balance of the scale of any harm or loss.
- 8.2.15. Finally, policy SCLP11.7, 'Archaeology', requires a full Archaeological Assessment to be provided where a development would affect areas of known or suspected archaeological importance to ensure provision is made for the preservation of important archaeological remains. The policy makes it clear that preference will be given to preservation in situ unless it can be shown that recording of remains, assessment, analysis report and/or deposition of archive is more appropriate.

8.3. THE APPLICANT'S CASE

- 8.3.1. Chapter 24 of the ES concerns Archaeology and Cultural Heritage [APP-072].
- 8.3.2. This Chapter of the Recommendation Report is organised to consider the scope, methodology and existing environment first, before considering the impacts of the onshore elements of the Proposed Development on archaeology and cultural heritage. Cumulative impacts are then considered.

Scope, Methodology and Existing Environment

- 8.3.3. Pre-application consultation on archaeology and cultural heritage took place from 2017 with representatives from local Councils and statutory bodies and including public information days/meetings. Concerns raised included the impacts on listed buildings close to the cable route and substations' site and the archaeological impact of the cable route.
- 8.3.4. Two study areas were established [APP-072], with an Inner Study Area (ISA) consisting of a 500m buffer from the limits of the onshore development area to consider the assessment of archaeological potential, and an Outer Study Area (OSA) of a 1km buffer to identify designated and non-designated heritage assets that may experience changes to their setting.
- 8.3.5. Embedded mitigation for the Proposed Development included the site selection process to avoid direct physical impacts on designated heritage assets and recorded archaeological heritage assets, along with the widening of some development area locations to allow flexibility in micro-siting of the onshore cable route to maintain preservation of archaeological assets in situ as an option.
- 8.3.6. An OLEMS (considered in the previous Chapter, [APP-584]) was also submitted to allow consideration of historic landscape and field boundaries. The ES notes that the OLEMS has proposed planting to provide visual mitigation but which does not enclose historic farms in woodland, as this would not reflect their historic setting.
- 8.3.7. An outline Written Scheme of Investigation (WSI) [APP-582] was also submitted as part of the ES, which outlines the strategy to undertake programmes of archaeological survey and evaluation post consent and includes a range of likely mitigation options and responses.
- 8.3.8. Sub-surface archaeological remains were identified from a range of data sources and assessment of geophysical survey data acquired across 64% of the onshore development area. Above ground archaeological remains were identified from existing data records or as part of an aerial photographic data review. The setting of heritage assets was assessed based on Historic England (HistE) guidance. For the impact of the proposed turbines on coastal heritage assets, a study area that extends up to 40km from the closest wind turbine was chosen.

- 8.3.9. The ES also contains a description of heritage significance and heritage importance. Heritage assets with high importance (national or international importance) include Grade I and II* listed buildings, while medium importance (regional importance) includes Grade II listed buildings and low importance (local importance) includes locally listed assets. Criteria are defined for magnitude of effect and significance of effect.
- 8.3.10. There are 23 designated heritage assets within the ISA, comprising three scheduled monuments and 20 Grade II listed buildings. There are a further 24 designated heritage assets within the OSA comprising four Grade II* listed buildings and 20 Grade II listed buildings. Following discussions with the Expert Topic Group, eight heritage assets were taken forward for further assessment:
- Little Moor Farm (Grade II).
 - High House Farm (Grade II).
 - Friston House (Grade II).
 - Woodside Farmhouse (Grade II).
 - Church of St Mary, Friston (Grade II*).
 - Friston War Memorial (Grade II).
 - Friston Post Mill (Grade II*).
 - Aldringham Court (Grade II).
- 8.3.11. The ES states there are 283 non-designated heritage assets within the study areas, with 210 previously recorded and 73 previously unrecorded. 11 broad Areas of Archaeological Activity (AAA) were identified within the onshore development area, ranging from extensive areas of settlement and enclosure or single clearly defined features. The substations' site is stated to have "*virtually no anomalies of possible archaeological origin and none of probable archaeological origin being identified*". Surveys were also undertaken to try to identify the site of the former parish church of Buxlow/Buxton, close to the substations' site.
- 8.3.12. The overall archaeological potential of the onshore development area is considered to be medium, with moderate to high likelihood of further prehistoric remains, including the possibility of assemblages of flint artefacts – especially within the gravel terraces of the Hundred River, moderate likelihood of further late prehistoric (Iron Age) and Romano-British remains in the form of possible settlements and associated field systems; and high likelihood of evidence of medieval agricultural land use.
- 8.3.13. Eleven above ground archaeological assets are within the onshore development area; these primarily relate to WWII emplacements close to the landfall, although they also include the old Aldeburgh to Leiston railway line, earthworks of unknown date at Aldringham Common, and Friston Common. There are also six parish boundaries within the onshore development area, of which five survive as visible features in the landscape – such as roads, tracks, or a river.
- 8.3.14. The ES states that as part of the settings assessment, no non-designated heritage assets were considered to have potential to experience harm in

isolation as a result of the Proposed Development, but it is noted that some non-designated assets in the vicinity of Fristonmoor are elements in the setting of the listed buildings of High House Farm and Little Moor Farm and make a positive contribution to their significance. Four non-designated assets have therefore been considered as part of the assessment for these two listed buildings.

- 8.3.15. The Historic Landscape Character (HLC) of the onshore development area is mapped as predominantly 18th century and later enclosure from former common arable or heathland. As mentioned above, the onshore development area crossed six historic parish boundaries; any hedgerows associated with these would be classed as 'Important Hedgerows' under the Hedgerow Regulations 1997.
- 8.3.16. The ES notes that anticipated changes in baseline conditions include agricultural use, potentially resulting in the gradual degradation of sub surface archaeological remains, and potential harm to the setting of heritage assets by modern development. The historic environment is also vulnerable to the effects of climate change.

Potential Impacts - Construction

Impact 1 – Direct Physical Impact on Buried Archaeological Remains

Landfall

- 8.3.17. The landfall location north of Thorpeness has a predominance of features relating to the coastal defence network of WWII and intersects an AAA interpreted as a former field system, likely to be of post-medieval origin, and the ploughed down remains of a likely Bronze Age barrow. Without further investigation, sub-surface archaeological remains within the landfall location are regarded as heritage assets with a potentially medium heritage importance and it could be possible that direct physical impacts to below ground archaeological remains, as part of construction works at the landfall, could result in a medium adverse magnitude of impact, thereby resulting in a moderate adverse significance of effect in some instances.

Cable route

- 8.3.18. The ES states that data available and assessed within the onshore cable corridor indicates the potential presence of sub-surface archaeological remains of varying types. Features relating to defence measures and training facilities associated with the two World Wars are well represented and quarry pits and undated cropmark features are also recorded across the onshore cable corridor, as are hollows / depressions and former field boundaries, enclosures and trackways. Below ground features associated with the former post-medieval bridge crossing the Hundred River or the four former dwellings of post-medieval date at Littlemoor Farm, now demolished, may also be present. These features are considered likely to be of no greater than low heritage importance.

- 8.3.19. Notable features within the onshore cable corridor include cropmarks evident in the fields to the northeast of Church Farm, Knodishall, which is thought to possibly represent the remains of a chapel site. This feature is considered to be of potential medium heritage importance.
- 8.3.20. The ES also describes a number of semi-circular or circular features within the onshore cable corridor, which could comprise prehistoric funerary monument remains, of medium heritage importance, although the ES notes that alternative interpretations regarding the origin of these features has been identified as the possible site of a medieval to post-medieval mill and that on this basis they have been assigned a low – medium heritage importance. A number of other circular / sub-circular features and possible pits of unknown origin were also identified during the assessment.
- 8.3.21. Other features identified within the onshore cable corridor during the assessment include a possible group of small circular features maybe related to agricultural activity, considered to be of negligible-low heritage importance and a further six unidentified features that were either inaccessible or not evident during the walkover survey.
- 8.3.22. The onshore cable corridor also intersects nine AAAs which are assigned variously archaeological importance ranging between low to high, depending on the features identified.
- 8.3.23. The ES states that without further investigation, sub-surface archaeological remains within the onshore cable corridor are regarded as heritage assets with a potentially medium to high heritage importance and it could be possible that direct physical impacts to potential below ground archaeological remains as part of construction works could result in a high adverse magnitude of impact, thereby resulting in a major adverse significance of effect.

Substations' site

- 8.3.24. The ES notes that based on data available to date, notable areas, sites, features and anomalies where sub-surface archaeological remains may be present (represented or indicated) within the onshore substation location and associated areas include the former site of a chapel, depicted as a 'church or chapel in ruins' on Bowen's 1753 map of Suffolk at 'Buxton', north of Friston church, which may be considered of medium heritage importance. Following assessment, the true location of the former chapel may in fact be some 100m east of the recorded location of the chapel. No anomalies of clear or obvious archaeological potential were identified on the Bowen's site [APP-072].
- 8.3.25. Additional previously recorded non-designated assets include the rectangular moated site of the former Buxlow parsonage. Other potential assets include hollows / depressions, linear / curvilinear features, a former field boundary and the location of former buildings. These features are likely to be of low heritage importance.

- 8.3.26. The outer footprint of the National Grid substation and onshore substation area intersects an AAA which is identified as a large area of past archaeological activity, the main focus of which is away from the substation locations, east of Grove Road, but potentially extending west of Grove Road into the field systems south of the onshore substations and interpreted as a possible roadside settlement of likely medieval date. Further AAAs intersect the overhead line area, with a possible potential for a pathway between the impact and receptor. However, given the nature of works in the overhead line modification areas, the known extent of these anomalies is anticipated to be largely or wholly avoided.
- 8.3.27. The ES states [APP-072] that without further investigation, sub-surface archaeological remains are regarded as including heritage assets with a potentially medium-high heritage importance, and that it could be possible that direct physical impacts to potential below ground archaeological remains, as part of construction works could result in a high adverse magnitude of impact, thereby resulting in a moderate adverse significance of effect in certain instances.

Potential construction impacts following mitigation

- 8.3.28. As noted above, the ES states that avoidance, micro-siting and route refinement are embedded into the design of the Proposed Development. Post consent survey and evaluation is also committed to within the WSI which is to be agreed with Suffolk County Council (SCC). Measures adopted will be determined as the project progresses in a specific case by case/area by area basis.
- 8.3.29. Following such mitigation measures the ES considers that minor adverse effects will arise to identified features in the landfall location; minor adverse or negligible effects will arise to identified features on the cable route; and minor adverse effects or negligible effects will arise to identified features in the substations' site.

Impact 2 – Direct impact on Above Ground Archaeological Remains and Heritage Assets

Landfall

- 8.3.30. Data available within the landfall location indicates the presence of a number of potential above ground heritage assets all of which relate to WWII defence measures. Any above ground extant features associated with these assets will likely be regarded as heritage assets of low heritage importance. As detailed design parameters will be developed post-consent, it could be possible that direct physical impacts to potential above ground archaeological remains and heritage assets, as part of construction works at the landfall, could result in a medium adverse magnitude of impact, thereby resulting in a minor adverse significance of effect.
- 8.3.31. With regards to the HLC the areas mapped as common pasture and enclosures of 18th century and later date, at the eastern extent of the

onshore development area, will experience a temporary level of change during construction.

Cable Route

- 8.3.32. Data available within the onshore cable corridor indicates the presence of a number of above ground heritage assets comprising remains relating to WWII defence measures, the Aldeburgh / Leiston branch railway line and earthworks of unknown date. Based on information available to date, these features will likely be regarded as heritage assets of low importance.
- 8.3.33. Direct physical impacts to potential above ground archaeological remains and heritage assets could result in a low to medium adverse magnitude of impact on assets of minor to medium heritage importance. This results in a minor adverse significance of effect.
- 8.3.34. As stated previously the cable corridor also crosses five parish boundaries and that any hedgerows associated with these boundaries would be classed as "Important Hedgerows". Prior to mitigation, groundworks have the potential to result in a low adverse magnitude of impact upon any such hedgerows, resulting in a minor adverse significance of effect.
- 8.3.35. The ES notes that the predominant HLC types of 18th century and later enclosures within the majority of the onshore cable corridor will experience a temporary level of change during construction, as will the more discrete HLC types represented variously across the onshore cable corridor (common pasture, pre-18th century enclosure, post-1950 agricultural landscape and meadow/managed wetland and woodland flanking and in the vicinity of the Hundred River).

Substations' site

- 8.3.36. One non-designated heritage asset potentially representative of above ground remains has been identified – the former medieval common of Friston Moor. Most of the margin of Friston Moor still survives, with the exception of part of the north side and a stretch between Moor Farm and Little Moor Farm. The loss of any margins associated with the former common would be considered as representing a change to the HLC.
- 8.3.37. The presence of the onshore substation will represent a permanent / long-term change to the HLC to the west of Coldfair Green (and more specifically the north-west of Grove Wood) within and immediately surrounding the onshore substation location. The HLC of this area is mapped as predominantly comprising pre-18th century enclosure and post-1950 agricultural landscape.
- 8.3.38. The area includes one parish boundary. Prior to mitigation, groundworks have the potential to result in a medium adverse magnitude of impact upon any hedgerows on this boundary resulting in a moderate adverse significance of effect, as a likely WCS.

Potential construction impacts following mitigation

- 8.3.39. Following the embedded mitigation referred to above, the ES states that minor adverse or negligible effects will arise to identified features in the landfall location and minor adverse effects will arise to identified features on the cable route and in the substations' site.

Impact 3 - Indirect (non-physical) Impact as a result of change in the Setting of Heritage Assets (Designated and Non-Designated)

- 8.3.40. The ES concludes that only changes in setting due to the operation of the Proposed Development would be of sufficient duration to merit more detailed assessment. Any changes in setting due to construction activities would be temporary and of sufficiently short duration that they would not give rise to material harm.

**Impact 4 – Impact on Potential Geoarchaeological /
Paleoenvironmental Remains.**

- 8.3.41. The ES notes that it is possible that the Proposed Development may affect below ground deposits - an example is given that the project may lead to hydrological changes that could cause the drying out of wetland deposits and associated preserved waterlogged remains.
- 8.3.42. Various potential areas, including the gravel terraces of the Hundred River, are identified in the ES and a precautionary low to medium adverse magnitude of impact is noted. Following mitigation any effects are reduced to minor adverse.

Impact 5 -Impact from Drilling Fluid Breakout or Oil spills

- 8.3.43. A breakout of fluids during construction could have an adverse impact on archaeological deposits. The embedded application of best practice measures would ensure that any spillage or leakage would be dealt with quickly and efficiently; such details are within a submitted Code of Construction Practice [APP-578]. With such mitigation a negligible magnitude of impact and minor adverse significance of effect is concluded.

Potential Impacts – Operation

Impact 1 - Indirect (non-physical) Impact as a result of change in the Setting of Heritage Assets (Designated and Non-Designated)

- 8.3.44. Two areas were identified where the operation of onshore infrastructure would lead to material change in the setting of heritage assets:
- A section of the cable route in an area of woodland immediately to the south of Aldringham Court (a Grade II Listed Building); and
 - Land in the vicinity of the proposed substations at Friston.
- 8.3.45. Eight designated heritage assets (all listed buildings) were identified in these two areas where change in setting could lead to harm to their significance. These are:

- Little Moor Farm (Grade II).
- High House Farm (Grade II).
- Friston House (Grade II).
- Woodside Farmhouse (Grade II).
- Church of St Mary, Friston (Grade II*).
- Friston War Memorial (Grade II).
- Friston Post Mill (Grade II*).
- Aldringham Court (Grade II).

8.3.46. Onshore underground cables will pass through woodland to the south of Aldringham Court within land that was formerly part of the grounds to the house. The ES states that this land makes a very limited contribution to the significance of the Listed Building and the clearing of a swathe through this area of woodland would have only a very limited impact on the experience of the house in an informal woodland setting. The ES concludes that this change in setting is not sufficient to materially diminish the contribution that it makes to the significance of the house.

8.3.47. For the seven remaining listed buildings in the vicinity of the proposed substations, the ES notes that it is the presence of the onshore substation and NG substation, rather than the proposed permanent overhead realignment works that would lead to adverse impact on significance, and that these impacts are caused primarily by the extent and visual prominence of the onshore substation and NG substation, which would change the landscape character in the settings of heritage assets currently experienced and appreciated in a rural agricultural setting.

8.3.48. Additional impacts are also identified for the Grade II* Church of St Mary by the substations blocking valued views towards the church and the partial loss of a footpath along and from which a view of the church can currently be experienced.

8.3.49. After mitigation contained within the OLEMS, the ES concludes that moderate adverse effects will be caused to Little Moor Farm and the Church of St Mary. Minor adverse effects are predicted to occur to the remaining five listed buildings.

Impact 2: Impacts to Archaeological Site Preservation Conditions, where present, from Heat Loss from Installed Cables

8.3.50. No impact is anticipated during operation associated with the heat loss from onshore cables due to disturbance and mitigation associated with the construction phase of the Proposed Development.

Potential Impacts – Decommissioning

8.3.51. The ES notes that no decision has been made regarding the final decommissioning policy for the onshore infrastructure as industry best practice, rules and legislation change over time. An Onshore Decommissioning Plan will be provided, as secured under the requirements of the draft Development Consent Order (dDCO). For the purposes of a worst-case scenario, impacts no greater than those

identified for the construction phase are anticipated for the decommissioning phase.

Cumulative Impacts

Cumulative Impacts with the other East Anglia application

- 8.3.52. The cumulative impact assessment (CIA) considers the Proposed Development with the other East Anglia application under two construction scenarios: scenario 1 – where the proposals are built simultaneously; and scenario 2 – where the proposals are built sequentially. Scenario 2 is identified as the worst case. This scenario considers minor adverse effects for cumulative construction impacts for Impact 1, 2 and 4, with no impact for Impact 3 and negligible effects for Impact 5.
- 8.3.53. For cumulative operational impacts, moderate adverse effects are predicted for Little Moor Farm and the Church of St Mary, and minor adverse impacts for the remaining seven listed buildings (including Aldringham Court on the cable route). No impact would be caused to Impact 2 (heat loss).

Cumulative Impacts with the Sizewell C Project (SZC)

- 8.3.54. The ES notes that the physical footprint of the Proposed Development would not overlap with any other consented or proposed projects other than the other East Anglia application, but that multiple direct physical impacts upon sub-surface and above ground archaeological remains / heritage assets could result in an adverse cumulative impact upon the overall below and above ground archaeological resource of the areas proposed for development; and in addition, if a site is damaged or destroyed, comparable sites elsewhere may increase in importance as a result of greater rarity and any future direct physical impacts will potentially be of greater significance. Such a level of impact is difficult to assign with any certainty but could involve heritage assets of high importance, being subject to major adverse magnitude of cumulative impact, resulting in a major adverse cumulative significance of effect (prior to mitigation).
- 8.3.55. However, the ES considers that due to the acquisition and Archaeological Assessment of survey data carried out for various developments in recent years, the information provided by both non-intrusive and intrusive investigatory works on previously unrecorded (sub-surface) and above ground heritage assets can be seen as contributing significantly to a greater understanding of the sub-surface historic environment resource. As such, the data and records produced in mitigating impacts upon such archaeological remains can also be regarded as a significant, beneficial cumulative effect. As a result, it is considered that the resulting residual significance of effect will be minor adverse.
- 8.3.56. No harm is found for indirect (non-physical) impact resulting from change in the setting of heritage assets for the construction or the operational phase.

Interrelationships and Interactions

- 8.3.57. Inter-relationships are identified between archaeology and cultural heritage and marine archaeology and cultural heritage, noise and vibration, offshore seascape, landscape and visual amenity, and landscape and visual impact.
- 8.3.58. Interactions between identified impacts (as described above) are assessed as no greater than individually assessed impacts.

8.4. PLANNING ISSUES

- 8.4.1. In their RR Historic England (HistE) [RR-047] noted that their principal concern was in relation to the cumulative impact of the Proposed Development on the significance of the Grade II* listed Church of St. Mary at Friston. They note that the Church dates from the eleventh century and the phases of building illustrate ecclesiastical design and patterns of worship and show the significant role of the Church within the community. The Church is appreciated in a rural and largely open landscape setting enabling views from the south and north, enhancing its prominence and adding to the appreciation of the building. They considered that the scale and appearance of the development would significantly change the character of this rural landscape setting and would compromise and completely obscure views to the Church from the north and from the Church looking northwards and would also greatly impact on key views of the Church from the south, which would be seen against a backdrop of the substations’.
- 8.4.2. HistE considered that this would result in a very high level of harm to the significance of the Grade II* church. They also raised concerns over proposed screening and mitigation planting and the further effect this may have on the setting of the church.
- 8.4.3. Friston Parish Council [RR-011] and SASES [RR-069] stated that the Proposed Development would impact upon at least five Grade II and two Grade II* listed buildings and that the felling of trees on the cable route to the south of the Grade II-listed Aldringham Court would negatively damage the setting of the building, as well as the landscape and amenity of residents close by. They also considered that heritage impacts were underestimated significantly, as was the cumulative heritage impact on the cluster of listed buildings which surround the substation site, stating that there is only a visual assessment of setting with little regard to wider identification and assessment of setting. The viewpoints and visualisations are highly selective and do not include key views and there is an historic parish/hundred boundary in the middle of the substation site.
- 8.4.4. Friston Parochial Church Council (FPCC) noted [RR-043] that the current quiet and restful rural landscape, traversed by footpaths, with the fabric of the church as its backdrop, would be replaced by upwards of 30 acres of industrial scale buildings and plant generating a tiresome noise (mains frequency hum), and light pollution for the next 40 years.

- 8.4.5. Suffolk Preservation Society [RR-085] stated that their principal concern is the scale of the industrialising effect of the onshore substation within an area where its intrinsic rural character is defined by its historic landscape and buildings. Friston, a tiny rural village has remained substantially unchanged for centuries and will be overwhelmed by the substation.
- 8.4.6. Amongst interested parties, heritage impacts were mentioned frequently both by residents close to the site and those from further afield. Representations were also received from various owners of some of the listed buildings surrounding the proposed substations site.
- 8.4.7. In response to HistE the Applicant [AS-036] stated that it noted potential impacts on the Church of St Mary, leading to the determination of moderate adverse significance harm in the ES. It stated that it considered views of the Church from the south side within the urban framework of the village with a backdrop of the existing overhead power lines, noting viewpoints and photomontages within the ES. It also noted detailed comments from HistE as part of the Expert Topic Group (ETG) which stated that the open setting of Friston should be retained rather than being contained by woodland.
- 8.4.8. The Applicant stated in response to HistE and SASES [AS-036] that it disagreed that the felling of trees would adversely affect the setting of Aldringham Court. It noted the historic parish boundary and referred to the ES and the mitigation within the OLEMS/OLMP in this respect. In responding to the Suffolk Preservation Society the Applicant noted that the presence of the onshore substation would represent a permanent / long-term change to the historic landscape character (HLC) to the west of Coldfair Green (and more specifically the northwest of Grove Wood) and within the immediate surrounding of the onshore substation location, but disputed that Friston and the landscape at the onshore substation and National Grid infrastructure had remained “unchanged for centuries”, referring to large scale modern agricultural buildings in the local landscape and the existing overhead pylons.

Local Impact Report (LIR)

- 8.4.9. The Councils submitted a detailed LIR [REP1-132]. In relation to listed buildings around the onshore development area, this noted that:
- Aldringham Court would require the removal of a section of woodland to accommodate the development. However, there is currently a high degree of visual separation between the building and this piece of land due to a large laurel hedge that forms a boundary to the formal gardens. The loss of part of the garden design would not amount to harm to the significance of the designated heritage asset.
 - Significant concern was raised regarding the harm the development would cause to the significance of listed buildings which surround the substations’ site. The three Grade II listed 17th Century farmhouses of Little Moor Farm, High House, and Woodside Farm are well preserved examples of local vernacular building tradition. These

farmhouses have direct and proximate relationship to their agricultural setting and have a special, long established, relationship with the traditional farmed landscape. The continuing productive agricultural use of the surrounding land, its character and openness contribute significantly to the setting of the listed buildings.

- The relationship between these buildings and their farmland setting would be fundamentally changed by the introduction of industrial development of the scale proposed. The scale and prominence of the Proposed Development in that setting is striking; the substation buildings would be within 500m of all these assets.
- The existing pylons do not disrupt this setting to anywhere near the same extent as the proposals; the landscape is still fundamentally rural in character and the farmhouses can be appreciated in their rural setting surrounded by open, productive farmland. The developments involve a transformation of the landscape character of the site to that of an industrial or other essentially urban, built up, use of land.
- As well as the visual impact of the substations' infrastructure, harm would also be caused by virtue of the loss of agricultural use over a wide area within the farmhouses' setting.
- The substation developments to the north would challenge the dominance of the Church as a landmark building in the village and would cause harm to the significance of this asset. The height of the Church helps to connect the outlying farmhouses and other buildings to the core of the village. The Proposed Development would block such views of the Church from the farmhouses that lie to the north.
- The proposed Outline Landscape Mitigation Plan (LMP) would not mitigate the harm caused by locating the substations in the setting of High House Farm, Little Moor Farm, Woodside Farm, and the Church of St Mary. While some historic field boundaries are proposed to be reinstated to the south of the site the large areas of woodland have no historic precedent and would merely have the effect of further severing the relationship between these historic assets and their open agricultural setting. Some changes have been made to the landscape mitigation plan to reduce further impact on the setting of the listed buildings which are welcomed, however this has reduced the impact from the mitigation itself rather than the harm caused by substations.
- The viewpoint chosen for Woodside Farm uses the listed building to block views of the Proposed Development. An adverse impact of medium magnitude would be caused on Woodside Farm by the Proposed Development and the setting of the Farm is poorly defined.
- The ES makes an attempt to define setting of a heritage asset in its own terms rather than using the appropriate NPPF definition and the significance of a listed building does not depend on views from the public realm.
- Harm caused to High House Farm should be increased to moderate significance in EIA terms.
- Difference in opinion on effect on listed buildings is a matter of professional opinion and that there is unlikely to be further agreement between themselves and the Applicant.

8.4.10. For offshore effects, the LIR [REP1-132] notes:

- The main issue relates to the impact of the presence of the turbines on the uncluttered seascape and the importance/contribution this uncluttered seascape has on the setting of the listed buildings and parts of conservation areas that were specifically designed as seaside holiday resorts to take in the open vistas and natural beauty of the Suffolk coast.
- This would only cause a very minor level of harm to their significance. Conservation Areas at Aldeburgh, Thorpeness, Dunwich, South Lowestoft and Southwold are considered relevant, and attention is drawn to group listings of large terraces in Lowestoft.

8.4.11. As an appendix (1) to the LIR the Councils provided a 'Rapid Historic Landscape Assessment' relating to the Friston and Knodishall areas. This Assessment:

- Noted that the Proposed Development would directly impact on the landscape features and that the degree of harm would be impossible to mitigate in places, which would result in permanent damage to the landscape character and sense of place of Friston and Knodishall.
- The landscape was, since at least the 11th century, and still is, very much a rural landscape with a mix of cultivated arable land and heathland. The longevity of this landscape use is characteristic of east Suffolk.
- The development site sits on the border of two landscape typologies, Ancient Estate Claylands and Estate Sandlands, which make this area more distinctive in terms of land use and settlement pattern. The substation is uncharacteristic for these landscape typologies and would remove the rural character of the area, breaking up the landscape and interrupting the physical and visual connectivity, divorcing the dispersed historic farmsteads from Friston village.
- Extant historic landscape features, of local and regional importance, would be affected by the substation development including the permanent destruction of a locally and regionally significant track which is a landscape feature marking part of an Anglo Saxon Hundred boundary and historic parish boundary, the permanent destruction of locally significant historic field boundaries, damage to the setting of a regionally and potentially nationally significant moated site and associated land, and the impact on the character and spatial significance of the dispersed settlement pattern and break-up of the physical and visual connectivity with Friston Church, as well as across the landscape as a whole.
- The historic parish/Hundred boundary routeway connects the historic common land to the north to the village core surrounding the church. There are clear views of the Church when approaching the village from the north following the Public Right of Way (PRoW).
- In the immediate area of the proposed substation development site, there are powerlines which cross the landscape, but their height and light structure means that they offer little interruption to the rural experience when physically standing in the landscape, compared to the proposed solid structure of potentially three substations (if both this and the other EA application proceed) with a cumulative footprint of c.12ha and up to 13-18m high.

Figure 1 Parish boundaries of Friston (1846) and Knodishall (1847) redrawn from Tithe Maps (Appendix 1 of [REP1-132])

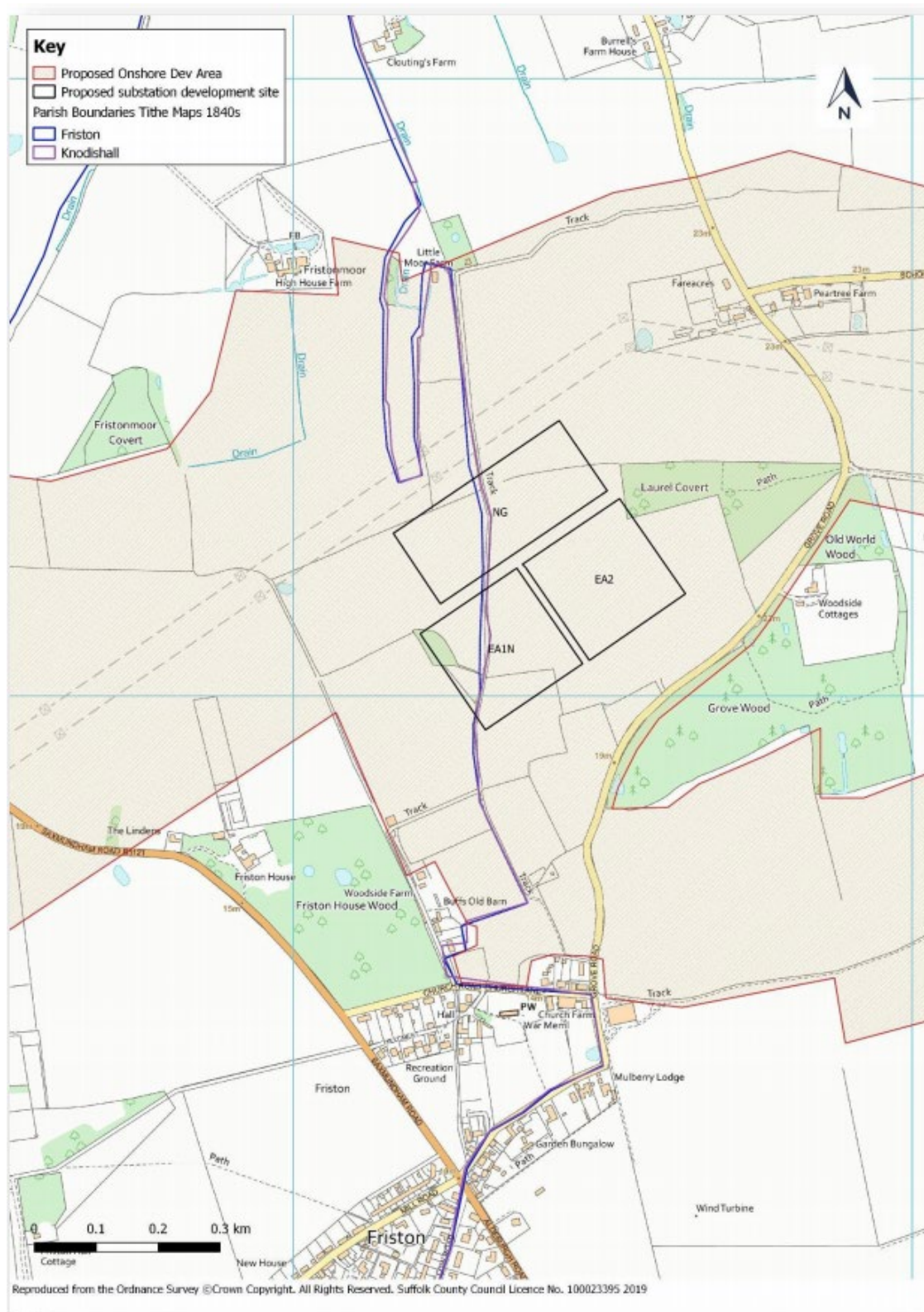
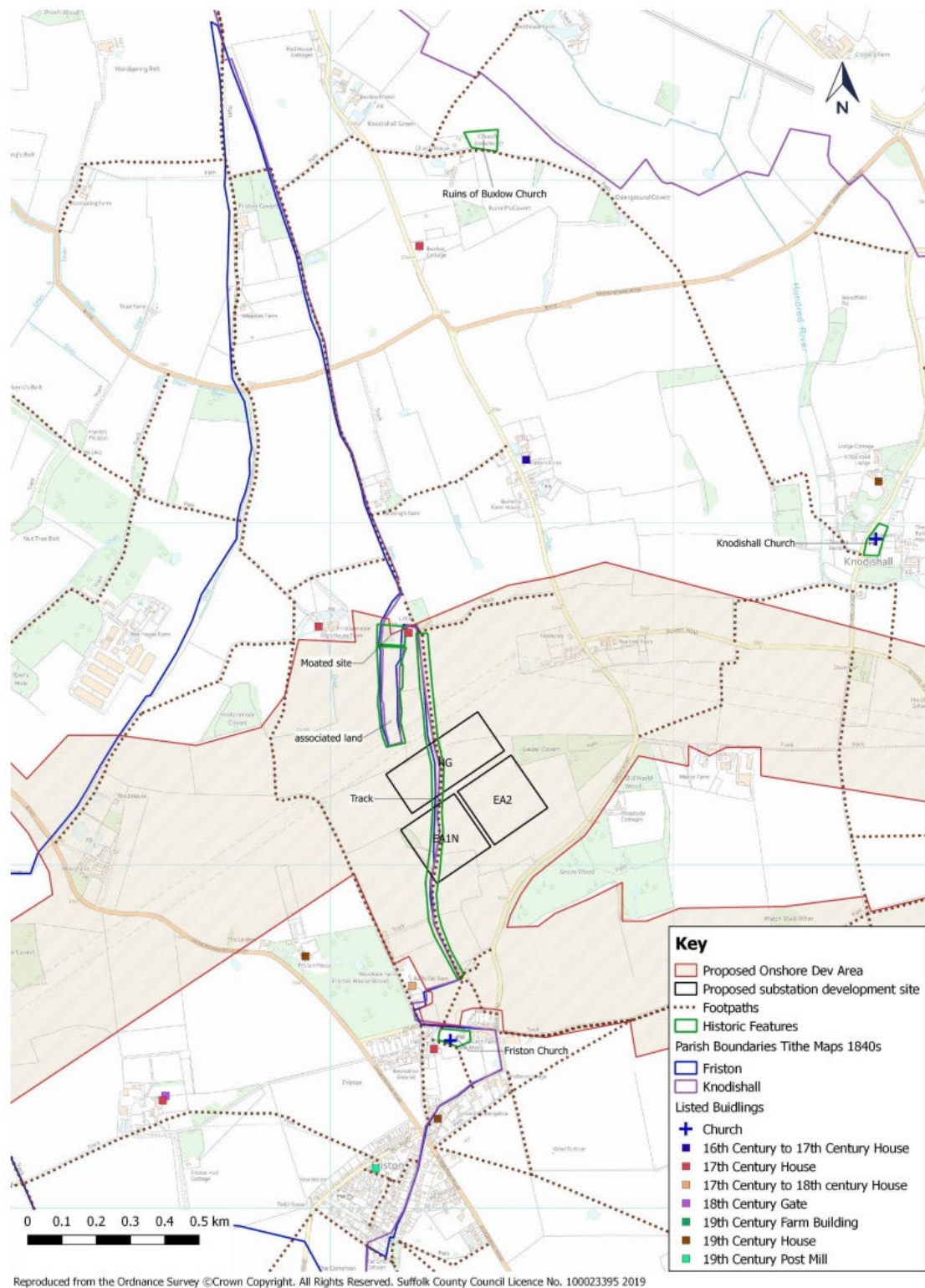


Figure 2 Annotated map showing connectivity between historic features via footpaths, tracks and lanes (Appendix 1 of [REP1-132])



8.4.12. In relation to archaeology, the LIR notes [REP-132] the following:

Landfall

- Tracks and boundaries which sit on different alignments to more recent field systems and data include a record for a possible prehistoric double ditched enclosure.
- There may be multiperiod remains present which will need to be ground-truthed through trial trenches. Large areas of mitigation may be required.
- The low importance given to WW2 features needs to be tested against the wider context of the Suffolk coast in WW2.

Cable Route

- There is a complex site on the valley slopes overlooking the Hundred River. The site appears as a prominent landscape feature and initial trial trenching from late 2019 indicates a focus of activity centred on the 11th to 14th centuries. The logistics of archaeological mitigation at this point should be considered as mitigation may be complex.
- Other features in this area which need to be considered include a possible Bronze Age ring ditch (funerary monument) with potential satellite features.
- In the Friston area there is a cluster of enclosures south west of Grove Wood including the possible site of Buxlow church/chapel. If there is a church site with a cemetery there is high potential for evidence relating Anglo Saxon to post medieval land use, settlement and religious and funerary practice. Excavation of a church and burial ground would require potentially extensive, time-consuming and delicate archaeological excavation.
- A potential pinch-point exists in the cable route in the area into which geophysical anomalies extend to the north of Friston Church and this key location has not been subject to archaeological evaluation or metal detecting.

Substations' site

- There is an apparently discrete site identified through geophysical survey north of Manor Farm which is within the area of temporary land uptake, and measures may need to be put in place to avoid it as appropriate.
- The geophysical survey indicates a generally lower density of extensive sub-surface remains across the site, in contrast with elsewhere on the scheme. This will require further ground-truthing but for a large part (but not all) of the area the Councils would have no objection to further work being undertaken post-consent.
- The former parish boundary and Anglo-Saxon Hundred boundary which runs through the site is a longstanding significant element of the landscape linking heritage assets. Boundaries, particularly meeting points between parishes, are often the location for archaeological remains relating to liminal activities, such as execution sites and deviant burial grounds.

8.4.13. Finally, the LIR [REP1-132] notes further recommended works, including:

- Further surveys. At present less than 1% of the onshore Order Limits has been investigated through intrusive trenching and there is some risk to sites as yet unknown, as preservation would not be fully guaranteed once consent is granted. A metal detecting survey and full implementation of the intended targeted trial trenching was not undertaken due to access permissions. Deferring evaluation to post-consent means that the scope of excavations and groundworks associated with archaeological investigations is unknown.
- Detailed comments are provided on the dDCO and the outline WSI. The WSI should demonstrate a commitment to delivering enhanced public understanding through means such as blogs, site and school visits, talks and community involvement. At present the submitted archaeological information falls short of the level of detail required by local policy.
- Assessment should be undertaken of the heritage value of the parish and Hundred boundary

Applicant's D1 submissions

- 8.4.14. At D1 the Applicant responded to such requests, and submitted various archaeology survey reports, including geophysical surveys and trial trenching reports. A clarification note was also submitted.

Clarification note – Archaeology and Cultural Heritage [REP1-021]

- 8.4.15. The note was prepared by the Applicant to address the concerns of the Council (and others) over the assessment of potential impacts upon HLC associated with the proposed substations; specifically, to consider the historical significance of the trackway to the north of the Church (as shown on Figure 2 above).
- 8.4.16. The note states that the historic use of the track by residents of Little Moor Farm is noted but this relationship was not considered to contribute materially to the significance of the farmhouse. It is the Applicants' view that it is the Church that derives some part of its significance from this relationship given its focal point from various radial routes leading to the church which allow it to be experienced as a historic landmark. The track is part of the portion of landscape that would be lost to the onshore substations and NG substation, but it is the overall landscape character that is considered to be most relevant and most important with regards to the setting of St Mary's Church.
- 8.4.17. The Applicant acknowledges that the parish and Hundred boundary should be considered a heritage asset in its own right and that the level of detail and narrative around the track has been considerably enhanced by work done by SCC. The Applicant agrees that the track (parish / hundred boundary) may contain 'evidential value', with the potential (once fully investigated) to establish a clearer form, and additionally as yet unsubstantiated potential for associated activity.
- 8.4.18. The Applicant has undertaken initial targeted archaeological and cultural heritage investigation works to inform the post-consent mitigation

strategy. The Applicant considers that the work done by SCC furthers understanding of the historic character of the landscape, its time-depth and extant historic features, and highlights the particular effects of the onshore substations on the local historic character and landscape features, but it is considered that it does not fundamentally change the assessment conclusions of the Landscape and Visual Impact Assessment (LVIA) in terms of the locally significant effect on landscape character and features.

- 8.4.19. It is the Applicant's view that comprehensive and robust consideration of the historic trackway has been completed in the ES and supporting documents. The access and amenity value of the historic trackway and its recognition as a PRow has been considered holistically. Given the route of the PRow through the onshore substation location, avoidance of a partial loss of this historic trackway is not possible. The Applicants are therefore in discussion with the Councils regarding potential measures which might typically include further funded research on the parish boundary and constitute elements of the Friston landscape affected by the Projects.

Other D1 submissions

Historic England

- 8.4.20. HistE note that like many rural parish churches, St. Mary's is the result of several phases of building over the centuries. The Grade II listed war memorial stands within the churchyard at the eastern end of the Church and there is a close association between this and the Church. There are views out from the churchyard to the wider rural landscape and other parts of the village to the north and south east.
- 8.4.21. The Church tower (rebuilt in c.1900) is not particularly tall, but it rises above the other village buildings. The topography, scale of the building and the open landscape allow for the Church to be experienced and enjoyed from the village and landscape beyond the churchyard. The open landscape to the north, allows for views from the north towards the Church and the footpath running through the site is an ancient track way dating to the tenth century. This reflects historic boundaries and shows the longstanding pattern of use and connections between the Church and village of Friston and farmsteads to the north.
- 8.4.22. The existing power line detracts from its undisturbed rural character to some degree and the pairs of pylons are visible in the context of the Church from some of the southern views. The cables are however seen at a height above the Church and tree line and the cables and lattice framework of the pylons have a transparent nature that allows views through the structures.
- 8.4.23. The landscape setting contributes to the significance of the Church by enhancing its prominence within the village and surrounding area. It also adds to the appreciation of the building and this complements the spiritual values of the place. Its listing at Grade II* places it in a select

group of important buildings that together with Grade I structures, make up c.8% of all listed buildings.

- 8.4.24. The development would detract from the significance of the Church by eroding the historic landscape setting and would impact upon the experience of the Church in its immediate setting, from the land to the north and to the south, and from within the village. The nature of the development would profoundly change the character of the existing rural landscape; in place of an open agricultural field would be large compounds of electrical buildings and equipment. The alien character of this within the existing rural landscape together with the scale of the development described above would make the development very prominent within the landscape.
- 8.4.25. In cumulative terms HistE noted that from differing viewpoints the Proposed Development and the other East Anglia application substation would be more visible and consider that the construction of both would clearly increase the impact, with the cumulative effect of both substations completely obscuring the view of the Church. HistE considered that the mitigation does not seek to lessen the impact of this view and the footpath itself will be diverted which further harms the setting by changing the way in which the Church is experienced when walking south towards the village. The cumulative impact of the entire proposed infrastructure would mean the prominence of the Church and its dominance as a key landmark will be entirely lost.
- 8.4.26. Both individually and in relation to the cumulative impact HistE considered that this would result in a very high level of harm to the significance of the Grade II* church. In EIA terms, HistE would see that as equating to a medium to high level of harm resulting in a major adverse and significant effect.
- 8.4.27. HistE agree with the assessment of harm in the ES related to the Grade II* listed Friston Mill.
- 8.4.28. In relation to archaeology, HistE note that the below ground archaeological remains have not been fully evaluated and interpretations should therefore be regarded as preliminary until the outstanding survey work has been completed. HistE would be particularly interested in prehistoric settlement and distribution of burial features as these, particularly upstanding barrows are the dominant surviving designated archaeological features in the landscape.
- 8.4.29. HistE were pleased to see that the main mitigation approach would be avoidance, micro-siting and route refinement. They wished to see the action plan to ensure that buried archaeology would be managed appropriately in relation to the potential impact upon the historic environment. In relation to the WSI, the aims and objectives appear adequate and relevant, and HistE support an approach which seeks opportunities to preserve sites in situ.

FPCC

8.4.30. At D1 FPCC submitted [REP1-140] detailed information on the history, architecture and use of the Church. The PCC considers that the Church would be at risk due to the loss of serenity arising from the proximity of the Proposed Development, with the vista to the north obliterated. The submission included a representation from a local resident and composer (also submitted separately, [REP1-200]) whose work is inspired by the wide skies, ever-changing farmland, ancient churches and pounding sea of the area.

8.4.31. The resident (Mr Alan Bullard) wrote a short orchestral piece entitled 'Friston Moor; inspired by the landscape and the possible threats to it. Mr Bullard states that for him the electricity pylons always had a sense of power and strength, putting the landscape in perspective in the same way as railway viaducts did in times past. But now they have a sinister and menacing feeling, threatening a historic landscape that has been enjoyed by many generations. The views from north of Friston – Friston Moor – of the medieval Church, cements the link with the past and the ever-present pylons – quite harmless as they currently are – create a link with the present. The Proposed Development would remove this, and the peacefulness and calm of the Church would be lost.

SASES

8.4.32. At D1 SASES submitted an extensive Cultural Heritage Assessment [REP1-366]. In terms of archaeology the assessment concludes that there are significant shortcomings with the presented baseline Archaeological Assessment of the onshore development area, specifically in the form of an incomplete geophysical survey and a lack of investigative trial trenching to complement the submitted desk-based assessment. The assessment notes that there is a presumption that these fieldwork elements should be carried out post-consent, but this is a major shortcoming in the assessment of the known and potential archaeological resource of the onshore development area. By failing to provide the required level of detail, the applicant is failing in their stated duty under paragraph 5.8.10 of NPS EN-1.

8.4.33. SASES note that it is clearly acknowledged by the Applicant that the construction, operation and decommissioning of the onshore infrastructure will have an impact upon the settings of surrounding heritage assets, yet only the impacts of the operational phase of the schemes are assessed in detail in the submitted documents. The failure to include the construction and decommissioning phases in the submitted assessment is a significant omission.

8.4.34. They considered the exclusion of the construction phase from the HIA to be particularly concerning, for in many cases the boundaries of the construction area lie in very close proximity to heritage assets, where they would arguably have a much greater impact than some of the later, operational phases of the proposed scheme. Concluding that there will be 'no impact' and dismissing the heritage impacts likely to be caused by the construction phase demonstrates a clear failure on the part of the Applicant to adequately quantify and assess the heritage impacts across

the full duration of the scheme. This is also contrary to paragraph 5.8.10 of NPS EN-1.

- 8.4.35. The SASES assessment [REP1-366] noted that although each of the heritage assets around the substations' site is assessed singly, it should be stressed that these heritage assets do not exist in isolation and are all parts of a significant area of historic landscape which lies to the north of the village of Friston, with the historical connections between Fristonmoor and the Church and interlinking footpath.
- 8.4.36. In the professional opinion of SASES's consultant, the Applicant's assessments significantly underestimated the heritage impact of the proposed EA1N and EA2 schemes and undervalued the contribution made by setting to each of these designated heritage assets, resulting in much lower assessments of the adverse heritage impact on each of these individual listed buildings than might otherwise be concluded. He considers the submitted illustrative viewpoints selected and photomontage visualisations to be highly selective without key views, such as that from the tower of Friston church, which would enable a better visual impression of the likely impact of the scheme to be presented.
- 8.4.37. SASES also stated that the submitted assessments demonstrate that the mitigation measures put forward in the proposed Outline Landscape Mitigation Plan do nothing to reduce the heritage impacts of the schemes in any meaningful way. In six of the seven instances where harm is identified, the Applicant acknowledges that the proposed mitigation planting will be of such negligible effect that even after 15 years it will not have had sufficient effect to reduce the assessment of harm caused to any of the heritage assets.
- 8.4.38. SASES considered the impact of the Proposed Development and the other East Anglia application to be the same and considered that major harm will be caused to the Church of St Mary; moderate harm to Friston War Memorial, Little Moor Farm, High House Farm and Woodside Farmhouse; and minor harm to Friston House and Friston Post Mill.
- 8.4.39. They note that, as is acknowledged by the Applicant, in every case, both with and without mitigation measures in place, the adverse impacts identified constitute 'less than substantial harm' in planning terms. SASES conclude that this harm lies towards the upper end of the 'less than substantial' scale and note that under existing planning law and policy it is required that these adverse impacts be weighed against the wider benefits of the application and that the greater the negative impact on the significance of the designated heritage asset, the greater the benefits that will be needed to justify approval.

Later submissions

- 8.4.40. In response to the LIR, the Applicant stated [REP2-013] that the Proposed Development should be considered primarily against NPSs, as opposed to the NPPF and disagreed that they have downplayed the

cultural heritage effects of the Proposed Development and refer to the Clarification Note submitted at D1 [REP1-021]. In relation to archaeology, the Applicant noted the reports and surveys submitted at D1.

- 8.4.41. In response to the comments of HistE, the Applicant considered [REP2-016] that they are in broad agreement regarding the heritage significance of the church, the description of the setting and the contribution made by setting to the significance of the heritage asset. They considered that it is important to make a distinction between impacts on landscape character and change in landscape character that leads to impacts on heritage significance and it does not follow that something that would have a significant adverse impact on landscape character would have a profound change in the character of the setting of the church.
- 8.4.42. The Applicant disagreed with the detailed comments of HistE concerning various viewpoints, particularly those relating to views of the church from the south and did not consider the view of HistE that there would be a very high level of harm to the significance of the church is supported.
- 8.4.43. Following a request from the ExA at an Open Floor Hearing (OFH), Marie Szpak submitted a copy of the book "Friston – A Short History of a Suffolk Village" [REP2-124]. The book explains that the earliest existing building in the village is the Church, dating from the eleventh century and notes that 13th and 14th century pottery shards have been found in some quantity in the Fristonmoor area.
- 8.4.44. At D3 a revised WSI was submitted by the Applicant [REP3-026] and changes were made to the OLEMS [REP3-030]. These are considered in more detail in the Landscape Chapter but of relevance to consideration of cultural heritage is the reduction in the size of the proposed substation, both in terms of footprint and height and substantial new areas of planting to mitigate landscape effects.
- 8.4.45. The Applicant replied at D3 [REP3-072] to the Cultural Heritage Assessment of SASES submitted at D1 (and summarised above). It referenced the commitment to trial trench 5% of the onshore development area and the additional archaeological information submitted at D1. The Applicant explained that the decision to not materially assess effects on the setting of heritage assets at the construction stage was made in conjunction with HistE and the Councils; and that land within the development area, immediately adjacent to High House Farm, Little Moor Farm, Woodside Farm, and the War Memorial, had been included as part of the landscape mitigation plan and it is considered that the nature of these proposed works adjacent to these heritage assets presents no risk of harm to these listed buildings.
- 8.4.46. It noted that the viewpoints were selected to illustrate the full range of ways in which the projects would change the settings of assets in ways that could potentially affect the significance of that asset and disagreed with the views of SASES on the level of harm caused to various buildings.

- 8.4.47. At D3 SCC noted [REP3-099] that amendments are still required to the WSI and the DCO wording but that the proposed 5% trial trenching programme did provide assurances that a systematic programme of evaluation would be undertaken to inform post-consent mitigation and observed that discussions were under way regarding such works. FPCC [REP3-106] flagged the importance of the 'Pilgrim's Path' (the path from the Church to/from Little Moor Farm), knowing that historic travellers have experienced the same view for hundreds of years.
- 8.4.48. HistE noted [D3-107] that the NPPF states that the setting of heritage assets can change over time. The research carried out by the Council [REP1-132] had increased the understanding of the contribution that the Proposed Development area and the Pilgrim's Path makes to the significance of the Church. Preserved patterns of dispersed buildings and other historic landscape features such as moats and farmsteads connected to the Church via the trackway are important survivals and indicators of historic settlement. It considered that individual listed buildings cannot just be seen as isolated buildings in the landscape and this legibility and our ability to read and understand the landscape contributes much to our understanding of assets and their sense of place.
- 8.4.49. Following the submission of the D3 OLEMS revision [D3-030] referred to above, the Applicant submitted a Heritage Assessment Addendum [REP4-006], complete with new photomontages. This addendum considered that the following effects would be caused by the Proposed Development, and cumulatively with the other East Anglia application. The table below states that adverse impacts of low and medium magnitude are the equivalent of less than substantial harm, with impacts of negligible magnitude the equivalent of no material harm.

Figure 3 Applicant's consideration of built heritage harm following mitigation

Table 2 Residual impacts of proposed East Anglia ONE North and East Anglia TWO projects after implementation of landscape mitigation. Results of revised assessment January 2021

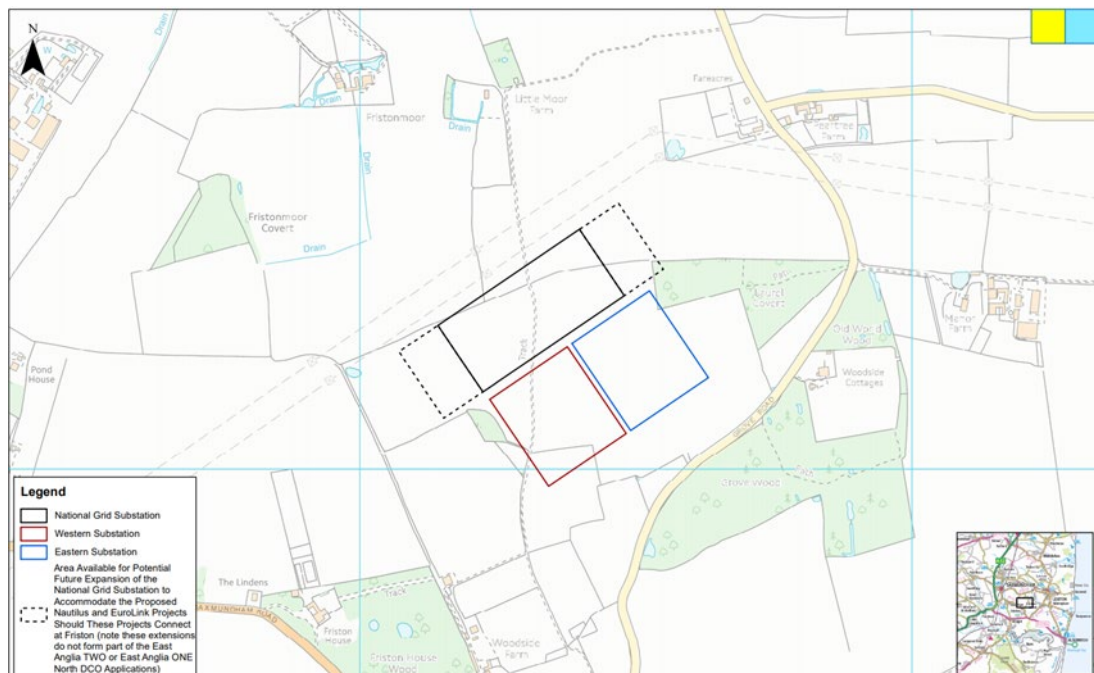
Asset	Heritage Importance	East Anglia ONE North Only		East Anglia TWO Only		East Anglia ONE North / East Anglia TWO Combined	
		Magnitude of Impact*	Significance of Effect	Magnitude of Impact*	Significance of Effect	Magnitude of Impact*	Significance of Effect
Little Moor Farm	Medium	<u>Low adverse</u>	<u>Minor</u>	<u>Low adverse</u>	<u>Minor</u>	<u>Low adverse</u>	<u>Minor</u>
High House Farm	Medium	Low adverse	Minor	Low adverse	Minor	Low adverse	Minor
Friston House	Medium	Negligible	Minor	Negligible	Minor	Negligible	Minor
Woodside Farm	Medium	<u>Negligible</u>	<u>Minor</u>	Negligible	Minor	<u>Negligible</u>	<u>Minor</u>
Church of St Mary, Friston	High	Low adverse	Moderate	Low adverse	Moderate	Low adverse	Moderate
Friston War Memorial	Medium	Negligible	Minor	Negligible	Minor	Negligible	Minor
Friston Post Mill	High	Negligible	Minor	Negligible	Minor	Negligible	Minor

- 8.4.50. SCC considered at D4 that although the D3 WSI was welcomed, more changes to the WIS would be required [REP4-067]. HistE noted the revised D3 OLEMS and considered that the revised proposal would result in a minor improvement in the proposed landscape and screen planting. It also raised concerns over the western most sealing end compounds

(SECs) which still “appear to crash into the landscape rather than be placed with care” [REP4-079]. They considered that the scheme would cause a high degree of less than substantial harm to the Church of St Mary.

- 8.4.51. In response to the Applicant’s D4 Heritage Addendum, East Suffolk Council (ESC) noted [REP5-048] that it remained of the view that magnitude of adverse impact for High House Farm, Woodside Farm, the Church, and Little Moor Farm remained at medium, giving rise to effects of moderate, moderate, major, and moderate significance respectively.
- 8.4.52. At D6 [REP6-005] a revised WSI was submitted to address the concerns of SCC. The Applicants also confirmed that it disagreed with the views of ESC [REP6-026], considering that the conclusions in [REP4-006] are robust and justified. At D7, SCC confirmed that the WSI was now acceptable [REP7-077].
- 8.4.53. A signed Section 111 Agreement between the Applicant and ESC was submitted at D8 [REP8-079]. This contains a commitment for the Applicant to provide £200,000 towards measures relating to the preservation and enhancement of heritage assets and their settings in Friston and its vicinity, which may include information boards and displays to assist in understanding HLC and features, publications, archaeological community outreach work, and enhancements to historic buildings.
- 8.4.54. A signed Statement of Common Ground with HistE was submitted at D8 [REP8-127]. In summary areas of disagreement related to:
- Extent of trial trenching
 - Cumulative impacts
 - Level of harm to the Church of St Mary within the range of less than substantial
 - Possible adverse impact on heritage assets of proposed landscaping mitigation measures
- 8.4.55. At D9 SCC confirmed that it was content from an archaeological perspective [REP9-043].
- 8.4.56. At D8 the Applicant submitted further photomontages for the purposes of assessing the NG substation as a gas insulated switchgear (GIS) substation (as opposed to an Air Insulated installation (AIS)) [REP8-055] to [REP8-062], as well as an Extension of National Grid Substation Appraisal [REP8-074] and accompanying images [REP8-069 to REP8-073]. This appraisal briefly assessed the potential effects of extending the NG substation to accommodate future projects, namely the Nautilus and EuroLink proposals for interconnectors/transmission cables to connect the UK to Belgium and the Netherlands respectively.

Figure 4 Area Available for Potential Future Expansion of the National Grid Substation [REP8-074]



- 8.4.57. The appraisal noted that any potential future expansion of the NG substation would be primarily seen from the north and therefore would be most visible in the settings of Little Moor Farm and High House Farm. Cumulative change would marginally increase the change in landscape character and the resulting impact on significance of these assets (as well as Woodside Farmhouse) but would not be sufficient to change the assessment findings. No further impact was predicted upon the significance of the Church or Friston House.
- 8.4.58. HistE responded to the appraisal at D9 [REP9-058]. They considered that it should not be viewed as a full assessment of cumulative impact but that it showed that any extensions would increase harm to the Church of St Mary. ESC were of the view that a full CIA should have been completed to consider such changes and state that:
- "the extensions to the National Grid Substation will further sever views between the heritage assets at Friston Moor and the Church, thereby further obstructing their connections. The western extension, in particular, will obscure views to the Church from the north. While there would as a consequence be an increase in the harm caused to the heritage assets, it is not considered that the significance of the effects would be raised from moderate to major (for Little Moor Farm, High House Farm and Woodside Farm). ESC however maintains that the impacts will be greater than identified by the Applicant[s] and this remains a matter of professional disagreement."* [REP9-040]
- 8.4.59. SASES [REP9-075] noted that the appraisal did not constitute a CIA and considered this to be a failure. It noted that landfall options are not considered cumulatively and stated that there will be additional impacts on heritage assets located to the south of the EA1N and EA2 substations,

past which elements of the protruding NG substation would be visible, but there would be a considerably greater impact upon the settings of Little Moor Farmhouse, High House Farmhouse, Woodside Farmhouse and Friston House, which surround the site to the north and west and which would experience much greater exposure to the new substation elements within their settings. They considered that in cumulative terms major effects will occur to Church of St Mary, Little Moor Farm, High House Farm and Woodside Farmhouse, with moderate effects to Friston House and Friston War Memorial.

- 8.4.60. At D10 the Applicant disagreed with the views of HistE considering that the setting of the Church to the north has already been altered by the introduction of the overhead electricity lines and agricultural changes that have occurred since the 1950s [REP10-013]. In response to SASES [REP10-020], the Applicant considered that its findings and SASES on cumulative impact are essentially the same but recognised that there is disagreement on what the magnitude might be. They disagreed on SASES findings related to Little Moor Farm, High House Farm, Friston War Memorial, Friston House, and Woodside Farmhouse.
- 8.4.61. At D11 the Applicant submitted a Heritage Assessment GIS Addendum [REP11-075] and accompanying photomontages. This compared the effects of a GIS or an AIS NG Substation. The assessment concluded that for the seven assets in the vicinity it is primarily the presence of the onshore substations and NG GIS substation, rather than the proposed overhead line realignment works which would lead to adverse impact on heritage significance. In the case of the Church, additional impact on significance would be caused by the NG GIS substation blocking valued views towards the church. All levels of harm are considered to be less than substantial.
- 8.4.62. ESC agreed [REP12-084] that a GIS substation would have a different visual impact than the AIS alternative, noting that the GIS substation would be taller and therefore more visible above the tree line but that there would be a less widespread impact of infrastructure. They concluded that overall magnitudes of adverse impact would be similar as with the AIS approach. ESC disagreed that mitigation planting would substantially lower the impact on the setting of Little Moor Farm and Woodside Farm. SASES [REP12-122] agreed with the conclusion that there would be no meaningful difference in heritage impact between the adoption of a AIS or GIS NG substation.
- 8.4.63. In closing submissions, SASES stated at D13 [REP13-062] that the Applicant had underestimated the heritage impact of the proposed scheme and undervalued the contribution made by setting to each of these heritage assets. It endorsed the views of HistE with regards to the Church and the views of SCC in relation to archaeology and noted that there is a statutory duty for the ExA and the Secretary of State to have regard to the desirability of preserving the setting of these listed buildings, and in doing so give great weight to their preservation with a presumption in favour of conservation.

- 8.4.64. D13 saw a final revision (v7) of the OLEMS [REP13-007]. This clarified the site layout at the close of the Examination, including the planting proposals and position of potential SUDs basins, as shown below.

Figure 5 OLMP Proposed Planting Plan [REP13-007]



8.5. EXA RESPONSE

- 8.5.1. USI1 [EV-005] carried out on the 20 and 21 of January 2020 enabled the ExA to view the publicly accessible settings of listed buildings and cultural heritage sites for the proposed landfall, much of the proposed cable route, and the substations' site. USI2 [EV-006] covered much of the same ground and USI3 [EV-007] also visited the substations' site. USI6 [EV-007c] viewed locations raised by the Councils in their LIR [REP1-132] as relevant to the assessment of the impact of the proposed offshore infrastructure on heritage assets, including the South Lowestoft Conservation Area and listed buildings within this area.
- 8.5.2. Access Required Site Inspections were undertaken on 26 January 2021 [EV-007d] and included visits to the Church of St Mary, including an internal viewing and the grounds and exterior of High House Farm and Friston House. As part of the same programme, visits on 27 January included viewing archaeological features relating to the Hundred River Valley.
- 8.5.3. ISH2 [EV-034] considered onshore siting, design and construction including landfall, cable route and substations' site proposals, including overarching siting and design issues and impact on cultural heritage. ISH11 [EV-123] on Flood Risk and Drainage included discussions over the interrelationship between drainage proposals on the proposed substations' site and landscape and heritage impacts. ISH16 [EV-140] on the proposed substations' site including discussion of design matters and the relationship of drainage proposals with the OLEMS. Issues relating to the impact of the Proposed Development on cultural heritage were a

recurring theme in the Examination and were raised by many Interested Parties, both in writing and verbally at the ISHs and at OFHs.

- 8.5.4. The ExA's first written questions (ExQ1) [PD-018] asked a range of questions primarily of the Applicant, but also of HistE and others, on policy matters, the setting of listed buildings close to the substations' site, mitigation proposals, onshore archaeology and cumulative impacts.
- 8.5.5. ExQ2 [PD-030] asked further questions relating to archaeology, the setting of listed buildings close to the substations' site, the OLEMS, and SECs. The ExA's third written questions [PD-049] asked final questions over archaeology, High House Farm, SECs, and cumulative impacts.
- 8.5.6. The ExA response below proceeds through the topic in the order of the ES, focusing on the main areas of disagreement between the Applicant and Interested Parties and the ExA's own observations.

Scope, Methodology and Existing Environment

Policy

- 8.5.7. Discussions during ISH2 [EV-034] and in written questions concerned the policy environment, and in particular the difference between NPS EN-1 and the NPPF. NPS EN-1 states:

"There should be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation should be... Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Loss affecting any designated heritage asset should require clear and convincing justification" (paragraph 5.8.14), and

"Any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of development, recognising that the greater the harm to the significance of the heritage asset the greater the justification will be needed for any loss" (paragraph 5.8.15).

- 8.5.8. The NPPF states:

"When considering the impact of a Proposed Development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance".

- 8.5.9. In particular, the phrase 'great weight' which appears within the NPPF does not appear in NPS EN-1. This is at odds with later NPSs for different sectors, such as for instance, the Airports NPS (2018) or the Geological Disposal Infrastructure NPS (2019). Such wording complies with the

findings of the Barnwell Manor¹² judgement in 2014 (referred to by SASES [REP1-366]) which states that any harm to a heritage asset must be given “considerable importance and weight”.

- 8.5.10. The Applicant notes in its response to ExQ1.8.1 that the NPPF does not contain specific policies for NSIPs, and that these are determined in accordance with the Planning Act 2008. It notes that the policy of “great weight” set out in the NPPF is not reflected in NPS EN-1 and that the test of having “special regard” [to the desirability of preserving a listed building or its setting or any features of special architectural or historic interest which it possesses] as set out in section 66 of the Planning (Listed Buildings and Conservation areas) Act 1990 is reduced to having “regard” through regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010.
- 8.5.11. The ExA agree with the Applicant’s reasoning and interpretation of the law. However, it also considers that the ‘direction of travel’ of policy including the later wording of the NPPF and the policy of ‘great weight’ to be important and relevant, noting the Barnwell decision and the text of later NPSs in this regard.

Scope

- 8.5.12. The ES summarises discussions with the Expert Topic Group, finding that eight designated heritage assets were taken forward for further assessment within the ES; the seven listed buildings close to the proposed substations site and Aldringham Court. As summarised above, during the Examination, extensive work was undertaken by SCC and the Applicant on the trackway on the substations’ site between the Church of St Mary and Little Moor Farm.
- 8.5.13. During these discussions, both parties agreed that this trackway, or Pilgrim’s Path, should be considered as a non-designated heritage asset. The ExA agrees with the parties that the trackway should be considered as a non-designated heritage asset and complies with the NPPF definition of a heritage asset as a site, place or area identified as having a degree of significance in planning decisions, because of its heritage interest. The trackway is therefore considered within the potential impacts of the Proposed Development.

Potential Impacts – Construction

Impact 1 – Direct Physical Impact on Buried Archaeological Remains

- 8.5.14. In general, this matter is agreed between the Applicant, HistE and SCC. The Councils have noted [REP12-070] the Applicant’s cautionary approach to assessment which assigns the highest likely level of importance to assets of yet uncertain heritage importance but note that, as a matter of principle, there is some risk to sites as yet unknown or

¹² Barnwell Manor Wind Energy Ltd v East Northants DC, English Heritage, National Trust and SSCLG [2014] EWCA Civ 137.

where significance is not fully established. This arises from an over-reliance on geophysical survey as a basis to inform assessment of impact, design and mitigation, noting that best practice is for geophysical survey to be ground-truthed as part of a suite of evaluation techniques

- 8.5.15. HistE notes [REP8-127] that the Applicant did not follow its recommendation (Archaeology and Cultural Heritage ETG minutes dated 23rd January 2019) to undertake trial trenching within the whole of the onshore development area to inform the Archaeological Assessment presented within the ES.
- 8.5.16. The Applicant considers that it is unusual for extensive trial trench surveys to be undertaken pre-consent due to the disturbance on existing land use. For a site the size of the Proposed Development, including a substantial landfall area, cable route corridor and substations' site, the ExA agrees that it would be unusual and potentially unreasonable to expect trial trenching within the whole site. While the ExA note reservations on the lack of trenching in some areas of pinch points [REP12-070], it also notes the further preconstruction archaeological surveys (trial trenching) which took place with the agreement of SCC in April 2021. It also notes that the Applicant commits to surveying areas in the Outline WSI [REP6-005] where access has not yet been granted post-consent (should consent be granted).
- 8.5.17. Subject to the caveats above, SCC and HistE both agree [REP8-127], [REP12-070] that the conclusions of the ES in relation to the assessment of construction impacts are appropriate: that following mitigation measures minor adverse effects will arise to identified features in the landfall location; minor adverse or negligible effects will arise to identified features on the cable route; and minor adverse effects or negligible effects will arise to identified features in the substations' site.
- 8.5.18. The ExA agree with this conclusion and also note that the Outline WSI [REP6-005] is agreed, as are the provisions of the dDCO relating to archaeology.

Impact 2 – Direct impact on Above Ground Archaeological Remains and Heritage Assets

- 8.5.19. The ExA agrees with the methodology and conclusions of the ES relating to impact 2, that following the embedded mitigation in the ES and the WSI/dDCO provisions, minor adverse or negligible effects will arise to identified features in the landfall location and minor adverse effects will arise to identified features on the cable route and in the substations' site.
- 8.5.20. This conclusion does not apply to the Pilgrim's Path which would be directly impacted by the Proposed Development. However, given overlaps with other heritage assets this matter is covered below.

Impact 3 - Indirect (non-physical) Impact as a result of change in the Setting of Heritage Assets (Designated and Non-Designated)

- 8.5.21. The ES concludes that changes in setting due to construction activities would be temporary and of sufficiently short duration that they would not give rise to material harm, a view shared with the ETG. SASES [REP1-366] are of the view that not including such construction activities is a significant omission noting that the boundaries of the construction area lie in close proximity to some heritage assets.
- 8.5.22. The ExA note that land within the construction phases of the Proposed Development adjacent to designated heritage assets is included as part of landscape mitigation proposals and note the agreement of the Councils and HistE to the approach of the Applicant in this regard. While the ExA acknowledge that certain aspects of the construction process, such as noise and dust, has the potential to affect the setting of heritage assets, the ExA agree that such effects would be temporary and would not give rise to material harm. The ExA does not consider that the omission of construction effects is contrary to paragraph 5.8.10 of NPS EN-1.

Impact 4 – Impact on Potential Geoarchaeological/Paleoenvironmental Remains.

- 8.5.23. The ExA notes that HistE welcomes the provisions of the ES in relation to potential geoarchaeological/paleoenvironmental remains and agree that following mitigation measures in the WSI [REP6-005] any effects would be minor adverse.

Impact 5 -Impact from Drilling Fluid Breakout or Oil spills

- 8.5.24. The ExA notes that HistE welcomes the provisions of the ES in relation to potential impacts from drilling fluid breakout or oil spillage and considers that following mitigation measures in the WSI [REP6-005] any effects would be minor adverse.

Potential Impacts – Operation

Impact 1 - Indirect (non-physical) Impact as a result of change in the Setting of Heritage Assets (Designated and Non-Designated)

- 8.5.25. The eight designated heritage assets (listed buildings) identified in the ES are considered below, along with the Pilgrim's Path to which direct and indirect impacts would occur. Impacts from the offshore aspects of the Proposed Development are also considered.

Aldringham Court (Grade II)

- 8.5.26. The large, detached property of Aldringham Court, previously Raidsend, lies on the west side of Aldeburgh Road, to the south of Aldringham. The building was designed by Cecil H. Lay, a local poet and architect for himself and is now a nursing home. The façade of the building faces toward the north east and has an unusual late Art Nouveau style with distinctive curved brick coped elongated Dutch style gables. The listing

notes the fine quality decoration of the exterior. The building is set in mature woodland.

- 8.5.27. The proposed cable route would be set to the south of the building and its land, although within the former grounds of the property. Laying the cable route would necessitate the removal of a 16m wide strip of woodland, which although reinstated would only be reinstated centrally with heathland and low shrubs. However, there would be a reasonably significant area of land remaining between the listed building and the cable route and the ExA agree with the Councils [REP1-132] that the degree of visual separation present means that the Proposed Development would not cause material harm to the setting or the significance of the listed building.

Friston Post Mill (Grade II*)

- 8.5.28. This is a distinctive Post Mill which lies in the southerly quadrant of Friston village to the west of Saxmundham Road. The building consists of a red brick two storey roundhouse with a three-storey timber framed weatherboarded structure on top. The main sails and fantail sails are no longer present and a steel frame around the outside of the entire building has been erected to stabilise the structure.
- 8.5.29. Partly due to the height of the structure the building has a reasonably large setting. Nevertheless, it is surrounded by housing and relatively enclosed from the wider rural landscape. The building lies some way to the south of the Proposed Development site and the ExA consider that no harm would be caused to the setting and the significance of the Post Mill by the Proposed Development.

Friston House (Grade II)

- 8.5.30. Friston House lies to the west of the Proposed Development site, and to the north of Friston. The house dates from the early 19th century with frontages to the west overlooking the curved dual access drive onto Saxmundham Road, and to the south with a curved bay overlooking a grassed lawn. The property has a classical design, with a large central doorway with Tuscan columns and entablature. The property lies in substantial attractive planned wooded grounds which separate the building from a footpath to the east and wider rural environment both here and to the north of the property.
- 8.5.31. The ExA consider that the setting of the property is not confined to the landscaped grounds of the heritage asset; the juxtaposition between the open rural landscape and the rigid planned boundaries of the property also forms part of the setting of the property. CHVP7 [REP4-009] shows the predicted view from the grounds of the House just to the east of the building. The ExA agrees with SASES [REP1-366] that the viewpoint appears to be taken from a low point, although notes that the camera height is reported as 1.5m.

- 8.5.32. Views of the National Grid substation are distinct at both Year 1 and Year 15 of the operational phase. Views of the western substation are also

possible, although less distinct. with views of the western substation more obscured, but still visible.

- 8.5.33. The Applicant's Heritage Assessment Addendum [REP4-006] considers that the magnitude of effect for Friston House to be negligible, and therefore no material harm would be caused. The ExA disagree with this assessment. The Proposed Development, specifically the National Grid substation, would be visible from the landscape and planned grounds of the House, and would impinge into the rural backdrop of these grounds. This would cause less than substantial harm to the setting and therefore the significance of the heritage asset. Harm caused would be at the low end of this scale.

Woodside Farmhouse (Grade II)

- 8.5.34. Woodside Farmhouse lies to the west and south of the Proposed Development. The 17th to 18th century farmhouse is a timber framed plastered building with a red pantiled roof. The property faces the trackway/public footpath to the west of the house. The heritage asset lies within the open rural countryside to the north of Friston, and the rear of the building is visible across the fields to the east from the Pilgrims Path. Consequently, the setting of the building, especially to the east is extensive.
- 8.5.35. CHVP5 [REP4-010] shows the predicted view from the footpath in front of the property. However, this view is significantly obscured from the camera angle by the property itself. In view of this, a further viewpoint was requested and was submitted at D8 [REP8-063]. However, disappointingly this viewpoint does not "illustrate a second viewpoint relating to this asset, a location immediately to the north of the farmhouse where there would be an uninterrupted view towards the substations" [REP6-062] but the same viewpoint with the wireframe of the Proposed Development drawn through the heritage asset. This does not assist significantly.
- 8.5.36. Nevertheless, from the front of the property, it is clear that the National Grid substation and that of the Proposed Development will be clearly visible at year 1 of operation. By year 15 the National Grid substation will be fairly well hidden but the Proposed Development substation will remain prominent above the tree line.
- 8.5.37. The Applicant's Heritage Assessment Addendum [REP4-006] considers negligible magnitude of effect for Woodside Farmhouse and therefore no material harm would be caused. Without photomontages from the rear of the heritage asset it is difficult to gauge completely the existing setting to the rear of Woodside Farmhouse. However, it is clear from views from the Pilgrim's Path that the existing fairly clear aspects of the building from and to the east will be affected by the Proposed Development at year 1 of operation. While effects would be lessened by year 15, in part this would be due to the mitigation planting which would have its own negative effect to the current open rural setting. The ExA consider that this would cause less than substantial harm to the setting, and therefore

the significance, of the heritage asset. Such harm would be at a medium level within the scale.

High House Farm (Grade II)

- 8.5.38. High House Farm lies to the north of Friston, and forms part of the small loose grouping of farmsteads at Fristonmoor. The 17th century farmhouse is timber framed and plastered with brick casing and is part rendered. The property has a T shaped plan with the western frontage overlooking an attractive landscaped garden. The south of the property, looking towards the Proposed Development site has large upper floor windows. A modern property is set to the east of the building.
- 8.5.39. The setting to High House Farm encompasses much of the local wider environment; aside from to the east, the heritage asset is surrounded by open fields. While historically trees formed much of the southern boundary of the property, at the ASI the ExA observed that a number of trees that previously lay on this boundary had been felled due to disease. This allowed the setting to the south to be more readily appreciated, where views across to Friston and the Church of St Mary were clearly visible.
- 8.5.40. Although an LVIA photomontage, LVIA VP5 is perhaps the most useful to consider effects on High House Farm [REP11-041]. This is taken from the corner of a public footpath on the south west boundary edge of the heritage asset.
- 8.5.41. Views of the National Grid substation and the westerly SEC are evident at year 1 of operation. The substation of the Proposed Development would be largely hidden by the National Grid substation. By year 15 much of the NG substation would be hidden by dense planting but clear views of the westerly SEC would still remain. The westerly SEC would appear to block previous long ranging views to the Church of St Mary, removing visual links of the heritage asset to the village.
- 8.5.42. The Applicant's Heritage Assessment Addendum [REP4-006] finds low adverse magnitude of effect for High House Farm, equating to less than substantial harm. The ExA agree that less than substantial harm would be caused to the setting and therefore the significance of the heritage asset.
- 8.5.43. However, given the removal of the visual link between the property and the main settlement of Friston, the ExA consider the harm within the parameters of less than substantial harm to be higher than the Applicant considers. The dense planting proposed would also cause its own harm and be contrary to the aim stated in the OLEMS that historic farms would not be enclosed in woodland. The ExA considers that in a range of low-medium-high within less than substantial harm, medium harm would be caused.

Little Moor Farm (Grade II).

- 8.5.44. Little Moor Farm lies to the north of Friston, and to the east of High House Farm, forming part of the loose grouping of farmsteads at Fristonmoor. The 17th century property faces east and is a timber framed and plastered detached farmhouse with a pantiled roof. The property was previously moated, and the façade of the building faces on to the Pilgrim's Path. The heritage asset has a remote feel and is completely surrounded by open fields. The Pilgrim's Path provides a direct, almost straight link to Friston and her Church to the south. The setting of the heritage asset includes wide areas of the surrounding open fields.
- 8.5.45. CHVP4 [REP4-009] is taken from an area of public footpath to the east of the heritage asset. The photograph appears quite misty (the time of the photograph is 09:19) but the Church tower remains very visible to the south.
- 8.5.46. At year 1 of operation the visual effect of the National Grid substation is stark, with the Proposed Development substation clearly visible behind. A SEC is also very visible. The Pilgrim's Path is visually and physically cut off by the electrical infrastructure and any visual link with the Church and Friston has gone. By year 15 mitigation planting has masked much of the substations', but the SEC remains clearly visible and the planting removes the previous clear aspect across the fields.
- 8.5.47. The Applicant's Heritage Assessment Addendum [REP4-006] finds medium magnitude of effect for Little Moor Farm, equating to less than substantial harm. The ExA agree that less than substantial harm would be caused to the setting and therefore the significance of the heritage asset. However, given the removal of the visual link between the property and the main settlement of Friston, the ExA consider the harm within the parameters of less than substantial harm to be higher than the Applicant considers. The ExA consider that in a range of low-medium-high within less than substantial harm, high harm would be caused. The ExA comes to this view by noting the proximity of the Proposed Development to the heritage asset and its significant impact on the southerly open rural setting of the listed building, which would be affected at 1 years and 15 years into operation of the Proposed Development.

Church of St Mary, Friston (Grade II*) and Friston War Memorial (Grade II).

- 8.5.48. The Parish Church of Friston lies on the northern fringes of the village, with its nave running from east to west. The Church dates from the 11th century and retains some 11th and 12th century structure and works. The main body of the church is from the 14th and 15th century and restorations and redecorations took place in the 19th and 20th century. The church tower is flint dressed with the nave and chancel rendered; the southerly porch and various buttresses are brick. The churchyard surrounds the church on all sides. To the north of the church the churchyard separates the church from the narrow Church Lane, the other side of which are open fields to the north across to Fristonmoor. A previous doorway is evident in the north nave – the listing notes that this dated from the 11th century. Within the church two 15th century styled

windows face north and provide views across the churchyard and the fields beyond.

- 8.5.49. The significance of the Church in part dates from its architectural history and detailing. However, this significance is added to in a large degree by the setting of the Church and its spiritual and pastoral connection to the surrounding settlement and parish, including to Fristonmoor across the fields to the north. In a largely flat landscape, the tower of the Church is visible for a significant distance in most directions, sited on a slight rise in the landscape and surrounded by largely single and 1½ storey houses. The setting of the church is therefore large and extends in most directions, including to the properties to the north at Fristonmoor and across the land in between, including the Proposed Development site.
- 8.5.50. Friston War Memorial lies off the south west corner of the church. The Memorial consists of a Portland stone Latin cross set on an octagonal plinth on a four stepped base. The Memorial dates from 1920 and contains memorials for the first and second world wars. The significance of the Memorial arises from its elegant design and its historic interest. The significance is added to by its location within the parish's churchyard and its association with the Church.
- 8.5.51. CHVP8 [REP4-012] provides a view from the war memorial to the north. A small thicket of trees lies due north of the memorial and partly screens views to the north. From this viewpoint the Proposed Development does not appear visible in the montages.
- 8.5.52. LVIA VP2 [REP11-038] provides a useful photomontage from the north side of Church Road, where the Pilgrim's Path meets Church Road and just across the road from the church. Despite it being set just to the north of the Church the ExA considers that this provides a more useful indication of views from much of the church yard than CHVP8 given the positioning of that photograph.
- 8.5.53. At year 1 of operation the Proposed Development's substation is clearly visible above field hedgerows, with the westerly SEC visible too. At year 15 screening has increased but harmonic filters are still clearly visible above the tree and hedge line.
- 8.5.54. [REP4-066] finds low magnitude of effect for the Church of St Mary and negligible magnitude for the War Memorial, equating to less than substantial harm and no harm respectively.
- 8.5.55. The size, scale, presence and alien design of the Proposed Development within an open rural landscape would appear at odds with the HLC of the area and would fill or remove important views of the Church, both from the Church to the north and to the Church from the north, fundamentally changing views which have been in place for centuries. This would harm the setting of the Church in a significant way. The height of the development would provide a counterpoint to the Church from other directions, eroding the landmark status of the heritage asset in a largely flat landscape. Given that the fabric of the Church is not harmed, the ExA

agrees that substantial harm would not be caused to the Church by the Proposed Development; however, the ExA consider that harm would be at the higher end of the scale within less than substantial harm, because of the impact of the development on the setting of the Church. The association of the War Memorial with the Church and its churchyard would elevate the harm to the war memorial to less than substantial harm, albeit at the lower end of the scale.

The Pilgrim's Path

- 8.5.56. Above it is noted that the Applicant and the Councils consider the trackway linking the Church to Little Moor Farm to be a non-designated heritage asset. The trackway is a landscape feature marking part of an Anglo Saxon Hundred boundary and historic parish boundary and as such has been in position for centuries.
- 8.5.57. Various IPs note their pleasure at walking the path and their feelings of peace and solitude in doing so. The ExA can appreciate such feelings. When walking the path, particularly towards the south and towards the church in the distance it is easy to imagine walking on the same path that has been trod for centuries, aiming for the Church to the south. This feeling persists despite the presence of the existing overhead lines which, while obvious in the landscape, are open and high during the northerly sections of the path and are not noticeable once the walker has travelled beneath them towards the south.
- 8.5.58. The proposal would result in the loss of a large proportion of the trackway and will dramatically adversely affect the setting and experience of users of the path in other places. The loss of the trackway would result in substantial harm to this non designated heritage asset. While the ExA agree that the likely historic use of the track by residents of Little Moor Farm is not considered to contribute materially to the significance of the farmhouse, the setting of the farmhouse onto the trackway would be affected.
- 8.5.59. The link between the Church and the northerly points of the Parish would be adversely affected, and in this way, harm would be caused to Fristonmoor and the wider heritage assets within the hamlet as opposed to specifically Little Moor Farm. In this sense the ExA agree with the views of SASES that the heritage assets all form part of a significant area of HLC which lies to the north of the Friston and encompasses the historical connections between the Church and Fristonmoor. Harm to the significance of the Church would also be increased by the removal of part of the path (although not to the point of overall substantial harm).

Offshore

- 8.5.60. The Council's LIR considers that the proposed offshore turbines would cause a minor level of harm to conservation areas on the coastline and listed buildings in Lowestoft. The ExA visited the cited areas and listed buildings during the Examination. While noting that the visual effects of the turbines may be visible from certain locations and to certain degrees, these would not be seen in isolation and, furthermore the seascapes at

present are rarely clear, whether this is from shipping or existing turbines. The ExA do not consider that the visual effects of the turbines would cause harm to such heritage assets.

Impact 2: Impacts to Archaeological Site Preservation Conditions, where present, from Heat Loss from Installed Cables

- 8.5.61. The ExA agree that no impact is likely during operation associated with the heat loss from onshore cables.

Alternative substation site

- 8.5.62. It is also relevant to note that the Applicants' Response to Rule 17 Questions of 13 May – Design and Layout of the Substations [AS-122] states that if the other East Anglia application is not constructed then the proposed development would utilise the substations site of the other East Anglia application. In this case adverse effects would be slightly different. The ExA's assessment of the effects of a substation on the land identified for the EA2 substation is set out in Chapters 6-17 of the other East Anglia application recommendation report and would be relevant to those circumstances, should they arise.

National Grid – GIS Option

- 8.5.63. The ExA agree with the views of the Applicant, ESC, HistE, and SASES who all essentially considered that while the GIS option for the NG substation would have differing effects there would be little meaningful difference in heritage impact between the adoption of an AIS or GIS substation. Furthermore, the ExA note that given the response of National Grid Electricity Transmission (NGET) to ExQ2 [REP6-110], it appears highly unlikely that NGET would choose a GIS option given their commitments to reduce their greenhouse gas emissions and to work within the Electricity Act to keep costs to a minimum.

Potential Impacts – Decommissioning

- 8.5.64. The ExA notes that for the purposes of decommissioning impacts no greater than those identified for the construction phase are expected for the decommissioning phase. Considering that an Onshore Decommissioning Plan will be provided under the dDCO and the lapse of time that may arise before decommissioning arises, the ExA considers this to be a reasonable assumption.

Cumulative Impacts

Cumulative Impacts with the other East Anglia application

- 8.5.65. Assessments within [REP4-006] conclude that the combined impact of the Proposed Development with the other East Anglia application would not lead to any higher magnitude of effect or significance of effect than for the Proposed Development on its own.

- 8.5.66. Considering the commitment to install cable ducting for both projects at the same time it is the ExA's view that construction effects will be the same for both projects.
- 8.5.67. In terms of operational effects, and the effect on the setting of surrounding heritage assets, the ExA considers that:
- The effects on Aldringham Court will not change, given the commitment to construct both cable ducts at the same time and the conclusion of the ExA that no harm would be caused to the setting of the heritage asset by the operation of the Proposed Development.
 - Due to the distance between the site and Friston Post Mill and the intervening features in between there would continue to be no harm caused to the Mill.
 - Effects on the setting of Friston House would predominantly be caused by the National Grid substation and therefore cumulative effects would not increase significantly. Harm would remain at the lower end of less than substantial.
 - Cumulative effects for Woodside Farm will increase due to the visibility and spread of both proposed substations. This would remain at medium level within less than substantial harm.
 - Given the predominance of effect of the NG substation and the westerly SEC, effects for High House Farm would remain at medium level of less than substantial harm.
 - Harm would increase at Little Moor Farm due to the lateral spread of the two substations combined and remain at a high level of less than substantial harm.
 - Harm would increase for the Church of St Mary, due to the increase in width of development. Such harm would remain at high levels of less than substantial harm.
 - Harm would be slightly increased for the War Memorial but would remain at low levels of less than substantial harm.
 - While the western substation would remove more of the Pilgrim's Path, in reality the cumulative harm would be much the same – substantial due to the loss of a large section of the path through the National Grid substation area

Cumulative Impacts with SZC

- 8.5.68. The ExA agree with the conclusions of the ES that although multiple direct physical impacts upon sub-surface and above ground archaeological remains / heritage assets could result in an adverse cumulative impact upon the overall below and above ground archaeological resource of the areas proposed for development this would be largely balanced by the widespread acquisition and Archaeological Assessment of survey data. The ExA also agree that no harm would be caused to indirect impact resulting from change in the setting of heritage assets for the construction or the operational phase.

Cumulative effects with potential National Grid extension

- 8.5.69. The Extension of National Grid Substation Appraisal [REP8-074] shows the potential effects of extending the NG substation to accommodate

future projects, namely the Nautilus and EuroLink proposals. The Appraisal shows that this would result in the length of the overall NG substation complex increasing.

- 8.5.70. The photomontage for CHVP4 (east of Little Moor Farm) [REP8-070] shows how the adverse effects would be increased for Little Moor Farm, with the width/lateral spread of the NG substation being similar as to that with both East Anglia proposals constructed but the effect brought closer to the heritage asset. This would further separate Fristonmoor physically, visually, and spiritually from Friston. Harm would be increased but within the less than substantial scale.
- 8.5.71. VP2 photomontage [REP8-071] demonstrates how impact would be increased upon the Church (and by extension the War Memorial). The western NG substation extension bay would be visible at year 1 and year 15 of operation and would serve to fill the horizon with electrical infrastructure. As above, this would further separate Friston physically, visually, and spiritually from Fristonmoor. Harm would be further increased to the Church but within the less than substantial scale. Harm to the War Memorial would also be increased, potentially to medium levels within the less than substantial scale.
- 8.5.72. The photomontage for VP5 [REP8-072] shows that the density of electrical infrastructure would visually increase from this viewpoint, but the westerly extension would be set behind the SECs. Harm would increase to High House Farm but would remain within the medium level of less than substantial.
- 8.5.73. Effects would also likely increase for Friston House as the westerly extension would increase views from the northern boundary of the property. Such effect would remain at low within the less than substantial scale. Effects would also increase for Woodside Farmhouse due to the wider spread of development but would remain at the previously concluded level of medium within the less than substantial scale.

Other Matters

- 8.5.74. As stated above, a signed Section 111 Agreement was agreed with ESC and the Applicant. This contains a commitment for the Applicant to provide £200,000 towards measures relating to the preservation and enhancement of heritage assets and their settings in Friston and its vicinity [REP8-079].
- 8.5.75. The Applicants state that they will not be asking the ExA to attach weight to the s111 Agreement [REP11-086].

8.6. CONCLUSIONS

- 8.6.1. The ExA have concluded:

Policy

- The conclusions below are based on the relevant sections of EN-1 and the Infrastructure Planning (Decisions) Regulations 2010. The ExA also notes the 'direction of travel' of heritage policy.

Potential Impacts – Construction

- The ExA agree that minor adverse impacts will arise to below ground identified features in the landfall location; minor adverse or negligible effects will arise to identified features on the cable route; and minor adverse effects or negligible effects will arise to identified features in the substations' site.
- The ExA agrees that minor adverse or negligible effects will arise to identified above ground features in the landfall location and minor adverse effects will arise to identified features on the cable route and in the substations' site.
- The ExA agree that indirect effects to heritage assets would be temporary and would not give rise to material harm.
- The ExA agree that effects relating to potential geoarchaeological/paleoenvironmental remains and impacts from potential spillages would be minor adverse.
- The ExA consider the outline WSI and provisions within the dDCO acceptable and satisfactory to mitigate harm levels to the above levels.

Potential Impacts – Operation

- The ExA agrees that material harm would not be caused to the significance of Aldringham Court (Grade II).
- The ExA agrees that material harm would not be caused to the significance of Friston Post Mill (Grade II*).
- The ExA considers that less than substantial harm would be caused to the significance of Friston House (Grade II). Such harm would be at a low level.
- The ExA considers that less than substantial harm would be caused to Woodside Farmhouse (Grade II). Such harm would be at a medium level.
- The ExA considers that less than substantial harm would be caused to High House Farm (Grade II). Such harm would be at a medium level.
- The ExA considers that less than substantial harm would be caused to Little Moor Farm (Grade II). Such harm would be at a high level.
- The ExA considers that less than substantial harm would be caused to the Church of St Mary (Grade II*). Such harm would be at a high level.
- The ExA considers that less than substantial harm would be caused to Friston War Memorial (Grade II). Such harm would be at a low level.
- The ExA considers that substantial harm would be caused to the 'Pilgrim's Path' (Non-designated heritage asset).
- The ExA considers that material harm would not be caused by the offshore proposals to the setting of coastal heritage assets.
- The ExA agree that no impact is likely during operation associated with the heat loss from onshore cables.
- The ExA agree that there would be no meaningful difference in heritage impact between the adoption of an AIS or GIS NG substation.

Potential Impacts – Decommissioning

- The ExA agrees that impacts no greater than those identified for the construction phase can be expected for the decommissioning phase.

Cumulative Effects

The other East Anglia Application

- The ExA considers that construction effects will not alter cumulatively from that of the Proposed Development.
- No material harm would be caused to Aldringham Court or to Friston Post Mill.
- Cumulative harm would not increase to Friston House or High House Farm.
- Cumulative harm would be increased to Woodside Farm, Little Moor Farm, the Church of St Mary, and to the Friston War Memorial. Such harm would not increase above the harm levels identified for the Proposed Development.
- Substantial harm would remain to the Pilgrim's Path.

Cumulative Impacts with SZC

- The ExA agree that minor cumulative harm would be caused to sub-surface and above ground archaeological remains / heritage assets
- The ExA agree that no cumulative harm would be caused to indirect impact resulting from change in the setting of heritage assets.

Cumulative effects with potential National Grid extension

- Based on the limited information provided the ExA consider that cumulative effects will be increased to Little Moor Farm, the Church of St Mary, Friston War Memorial, Friston House, Woodside Farmhouse and High House Farm.
- Harm levels would be at the levels previously identified for the Proposed Development for all heritage assets, aside from Friston War Memorial, where harm would increase to a medium level within the bracket of less than substantial harm.

8.6.2. Drawing all these facts together, the ExA concludes that:

- The ExA has had regard to the desirability of preserving the settings of the identified Listed Buildings and any features of special architectural or historic interest which they possess. Harmful impacts on the significance of various designated heritage assets have been identified, as well as to a non-designated heritage asset. NPS EN-1 requires such harm to be weighed against the public benefits of development – this assessment is carried out in Chapter 28, the Planning Balance.
- Harm caused to the onshore historic environment has a medium negative weighting to be carried forward in the planning balance.
- Cumulative effects with the other East Anglia application increase this harm.
- Medium levels of harm are found as opposed to high due to the fact that harm to heritage assets has been found to be less than

substantial. However, for several heritage assets the harm within this scale is at the higher end (including to a Grade II* listed building) and there would be substantial harm to a non-designated heritage asset. The ExA consider therefore that harm within the medium level of harm is at the top end of the scale.

- In reaching the above conclusions the ExA has not considered the Extension of National Grid Substation Appraisal [REP8-074], noting that the Applicant acknowledges that the Appraisal is “environmental information” and is not intended to comprise a Cumulative Impact Assessment [REP10-020].

9. FINDINGS & CONCLUSIONS IN RELATION TO SEASCAPES

9.1. INTRODUCTION

9.1.1. This Chapter deals with the seascape and visual effects of the Proposed Development. It reviews the seascape, landscape and visual impact assessment (SLVIA) of the Environmental Statement (ES) [APP-076]. However, while this section deals with seascape, representations on this topic have focused on any visual effects of the Proposed Development on the local landscape, which is discussed under the overall topic hearing of Planning Issues Onshore.

9.1.2. The Chapter is split into the following sections:

- Policy Considerations
- The Applicant's Case
- Planning Issues
- ExA Response
- Conclusion

9.2. POLICY CONSIDERATIONS

National Policy Statement

9.2.1. Paragraph 5.9.5 of the Overarching National Policy Statement for Energy (NPS EN-1) states that applicants should carry out a landscape and visual assessment and report it in the ES and that references to landscape should be taken as covering seascape where appropriate (paragraph 5.9.1). The assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character (paragraph 5.9.6), including light pollution effects (paragraph 5.9.7).

9.2.2. Paragraph 5.9.8 of NPS EN-1 acknowledges that virtually all nationally significant energy infrastructure projects will have effects on the landscape and that projects will need to be designed carefully, taking account of potential impacts, minimising harm and providing reasonable mitigation where possible and appropriate. Factors to be considered when judging the impact of a project on landscape are the existing character of the local landscape, its current quality, how highly it is valued and its capacity to accommodate change.

9.2.3. Areas of Outstanding Natural Beauty (AONB) are confirmed as having the highest status of protection in relation to landscape and scenic beauty (paragraph 5.9.9). The duty to have regard to the purposes of AONBs also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them, with the aim being to avoid compromising the purposes of designation (paragraph 5.9.12). The primary purpose of AONBs is to conserve and enhance

natural beauty¹³. Paragraph 5.9.13 states that the fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent.

- 9.2.4. The National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) notes that Seascape is a discrete area within which there is shared inter-visibility between land and sea, recognising that the seascape is an important resource and an economic asset, with coastal landscapes often recognised through statutory landscape designations (paragraphs 2.6.199-200).
- 9.2.5. NPS EN-3 states that where a proposed offshore wind farm will be visible from the shore, a seascape and visual impact assessment should be undertaken which should include an assessment of the limit of visual perception from the coast, individual characteristics of the coast which affect its capacity to absorb a development and how people perceive and interact with the seascape (paragraphs 2.6.202-203).
- 9.2.6. For decision making NPS EN-3 states that consent should not be refused solely on the ground of an adverse effect on seascape or visual amenity unless an alternative layout can be reasonably proposed which would minimise any harm or, taking account of the sensitivity of the receptor(s) set out in NPS EN-1, the harmful effects are considered to outweigh the benefits of the scheme (paragraph 2.6.208).
- 9.2.7. NPS EN-3 notes that neither the design nor scale of individual wind turbines can be changed without significantly affecting the electricity generating output of the wind turbines, and therefore it is unlikely that mitigation in the form of reduction of scale will be feasible, although the layout of the turbines should be designed appropriately to minimise harm (paragraph 2.6.209).

Countryside and Rights of Way Act 2000 (CROW)

- 9.2.8. The CROW provides Natural England with the powers to designate areas as AONBs for the purpose of conserving and enhancing the natural beauty of the area. S85 of the CROW states that relevant public bodies shall have regard to the purpose of conserving and enhancing the natural beauty of an AONB when performing or exercising any functions which may affect land in an AONB. S89 of the CROW states that conservation bodies will prepare and publish a plan which formulates their policy for the management of their AONB and for the carrying out of their functions in relation to it.

Marine Policy Statement (MPS)

- 9.2.9. The MPS states that the existing character and quality of a seascape, how highly it is valued and its capacity to accommodate change should be taken into account when considering the impact of a development on seascape (paragraph 2.6.5.3). For any development proposed within or

¹³ Countryside and Rights of Way Act 2000

relatively close to nationally designated areas [such as AONBs), regard should be had to the specific statutory purposes of the designated area, with the design of a development taken into account as an aid to mitigation (paragraph 2.6.5.4).

Development Plans and other local policies

- 9.2.10. Policy SCLP10.4 of the Suffolk Coastal Local Plan (September 2020) states that development will not be permitted where it would have a significant adverse impact on the natural beauty and special qualities of the Suffolk Coast and Heaths AONB (SCHAONB) that cannot be adequately mitigated. Development within the setting of the SCHAONB will be informed by landscape and visual impact assessment to assess and identify potential impacts and identify suitable measures to mitigate these impacts. Proposals for development should protect and enhance the tranquillity and dark skies across the plan area.
- 9.2.11. The SCHAONB Management Plan 2018-2023 (December 2018) outlines how relevant authorities will pay regard to the purposes of the AONB and provides a framework for the co-ordination of actions from partnership organisations and others whose activities impact upon the AONB.

9.3. THE APPLICANT'S CASE

Introduction

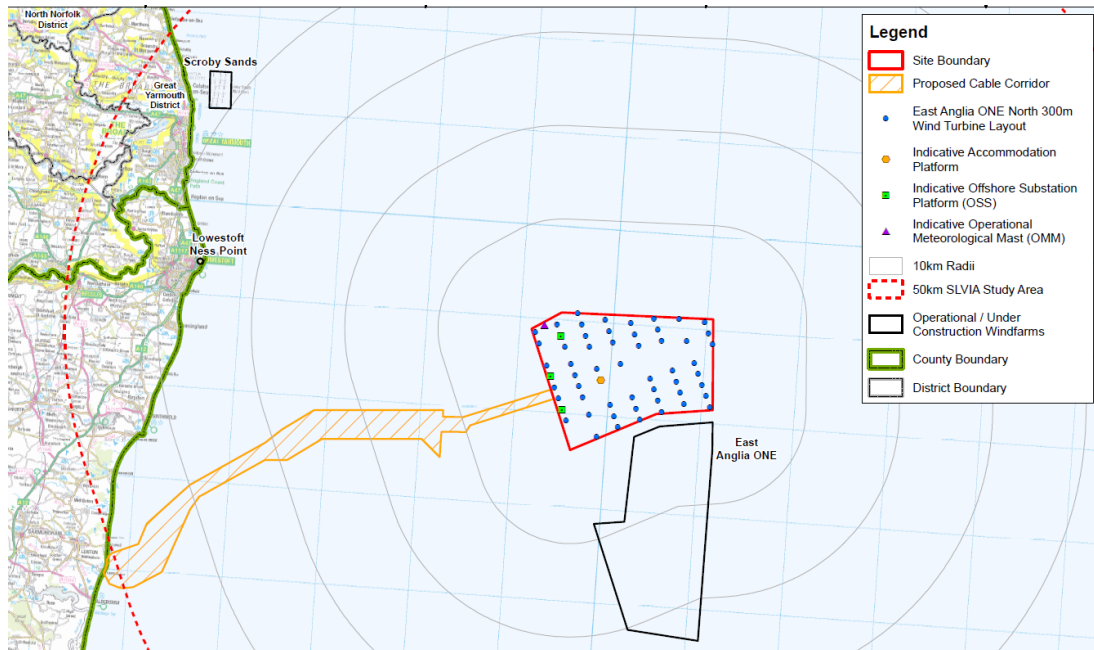
- 9.3.1. The ES Chapter 28 [APP-076] considers Offshore Seascape, Landscape and Visual Amenity and comprises the Applicant's SLVIA. It is accompanied by various appendices and figures.
- 9.3.2. This Chapter is organised to consider the SLVIA methodology first, before considering the effects of the offshore elements of the Proposed Development on seascape, landscape and visual receptors. Cumulative effects are then considered.

Scope, Methodology and Existing Environment

- 9.3.3. Pre-application consultation with regards to SLVIA took place from around 2017 with representatives from local Councils and statutory bodies. The Preliminary Environmental Information Report (PEIR) was produced in 2019 and amendments made to the SLVIA in relation to this (although the majority of significant change was made to the other East Anglia application).
- 9.3.4. The SLVIA study area was defined by a 50km radius from the outermost proposed turbines of the Proposed Development; this figure was based on various cited research stating that significant visual effects would diminish after 50km due to distance and weather conditions impeding visibility. This was based on the 'realistic worst-case layout' of 53 turbines at 300m blade tip (above the lowest tide level). The figure below demonstrates this 50km radius. An alternative layout of more turbines but at a lower height (67 x 250m) was also considered but despite a

denser layout was not considered to be the worst case due to the height of the proposed 300m turbines.

Figure 1 SLVIA Project Envelope¹⁴

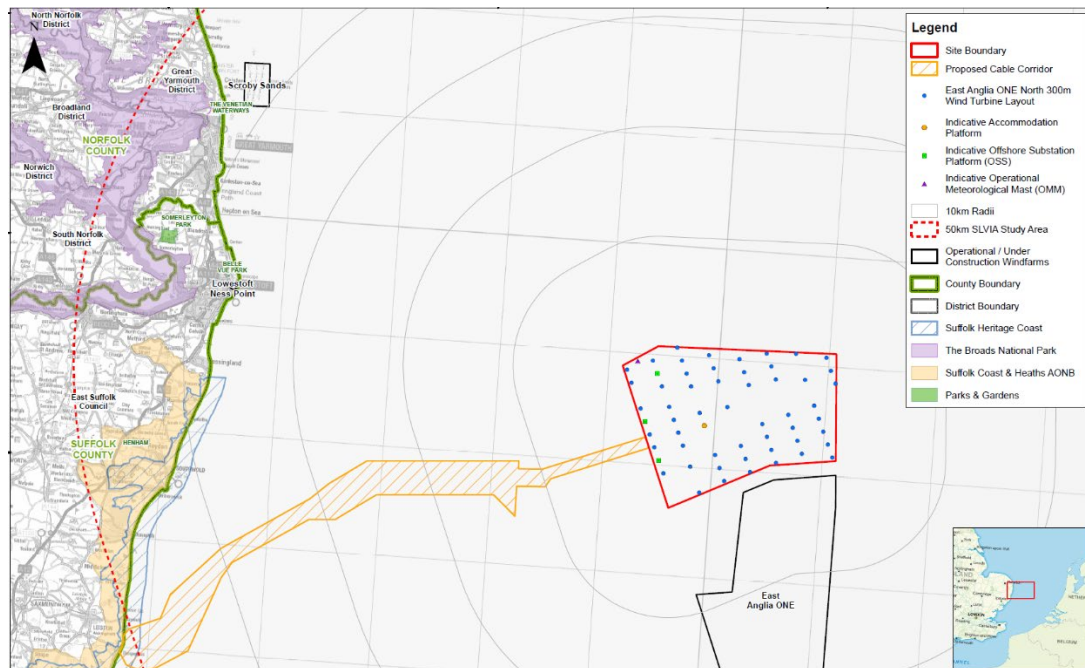


- 9.3.5. Assumptions were made on the lighting of the proposed turbines with red aviation warning lights of 2000 candela (cd) on either side of the nacelle (175m above lowest tide level) for those wind turbines proposed to be on the edge of the layout. Such lights would flash simultaneously.
- 9.3.6. The ES noted that the seascapes of Suffolk, south Norfolk, and north Essex are varied and interesting seascapes which are valued natural and cultural assets, containing important habitats which contribute to the setting of designated landscapes (notably the SCHAONB), are important from an economic perspective, and contribute to the culture and identity of local communities.
- 9.3.7. The Suffolk, South Norfolk and North Essex Seascape Character Assessment (2018) is summarised within the ES. The Proposed Development lies within the Seascape Character Type (SCT) Offshore Waters (06), which is visually unified with an expansive open character and is influenced by the presence of commercial shipping vessels. The existing windfarms of Greater Gabbard and Galloper form a key characteristic in the baseline character of the SCT. The EA1N windfarm site is also located 17.5km from the Coastal Waters SCT (05), which runs parallel to the coastline and marks a transition between the Nearshore Water SCT (03) and Developed Nearshore Waters SCT (04) which lie closer to the coast (ES Chapter 28 paragraph 102, [APP-076]).
- 9.3.8. In terms of Landscape Character, the SLVIA Study Area covered four National Character Areas (NCAs). Of these four NCAs the Suffolk Coast

¹⁴ ES - Figure 28.1 - SLVIA Project Envelope [APP-315]

and Heaths covers the largest area. Landscape designations within the 50km zone are shown below.

Figure 2 Landscape Designations¹⁵.



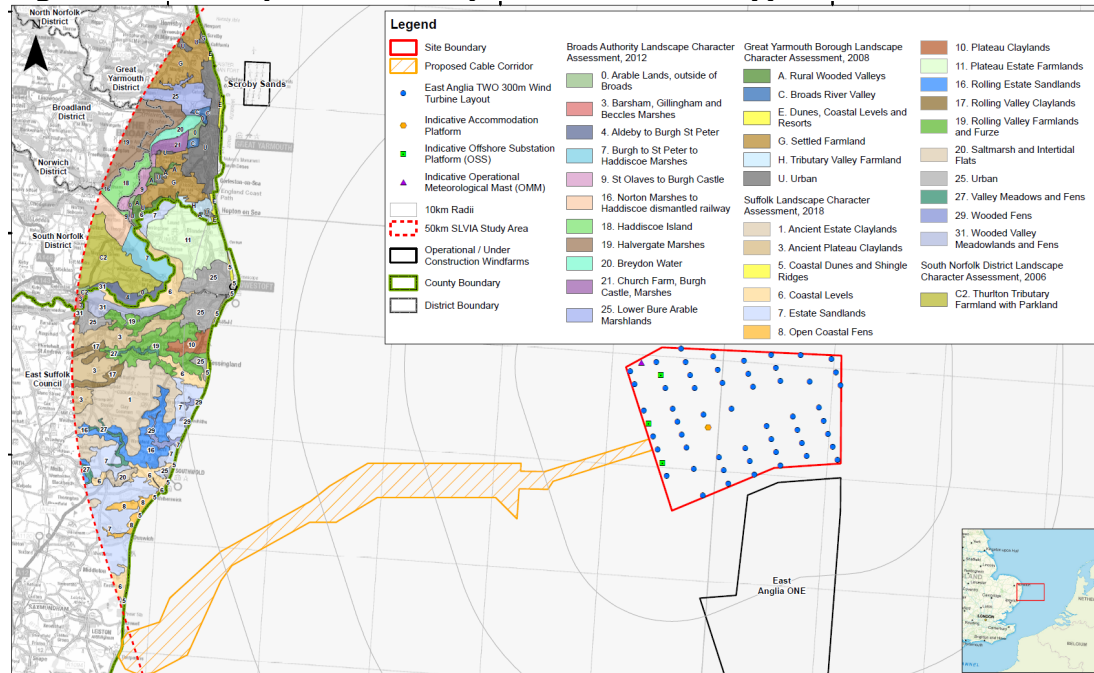
9.3.9. The SCHAONB is depicted in yellow above. The character of the AONB is a product of its underlying geology and its landscape is mainly flat or gently rolling, and often open. Farming utilises much of the total land area; however, the remaining land consists of coast and lowland heaths (known locally as the Sandlings), and the coastline is interrupted by five estuaries (Stour, Orwell, Deben, Alde/Ore and Blyth) with extensive intertidal areas of mudflat and salt marsh. The importance of the coast for biodiversity is recognised by its many wildlife designations. The shoreline consists of predominantly shingle beaches, often extensive in nature and the area is a lightly populated and mainly rural area, popular for outdoor recreation and tourism (ES Chapter 28 paragraph 118). The SCHAONB shares much of its area with the Suffolk Coast and Heaths NCA and descriptions of its character are very similar within the ES.

9.3.10. The Suffolk Heritage Coast (shown above in hatched blue) is largely contained within the AONB area. The ES noted that the purpose of the Heritage Coast is similar to that of an AONB and that as its geographic area is largely within the AONB, and its protection policies are incorporated into the AONB Management Plan, the effects on the designation are considered as integral to this assessment of the AONB (ES Chapter 28 paragraph 123).

¹⁵ ES Figure 28.13 Landscape Designations [APP-327]

- 9.3.11. The Suffolk County Council Landscape Character Assessment (2011) defines the baseline for the Suffolk section of the SLVIA study area and categorises various landscape character types (LCT)¹⁶.

Figure 3 Landscape Character (District and County)



- 9.3.12. The main LCTs that make up the SCHAONB are:

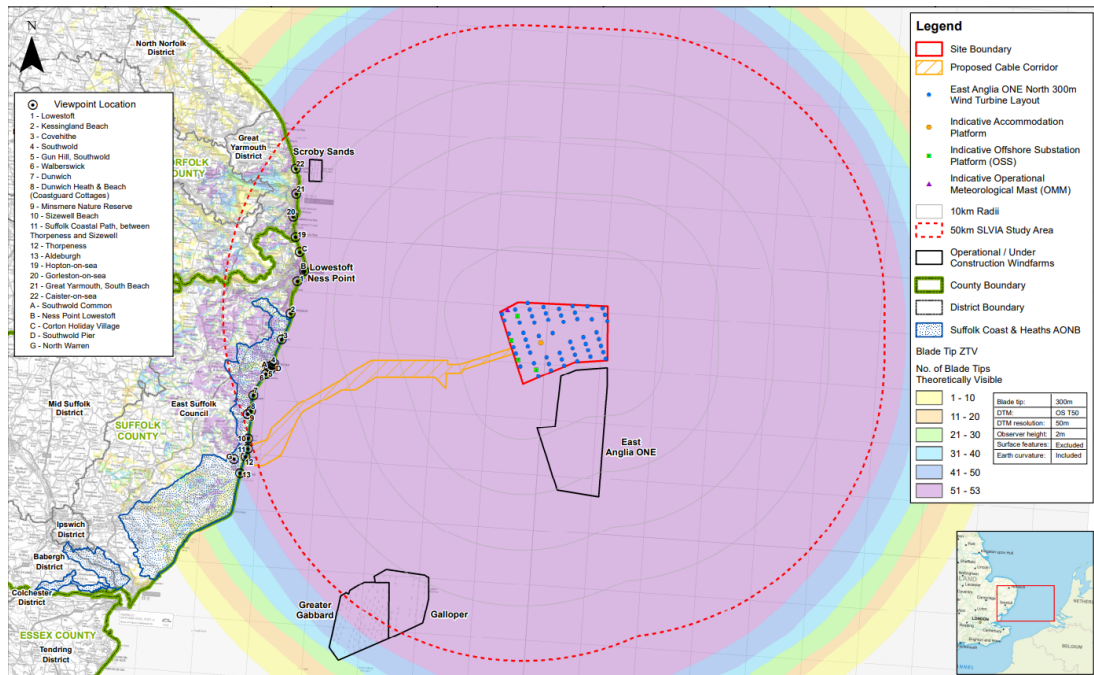
- Coastal Dunes and Shingle Ridges (LCT 05);
- Coastal Levels (LCT 06);
- Open Coastal (LCT 08) and Wooded Fens (LCT 29);
- Estate Sandlands (LCT 07);
- Estate Farmlands (LCT 11 and 15);
- Rolling Estate Sandlands (LCT 16);
- Saltmarsh and Intertidal Flats (LCT 20); and
- Valley Meadowlands (LCT 26).

- 9.3.13. Principal visual receptors where users are likely to be susceptible to visual effects arising from the construction and operation of the offshore infrastructure include coastal settlements, recreational routes, main road routes, and visitors to natural assets (including the SCHAONB), tourist facilities and historic environment assets (ES Chapter 28 paragraph 132).

- 9.3.14. Viewpoints for photomontages are contained within the ES. These montages were produced with base photography taken during periods of very good or excellent visibility conditions during summer. Locations for the montages range from Aldeburgh in the south to Caister-on-Sea in the north. Night-time photographs were also taken at locations where there are residents. The location of these viewpoints are shown below.

¹⁶ ES Figure 28.12 Landscape Character (District and County) [APP-327]

Figure 4 Blade Tip Zone of Theoretical Visibility (300m) with Viewpoint Locations¹⁷



Potential Seascape Impacts during Construction, Operation and Decommissioning

- 9.3.15. The ES considered that for SCT 06 significance of effect will not be significant largely due to the expansive scale of the area and its ability to accommodate the changes provided by the Proposed Development and the effects of existing wind farms within their seascape. The ES acknowledged that the Proposed Development would result in additional elements on the sea skyline for SCT03 largely because of the relative proximity of the SCT to the proposed windfarm and other existing windfarms.

Potential Landscape Impacts during Construction, Operation and Decommissioning

- 9.3.16. A preliminary assessment identified LCT 05 (Coastal Dunes and Shingle Ridges), LCT 06 (Coastal Levels), LCT 07 (Estate Sandlands), the SCHAONB, and the Suffolk Heritage Coast to be assessed further in terms of landscape impacts. For all areas the ES considered significance of effect to be not significant for construction, decommissioning and operational phases of development.
- 9.3.17. LCT05 is contained in narrow bands along the coast, with some stretches to the north of Lowestoft, at Kessingland and from Southwold to the north side of Orford Ness. The seascape setting of LCT05 is described as an important attribute of its character with open unfettered sea views. In

¹⁷ ES Figure 28.5 Blade Tip ZTV (300 m) with Viewpoint Locations – 50km Study Area [APP-319]

summary effects are considered to be not significant because of the distance between the LCT and the proposed wind farm.

- 9.3.18. LCT07 comprises a series of areas along the coast, including areas such as Covehithe and Benacre. The majority of the LCT is described as having limited association with the sea where it covers primarily inland areas and is often influenced by plantation forestry or agricultural landscapes. Effects are considered to be not significant due to the distance of the LCT from the proposed windfarm and the scale of existing expansive views where available.
- 9.3.19. LCT06 comprises low lying flat marshland and can be found in a number of areas along the coast and alongside estuaries. Distinctive attributes of the character type relate to the natural qualities of the marshland habitats and the dynamic nature of its low-lying landscape adjacent to the sea and major rivers. Effects are considered to be not significant due to intervening dune/shingle landforms between this LCT and the wind farm in many instances and the distance between the wind farm and the LCT overall.
- 9.3.20. The ES considered the potential effects of the Proposed Development on the special qualities of the SCHAONB (ES Chapter 28 paragraph 182) [APP-076]. It noted that the AONB is of a high value for its habitat, its natural landscape, as a major tourist destination, and for its cultural heritage value, as reflected in the Heritage Coast designation.
- 9.3.21. The AONB Natural Beauty and Special Qualities Indicators Report defines various special qualities which are assessed in the ES. These are contained within four broad areas: Landscape Quality; Scenic Quality; Relative Wildness; Relative Tranquillity; and Natural Heritage Features. The ES considered that the significance of effect on such special qualities during both construction and operation are not significant (or are assessed elsewhere).
- 9.3.22. The visual effect on Landscape Quality of the windfarm site would be as a 'horizon development' to a large open seascape (paragraph 190) in the context of existing offshore wind farms and prominent energy infrastructure at Sizewell. For those special qualities categorised within Scenic Quality the ES acknowledges that the offshore windfarm would result in a partial reduction of open sea skyline; but because of the relatively low elevations of the heaths, simple form of the coastline and the long distance offshore to the windfarm, effects on scenic quality would be low and not significant.
- 9.3.23. Relative Wildness includes physical attributes and perceptual responses. The Proposed Development would not affect physical attributes. In terms of perceptual responses, the location on the horizon of the scheme would not alter the perception of big 'Suffolk Skies' and the openness and exposure experienced from the coastline and Sandlings Heath would continue to be experienced (paragraph 201). While the appearance of the turbines may contrast with the perceived naturalness of the habitats of some of the AONB coastline, the visual aesthetic of green/sustainable

energy may be perceived as having positive visual associations (paragraph 202).

- 9.3.24. Relative Tranquillity comprises a wide range of environmental attributes found within a specific location; in the coastal areas of the SCHAONB the seascape setting adds to relative tranquillity especially during good weather conditions with calm seas, with visual tranquillity provided by the sea aspect. While the introduction of the proposed wind farm would introduce a moving element into such visual tranquillity, the distance and slow visual movement of the rotors would reduce such effects. Night-time lighting would introduce further light into relatively dark night skies but will be viewed at long distance and in the context of existing windfarm lighting.
- 9.3.25. Finally, the offshore infrastructure will result in no direct changes to the characteristic geology of the AONB and no direct physical landscape changes.

Potential Visual Impacts during Construction, Operation and Decommissioning

- 9.3.26. A preliminary assessment identified eight viewpoints which merited further technical assessment: Lowestoft, Kessingland Beach, Covehithe, Southwold, Gun Hill Southwold, Walberswick, Dunwich, Hopton-on-Sea, and Gorleston-on-Sea. Three settlements were identified for further assessment: Lowestoft, Kessingland, and Southwold, and in terms of recreational routes the Suffolk Coastal Path was assessed further. Such assessments included different receptors at each location – for example beach users, walkers/cyclists, recreational visitors, and local residents. For all receptors at all viewpoints the significance of effect of construction, decommissioning and operations was assessed as not significant. Different locations were chosen for the three settlements and four sections of the Suffolk Coast Path were also considered. For all settlement locations and the SCP sections, the significance of effect of construction, decommissioning and operations was assessed as not significant.
- 9.3.27. In summary such conclusions were arrived at after consideration of views of existing windfarms and the effect of landform curtailing outlooks. For the assessed viewpoints the ES states that the windfarm will have a lateral spread on the sea skyline of between 14-17 degrees, a relatively limited proportion of the wider 180 degree view available. The distance offshore of the turbines also means they will appear relatively small in scale and movement of the rotors will only be visible in the clearest conditions. For the three settlements the ES notes that views will be constrained to the coastal edge of the towns, and for the SCP views would be limited to distinct sections of the path at a long distance for a relatively narrow lateral spread.

Cumulative effects – EA2

9.3.28. The cumulative SLVIA summarised cumulative effects with the other East Anglia application (ES Chapter 28 section 28.9) [APP-076]. This found significance of effect for construction and decommissioning and operation for all SCT areas, LCT areas, viewpoints, settlements, and sections of the SCP (including on long distance walkers on the whole of the SCP together) as not significant, apart from the following instances:

- SCTs:
 - Nearshore Waters SCT 03 Area A Kessingland to Orford Ness – Significant
 - Coastal Waters SCT 05 Area A Offshore of Covehithe to Aldeburgh – Significant
- LCTs:
 - Coastal Dunes and Shingle Ridges LCT 05
 - Area B Kessingland – Significant
 - Area C Southwold to the north of Orford Ness – Significant
 - Coastal Levels LCT 06 Area B Southwold Harbour and mouth of River Blyth – Significant
 - Estate Sandlands LCT 07
 - Area A Covehithe to Benacre and Easton Bavents – Significant
 - Area C Walberswick to Westleton and Dunwich – Significant (localised area at Dunwich Heath/Ciffs)
- Viewpoints:
 - 1 Lowestoft – Significant for Walkers and Cyclists, Residents of the seafront, and People sitting/viewing from seafront beaches.
 - 2 Kessingland – Significant for all receptors: Beach users, Walkers, and Residents of the seafront
 - 3 Covehithe – Significant for sole receptors – Beach users
 - 4 Southwold – Significant for Beach users, Walkers and Cyclists, Residents of the seafront, and for People viewing/sitting from seafront benches.
 - 5 Gun Hill Southwold – Significant for Beach users, Walkers, Residents of the seafront, and for People viewing/sitting from seafront benches.
 - 6 Walberswick - Significant for Beach users, Walkers, and Residents of the coastal edges.
 - 7 Dunwich – Significant for Beach users, Residents of the edge of the village, Visitors to Dunwich Heath and Beach, and Walkers using the SCP.
 - 9 Minsmere Nature Reserve – Significant for visitors at the visitor centre and walkers using the coastal path.
 - 11 Coastal Path between Thorpeness and Sizewell – Significant for Walkers.
 - 12 Thorpeness – Significant for all receptors: Beach users, Residents, Tourist Visitors, and Walkers using the SCP.

- 13 Aldeburgh – Significant for Beach users, Residents of the seafront, Tourist visitors, Walkers/Strollers using the beach path, and for People sitting/viewing from seafront benches.
- Settlements:
 - Lowestoft – Significant for Areas B and C (South Beach/Kirkley and Pakefield)
 - Kessingland – Significant for Area A (Seafront)
 - Southwold – Significant for Area A (Seafront)
 - Thorpeness – Significant for Area A (Seafront)
 - Aldeburgh – Significant for Areas A and B (Seafront and elevated parts around Church Farm Rise/St Peter’s Road/Victoria Road)
- Suffolk Coastal Path. Significant for the following sections of the route:
 - 01 Lowestoft
 - 02 Kessingland
 - 04 Southwold
 - 05 Walberwick
 - 06 Dunwich Forest and Heath
 - 08 Thorpeness

9.3.29. Cumulative effects on the special qualities of the SCHAONB are considered to be very similar to those set out for the project alone assessment of the other East Anglia application; it is assessed that there are no differences in the levels of magnitude of change or significance of effects on AONB special qualities caused by the other East Anglia application with the addition of the Proposed Development. This results in a relatively low change/addition and the resulting magnitude of change only being slightly higher than that resulting from the proposed EA2 offshore infrastructure alone. (paragraph 261).

9.3.30. As for the project alone assessment for EA2 therefore, the cumulative effect resulting from the EA1N and EA2 windfarm sites is assessed as significant (and of medium magnitude) on the perception of specific landscape, scenic and relative wildness qualities of the SCHAONB.

Cumulative effects – EA2 and the Sizewell C Project (SZC)

9.3.31. Significant effects for construction, decommissioning and operation are predicted for:

- SCTs
 - Nearshore Waters SCT 03 Area A Kessingland to Orford Ness
- LCTs
 - Coastal Dunes and Shingle Ridges LCT 05 – Area C Southwold to north side of Orford Ness
 - Estate Sandlands LCT 07 - Area D Leiston and Aldingham to Snape, Thorpeness and Aldeburgh

- Viewpoints
 - 8 Dunwich Heath and Beach for visitors to the Heath and Beach and Walkers using the SCP
 - 10 Sizewell Beach for Beach users, Walkers using the SCP and Residents of Sizewell.
- Suffolk Coastal Path. Significant for parts of the following sections of the route:
 - 06 Dunwich Beach and Heath
 - 07 Minsmere and Sizewell
 - 08 Thorpeness

9.3.32. In terms of the SCHAONB, the geographic extent of cumulative effects on the AONB special qualities resulting from the construction and operation of SZC and the East Anglia ONE North and East Anglia TWO offshore infrastructure are likely to extend approximately between Southwold and Aldeburgh, but with highest magnitude from coastal areas between Dunwich to Thorpeness. (paragraph 278).

9.3.33. The construction and operation of SZC and the East Anglia ONE North and East Anglia TWO offshore infrastructure is assessed as having significant effects on the landscape and scenic qualities of this area of the AONB, where direct changes to landscape qualities resulting from SZC will be experienced in succession with the East Anglia ONE North and East Anglia TWO windfarm sites. These arise most directly from SZC (paragraph 279).

Inter-relationships

9.3.34. Inter-related landscape effects are predicted by the construction of onshore and offshore elements of the Proposed Development within localised areas of LCT 05, LCT 07 and the SCHAONB near the landfall. This will be significant in the short term and not significant during operation. Similarly, inter-related visual effects may occur for residents of the northern edge of Thorpeness and walkers using the SCP and Sandlings Walk in the area between Thorpeness and Sizewell. These would be significant during construction and not significant during operation.

Changes during the Examination

9.3.35. In responding to questions raised by the Examining Authority, the Applicant noted that the height of the proposed turbines reduced following the submission of the ES from 300m to 282m, reducing the visible height/vertical scale of the turbines visible from the SCHAONB [REP1-119]. This was confirmed in the first instance in the dDCO in Schedule 1, Part 3, Requirement 2(1)a submitted at D3 [REP3-011] and subsequently carried forwards.

9.3.36. Night-time lighting of the nacelles of the proposed turbines was amended in response to concerns raised. The dDCO was amended in Deadline 3 [REP3-011] to reflect this and subsequently carried forwards. Schedule 1,

Part 3, Requirement 31 was amended to include a new sub-section stating that required aviation lighting would be operated at the lowest permissible lighting intensity. This would mean that nacelle lighting intensity would be reduced from 2000cd to 200cd where the horizontal meteorological visibility in all directions from every turbine in the group is more than 5km.

9.4. PLANNING ISSUES

- 9.4.1. The East Suffolk Council and Suffolk County Council Joint Local Impact Report [REP1-132] stated that there would be no significant impacts of the project alone on the AONB arising from the Proposed Development, but that cumulatively with the other East Anglia application there would be significant adverse landscape and visual effects on the coast of Suffolk, including on the character and special qualities of the AONB. The Councils did however recognise that the Proposed Development is not considered to contribute significantly to the cumulative effect with EA2 in terms of visual impacts on the SCHAONB.
- 9.4.2. In their RR Natural England (NE) [RR-059] noted that they agreed that 300m turbines at the internal separation distances stated represented the worst-case scenario for landscape and visual effect, that no significant adverse landscape and visual effects are likely to affect the SCHAONB and that as a result there would be no adverse effects on the special qualities of the AONB resulting from the proposal.
- 9.4.3. However, they did raise concerns with some of the explanatory text used (on visibility of turbines), around the issue of night-time effects of navigational lighting for rural locations, and around the "significant cumulative effects with the EA2 OWF project". They acknowledged during the Examination that the Proposed Development would not meaningfully contribute to the significant cumulative effects of the two projects combined [REP13-051].
- 9.4.4. The alteration to the dDCO to confirm issues around aviation lighting was welcomed by NE during the Examination and it was confirmed that NE supported the Applicant's approach in this regard [REP4-095].
- 9.4.5. In response to NE's RR the Applicant welcomed [AS-036] the acknowledgement that no significant adverse landscape and visual effects were likely to affect the SCHAONB. The Applicant considered that visibility concerns were based on a misunderstanding and corrections were provided of distance to various viewpoints; this was welcomed by NE [REP1-157]. At D8 NE confirmed in a SoCG that they agreed that the Proposed Development would not have an effect on the statutory purposes of the SCHAONB. [REP8-109].
- 9.4.6. At D2 the Applicant submitted a document entitled "Effects with Regard to the Statutory Purposes of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty and Accordance with NPS Policy" [REP2-008]. In summary this document stated that the Proposed Development is in accordance with relevant NPS policy on AONBs. The document is of

most relevance to the effects of the other East Anglia application and cumulative effects with the Proposed Development.

- 9.4.7. Relevant representations expressing concerns about seascape issues were received from various parties, including Southwold Town Council [RR-006], Simon Flunder [RR-332], the SCHAONB Partnership [RR-083], and Suffolk Preservation Society [RR-085].
- 9.4.8. Southwold Town Council was supportive of the environmental advantages of renewable power but concerned about the effect on the tranquillity and wilderness of the AONB seascape, while Mr Flunder as a resident of Southwold was concerned about the visual effect of the wind farms on the seascape from the top of Gun Hill, considering that the wind farms would have an adverse effect on the "tranquillity and wilderness of the magnificent natural views".
- 9.4.9. The SCHAONB Partnership raised concerns over the landscape and visual impact of the scheme upon the setting of the AONB and the defined natural beauty elements and special qualities of the Area. At D1 concerns were raised over the cumulative effects of the proposed offshore wind farm in conjunction with EA2 [REP1-184]. The Partnership were of the view that wind turbines are not a special quality of the SCHAONB nor a key characteristic, the Proposed Development would not further the purpose of designation; and that the Proposed Developments, either individually or cumulatively, would undermine the special qualities and perceptions which are a fundamental component of this nationally valued landscape.
- 9.4.10. The Applicant noted that while wind turbines may not be a special quality or key characteristic of the SCHAONB, they are a component part of the offshore setting of the AONB [REP2-016].
- 9.4.11. The Suffolk Preservation Society considered that the visual impacts of the turbines upon the special qualities of the AONB would be significant, particularly with the cumulative impacts from EA2, and that consideration should be given to a height restriction to mitigate the impacts.
- 9.4.12. These views were expounded on at DL1 [REP1-193] where the Preservation Society stated that the inextricable link between the land and sea is fundamental to the special qualities and enjoyment of the AONB and that the open sea views are highly sensitive to the introduction of vertical, illuminated and animated structures. The scale of the structures and the intrusion of such structures into open sea skyline views from the SCHAONB and Heritage Coast would cause significant harm, failing to further the purposes of the AONB with significant impacts on seascape quality, scenic quality, relative wildness, relative tranquillity and cultural heritage qualities.
- 9.4.13. The Society also raised concerns regarding cultural heritage, noting that this forms a key component of the AONB comprising many historic sites along the coast and stated that their uncluttered seascape setting makes a positive contribution to their significance. The open seascape also plays

an important part in the significance of a number of coastal resort areas of Southwold, Lowestoft and Thorpeness which have been designated conservation areas in recognition of their cultural heritage value with high levels of architectural and historic character. The SPS was concerned that the introduction of arrays of turbines onto the skyline would have a detrimental impact on the experience of these designated heritage assets, particularly from the beaches.

- 9.4.14. In response to the Suffolk Preservation Society the Applicant noted [REP2-016] that lighting proposals were to alter, and the tip height of the proposed turbines reduced.

9.5. ExA RESPONSE

- 9.5.1. USIs 1 [EV-005] and 2 [EV-006] were undertaken from the 20th to 21st January and the 15th to the 16th July 2020 respectively and enabled the ExA to view seascape effects at Thorpeness and Sizewell Beach and from the SCP between the two. USI4 [EV-007a] specifically visited the Applicant's seascape visualisations between Felixstowe and Orford (12 October 2020) and between Aldeburgh and Walberswick (13 October 2020), ceasing when heavy rain and inadequate visibility occurred. USI5 [EV-007b] visited the Applicant's seascape visualisation locations between Caister and Covehithe, and then from Southwold to Dunwich Heath. Finally, USI6 [EV-007c] visited Orford Ness thanks to the assistance of the National Trust. Night-time observations of the seascape were also undertaken from Aldeburgh.
- 9.5.2. ISH8, Seascapes, took place on 18 February 2021. This was attended by the Applicant, ESC and SCC, Natural England and the Suffolk Coast and Heath AONB Partnership.
- 9.5.3. The ExA response below proceeds through the topic in the order of the ES.

Potential Seascape Impacts during Construction, Operation and Decommissioning

- 9.5.4. The ExA agrees with the conclusions of the ES that significance of effect on seascape character types will not be significant due to the expanse of the sea and the distance of the turbines from the shoreline.

Potential Landscape Impacts during Construction, Operation and Decommissioning

Landscape Character Types

- 9.5.5. Because of the distance between the LCTs and the proposed wind farm, the scale of existing expansive views where available and intervening landforms on occasion (LCT 06) the ExA agrees with the conclusions of the ES that significance of effect will not be significant for construction, decommissioning and operational phases of development for all landscape character types assessed in detail; namely LCT 05 (Coastal

Dunes and Shingle Ridges), LCT 06 (Coastal Levels), and LCT 07 (Estate Sandlands).

AONB Special Qualities

- 9.5.6. The ExA agrees with the conclusions of the ES that significance of effect would not be significant for the special qualities of the AONB. This is largely due to the distance between the wind farm and the AONB, with the wind farm viewed as a 'horizon development' to a large open seascape where visible. Secured reduction in lighting will ensure that the turbines would not intrude into existing dark skies.
- 9.5.7. Concerns raised by the Suffolk Preservation Society relating to effects upon heritage assets are considered in Chapter 8, Onshore Historic Environment.

Potential Visual Impacts during Construction, Operation and Decommissioning

- 9.5.8. The ExA agree with the conclusions of the ES that significance of effect would not be significant for all assessed viewpoints, settlements, and sections of the Suffolk Coastal Path. The ExA has arrived at this view following considerations of the evidence and visual inspections, largely based on the distance of the turbines to the coast and the effect of landforms hindering views on occasion.
- 9.5.9. All impacts have been further reduced during the Examination by changes made to the Application, namely the reduction in height of the proposed wind turbines and the secured reduction in aviation lighting.

Cumulative effects

- 9.5.10. The ExA agree that significant adverse effects for construction, decommissioning and operation are predicted for:
- Nearshore Waters SCT03 Area A Kessingland to Orford Ness
 - Coastal Dunes and Shingle Ridges LCT05 – Area C Southwold to north side of Orford Ness
 - Estate Sandlands LCT07 - Area D Leiston and Aldingham to Snape, Thorpeness and Aldeburgh
 - Viewpoints 8 Dunwich Heath and Beach for visitors to the Heath and Beach and Walkers using the SCP; 10 Sizewell Beach for Beach users; Walkers using the SCP and Residents of Sizewell and for walkers on sections 06, 07 and 08 of the Suffolk Coastal Path (Dunwich Beach and Heath, Minsmere and Sizewell, and Thorpeness.
- 9.5.11. The ExA note and agree with NE and the Councils that these effects are primarily as a result of interactions with the other East Anglia application and that the proposed application will not meaningfully contribute to the significant cumulative effects of the two East Anglia applications combined.

9.6. CONCLUSIONS

9.6.1. The ExA have concluded:

- There will be no significant effects on seascape character types as a result of the Proposed Development.
- There will be no significant effects on landscape character types as a result of the Proposed Development.
- There will be no significant effects on the special qualities of the SCHAONB as a result of the Proposed Development.
- There will be no significant visual impacts as a result of the Proposed Development.
- There will be significant adverse effects cumulatively with the other East Anglia application on some elements of seascape and landscape character, and visual impacts in some locations. However, these are primarily a result of interactions with the other East Anglia application and the proposed application will not meaningfully contribute to such cumulative effects.

9.6.2. Drawing all these facts together,

- the ExA concludes that the Proposed Development will not cause harm, and as such carries neutral weight forward in the planning balance.
- The Proposed Development complies with National Policy Statements NPS EN-1, NPS EN3, the MPS, and Policy SCLP10.4 of the Suffolk Coastal Local Plan

10. FINDINGS & CONCLUSIONS IN RELATION TO ONSHORE ECOLOGY

10.1. INTRODUCTION

- 10.1.1. This Chapter assesses the impact of the Proposed Development on onshore ecology, both for the project alone and cumulatively. The key areas of concern that were raised by various Interested Parties (IPs) are set out in Section 10.4 of this Report. The specific impacts on the Sandlings Special Protection Area (Sandlings SPA) are considered in detail in Chapter 24 of this Report.

10.2. POLICY CONSIDERATIONS

National Policy Statements

- 10.2.1. The Overarching National Policy Statement for Energy (EN-1) (NPS EN-1), dated July 2011, sets out policy considerations that are of relevance for onshore ecological matters.
- 10.2.2. Section 5.3.4 of NPS EN-1 states that: *"The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests."*
- 10.2.3. Furthermore, section 5.3.6 of NPS EN-1 advises that: *"In having regard to the aim of the Government's biodiversity strategy the [decision maker] should take account of the context of the challenge of climate change: failure to address this challenge will result in significant adverse impacts to biodiversity ... The benefits of nationally significant low carbon energy infrastructure development may include benefits for biodiversity and geological conservation interests and these benefits may outweigh harm to these interests. The [decision maker] may take account of any such net benefit in cases where it can be demonstrated."*
- 10.2.4. Sections 5.3.7 and 5.3.8 of NPS EN-1 state that: *"As a general principle, and subject to the specific policies below, development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives (as set out in Section 4.4 above); where significant harm cannot be avoided, then appropriate compensation measures should be sought."*
- 10.2.5. *In taking decisions, the [decision maker] should ensure that appropriate weight is attached to designated sites of international, national and local importance; protected species; habitats and other species of principal importance for the conservation of biodiversity; and to biodiversity and geological interests within the wider environment."*
- 10.2.6. The National Policy Statement for Renewable Energy Infrastructure (EN-3) (NPS EN-3) references offshore rather than onshore biodiversity matters. The National Policy Statement for Electricity Networks

Infrastructure (EN-5) (NPS EN-5) references NPS EN-1 but also contains guidance on mitigating bird loss associated with power lines.

East Suffolk Council: (ESC): Suffolk Coastal Local Plan, adopted September 2020

Policy SCLP10.: Biodiversity and Geodiversity

- 10.2.7. Policy SCLP10.1 of the East Suffolk Council (ESC) Suffolk Coastal Local Plan (ESCSCLP) states that: *"Development will be supported where it can be demonstrated that it maintains, restores or enhances the existing green infrastructure network and positively contributes towards biodiversity and/or geodiversity through the creation of new habitats and green infrastructure and improvement to linkages between habitats such as wildlife corridors and habitat 'stepping stones'. All development should follow a hierarchy of seeking firstly to avoid impacts, mitigate for impacts so as to make them insignificant for biodiversity, or as a last resort compensate for losses that cannot be avoided or mitigated for. Adherence to the hierarchy should be demonstrated ..."*

10.3. THE APPLICANT'S CASE

Information submitted

- 10.3.1. Chapter 22 of the Environmental Statement (ES) [APP-070] assessed onshore ecology and Chapter 23 of the ES [APP-071] assessed onshore ornithology. Also submitted as part of the ES were Figures 22.1 to 22.10a-f [APP-274 to APP-283], Figures 23.1 to 23.16 [APP-284 to APP-299], Appendices 22.1 to 22.6 [APP-501 to APP-507] and Appendices 23.1 to 23.4 [APP-508 to APP-510].
- 10.3.2. Among other matters these contained an Extended Phase 1 Habitat Survey [APP-503 to APP-504], a Water Vole and Otter Presence or Absence Survey Report [APP-506], a Bat Survey Report [APP-507], eDNA Survey Report [APP-505], Onshore Ornithology Survey Report: Breeding Season 2018 and 2019 [APP-510], an Onshore Ornithology Survey Report Non-breeding Season 2018 to 2019 [APP-511] and a Cumulative Onshore Ornithology Impact Assessment with the other East Anglia project [APP-509].
- 10.3.3. As well as the ES information and responses to comments made by IPs at various Deadlines, the Applicant submitted a number of documents to accompany the application during the course of the Examination. The following documents are of relevance to onshore ecological matters:
- An Outline Landscape and Ecological Management Strategy (OLEMS) was submitted to accompany the application [APP-584]. The OLEMS was updated with Version 2 [REP3-030], Version 3 [REP6-007], Version 4 [REP8-019] and Version 5 [REP10-005], Version 6 [AS-127], Version 7 [REP13-007];
 - Deadline 1 Clarification Note: Onshore Ecology [REP1-023];

- Outline Watercourse Crossing Method Statement: Version 1 [REP3-048], Version 2 [REP6-041], Version 3 [REP8-084], Version 4 [REP11-074];
- Outline SPA Crossing Method Statement: Version 1 [REP1-043], Version 2 [REP6-036], Version 3 [REP12-027];
- Applicant's Response to Examining Authority's Written Questions, Appendix 4, Ecological Mitigation Works [REP1-088];
- Onshore Crossing Schedule [REP1-091];
- Deadline 3 Onshore Ecology Clarification Note [REP3-060];
- Deadline 4 Onshore Ecology Clarification Note [REP4-005];
- Deadline 6 Onshore Ecology Clarification Note [REP6-025];
- Ecology Survey Results [REP6-035];
- Ecological Enhancement Clarification Note Addendum Version 1 [REP8-041];
- Important Hedgerows and Tree Preservation Order Plan: Version 1 [APP-020]; Version 2 [REP3-010], Version 3 [AS-108], Version 4 [REP12-012];
- Plan of Statutory or Non-Statutory Sites or Features of Nature Conservation (Onshore): Version 1 [APP-018], Version 2 [REP12-010]; and
- Hundred River Ecology Survey Report [REP11-063].

Applicant's initial assessment of impacts

- 10.3.4. The Applicant noted in [APP-070] that the largest habitat by area is arable land which comprised approximately 89% of the habitat within the onshore development area and which was considered to be of low ecological importance. Table 22.4 of ES Chapter 22 [APP-070] detailed the mitigation and best practice measures that had been embedded into the project design. These included the commitment in the OLEMS for mitigation measures to reflect survey assessments, locating the onshore cable route to minimise impacts on designated sites, the use of horizontal directional drilling (HDD) technology at the landfall and the installation of the onshore cables underground.
- 10.3.5. Table 22.26 of ES Chapter 22 [APP-070] provided a summary of potential impacts identified for onshore ecology. This set out predicted impacts during the construction and operation phases of the Proposed Development. For the construction phase these were categorised as being either "*No change*", "*Negligible*", "*Minor adverse*" or "*Moderate adverse*". In terms of residual impacts, a "*Moderate adverse (short term)*" impact was assessed for bats for roosting, foraging and commuting. This was predicted to reduce to a "*Minor adverse*" impact over the long term. "*Minor adverse*" residual impacts were also predicted for the Sandlings SPA, woodland and trees, hedgerows, watercourses and ponds, badgers, great crested newts (GCN), reptiles and for invasive non-native species. In [APP-070] the Applicant stated that no decision had yet been made about the final decommissioning policy for the onshore infrastructure but that impacts no greater than those identified for the construction phase were anticipated.

- 10.3.6. The Applicant did not find any evidence of water vole, otter or dormice or habitat suitable to support significant populations of invertebrates [APP-070].
- 10.3.7. In terms of cumulative impacts, Table 22.20 of [APP-070] summarised the Applicant's assessment of potential cumulative impacts for the Proposed Development and the other East Anglia project under a sequential construction scenario, which was considered to represent the worst-case. The Applicant contended in Table 22.26 of ES Chapter 22 that: "*Impacts are considered no greater than the [other East Anglia project] due to appropriate mitigation and management plans.*"
- 10.3.8. At D8 the Applicant submitted an Extension of National Grid Substation Appraisal [REP8-074]. This was to account for the potential effects of extending the National Grid substation to accommodate future projects. The Applicant concluded in [REP8-074] that the extensions would "*enlarge the footprint of the National Grid substation and potentially increase the magnitude of effects*".

10.4. PLANNING ISSUES

- 10.4.1. The following potential impacts of the Proposed Development on the following habitats and species were considered in the assessment submitted by the Applicant and/ or raised as issues of concern by IPs during the Examination:
- Assessment methodologies and pre-construction surveys;
 - Biodiversity net gain and ecological enhancement;
 - Impacts of noise, lighting and emissions on ecological receptors;
 - Designated sites, particularly Leiston-Aldeburgh Site of Special Scientific Interest (LASSSI);
 - The Hundred River and its surrounding habitat;
 - Hedgerows, woodland and other trees;
 - Bats;
 - Badgers;
 - Amphibians, particularly great crested newts;
 - Ornithology; and
 - Reptiles.
- 10.4.2. Where not already discussed on a species-specific basis, this Chapter will also assess cumulative impacts.

Assessment methodologies and pre-commencement surveys

- 10.4.3. Concerns were raised, for example by Suffolk Energy Action Solutions (SEAS) in [REP5-108], about the timing of the ecological walkover survey for the Hundred River and associated habitats, and habitat features and species that had not been recorded but which were considered to be present and likely to be affected. SEAS in [REP5-108] also contended that species such as otter and water vole could be present but had not been recorded by the Applicant.

- 10.4.4. In the joint Local Impact Report (LIR) [REP1-132] ESC and SCC questioned how the need for further pre-construction surveys, as recognised in the OLEMS, was secured in the dDCO. The issue of the assessment of cumulative impacts on ecological features, in particular the Sizewell C proposal, was raised in [REP1-132].
- 10.4.5. During the Examination, an ecological walkover survey [REP6-035] of the Sandlings SPA, LASSSI and Hundred River Crossing within the area of the Proposed Development was undertaken by the Applicant in mid-February which is not considered to be an optimal time for the identification of vegetation. Consequently, it was considered by some IPs, for example SEAS [REP9-085], that the rich variety of species in this area had not been accurately recorded and Natural England (NE) in [REP7-073] raised concerns about the limitations of this survey. The Applicant undertook further survey work of the area to the east and west of the Hundred River in May 2021 and submitted this information in its Hundred River Ecology Survey Report [REP11-063].

Biodiversity net gain and ecological enhancement

- 10.4.6. In the joint LIR [REP1-132] ESC and Suffolk County Council (SCC), and ESC in [REP6-075], did not consider that the Applicant had adequately demonstrated that the Proposed Development would deliver ecological enhancement as required in paragraph 5.3.4 of NPS EN-1, and that greater commitment to this was required.
- 10.4.7. Whilst noting DEFRA's confirmation that biodiversity net gain is not applicable to NSIPs, in its First Written Questions (ExQ1) [PD-018] the ExA asked the Applicant to explain how it had enhanced biodiversity. In response the Applicant submitted an Ecological Enhancement Note [REP1-035] in which it is stated that: "*The Projects have not been developed to meet a 'biodiversity gain' test and this would not be an appropriate foundation on which to acquire land or rights on a compulsory basis within the Applications.*"
- 10.4.8. However, in [REP1-035] it was also contended by the Applicant that there would be no net loss of biodiversity and that for some elements there would be "*notable opportunities for ecological enhancement.*" Table 4 of [REP1-035] set out the opportunities for ecological enhancement. Such measures included enhancing hedgerows with native species, creating Sustainable Drainage Systems (SuDS) ponds with associated marginal planting and creating species rich grassland around the substation infrastructure.

Impacts of noise, lighting and emissions on ecological receptors

- 10.4.9. In ExQ1 [PD-018] the ExA enquired as to how the potential impacts of noise on ecological receptors had properly been accounted for. In response, the Applicant submitted an Onshore Ecology Clarification Note [REP4-005] that assessed how certain species in general are affected by

noise and concluded that the species identified as being present are not significantly adversely affected by anthropogenic noise.

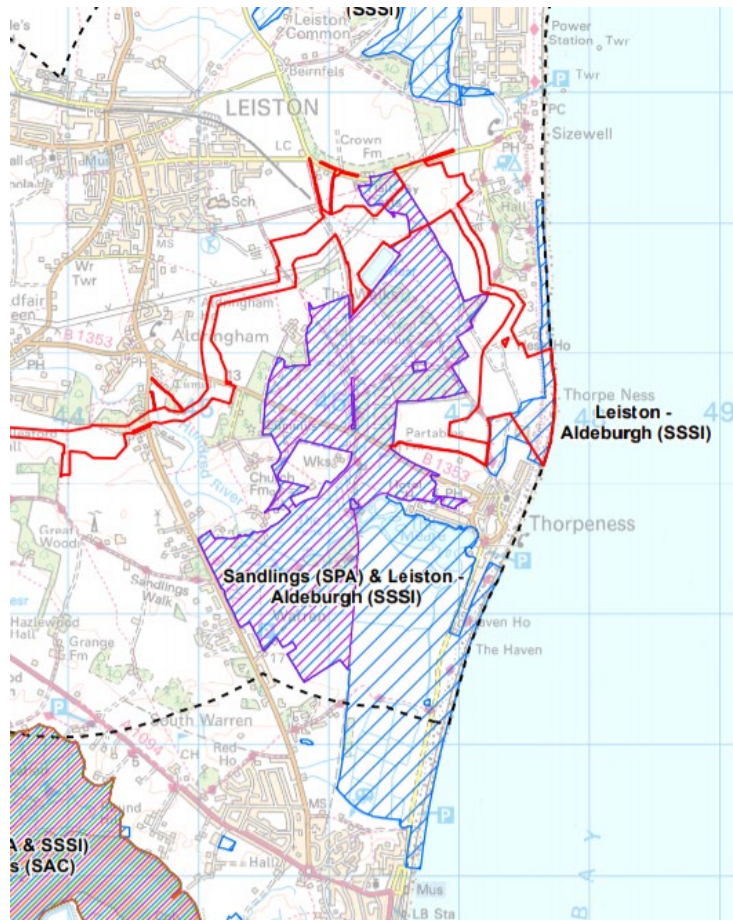
- 10.4.10. In its third written questions (ExQ3) [PD-049] the ExA questioned how potential conflicts between reducing noise and the placement of equipment at landfall would be accounted for. The Applicant [REP11-088] stated that no above ground works were proposed within the LASSSI and that the majority of Work No. 8 comprised arable fields, with no part of it overlapping the LASSSI. The Applicant also indicated that the final Landfall Construction Method Statement and Monitoring Plan was secured in the dDCO and must be approved by the relevant planning authority in consultation with NE.
- 10.4.11. The final Statement of Common Ground (SoCG) with ESC and SCC [REP8-114] agreed that the assessment of construction noise effects on ecological receptors was appropriate and sufficient, but this was not agreed in relation to operational noise effects. ESC's concerns were primarily due to potential impacts on bats, which is considered later on in this Chapter.
- 10.4.12. In their joint LIR [REP1-132] ESC and SCC considered that the effect of vehicular and non-road mobile machinery (NRMM) emissions on ecological receptors had not been adequately assessed. This issue of potential emissions on the Sandlings SPA is considered in Chapter 24 of this Report. In response to the Air Quality Clarification Note [REP1-021] submitted by the Applicant, ESC confirmed in [REP2-029] that nitrogen oxide (NOx) and acid deposition contributions from construction road traffic had been adequately assessed.
- 10.4.13. As reported by ESC in [REP2-029] the proposed construction consolidation sites would be located as close as 250m from the Sandlings SPA and LASSSI. The Applicant submitted an Onshore Ecology Clarification Note [REP3-060] which provided a quantitative assessment of NRMM emissions in response to concerns that had been raised by Suffolk Wildlife Trust [RR-086] and ESC and SCC through the Statement of Common Ground (SoCG) process. In [REP3-060] the Applicant predicted that, based on the worst-case estimate, there would be elevated NOx concentrations as a result of the operation of the HDD rigs but that this would be a short-term impact for a period of eight months and was not considered by the Applicant to be significant.
- 10.4.14. In response to matters raised by NE in [REP4-092] the Applicant submitted a further Deadline 6 Onshore Ecology Clarification Note [REP6-025]. This assessed NRMM impacts on a number of receptor locations, as set out in Table 2.1, that were considered to be locations within the designated sites closest to the emission sources. In [REP6-025] the Applicant predicted that the landfall HDD works would give rise to elevated NOx concentrations and nitrogen and acid deposition for the LASSSI. However, in [REP6-025] the Applicant contended that the ecological receptor locations were not considered representative of, or of ecological value to, the function and integrity of the LASSSI.

- 10.4.15. The Applicant also responded in [REP6-032] to comments from SEAS in [REP5-109] regarding emissions from vehicles and NRMM and noted that, apart from for the Sandlings SPA if a trenched technique is used, the haul road would not be used within the immediate vicinity of any other designated sites and emissions would be minimised by the use of good management techniques and Euro VI vehicles. The Applicant therefore predicted that additional ammonia concentrations from vehicles would be very unlikely to have a significant effect.
- 10.4.16. In [REP6-075] ESC maintained its concerns about the potential air quality emissions of NRMM at the landfall site. Furthermore, in [REP7-063] ESC reiterated its concerns about the potential ecological impacts arising from NRMM and contended that the detailed design should commit to the use of all available mitigation measures to minimise any such impacts.
- 10.4.17. In the final SoCG with ESC and SCC [REP8-114] the assessment of impacts on designated sites from nitrogen oxides is listed as a “*Not agreed*” matter. However, ESC and SCC noted the D6 Onshore Ecology Clarification Note [REP6-025] that had been submitted by the Applicant and deferred to NE on this matter. In [REP9-041] ESC continued with its concern about potential impacts on the LASSSI because of NOx emissions from NRMM during the landfall construction operations.
- 10.4.18. In ExQ3 [PD-049] both NE and ESC were asked to provide comments regarding the potential for impacts from ammonia emissions on both the LASSSI and the Sandlings SPA. NE replied in [REP11-123] that it had not identified a significant impact pathway due to ammonia emissions from machinery and vehicles, and so had not sought further assessment of ammonia impacts on the LASSSI. ESC in [REP11-101] stated that any increase in construction traffic emissions because of ammonia would be minimal and would not give rise to likely significant effects.

Impacts on designated sites, particularly Leiston-Aldeburgh SSSI

- 10.4.19. The impact of the Proposed Development on the Sandlings SPA is considered in detail in Chapter 24 of this Report. As a component of the Sandlings SPA, part of the LASSSI is also covered by the Sandlings SPA designation. A stretch of the proposed cable crossing (Work No. 12) would cross an area of land that is designated as both SPA and SSSI. Also, as depicted in Figure 10.1, the eastern part of the LASSSI, both to the north and south of Thorpeness, falls outside of the Sandlings SPA designation [APP-274]. This includes the landfall area. In addition, as reported in ES Chapter 22 [APP-070], there are no designated sites within 2km of the substation for the Proposed Development.

Figure 10.1 - Designated sites



- 10.4.20. The proposed cable route crosses the LASSSI at the landfall area to the north of Thorpeness, and concerns were raised, for example by NE in [RR-059] and ESC and SCC in [REP1-132] about the impact of construction operations on it. This included direct impacts through construction operations, including damage to and disturbance of the LASSSI as a result of horizontal directional drilling (HDD) activities at the landfall, the potential for bentonite breakout from drilling operations and also through emissions associated with construction activities. The issue of the potential impacts of emissions on the LASSSI is considered separately in this Chapter.
- 10.4.21. Concerns were also raised, for example by NE originally in [RR-059] and Save Our Sandlings in [RR-070], about the impacts on the LASSSI further inland for the area that would be crossed by the onshore cable route (Work No. 12) due to disturbance to birds and the potential loss of supporting habitat for nightingale and turtle dove which are qualifying features of the LASSSI.
- 10.4.22. In their joint LIR [REP1-132] ESC and SCC stated a preference for the open cut trenching method, referred to in the Outline SPA Crossing Method Statement as open trench technique, through the SSSI. The reason for this was because the open trench technique would be undertaken in a shorter period of time than for a trenchless technique, such as HDD, thus reducing potential disturbance to species, and it would also entail a significant reduction in the area required for the Order limits

[REP13-027]. However, NE's preference [RR-059] was for a trenchless crossing of the SPA/SSSI to avoid the loss of above ground supporting habitat.

- 10.4.23. In [REP8-108] NE agreed with the Applicant that the assessment of potential impacts on the LASSSI as a result of the upstream crossing of the Hundred River, together with the mitigation proposed in the Outline Watercourse Crossing Method Statement (OWCMS), was acceptable.
- 10.4.24. In terms of species-specific issues pertaining to the LASSSI, particular reference was made to potential impacts on breeding nightingales and to turtle dove which form features of the LASSSI but which are not qualifying features of the Sandlings SPA. This matter is considered in more detail in the ornithology section of this Chapter. In the final SoCG with NE [REP8-108] the embedded mitigation for the LASSSI was agreed as being appropriate and sufficient.

Impacts on the Hundred River and its surrounding habitat

The Hundred River

- 10.4.25. The Hundred River feeds into the Sandlings SPA and LASSSI. The proposed cable route would cross the Hundred River and in the joint LIR between ESC and SCC [REP1-132] the potential impact on the Hundred River arising from the cable crossing was raised as an issue. Submissions have also been received, for example from SEAS [REP9-085] and SASES [REP1-350] and [REP5-098], that raised concerns about the impact on the Hundred River itself, the use of open cut trenching rather than other construction techniques for the cabling to cross the river and the impact on habitats in the surrounding area.
- 10.4.26. In terms of impacts on the Hundred River itself the Applicant submitted a series of OWCMSs, of which the final version was [REP11-074]. As noted in the OWCMS, the stretch of the Hundred River directly affected by the Proposed Development is not subject to an ecological designation but its lower reaches flow through both the LASSSI and the Sandlings SPA.
- 10.4.27. The Applicant has proposed an open cut methodology for the cable route to cross the Hundred River, with a dry open cut trench technique being the preferred methodology [REP11-074]. However, this would be subject to a final method and construction programme that would be finalised post-consent. The submission of a final Watercourse Crossing Method Statement, in accordance with the OWCMS, is secured in R22 of the dDCO [REP12-013].
- 10.4.28. In Appendix 2 of [REP11-074] the Applicant provided an explanation of why a trenchless technique for crossing the Hundred River would not be suitable. The Applicant concluded there to be "... *insufficient lateral space and insufficient confidence in trenchless techniques at this location in order to include it as a viable means of crossing...*".

- 10.4.29. In [REP6-075] ESC reiterated its concerns that should a trenchless technique not be feasible then any open cut crossing of the Hundred River should be kept to the minimum width possible. In the final SoCG with NE [REP8-108] it was agreed that the assessment of the potential impacts upon the LASSSI arising from the crossing of the Hundred River, together with the mitigation proposed within the OWCMS, was acceptable.

Wet woodland

- 10.4.30. It was contended, for example by SEAS in [REP5-108] and [REP6-140], that the area of woodland on the west side bank adjacent to the Hundred River crossing comprised wet woodland in a state of self-regeneration and with all layers of canopy present. Wet woodland is a priority species under the UK Biodiversity Action Plan.
- 10.4.31. In response to the criticism made by some IPs regarding the ecological survey timings and resulting implications for the assessment of the habitat bordering the Hundred River, the ExA [PD-038] sought clarification from the Applicant on the scope for further surveys. The Applicant conducted a further walkover survey on 28 May 2021, the results of which were contained in its Hundred River Ecology Survey [REP11-063]. This was in addition to the Applicant's Ecology Survey Results (February 2021) [REP6-035].
- 10.4.32. The further ecological walkover survey that was undertaken in May 2021 [REP11-063] was conducted using the Extended Phase 1 methodology and focussed on areas within the limits of the Proposed Development to the east and west of the Hundred River. Regarding woodland habitat, the survey found that the alder consisted of mature species along the water's edge, rather than comprising denser thickets of young trees that would be typical of wet woodland. Furthermore, none of the key species associated with wet woodland, such as golden saxifrage and purple moor grass, were present. The Applicant maintained its previous conclusion that that this area of woodland should be classified as semi-natural broadleaved woodland.
- 10.4.33. The ExA examined this matter in Issue Specific Hearing 7 (ISH7) [EV-101 to EV-103] and it was confirmed by the Ecological Officers from both SCC and ESC, who had visited the site, that this area immediately to the west of the Hundred River was not wet woodland as defined by the Joint Nature Conservancy Council (JNCC) [REP6-075].
- 10.4.34. In its D12 submission [REP12-091] NE acknowledged that the Hundred River Ecology Survey [REP11-063] had been undertaken within the appropriate survey window but also noted that there had been a cold spring and that the survey was a walkover survey rather than a national vegetation classification survey. However, previously in [REP10-052] NE had stated that *"whilst some areas of this woodland may have attributes of wet woodland, it is unlikely that the area to be affected by the proposed works is wet woodland."*

- 10.4.35. At the close of the Examination NE [REP13-050] considered that there remained some uncertainty about the ecological importance of the woodland impacted by the onshore cable installation and the presence of hairy dragonfly. This was noted as an unresolved matter in NE's final Risk and Issues Log [REP13-051].

Invertebrates, particularly hairy dragonfly

- 10.4.36. Concerns were raised, for example by NE in [RR-059] and SEAS in [REP6-139], about the potential impact on habitat suitable for the nationally scarce hairy dragonfly (*Brachytron pratense*) which is a qualifying species of the LASSSI.
- 10.4.37. As reported in [REP1-023] the Applicant acknowledged that several species of dragonfly and damselfly, including the nationally scarce hairy dragonfly, are known to use the water bodies and terrestrial habitats associated with the LASSSI. An assessment of potential impacts on invertebrates, including hairy dragonfly, was included within the D1 Onshore Ecology Clarification Note [REP1-023]. The Applicant stated in [REP1-023] that the 2018 and 2019 ecological surveys did not record the presence of suitable habitat to support invertebrates within the onshore development area.
- 10.4.38. During the Examination the Applicant conducted further survey work that included an assessment of the meadow/ pasture adjacent to the Hundred River. The Applicant contended in [REP6-035] and [REP11-063] that the riparian habitats of this part of the Hundred River should be recorded as poor semi-improved grassland which did not provide suitable habitat for hairy dragonfly.

Impacts on hedgerows, woodland, and trees

- 10.4.39. As reported in Table 22.18 of [APP-070] there is the potential for the loss of 1.1 hectares (ha) of broadleaved semi-natural woodland as a result of the Proposed Development and the loss of individual veteran trees. SASES, for example in [REP1-350] raised concerns about the impacts of the Proposed Development on trees, hedgerows and woodland. SASES made reference to the loss of hedgerows and the removal of ancient and veteran trees in Aldringham [REP1-350]. Friston Parish Council [REP1-138] raised concerns about the impact of the Proposed Development on ancient woodland, and SEAS [REP3-144] noted that broadleaf woodland can struggle to become established on the soils of this part of Suffolk.
- 10.4.40. The Woodland Trust [RR-092] made reference to the potential impact of the Proposed Development on Grove Wood County Wildlife Site which is designated as ancient woodland on NE's Woodland Inventory. In response to concerns raised by The Woodland Trust regarding Grove Wood, the Applicant stated in [AS-036] that the woodland would be retained and therefore there would be no change. Also, the Applicant had committed in [AS-036] to no onshore cable trenches and the haul road not being constructed within a 15m buffer. In [REP1-197] The Woodland Trust welcomed the Applicant's commitment to providing Grove Wood with a 15m buffer zone and advised that if any public rights of way were

to be redirected within this buffer zone then the root protection areas of trees should be respected if construction operations were required.

- 10.4.41. The inability to plant trees over the 12m width of the underground cable route was raised by SASES as a mitigation issue that would affect the tree cover in the longer term, with associated ecological implications due to loss of habitat connectivity [REP1-350].
- 10.4.42. In [REP3-060] the Applicant corrected the importance ascribed to semi-natural broadleaved woodland in ES Chapter 22 [APP-070] and recorded that it should be classified as a high importance receptor. The Applicant assessed that there would be a temporary moderate adverse impact on trees and woodland that would be significant in the short-term but would reduce to a minor adverse impact in the long-term [REP3-060], due to the mitigation proposed.
- 10.4.43. In [RR-086] Suffolk Wildlife Trust stated that it did not consider the proposed measures sufficiently addressed the impacts of the Proposed Development on semi-natural woodland. In ExQ1 [PD-018] the Applicant was requested to justify the proposed loss of three areas of woodland, arising from the cable route and substations for the Proposed Development and the other East Anglia project. In response [REP1-107] the Applicant stated that vegetation clearance at these three areas was necessary due to spatial constraints and in order to avoid residential properties, provide adequate visibility splays and to provide an adequate substation footprint.
- 10.4.44. In addition, in ExQ1 [PD-018] ESC and SCC were asked to comment on how the woodland planting would be appropriately secured in the dDCO and whether sufficient information was provided in the OLEMS. In [REP1-088] ESC and SCC stated that details of new woodland planting should be set out in both the Landscape Management Plan (LMP) and Ecological Management Plan (EMP), and accepted that the Arboricultural Method Statement would provide sufficient protection providing it was submitted and carried out in accordance with BS5837: 2012.
- 10.4.45. In [REP3-060] the Applicant reiterated the mitigation measures that were contained within the OLEMS, which included micro-siting at the detailed design stage and ensuring that at least an equivalent area of lost woodland would be replanted following completion of the works. The updated OLEMS [REP3-030], among other matters, proposed an increased density of tree planting which was welcomed by NE [REP5-084].
- 10.4.46. In ExQ3 [PD-049] the ExA asked the Applicant to explain how, considering that the planting of trees over the route of the cable corridor would not be possible, impacts to lowland mixed deciduous woodland would be mitigated in terms of avoiding loss and providing enhancements. The Applicant responded [REP11-088] that the remaining area outside of the cable corridor would be replanted with the aim of maintaining or providing linkages between areas of planting within the immediate and wider landscape.

- 10.4.47. In the final OLEMS [REP13-007] the Applicant maintained its view that tree planting within the width of the cable corridor route would not be possible. Despite this, the Applicant argued that at least an area of woodland of equal size to that lost would be planted via Work No. 28 and Work No. 29 and that there would be the planting of single specimens within hedgerows.
- 10.4.48. In [REP5-084] NE welcomed the change to reduce the width of hedgerow loss to 16.1m where the cable route crosses important hedgerows. In the final SoCG between the Applicant and ESC/SCC [REP8-114] it was agreed that the embedded mitigation and monitoring for trees and woodland was appropriate and sufficient. However, it was not agreed that the period for hedgerows to be restored to their target condition was appropriate. This was because the Councils considered the Applicant's predicted growth rates to be optimistic. In the final SoCG with NE [REP8-108] it was agreed that the embedded mitigation for hedgerows was appropriate and sufficient, with no specific reference being made to woodland and trees.

Impacts on bats

- 10.4.49. The Applicant's Bat Survey Report [APP-507] comprised transect surveys and the use of static bat detectors. It concluded that "*all transects subject to these surveys do provide and support a diverse population of foraging and/ or commuting bats.*" There was also a high likelihood of bat roosts being located in a number of trees, either within hedgerows or woodland. The species identified were mainly common pipistrelle (*Pipistrellus pipistrellus*) and other pipistrelle species, but other rarer species were also recorded including barbastelle and lesser horseshoe.
- 10.4.50. ES Chapter 22 [APP-070] identified that as a worst-case scenario the Proposed Development could result in the temporary loss of up to 11km of hedgerows. One of the issues assessed in ES Chapter 22 [APP-070] that was referred to by NE and also by a number of other IPs, such as SASES [REP1-350] and Suffolk Wildlife Trust [RR-086], was the potential loss of roosting sites and the fragmentation of foraging and commuting habitat for bats due to the loss of hedgerows. Associated with this was the time taken for any re-planting of hedgerows to mature. This was also stated in the joint LIR between ESC and SCC [REP1-132] who considered that the proposed mitigation planting would take longer to establish and therefore would give rise to a longer duration of impact than the short-term one that the Applicant had stated in the ES.
- 10.4.51. As embedded mitigation the Applicant had committed to reducing the minimal working width to 16.1m where the onshore cable corridor crosses an important hedgerow [APP-070]. However, in [REP8-074] the Applicant predicted that cumulative impacts arising from the potential construction of the National Grid (NG) substation extensions could, also result in the loss of an additional length of hedgerow and the north-eastern corner of Laurel Covert. The Applicant considered that the NG substation extensions would not add any requirement for additional lighting.

- 10.4.52. In ExQ1 [PD-018] queried the effect on bats arising from the loss of up to 11km of hedgerow and the impact that the proposed mitigation measures would have. In response to this the Applicant [REP1-107] contended that the embedded mitigation would minimise hedgerow losses and that hedgerow sections removed would be replanted in the first available planting season following construction, with improvements if required to hedgerows in the vicinity of the removed sections. In effect this would mean a 24 month period between hedgerow removal and replanting for a single project or a worst-case of up to 48 months if the projects were constructed sequentially [REP1-107].
- 10.4.53. In [REP6-075] ESC welcomed the Applicant's proposals to use temporary hazel hurdles or similar structures to bridge some of the hedgerow gaps that would be created during construction operations.
- 10.4.54. In addition, concerns were raised, for example by SASES in [REP1-350] and ESC in [REP5-048] and [REP6-075], about the impact of the Proposed Development on bat species due to noise and lighting during the construction phase, and for the operational phase in the vicinity of the substation site, especially with bat roosts nearby in Grove Wood. Throughout the Examination ESC, for example in [REP9-041], maintained its concerns that the presence of certain species such as brown-long eared bats was under-recorded in the bat surveys conducted by the Applicant and also that an ultrasonic noise component to the substation noise emissions had not been adequately assessed.
- 10.4.55. The Applicant responded in [REP6-026] to state that the frequency of noise emitted from the proposed substation would not be within the detectable frequency range for bats. The Applicant also in [REP6-026] cited comparable onshore substations that have nursery bat roosts present, although it was not specified what these species were.
- 10.4.56. In the final SoCG with NE [REP8-108] it was agreed that sufficient survey data had been collected. Also whilst the embedded mitigation for legally protected species was not an agreed matter, bats were not specifically referenced in NE's reasoning. The SoCG with ESC and SCC [REP8-114] agreed that the embedded mitigation and monitoring for bats was appropriate and sufficient.

Impacts on badgers

- 10.4.57. As reported in [REP6-050], during the Extended Phase 1 Habitat Survey that was undertaken in April 2019 a total of five active badger setts, were identified, of which four were in the vicinity of the onshore substation site and one within the onshore cable corridor [APP-070].
- 10.4.58. The impact on badgers due to the potential for the removal of the four badger setts within the substation site was referred to in the joint LIR between ESC and SCC [REP1-132], and also by other IPs such as SASES in [REP1-350], SEAS in [REP1-329] and NE in [REP8-162].
- 10.4.59. The Applicant had submitted into the Examination a Method Statement to support a draft licence application [REP6-050]. In ExQ3 [PD-049] the ExA

asked the Applicant to confirm that there would be sufficient time for the mitigation measures set out in [REP6-050] to take proper effect before any sett closures. The Applicant responded [REP11-088] that there would be sufficient flexibility to ensure that setts are closed in 2022 ahead of the commencement of construction during 2023.

- 10.4.60. Whilst the Applicant had applied for a Letter of No Impediment (LONI), as reported in [REP13-050] this had not been issued by NE. Consequently, NE did not consider the matter completed in its D13 Risk and Issues Log [REP13-051]. By the close of the Examination NE in [REP13-050] considered that "*an in principle agreement could be achieved in relation to badgers*" but it had been unable to review the information on the timings of pre-construction surveys and delivery of mitigation that was provided by the Applicant at D12.

Impacts on amphibians, particularly great crested newts

- 10.4.61. As reported in [APP-070] the Applicant identified 27 water bodies within the onshore development area and 250m buffer as being optimal for great crested newts (GCN), although nine of these were dry. The eDNA survey [APP-505] indicated GCN presence in three water bodies within the GCN study area ponds, and it was also noted that six of the potential 28 water bodies had not been tested as landowner permission had not been granted. A further 10 water bodies were noted as being dry and therefore had been scoped out from the eDNA survey. NE raised concerns about the time period that would have elapsed as the water sampling for the eDNA Survey Report, dated October 2019, [APP-505] was undertaken in May and June 2018.
- 10.4.62. The potential harmful effect of construction operations on GCN was referred to by a number of IPs such as NE in [REP1-165], and SASES in [RR-069] and [REP1-350]. The impact on GCN habitats was also referenced in the joint LIR [REP1-132].
- 10.4.63. In ExQ1 [PD-018] the ExA asked the Applicant to explain its position regarding an early application for a LONI. The Applicant responded [REP1-107] that consultation with NE had commenced and that a LONI would be "*submitted at the earliest possible deadline.*"
- 10.4.64. In the SoCG with ESC and SCC [REP8-114] it was agreed that the ES adequately assessed the impacts on GCN. However, in the final SoCG with NE [REP8-108] the embedded mitigation for legally protected and notable species was listed as a "*Not agreed*" matter. Furthermore, in its final Risk and Issues Log [REP13-051] NE stated that it still had outstanding concerns and noted that a Draft LONI application for GCN had not been submitted, despite Advice Note 11 advising early engagement with the statutory nature conservation body (SNCB).
- 10.4.65. This situation persisted throughout the Examination and in its final submission on this matter [REP13-050] NE stated that it was a "*unique position*" such that by the close of the Examination a LONI had not been

provided for GCN. In [REP13-050] NE went on to set out three possible options in this regard. The first of these required further survey work to be undertaken by the Applicant in May 2021. The second option entailed the utilisation of Licensing Policy 4, although it was again noted by NE that additional surveys would be beneficial. The third option cited by NE in [REP13-050] was the use of a GCN District Level Licensing Scheme, for which NE considered that the Proposed Development and the other East Anglia project would be “*strong candidates*”.

Impacts on ornithology

- 10.4.66. During the course of the Examination NE had raised the issue of the loss of habitat due to the open cut trench method of cable installation. The western part of Work No. 12 contains an area of dense scrub that provides suitable nesting habitat for nightingale and also potentially for turtle dove. The potential for the cable crossing to give rise to loss of supporting habitat for turtle dove and nightingale, which are both features of the LASSSI, was raised by a number of IPs during the Examination, for example by NE in [REP1-165] and SEAS in [REP6-139].
- 10.4.67. In [RR-059] NE stated that no onshore cable construction works should take place within or within 200m of the SPA and LASSSI during the bird breeding season, which was defined as 1 February to 31 August for woodlark and 1 April to 31 August for nightjar. In ExQ1 [PD-018] the ExA asked the Applicant to justify why its breeding bird survey that was conducted in 2018 did not extend across the entirety of the Order limits. In response [REP1-107] the Applicant stated that the scope of the breeding bird survey area had been discussed in the Expert Topic Group¹⁸ and was agreed with NE, the RSPB and ESC/SCC.
- 10.4.68. Additional mitigation measures for turtle dove, nightingale, Bewick’s swan and barn owl were set out in the OLEMS [REP13-007]. The turtle dove mitigation, as set out in the Outline SPA Crossing Method Statement [REP12-027] and also referenced in the OLEMS [REP13-007], would entail the creation of a supplementary feeding area, and the nightingale mitigation would comprise the provision of functional habitat for breeding nightingale through the targeted management of existing vegetation [REP12-027].
- 10.4.69. In ExQ1 [PD-018] the ExA sought responses from IPs regarding the adequacy of the proposed turtle dove mitigation measures and whether a suitable area for the proposed nightingale mitigation could be found. Although in [REP5-084] NE noted the proposed mitigation planting and management for turtle dove and nightingale of the LASSSI, it wanted to ensure that the proposed mitigation was both available and being used by these species before construction works commence.
- 10.4.70. In response to NE’s belief that the mitigation should be in use rather than just in place the Applicant argued, for example in [REP9-016], that whilst

¹⁸ The Expert Topic Group for onshore ecology and ornithology comprised NE, the Environment Agency, Suffolk Wildlife Trust, RSPB, SCC and ESC [APP-053].

the proposed mitigation could be put in place and there was “a high likelihood of the birds using the mitigation areas” it could not guarantee the extent to which these areas would be used. The ExA questioned NE’s stance on this matter in [PD-034] questioning whether NE considered that the mitigation should actually be in use by nightingales or whether it should only be capable of being used. NE responded in [REP8-162] that its advice remained unchanged and that there would need to be a high likelihood of birds using the mitigation areas. In [REP11-123] NE reiterated its belief that mitigation measures were fundamental to preventing impacts on the notified interest features of the LASSSI, and that nightingale is not an interest feature of the SPA.

Impact on reptiles

- 10.4.71. Suitable habitat for supporting reptiles had been identified at seven locations along the onshore cable route [REP1-329]. Some IPs, for example SEAS in [REP5-108], referenced the potential for harmful impacts of the Proposed Development on reptiles, particularly during construction operations. The joint LIR [REP1-132] also stated that the Proposed Development had the potential to impact on reptile habitats.
- 10.4.72. SASES in [REP1-350] cast doubt on the inability of these sites to support large reptile populations and considered that the Precautionary Method of Working (PMoW) was unsatisfactory.

10.5. ExA RESPONSE

Assessment methodologies and pre-construction surveys

- 10.5.1. In [REP7-073] NE raised concerns that the submitted surveys had not followed best practice in terms of timings and ground conditions. Furthermore, SEAS in [REP5-108] and SASES [REP12-117] considered the surveys to be flawed and lacking in detail. Where applicable, this matter is considered in more detail in the context of the specific habitats or species reported on in this Chapter.
- 10.5.2. In ExQ1 [PD-018] the ExA asked how pre-construction surveys would be secured. In response, the Applicant [REP1-107] stated that specifying the pre-construction surveys via the OLEMS would be the appropriate mechanism for securing these in the dDCO.
- 10.5.3. R21 of the final dDCO [REP12-013] makes specific reference to the submission of an EMP which accords with the OLEMS. The EMP would need to be approved by the relevant planning authority in consultation with the relevant SNCB. Pre-construction surveys for certain species and habitats are not specifically listed in R21. However, section 8.1 and Table 8.1 of the OLEMS [REP13-007] does provide details of the species for which pre-construction surveys will be carried out. This includes bats, badger, GCN, breeding birds and invertebrates including hairy dragonfly.

- 10.5.4. Whilst a pre-construction survey for reptiles is not included, reference is made in the OLEMS to the need for a pre-construction survey of the entire onshore development area and the submission of a PMoW for reptiles. The specific case of pre-construction survey for reptiles is addressed later on in this Chapter.
- 10.5.5. In the final SoCG with NE [REP8-108] it was agreed that, with the exception of areas adjacent to the Hundred River, sufficient survey data had been collected to inform the assessment. The ExA is content that the range of pre-construction surveys for other species is appropriate and is adequately secured in the dDCO [REP12-013]. The ExA also considers that the Applicant has adequately demonstrated that certain species such as otter and water vole are not present.
- 10.5.6. In terms of mitigation, in response to ExQ1 [PD-018] the Applicant has confirmed in [REP1-107] that all the mitigation proposed accords with NE's standing advice and that no departures from the standing advice have been incorporated for any species. The assessment of mitigation for the Sandlings SPA is discussed in Chapter 24 of this Report. The final SoCGs with both NE [REP8-108] and ESC/SCC [REP8-114] do not raise significant general concerns regarding mitigation, except for badgers and GCN which are discussed later on in this Chapter, and in regard to the envisaged growth rates for planted hedgerows. Consequently, the ExA considers that the proposed mitigation measures for all other species and habitats are acceptable.

Biodiversity net gain and ecological enhancement

- 10.5.7. Until biodiversity net gain is enshrined in any future NSIP legislation, the ExA considers that there is an ongoing tension between the provision of land or rights for ecological enhancement, as opposed to mitigation, and the principles underpinning the Compulsory Acquisition legislation.
- 10.5.8. Overall the ExA is satisfied that the measures that are set out in Table 4 of [REP1-035], including areas of woodland planting and habitat improvements around the area to be developed for the onshore substation, demonstrate that as well as mitigating for the effects of the Proposed Development there would be opportunities for a degree of ecological enhancement in the longer term. This will be dependent on the proposed planting becoming successfully established. The ExA considers that the dDCO [REP12-013] would adequately secure the necessary management and monitoring obligations via the OLEMS and also would ensure that replacement planting within largely a 10 year period would be provided if necessary. Consequently, it is the ExA's view that the requirements of NPS EN-1 as it currently stands have been complied with.

Impacts on ecological receptors from noise, lighting and emissions

- 10.5.9. By the close of the Examination the conclusion on the assessment of impacts on ecological receptors for construction, operation and

decommissioning had been agreed with NE [REP8-108], but not with ESC and SCC in regard to NO_x emissions and acid deposition arising from NRMM. However, in [REP6-025] and the final SoCG with ESC and SCC [REP8-114] it was noted that the Councils now deferred to NE on this matter.

- 10.5.10. In the SOCG with ESC and SCC [REP8-114] the assessment of noise effects on ecological receptors is agreed as being appropriate and sufficient for construction but not for operation. However, the ExA has not been presented with any substantive evidence that operational noise from the substation, in terms of both noise levels or tonal quality, would give rise to a significant adverse impact on ecological receptors, particularly bat species. Combined noise rating levels for the operation of the substation for the Proposed Development (Work No. 30) together with the NG substation (Work No. 41) and the substation for the other East Anglia project are set out in R27 of the dDCO [REP12-013]. The ExA also notes the Applicant's assessment in [REP4-005] that the species that have been recorded in the vicinity of the onshore substation area are ones that habitually occupy habitats in proximity to anthropogenic infrastructure. The ExA therefore considers that the potential impacts of noise on the affected ecological receptors have been properly assessed and would not be significantly adverse.
- 10.5.11. An artificial light emissions management plan for the construction phase is secured in R22(2)(j) of the dDCO [REP12-013]. As reported in [APP-070] the operational lighting at the substation would be limited to routine maintenance activities. Furthermore, an operational artificial light emissions management plan is secured in R25 of the dDCO. The ExA therefore considers that the potential impacts of lighting on ecological receptors have been properly assessed and mitigation is adequately secured in the dDCO [REP12-103].
- 10.5.12. The Applicant contended that the predicted emissions would occur over a short-term period as a result of the construction operations and would have a non-significant effect [REP3-060]. The ExA concurs with the views expressed by NE and ESC that there would be no likely significant effect on ecological receptors as a result of ammonia emissions.
- 10.5.13. In addition, no conclusive evidence has been presented to demonstrate that there would be significant adverse impacts on ecological receptors due to other emissions from construction traffic. The ExA agrees that due to the landfall HDD works NRMM emissions would give rise to elevated NO_x concentrations and nitrogen and acid deposition on that part of the LASSSI. However, the ExA notes that no substantive evidence has been presented to disagree with the Applicant's assessment that the receptor locations within this part of the LASSSI are of moderate to poor habitat condition and species diversity and do not contribute towards the overall function and the integrity of the LASSSI and its qualifying features.
- 10.5.14. Furthermore, control and management measures for NRMM are detailed in the Outline Code of Construction Practice (Outline CoCP) [REP12-021] and a final CoCP that accords with the Outline CoCP is secured in R22 of

the dDCO [REP12-013]. The also ExA notes that an air quality management plan is secured in R22(1)(f) of the dDCO. Due to the nature, location and duration of the Proposed Development and the measures secured in the dDCO the ExA considers that the Proposed Development would not have a significantly adverse effect on ecological receptors, including the LASSSI, in terms of emissions.

- 10.5.15. Taking all of this into account, the ExA considers that there would be no significant adverse effects on onshore ecological receptors from either lighting, noise or emissions arising from the Proposed Development. The ExA therefore concludes that the residual impacts on ecological receptors in terms of noise, lighting and emissions for the Proposed Development would be minor adverse.

Designated sites, particularly Leiston-Aldeburgh SSSI

- 10.5.16. The specific impacts on the Sandlings SPA are assessed in detail in Chapter 24 of this Report. In ES Chapter 23 [APP-071] the Applicant noted that there would be a minimum distance of 500m between the closest point of the onshore ornithology study area and Sizewell Marshes SSSI and 1.8km to the Minsmere-Walberswick Heath and Marshes SSSI. The Applicant has ruled out any effect on these designated sites, including with their breeding marsh harrier population. NE in [REP8-108] and the RSPB [REP8-104] both confirmed their agreement on the impact assessment methodologies and that the worst-case scenario presented in the Applicant's assessment was appropriate. The ExA has no reason to disagree with this.
- 10.5.17. As reported in ES Chapter 22 [APP-070] the project design has sought to minimise the overlap of the onshore cable corridor with the LASSSI. Furthermore, the Applicant has proposed not to undertake onshore cable route construction either within the SSSI or within 200m of its boundary during the breeding bird season, and to use HDD at the landfall part of the LASSSI to minimise potential impacts on that part of the SSSI [APP-070]. The Applicant also predicted in [APP-070] that the use of HDD technology at the landfall area would avoid impacts on the intertidal features of the LASSSI. NE concurred with the Applicant in this regard [REP8-108] and the ExA has no reason to disagree.
- 10.5.18. The Applicant, ESC and SCC have expressed a preference for an open trench technique rather than a trenchless technique for the crossing of the inland contiguous area of the Sandlings SPA/LASSSI (Work No. 12). However, the final methodology has been left to be subject to confirmation at the detailed design stage. By the close of the Examination, although NE maintained its preference for a trenchless crossing of the SPA/LASSSI, it did acknowledge that if done correctly an open trench option could enable the habitats to recover within the short to medium term, which could potentially further reduce disturbance to breeding birds of the LASSSI when compared to the greater temporal and spatial impacts of the trenchless technique [REP5-084]. The ExA is content that the effects of both potential cable route construction

techniques on the LASSI have been adequately assessed by the Applicant.

- 10.5.19. In [REP-165] NE confirmed that it was satisfied with the details that the Applicant had provided in the Outline Landfall Construction Method Statement (OLCMS) regarding bentonite breakout. The ExA notes that the submission of a final OLCMS is secured in R13 of the dDCO [REP12-013]. The ExA is therefore content that the issue of the potential effects on the LASSI arising from bentonite breakout have been adequately considered and secured in the dDCO.
- 10.5.20. In the final SoCG with NE [REP8-108] it was agreed that the embedded mitigation for the LASSI as set out in ES Chapter 22 [APP-070], was appropriate and sufficient. Impacts on the landfall area of the LASSI as a result of construction operations, would be short-term and the ExA does not consider that they would be significantly adverse. Specific issues pertaining to the proposed mitigation areas for turtle dove and nightingale are considered in more detail in the onshore ornithology section of this Chapter.
- 10.5.21. Based on the construction technique at the landfall, the choice of cable crossing route, the timing of the work and the proposed mitigation, the ExA is satisfied that the potential impacts on the LASSI have been adequately assessed and would be minimised as far as practicable. The ExA notes that the Applicant's assessment of a minor adverse residual impact in [APP-070] relates to the Sandlings SPA. Due to the reasonably short-term nature of the impacts and the proposed mitigation the ExA considers that the residual impact on the LASSI would be also be minor adverse.

The Hundred River and its immediately surrounding area

The Hundred River crossing

- 10.5.22. The signed SoCG with ESC and SCC [REP8-114] agrees that the ES has adequately assessed the impacts on watercourses and that the embedded mitigation and monitoring for watercourses is appropriate and sufficient.
- 10.5.23. The ExA has not been presented with any substantive evidence to contradict the Applicant's assessment of its preferred methodology for crossing the Hundred River, or that the proposed construction operations would cause significantly adverse impacts arising from pollution of the Hundred River. Overall, the ExA is satisfied that ecological impacts on the Hundred River itself would be short-term and have been minimised as far as is practicable and to an acceptable degree. The ExA therefore concurs with the Applicant's assessment in [APP-070] of a temporary residual impact of minor adverse significance on the Hundred River as a result of the construction operations.

Wet woodland and hairy dragonfly habitat

- 10.5.24. The ExA considers that the further ecological walkover survey that was undertaken in May 2021 [REP11-063] has been useful to reinforce the results of the earlier survey [REP6-035]. The ExA is satisfied that these surveys have been undertaken by appropriately qualified consultants and the survey methodology is satisfactory, including the timing for the May survey. The ExA notes the views expressed at ISH7 by the Ecological Officers from ESC and SCC who had visited this area. The ExA therefore agrees with the Applicant's assessment that the area of woodland adjacent to the Hundred River should be classified as semi-natural broadleaved woodland rather than as wet woodland.
- 10.5.25. The ExA notes that a requirement for pre-construction surveys of invertebrates at the Hundred River crossing, with hairy dragonfly specifically named, is included in the final version of the OLEMS [REP13-007]. The OLEMS states that these survey results will be used to inform species-specific mitigation measures to be included in the EMP. The EMP is secured through R21 of the dDCO [REP12-013] and requires its submission and approval before onshore works for that stage may commence. Therefore, should the pre-construction surveys indicate the future presence of hairy dragonfly then the submission of mitigation measures is secured in R21 the dDCO.
- 10.5.26. Based on the further survey work conducted by the Applicant, and the submissions made by ESC and SCC in this regard, the ExA is content with the overall survey methodology and also agrees that the area adjacent to the Hundred River that would be impacted by the Proposed Development does not comprise optimum habitat for hairy dragonfly.
- 10.5.27. Taking all of this into account, it is the ExA's view that the Proposed Development would be unlikely to give rise to any adverse impacts on either wet woodland or hairy dragonfly. Nevertheless, there would be adverse construction impacts on the habitats on either side of the Hundred River, from both the Proposed Development alone and cumulative with the other East Anglia project, although the ExA concludes that these would be short-term and would not be significantly adverse.

Woodland, trees and hedgerows

- 10.5.28. The landscape and visual impact implications of the removal of woodland, trees and hedgerows are considered in more detail in Chapter 7 of this Report. This section assesses the ecological impacts on woodland, trees and hedgerows as a result of the Proposed Development, although inevitably there are likely to be interrelated matters with those discussed in Chapter 7.
- 10.5.29. The Applicant's penultimate version of the OLEMS [AS-127] is listed as a document to be certified in Part 2 of Schedule 17 the dDCO [REP12-013]. Among other matters it requires a pre-construction walkover survey by the Arboricultural Clerk of Works (ACoW), Ecological Clerk of Works (ECoW) and an engineer to inform the micro-siting and to set out specific mitigation measures in relation to trees and woodland. The ExA's

recommended Development Consent Order (rDCO) will instead reference the final version of the OLEMS [REP13-007]. The EMP that is secured in R21 of the dDCO [REP12-013] is required to be in accordance with the OLEMS. In addition, in R21(1)(b) of the dDCO [REP12-013] an Arboricultural Method Statement is specifically stipulated as a matter to be included in the EMP.

- 10.5.30. The ExA considers that the mitigation measures proposed in regard to woodland, trees and hedgerows are adequately secured in the dDCO through R14, R15 and R21, including the 10 year aftercare period for Work No. 24 and Work No. 29. Although the ExA agrees with ESC and SCC about the predicted growth rates for hedgerow restoration, the increased duration to reach maturity would not significantly alter the assessed impacts of the Proposed Development on hedgerows overall.
- 10.5.31. The ExA agrees with the Applicant's conclusion that the loss of semi-natural broadleaved woodland would be locally significant in the short-term but would result in a minor adverse impact in the long-term. This would be dependent on the mitigation measures proposed which include replacement planting, within for example Work No. 24 and Work No. 29, becoming successfully established.
- 10.5.32. Taking all of this into account the ExA concludes that the impact of the Proposed Development alone and cumulatively on woodland, trees and hedgerows in ecological terms would be minor adverse overall in the short-term but neutral in the longer term.

Bats

- 10.5.33. It has been acknowledged by the Applicant and IPs that a potential impact on bats, which would be mainly during the construction phase and the initial period thereafter, would be due to the removal of hedgerows which provide foraging and commuting habitat.
- 10.5.34. By the close of the Examination the impact on bats had been agreed between NE and the Applicant as evidenced in the final SoCG [REP8-108] and the final Risk and Issues Log [REP13-051]. Furthermore, in the SoCG with ESC and SCC [REP8-114] it was agreed that the embedded mitigation and monitoring for bats was appropriate and sufficient. However, an area of outstanding disagreement in the SoCG with ESC and SCC remained over the aforementioned predicted growth rates for newly-planted hedgerows, which would have implications for both bat foraging and commuting.
- 10.5.35. The ExA agrees with NE and ESC/SCC that the Applicant's predicted growth rates for new hedgerows are optimistic. This would increase the time until hedgerow planting would provide suitable habitat for bats. This would be mitigated for bat commuting to a degree by the use of temporary hazel hurdles or similar structures.
- 10.5.36. In the final SoCG with NE the survey methodology is agreed as being appropriate [REP8-108]. ESC, however, maintained its concerns about there not being adequate assessment of potential noise impacts,

particularly for noise-sensitive bat species. Having regard to the submissions from both NE and ESC the ExA considers the range of bat survey techniques, including transect surveys as well as static bat detectors, to be appropriate. The ExA has not been presented with any evidence that brown long-eared bats or other species that could be susceptible to any noise from the substations for the Proposed Development and the other East Anglia project are present or, should they be present, that they would be affected by the levels and type of noise arising from the Proposed Development. The need for pre-construction bat activity and roost surveys is contained in R21 of the dDCO which provides the additional assurance of further bat survey work being conducted.

- 10.5.37. The worst-case scenario for cumulative impacts on bats would arise if the cable route for the Proposed Development and the other East Anglia project were to be constructed sequentially, thereby increasing the time taken until the sections of removed hedgerows could be restored. Whilst this would extend the period over which impacts on foraging and commuting could occur, the use of temporary hurdles would help to mitigate this in terms of commuting. In addition, the installation of ducting for the second project alongside the cabling for the first project would reduce the potential cumulative impacts on bats if the Proposed Development and the other East Anglia project were to be constructed sequentially using open-cut trenching. The ExA does not consider that under this worst-case scenario cumulative effects would be significantly more adverse than for the Proposed Development alone.
- 10.5.38. The substation for the other East Anglia project and the potential NG substation extensions would be in reasonably close proximity. However, there is no substantive evidence that cumulatively the additional substation and the potential NG substation extensions would significantly increase the likelihood of adverse noise impacts on those noise-sensitive species of bat, such as brown long-eared. As reported in [REP8-074] the NG substation extensions would have the potential to entail the removal of an additional length of hedgerow and, as a worst-case scenario, the north-eastern corner of Laurel Covert.
- 10.5.39. The ExA considers that short-term adverse impacts on bats due to hedgerow loss are likely to be present for a longer period than the Applicant contends. Nevertheless, the ExA is of the view that impacts on bats, from the Proposed Development alone and cumulatively, would be moderate adverse in the short-term but that these would reduce to neutral overall in the medium to long term.

Badgers

- 10.5.40. By the close of the Examination the assessment of effects on badgers had largely been agreed between the Applicant and NE. However, the detailed design for the Proposed Development has not been established. During the detailed design stage the preferred option in terms of mitigating the impacts on badgers would be to undertake no works within an appropriate buffer around the setts. Should micro-siting not be

possible then the mitigation would take the form of artificial sett construction with a programme of temporary exclusion outside of the badger breeding season.

- 10.5.41. A reasonable amount of time has now elapsed since the April 2019 survey was undertaken. NE therefore considered that updated survey data should have been included to provide the most recent assessment of the location and use of badger setts within the area of the Proposed Development.
- 10.5.42. The future construction operations for the Proposed Development could entail the destruction of a main badger sett and four outlier setts. In terms of cumulative impacts, the substation for the other East Anglia project and the potential NG substation extensions would be located in close proximity and thus would increase the area over which construction operations would be required, thereby increasing the likelihood of these badger setts needing to be destroyed.
- 10.5.43. The ExA considers that there is a balance to strike between the need for up-to-date information and the time it will take to ensure appropriate mitigation measures, such as artificial setts, are in place and functioning. A pre-construction survey of the onshore development area, in order to assess the identified setts and identify any new ones, is referenced in section 6.6.3 of the final OLEMS [REP13-007], and in turn R22 of the dDCO [REP12-013] requires the submission of an Environmental Management Plan that accords with the Outline OLEMS before any construction operations can take place.
- 10.5.44. As noted in the OLEMS [REP13-007] badgers are a highly mobile species and further survey work will need to be undertaken in order to inform any licence application. Consequently, this is a matter that needs to be confirmed once the detailed project design has been formulated.
- 10.5.45. The ExA concludes that there is the potential for the Proposed Development alone and cumulatively to give rise to a minor adverse impact on badgers, primarily through sett loss but also due to the temporary loss of foraging habitat. The likelihood of sett loss would be dependent on the precise location of the cable route and proposed substations, including the scope for micro-siting to avoid both the existing setts and any future ones that might be excavated before construction operations commence.
- 10.5.46. In [REP13-050] NE stated that the required detail from the Applicant in terms of the timings of pre-construction surveys and delivery of mitigation measures was only provided at D12 and so it was yet to review this information. The ExA therefore considers that this is matter on which the SoS may wish to seek a response from NE in terms of its review of the Applicant's most recent submissions regarding its draft badger mitigation licence application. In addition, the SoS may wish to seek clarification from the Applicant as to whether any additional badger survey work has been undertaken and whether there is any update on

the detailed design for those areas of the onshore construction works that might impact on badger setts.

Amphibians, including Great Crested Newt

- 10.5.47. The ExA agrees with NE that the GCN survey work that has been carried out will need to be updated due to the time that has now elapsed since it was undertaken. Section 6.8.3 of the OLEMS [REP13-007] stated that all ponds within 250m of the proposed works will be surveyed for GCN prior to construction and also that mitigation measures will be identified once the detailed design is completed. Mitigation measures identified in the OLEMS entail pre-construction surveys and an exclusion programme and translocation to suitable habitat at least 50m away from construction works. This would form part of the GCN licence that the Applicant would need to obtain from NE.
- 10.5.48. The ExA has not been presented with any evidence to demonstrate that additional GCN survey work was undertaken in May 2021 and the water sampling to inform the eDNA survey was undertaken more than three years ago. The ExA notes that a LONI has yet to be approved and that whilst there are potential options as outlined by NE in [REP13-050] by the close of the Examination none of these had been agreed. Consequently, this is a matter that the SoS may wish to be satisfied about.
- 10.5.49. Based on the information before the ExA it is our conclusion that the Proposed Development has the potential to give rise to a minor adverse impact on GCN.

Onshore ornithology

- 10.5.50. In terms of embedded mitigation the Applicant has committed to undertaking works crossing the Sandlings SPA, which also comprises that part of the LASSSI, outside of the bird breeding season and this will be confirmed in the final EMP that is secured in R21 of the dDCO. The inclusion of a Breeding Bird Protection Plan (BBPP) within the EMP is specifically referenced in R21(1)(a) of the dDCO [REP12-013].
- 10.5.51. At the close of the Examination, NE maintained its stance that the proposed nightingale and turtle dove mitigation should not only be provided but should be in use by these species. The ExA considers that it is not realistic for the Applicant to have to demonstrate that the proposed mitigation areas that have been provided are being used by the species for which they are intended, and therefore the ExA concurs with the views of the Applicant on this matter that the provision of suitable mitigation is adequate. Taking all of this into account, the ExA is content that both the assessment methodology and proposed mitigation for onshore ornithology is satisfactory.
- 10.5.52. In its final Risk and Issue Log [REP13-051] NE welcomed the inclusion of barn owl mitigation and was content that all nesting birds would be protected as part of the BBPP. With the exception of the timing of the

mitigation for the onshore works, all matters in regard to onshore ornithology have been agreed in the SoCG with the RSPB [REP8-104].

- 10.5.53. The Applicant has submitted an Onshore Ornithology Cumulative Impact Assessment [APP-509]. The commitment to installing the ducting for the other East Anglia project alongside the cabling for the Proposed Development means that the cumulative ornithological arising from construction of the cable route would be broadly similar to those of the project alone. The substation for the other East Anglia project and the potential NG substation extensions would require additional vegetation removal. However, due to the mainly agricultural nature of that area and the proposed planting, the ExA considers that adverse impacts on onshore ornithology cumulatively would not be significantly greater than for the Proposed Development alone.
- 10.5.54. Consequently, the ExA considers that the impacts of the Proposed Development on onshore ornithology, both alone and cumulatively, have been properly assessed by the Applicant. It is the ExA's view that the impact of the Proposed Development, both alone and cumulatively, would give rise to a minor adverse impact on onshore ornithology in the short term due to vegetation removal but that this would be broadly neutral in the longer term.

Reptiles

- 10.5.55. The Extended Phase 1 Habitat Survey [APP-503] concluded that a phase 2 species specific survey for reptiles would not be undertaken. This is because the seven potential habitat locations within the onshore cable route had been assessed as being of not a suitable size to support significant reptile populations [REP13-007]. The OLEMS makes specific reference to undertaking a pre-construction survey for the entire onshore development area and the relevant planning authority being consulted should any changes to habitats be identified.
- 10.5.56. Embedded mitigation would comprise putting in place a buffer against field boundaries for construction activities, where works will not cross hedgerows or watercourses. The final OLEMS [REP13-007] states that proposed mitigation measures are to be set out in a Precautionary Method of Working (PMoW) and are to be "*supervised by a suitable qualified ecologist*".
- 10.5.57. Whilst the PMoW is not specifically referenced in the EMP that is required under R21 of the dDCO [REP12-013], there is a reference in R21 to the EMP according with the OLEMS and the mitigation measures set out in the ES. The OLEMS references a reptile PMoW being completed but does not provide any specific details about when this would be or whether it would need to be approved by the relevant planning authority.
- 10.5.58. The ExA notes that in the SoCG with NE [REP8-108] the impacts on reptiles are not specifically referenced. However, the assessment methodology and mitigation measures in general have broadly been agreed and areas of outstanding disagreement do not relate to reptiles.

Furthermore, in the SoCG with ESC and SCC [REP8-114] it is agreed that the ES adequately assessed the impacts on reptiles.

- 10.5.59. Overall, the ExA concurs with the Applicant that the impacts on reptiles, which would be during the construction phase of the Proposed Development, are unlikely to be significant due to the low numbers of reptiles likely to be present. Nevertheless, it is also the case that seven areas have already been identified as containing suitable habitat for reptiles and a specific pre-construction reptile survey will not be undertaken. Therefore, the ExA concurs with the Applicant's assessment in [APP-070] of a minor adverse impact on reptiles.
- 10.5.60. However, there is a degree of ambiguity in the final OLEMS regarding the PMoW drafting and authorisation process and the specific need for the Ecological Clerk of Works to be present. Consequently, it is the ExA's view that an authorisation process for the PMoW for reptiles should be specifically referenced, either in the OLEMS or in R21 the dDCO. In addition, the ExA considers that the Ecological Clerk of Works should be present to oversee the commencement of works within all the areas that have been identified, or any other areas subsequently identified, as comprising suitable reptile habitat. This includes any additional areas that the pre-construction survey might identify. It is the ExA's view that an increased presence by the Ecological Clerk of Works would provide a more robust approach to minimising impacts on reptiles, rather than only being called on to undertake a hand search should any reptiles be found during construction works, as is currently stated in the OLEMS.
- 10.5.61. The ExA therefore recommends that the DCO be amended to include specific reference to the submission of a PMoW for reptiles. This is to be inserted as R21(1)(e) of the ExA's rDCO as follows:
- (e) Precautionary Method of Working for reptiles.

Cumulative impacts

- 10.5.62. Where relevant, species-specific potential cumulative impacts have already been assessed in the preceding sections of this Chapter. The Proposed Development would share its onshore cable route with the other East Anglia project. In assessing potential cumulative impacts the Applicant considered the scenarios of the Proposed Development and the other East Anglia project being constructed simultaneously or sequentially and noted that the key consideration is whether there is spatial or temporal overlap of effects from projects on the same ecological receptors [APP-070]. The Applicant considered sequential construction to represent the worst-case scenario due to the additional duration of construction operations. The ExA concurs with this.
- 10.5.63. Cumulatively with the other East Anglia project there would be the potential for a longer period of onshore construction works, particularly if the two projects were constructed sequentially. This would result in additional potential impacts on biodiversity if, for example, vegetation required removal on more than one occasion or there was an increased time period before mitigation planting could be undertaken and take

effect. However, the commitment by the Applicant to install the ducting for the second project alongside the cabling for the first project would significantly reduce the overall amount of disturbance if the Proposed Development and the other East Anglia project were to be constructed sequentially. This was agreed by NE in its signed SoCG [REP8-108] and the ExA concurs with this.

- 10.5.64. The main cumulative impacts would arise as a result of the construction of the substation for the other East Anglia project and the NG substation extensions that would be in close proximity to the substation for the Proposed Development, should these go ahead. The construction of these would increase the amount of built development within this part of the Order limits, albeit mainly on land that is currently used for arable farming and is of relatively low ecological value. Consequently, this would increase the amount of vegetation removal and provide less flexibility in terms of siting and thereby less scope for the Proposed Development to avoid any areas of ecological interest within this overall area, such as badger setts. In addition, the potential NG substation extensions as set out in [REP8-074] would give rise to the loss of a length of hedgerow and potentially a corner of Laurel Covert. The Applicant has predicted that the cumulative impacts would remain the same as predicted in the ES. The ExA considers that the NG substation extensions would increase the cumulative ecological impacts, due to the potential loss of hedgerow and woodland habitat and by further reducing scope for micro-siting of infrastructure within the overall area, but not to a significant degree.
- 10.5.65. The Applicant has assessed there being a low likelihood of impact pathways being present for cumulative impacts on ecological receptors from other plans or projects besides the other East Anglia project. In regard to the Sizewell C project, the Applicant stated in [REP1-107] that the footprints of Sizewell C and the Proposed Development do not overlap and therefore there is no pathway for direct cumulative impacts on ecological receptors.
- 10.5.66. In the final SoCG with NE [REP8-108] the conclusions of the assessment of cumulative impacts are categorised as a "*Not agreed*" matter. However, the Applicant noted in [REP8-108] that NE's D3 comments in [REP3-119] did not relate to onshore ecology. In its final Risk and Issues Log [REP13-051] NE's concerns about cumulative impacts referenced landscape and visual impact matters but not onshore ecology.
- 10.5.67. In the final SoCG with ESC and SCC [REP8-114] the assessment of cumulative impacts, either between the Proposed Development and the other East Anglia project or the Proposed Development and other projects, was not agreed. ESC and SCC considered that the cumulative impact assessment (CIA) required updating to consider potential new projects coming forward and delays to the timelines for existing projects.
- 10.5.68. The ExA has not been presented with any substantive evidence to the contrary in regard to the potential for other plans and projects, including Sizewell C, to share onshore ecological impact pathways with the Proposed Development. Consequently, it is not considered likely that any

other plans or projects, apart from the other East Anglia project and the potential NG substation extensions, would impact directly on the same ecological receptors as the Proposed Development.

- 10.5.69. For the cable route, the cumulative onshore ecological impacts would be primarily short-term arising from the construction operations necessary for the other East Anglia project. However, the commitment to concurrent installation of ducting for the second project would significantly reduce the level of future cable route construction impacts of the other East Anglia project. Based on this and the consultation responses on this matter from IPs the ExA concludes that the potential cumulative impacts on onshore ecology for the onshore cable route would be broadly similar to those for the project alone.
- 10.5.70. In conclusion, the construction of the other East Anglia project has the potential to increase the duration over which construction operations would occur which would thereby increase the time period for elements of the mitigation planting to take effect. Also, the construction of an additional substation for the other East Anglia project and the potential NG substation extensions would increase the overall footprint of built development in that location. This would have the potential for resultant additional impacts on ecological receptors through direct loss of habitat and a reduction in the ability for microsites to avoid features of ecological importance such as badger setts.
- 10.5.71. These matters lead the ExA to conclude that the negative cumulative impacts on onshore ecology, primarily due to the cumulative infrastructure at the substation area, would be greater than for the project alone but not to a significant degree. The ExA does not consider that any cumulative impacts on designated sites, habitats or species would be significant enough to increase the predicted residual impacts beyond minor adverse.

10.6. CONCLUSIONS ON ONSHORE ECOLOGY

- 10.6.1. Based on the evidence that has been provided both before and during the Examination the ExA draws the following conclusions in regard to onshore ecology matters:
- The impacts of the Proposed Development on onshore ecology would largely result from the construction phase of the Proposed Development. Most, but not all, of the matters in this regard are agreed in the final signed SoCGs between the Applicant and NE [REP8-108] and the Applicant and ESC/SCC [REP8-114].
 - The assessment methodology used by the Applicant, including the habitats and species considered as being likely to be present, is appropriate.
 - The Applicant has adequately demonstrated that areas of wet woodland and hairy dragonfly habitat would not be affected by the Proposed Development alone or cumulatively.
 - In terms of species there is a likelihood of adverse impacts on badgers, bats, GCN and potentially reptiles during the construction

phase. With the exception of bats for which there would be a moderate adverse short-term impact, none of the impacts identified for species would be greater than minor adverse in the short-term and reducing to negligible in the longer-term.

- There would be the loss of some areas of woodland, lengths of hedgerow and individual trees, with resultant ecological impacts. Nevertheless, the ExA considers that with the provision of the proposed planting and other mitigation measures then such impacts on these features and habitats would be limited in duration and scope and therefore would be minor adverse.
- The Proposed Development would give rise to short-term minor adverse impacts on the LASSI and the Hundred River.
- The Proposed Development would give rise to minor adverse impacts on ecological receptors as a result of noise, lighting and emissions.
- Cumulative impacts on onshore ecology would arise as a result of the other East Anglia project and potential NG substation extensions rather than any other plans or projects. Cumulative impacts would be greater than for the project alone but not to a significantly adverse degree.
- The proposed areas of ecological enhancement would not be sufficient overall to outweigh the adverse impacts on habitats and species that have been identified, particularly in the short-term due to the construction operations.
- The ExA cannot ascribe an overall positive impact in terms of onshore ecology to the Proposed Development. However, the mitigation measures, if successful, would mean that the impacts on onshore ecology would be reduced to an acceptable level. Consequently, the ExA considers that in regard to onshore biodiversity matters the Proposed Development would comply with all relevant policy and legislation including the relevant parts of NPS EN-1, and also with Policy SCLP10 of the ESCSCLP.
- Taken together, the ExA concludes that the impacts on onshore ecology of the Proposed Development alone and cumulatively would be negative in weight and of low significance overall. This means that a low negative weighting for this matter is carried forward into the planning balance.

11. FINDINGS & CONCLUSIONS IN RELATION TO COASTAL PROCESSES

11.1. INTRODUCTION

- 11.1.1. This Chapter considers the effect of the Proposed Development on coastal physical processes including the impact both to and from coastal erosion and the impact on cliff stability at landfall. Effects arising from marine physical processes is considered in Chapter 18, Marine Physical Effects and Water Quality.

11.2. POLICY CONSIDERATIONS

National Policy

- 11.2.1. Section 5.5 of NPS EN-1 addresses coastal change. Paragraph 5.5.1 states that the Government's aim is to ensure that our coastal communities continue to prosper and adapt to coastal change. This means planning should:
- ensure that policies and decisions in coastal areas are based on an understanding of coastal change over time;
 - prevent new development from being put at risk from coastal change by (i) avoiding inappropriate development in areas that are vulnerable to coastal change or any development that adds to the impacts of physical changes to the coast, and (ii) directing development away from areas vulnerable to coastal change;
 - ensure that the risk to development which is, exceptionally, necessary in coastal change areas because it requires a coastal location and provides substantial economic and social benefits to communities, is managed over its planned lifetime; and
 - ensure that plans are in place to secure the long-term sustainability of coastal areas.
- 11.2.2. The decision-maker should be satisfied that the Proposed Development will be resilient to coastal erosion and deposition, taking into account climate change, during its operational life and any decommissioning stage.
- 11.2.3. The MPS also highlights the potential for direct and indirect effects of new infrastructure on seabed geomorphology and the coastline. Section 2.6.8.6 states that Marine Plan authorities should not consider development which may affect areas at high risk and probability of coastal change unless the impacts upon it can be managed. It goes on to say that marine plan authorities should seek to minimise and mitigate any geomorphic changes that an activity for development will have on coastal processes.

Local Policy

- 11.2.4. Policy SCLP3.4 of the East Suffolk Council – Suffolk Coastal Local Plan (September 2020) (SCLP) 'Proposals for Major Energy Infrastructure

Projects' seeks to ensure that appropriate erosion defences, including the effects of climate change are incorporated into the project to protect the site during construction, operational and decommissioning stages.

- 11.2.5. Policy SCLP9.3 of the SCLP 'Coastal Change Management Area' seeks to highlight areas where the rates of shoreline change are significant over the next 100 years. Although there is a presumption against some forms of development, essential infrastructure will be permitted where no other sites outside the area are feasible and there is a management plan in place to manage the impact of coastal change including their future removal and replacement. The point at which the offshore cables come ashore lies within a Coastal Change Management Area.
- 11.2.6. The landfall zone lies within Policy Development Zone 4 (Dunwich to Thorpeness) of the Suffolk Shoreline Management Plan (SMP) and spans two Management Units, MIN13.2, Sizewell Cliffs and MIN13.3, Thorpeness. Although managed realignment does form part of MIN13.3, the LIR states that the intent to manage realignment applies only to the currently defended part of the frontage that is outside the landfall zone. The SMP states that over this locality, the underlying policy objective is to manage the coast in a fashion that maintains a process of long-term natural change and for the built environment to adapt to that change.

11.3. THE APPLICANT'S CASE

- 11.3.1. The Applicants consideration of coastal physical processes is primarily contained within ES Chapter 4 (Site Selection and Alternatives) [APP-055] and ES Chapter 7 of the ES (Marine Geology, Oceanography and Physical Processes) [APP-055]. These Chapters are supported by Appendix 4.6 (Coastal processes and Landfall site selection) [APP-447].
- 11.3.2. Section 4 of ES Chapter 4 considers landfall and nearshore site selection alternatives. A constraints mapping and engineering feasibility study was conducted to identify the most appropriate location for the Proposed Development's export cables to make landfall. The engineering feasibility study included a review of beach and sea bed geology. In order to assess the movement and stability of the shoreline and shallow subtidal areas, and the effects of coastal management plans over the next 50 years, a coastal stability study was also commissioned (section 2.12 of Appendix 4.6).
- 11.3.3. The study showed that the main uncertainty associated with the coastline in the area is in terms of long term change in coastal processes, alongside change in sea levels related to climate change. The study considered that the available information allowed a good assessment of the area in terms of present day trends of erosion, but that some caution had to be taken in extrapolating these trends into the future. The study also quantified appropriate set back distances from the cliff line depending on where a future landfall location is chosen. This was proposed on a conservative precautionary approach and the Applicant has committed to setting back the landfall transition bays to the potential 100-year erosion prediction line.

- 11.3.4. The avoidance of physical impacts (as far as possible) to the Coralline Crag formation (section 2.5 of Appendix 4.6) in order to avoid impacts to the hydrodynamic process underpinning EDF's Energy's cooling infrastructure sea defences and the nearshore sandbank systems was a key consideration in determining the offshore cable corridor and landfall location. Detailed information on the extent of Coralline crag can be found in Figure 4.4 [APP-084]. In order to avoid or minimise physical impacts to the Coralline Crag, the Applicant considers that routes to the south of the Crag would be the most viable option as the sea bed in this area is relatively unconstrained, and there is the flexibility to achieve avoidance of the Coralline Crag.
- 11.3.5. The Applicant's preferred solution for installing the offshore export cable is to HDD from the onshore landfall location to the south of the Coralline Crag, this may also include HDD under a section of the southern extent of the Coralline Crag. Further geophysical survey and engineering investigations would then be developed to consider the above matters, leading to a final cable installation location and construction method. The offshore zone suitable for HDD punch out is shown on ES Figure 7.7 [APP-109].
- 11.3.6. The Landfall Refined Area of Search is a short section of the Suffolk coastline north of Thorpeness (shown on Figure 6.2a and b [APP-097]) The Applicant considers this site to be the preferred location for the following reasons:
- The landfall can accommodate onshore cable requirements for both the proposed East Anglia ONE North and East Anglia TWO projects to connect to the grid in the vicinity of Sizewell and Leiston;
 - Direct impacts on the SSSI designated at Sizewell Cliffs (Leiston - Aldeburgh SSSI) will be avoided through the use of HDD;
 - There is potential to avoid impacts on the Coralline Crag rock formation offshore from the coastline through the use of HDD, and thereby significantly reduce or remove the potential impact on coastal processes in the area (and avoid any impacts on the safe operation of Sizewell B nuclear power station's cooling water intake and outfalls);
 - There is sufficient space in the identified area to accommodate set back from the cliff line to reduce risk associated with coastal erosion over the 100- year modelled scenario; and
 - Avoid direct interaction with the beach through the use of HDD.
- 11.3.7. ES Chapter 7 assesses the impact on coastal physical processes in more detail and employs the methodology as set out in ES Chapter 5 [APP-053]. Embedded mitigation includes a refinement of the landfall location based on consideration of the physical process interactions and marine geology along the Suffolk coast and adjacent nearshore seabed, including the role of the nearshore Sizewell and Dunwich banks, the outcrop of Coralline Crag offshore from Thorpeness and the rates of erosion of the Sizewell cliffs as well as the circulatory sediment transport pathways between the shore and nearshore. Consideration was also given to the proximity to Sizewell power station and cooling water infrastructure with respect to tidal streams. Additionally, the Applicant has committed to

installing the export cable at the landfall using HDD techniques which it considers will minimise disturbance and avoiding the need for cable protection in the intertidal and shallowest nearshore zones.

- 11.3.8. With respect to coastal morphology, ES Chapter 7 concludes that as a result of the chosen methodology there would be no impacts on the morphology within the intertidal zone during construction with a magnitude of effect of no change. During the operational phase, as the export cables would remain buried at the landfall throughout the design life of the Proposed Development no cable protection would be required and as such no morphological effects would take place. ES Chapter 7 also concludes that the worst case effects on the coastal morphology at the cable landfall during the operational phase of the Proposed Development would be no impact.
- 11.3.9. No significant cumulative impacts were identified on the marine geology, oceanography and physical processes receptor groups between the Proposed Development and other nearby marine developments and activities (including other windfarm developments, marine aggregate dredging and marine disposal).

11.4. PLANNING ISSUES

- 11.4.1. Section 10 of the Councils' LIR raised three issues with respect to coastal change. These were: the destabilisation of cliff, the impact on the Coralline Crag outcrop and the risk of structures becoming exposed during the service life of the project.

Destabilisation of Cliff

- 11.4.2. The LIR notes that the destabilisation of the cliff is a key local issue. It notes that the Thorpeness frontage has suffered significant coastal erosion pressure over recent years and stresses the importance of ensuring that the cable and duct installation methods minimise disturbance to the shoreline. As a result, the Councils encourage the use of HDD.
- 11.4.3. The potential of HDD to cause vibration whilst drilling under the near vertical and unstable Thorpeness cliffs which could result in destabilisation and increased cliff erosion was also raised. The Councils note that this is a matter of concern for the local community and the fragility of the cliffs at Thorpeness was raised in numerous representations [e.g. RR-711, RR-360, RR-581, RR- 348, RR-68, RR-019], at ISH2 [EV-034r] and ISH4 [EV-052].
- 11.4.4. Whilst an Outline Landfall Construction Method Statement (OLCMS) had not been submitted with the Application, as the Applicant had provided the Councils with a draft, the LIR noted that they were content with the approach taken to vibration monitoring within the OLCMS.
- 11.4.5. Subsequently, the Applicants submitted an OLCMS (Version 1 [REP1-042], Version 2 [REP6-022], Version 3 [REP8-053] and Version 4 [REP12-025]). This includes a rationale for the use of HDD at landfall,

details of onshore geotechnical investigations that would take place in order to inform the detailed design of the HDD solution and the methodology that would be used in order to ensure the integrity of the cliffs under which the HDD drill line would be routed.

- 11.4.6. At D2, ESC confirmed that it was satisfied the OLCMS covered management of cliff destabilisation by vibration risk [REP2-029]. This was reiterated at ISH4. In its summary of oral case [REP5-045], ESC confirmed that it was satisfied with the OLCMS noting that it includes a requirement for further site investigation and design by the Applicants (on cable duct line, breakout location and cliff vibration damage risk management), the output of which is to be submitted to ESC for review and approval in accordance with R13 of the dDCO [REP12-013]. ESC considers that installation of ducts at the coastal landfall site by use of HDD is preferable to open cut because the latter would cause far greater temporary and permanent disturbance to the coastal environment in the landfall zone. It recognises that a drilling operation presents a potential risk to the land through which it is installed from vibration but is satisfied that obligations requiring the Applicant to identify and propose measures to manage those risks to an acceptable level are in place in the OLCMS.
- 11.4.7. The feasibility of HDD at the landfall location was a matter raised by NE at D1 [REP1-153]. It commented that documentation and evidence presented for other offshore windfarms along the east coast of the UK had identified that a 2km HDD, such as that proposed for the Proposed Development was not viable. NE also raised concerns regarding the certainty of HDD at this location given that geotechnical investigations were yet to be undertaken. This was also a matter raised by Aldeburgh Town Council and SEAS at ISH2.
- 11.4.8. The viability of HDD at the landfall location was examined in greater detail at ISH4. Aldeburgh Town Council and the Alde Ore Association raised concerns surrounding the integrity of the Suffolk coast. Matters of concern included that the Applicant had chosen one of the most vulnerable points along this cliff, which is geologically little more than hardened sand dune. Attention was drawn to the strong wind and wave action and north sea surges and an incident where over 20ft of cliff was lost in a single fall after a storm surge. Their concerns were that even modest or small vibrations from drilling would be likely to weaken the ground and make a huge set change in erosion by accelerating it. The Alde Ore Association noted that the fragility of the cliff was not just a matter of concern at the cliff edge but for the full length of HDD to the exit pit.

Impact on the Coralline Crag outcrop

- 11.4.9. The LIR notes that the outcrop, which is located in the nearshore area between Thorpeness and Sizewell has an important role in stabilising the coastline over the Thorpeness to Dunwich frontage. The Councils' main point of concern was the potential for significant damage to the exposed Coralline Crag outcrop. Numerous representations were also received to this effect including SEAS who raised concerns that the Applicant was

only referring to the avoidance of exposed Coralline Crag in the ES when the Crag extends well south and east of its surface/subsea exposure [REP1-329].

- 11.4.10. The Councils confirm in the LIR that their concerns relating to the interaction with the Coralline Crag were addressed by the conclusion that the landing site should be at the southern extent of the coastal frontage which would void or minimise to an acceptably low level, any negative impact on the crag outcrop. At D2 the Council confirmed that it was satisfied that the OLCMS satisfactorily covers Coralline Crag impact avoidance [REP2-029].
- 11.4.11. In its relevant representation, EDF (NNB Generation Co Ltd) noted that the cable corridor includes within it the majority of the Coralline Crag formation and was particularly concerned that the protection afforded to the Sizewell shore by crag between Sizewell and Thorpeness should not be compromised. EDF requested that Protective Provisions should be included in the DCO to ensure that, after the Applicant has carried out their detailed pre-construction surveys to determine the southern extent of the Coralline Crag formation, this is achieved in practice. This was iterated at ISH4. Final agreed Protective Provisions were submitted by the Applicant and agreed with EDF at D8 [REP8-189]. This is shown as agreed in the final SoCG with EDF [REP8-126].

Exposure of Structures

- 11.4.12. The LIR notes that the proposed structures (ducts, cables and buildings) required to be installed at or close to the shoreline (defined here as cliff top to Mean Low Water Mark) must be designed with a full understanding of the consequences of coastal change. It goes on to say that it is important to ensure the proposed structures are not exposed by coastal change within their predicted service life, with an allowance for risk if the service life is extended. The Councils were satisfied that the approval of the final design profile for the cable duct secured by R13 provided an acceptable mechanism to secure this detail.
- 11.4.13. The Councils further recommended that the proposed structures (excluding ducts) are removed at the end of the landfall site design life (25 years following completion of construction), and that any proposed extension of the design life beyond 25 years is subject to a new erosion risk assessment and evidence of no significant negative impact of such an extension on coastal processes. To achieve this the Councils requested an amendment to R37 so that it not only includes work number 8 but also the elements of work no.6 which are up to the point of the mean low water mark. This combined with R30 would provide the Councils with the security that the landfall infrastructure can be removed at the point of decommissioning. The Applicant's final dDCO includes the amendment to R37 [REP12-013].
- 11.4.14. Notwithstanding, at ISH4, ESC submitted that, whilst it agreed that the 85m setback distance of the transition bay was unlikely to be breached during service life, the ducts would run across the Ness which is a feature

liable to significant change. Therefore, ESC considered that the Applicant should set up a monitoring programme to compare actual shoreline change trends with as-built records to ensure that design assumptions on resilience are not compromised. If monitoring suggests that there is a risk of duct or exposure of breakout connection point damage then ESC considered that the Applicants should submit proposals for remediation at least 12 months in advance of action being needed.

- 11.4.15. In connection with the potential exposure of structures, Richard Reeves, an IP, referred at ISH4 to the exposure of a telecommunications cable at the landfall site in 2018 following a spring tide coinciding with a tidal surge along the East Suffolk Coast. Photographs of the exposed cabling were submitted at D1 [REP1-312].

11.5. ExA RESPONSE

- 11.5.1. The ExA acknowledges that the landfall is located in an area that is subject to costal erosion and significant change. It understands that the local community are concerned about drilling under the cliffs, vibrations and the potential for destabilisation and accelerated cliff erosion.
- 11.5.2. The Applicants prepared a study on coastal change, detailed in ES Appendix 4.6, which was updated at the request of ESC after a significant increase in the rates of cliff erosion over the southern part of the potential landfall frontage. The Applicants understanding of the coastline is underpinned by consideration of the SMP and their key considerations at the landfall include:
- The influence of coastal management and coastal change in relation to the proposed landfall site, specifically in relation to potential future erosion (which led to set-back distances);
 - The construction-related effect of cable burial within the Sizewell-Thorpeness cable corridor on turbidity and erosion/ sedimentation at the cooling water intake and outfall of the Sizewell B nuclear power station;
 - The effect of export cable burial (or protection) within the Sizewell-Thorpeness cable corridor on the baseline sea bed and shoreline morphology and physical processes.
- 11.5.3. ESC confirmed at ISH4 that it considers the study findings to be robust and provide a sound evidence base for the Applicants to base their cable landing design proposal. The ExA has no reason to disagree.
- 11.5.4. Embedded mitigation includes the use of HDD techniques to install the export cables at landfall, details of which are contained in the OLCMS. The use of HDD is fully supported by ESC and would avoid surface excavations at the beach, cliffs and intertidal area. HDD is secured by R13 of the dDCO which requires the preparation of a Landfall Construction Method Statement (LCMS) to be approved by ESC in consultation with the EA, MMO, NE and Sizewell B. The LCMS must accord with the OLCMS.

- 11.5.5. A conservative approach would be taken to the design of landfall works to mitigate against coastal erosion processes. The HDD entry pit locations onshore would be located a setback distance of 85m from the cliff top to ensure the integrity of the cliff is not compromised and to allow for natural coastal erosion during operation of the Project. The transition bay would be located a setback distance of at least 85m from the current mapped top of the cliff line. The outline design of the HDD is approximately 10m below the beach level of the cliff line at the maximum predicted 100-year erosion extent. The depth of the HDD would be deeper below the toe of the existing cliffs, potentially between 15m and 20m. This is to ensure the integrity of the cliff is not compromised and to account for natural coastal erosion during the operational life of the Projects.
- 11.5.6. The ExA agrees with ESC that it would have been preferable if further geotechnical site investigations and design had been submitted into the Examination by the Applicant. At ISH4, the Applicant had indicated that further ground investigations were to be conducted in April/May 2021. Following the extension to the Examination, the ExA asked the Applicant if the results of the ground investigations could be submitted into the Examination [PD-038]. However, the Applicant responded to state that although the ground investigation works has commenced and would continue until June 2021, the data would need to be collated and verified and the final report would not be available until September 2021 [REP10-030].
- 11.5.7. Nonetheless, the OLCMS outlines details of such geotechnical investigations which would inform the detailed design of the HDD solution which would include:
- Boreholes: Drilled to underlying rockhead and providing a profile of soil characteristics through the full depth. There will be a minimum of two boreholes onshore. Boreholes will be securely capped on completion;
 - Hydrological monitoring: At least one of the above-mentioned boreholes would be fitted with hydrological monitoring equipment (i.e. stand pipe and piezometer) to provide ongoing data on groundwater hydrology;
 - Trial Pits: Localised excavations to approximately 3-4m depth in the locations of possible HDD entry pits to identify measures necessary to facilitate construction. Trial pits would be reinstated upon completion;
 - Geotechnical, chemical and environmental laboratory testing: Testing undertaken on samples retrieved during the investigation to provide detailed ground soil profile characteristics and parameter to aid design; and
 - Cliff stability monitoring: Installation of vibration monitoring equipment to establish design parameters and baseline conditions to benchmark against during the HDD drilling works.
- 11.5.8. The Applicant has stated that they are confident that HDD is a viable option and have confirmed that the ground investigation works are not to establish the viability of the HDD but rather to provide the detailed

ground engineering properties required to inform the detailed design of the HDD. To support this stance, the Applicant submitted a review on the feasibility of using HDD at the landfall location [REP6-025]. This concluded that, based on the available information, a landfall HDD of up to 2km in length in the expected ground conditions would be achievable.

- 11.5.9. In terms of impacts from vibrations, the OLCMS states that as HDD uses rotary rather than percussive drilling, only minor vibrations are expected. The detailed design would be developed to take into account the anticipated levels of vibration from the proposed drilling equipment to ensure the integrity of the cliff. The HDD drill profile would be established to take into account the capacity/size of the HDD drill rig being utilised and the vibration levels generated by the rig, to ensure the integrity of the cliff would not be compromised during HDD drilling. The HDD drill profile would ensure the HDD bores could achieve the maximum possible depth beneath the cliffs in order to minimise the impact of the HDD drilling on the stability of the cliffs.
- 11.5.10. Vibration monitoring would be undertaken in the vicinity of the cliffs as part of the site investigation works to gather background data on vibration levels under normal conditions. This data would be examined to establish a suitable vibration limit which would be maintained during HDD drilling to ensure the integrity of the cliffs are maintained. Vibration monitoring points would then be undertaken in the vicinity of the cliffs for the duration of the HDD drilling. The HDD drill rig operators would monitor vibration levels and modify the HDD drilling to avoid the maximum vibration limit from being exceeded. Where the maximum vibration limit is exceeded, HDD drilling would be stopped, and the method statement reviewed so as to maintain the maximum vibration limit on recommencement of HDD drilling. The final Landfall Construction Method Statement would include further information on the vibration monitoring to be undertaken to ensure the integrity of the cliffs would not be compromised
- 11.5.11. The HDD would avoid direct interaction with the outcrop of Coralline Crag. Protective Provisions have been secured in Schedule 10, Part 7 (Protection for EDF) of the dDCO. This includes a commitment that the Applicant must not undertake cable trenching activities or locate the HDD punch out within the Trenching Restriction Area Exclusion Zone shown on the Activity Exclusion Zones Plan or within the visible extent of Coralline Crag as confirmed by surveys undertaken by the Applicant. Both the Council and EDF confirmed at ISH4 that by reference to avoidance of the Coralline Crag, they were referring only to those parts visible at the surface as this could affect coastal processes.
- 11.5.12. R13 of the dDCO secures mitigation in the event that the rate and extent of cliff recession indicate that the ducts at landfall could become exposed during operation. The Applicant would undertake monitoring of the landfall for significant changes to coastal processes and an Outline Landfall Monitoring Plan is contained within Appendix 2 of the OLCMS. This sets out the proposed monitoring and reporting procedures to be

implemented. The final Landfall Monitoring Plan would be prepared post-consent and must accord within the Outline Landfall Monitoring Plan.

- 11.5.13. In addition, where landfall monitoring identifies a risk that structures could become exposed during the operation of the Project, written proposals for remedial works or mitigation measures to protect the structures from coastal retreat must be submitted to and approved by the local planning authority, secured by R13.
- 11.5.14. Given the above, the ExA is satisfied that the effect of the proposed Development on coastal processes, including cliff stability, the impact on the Coralline Crag and the risk of exposure of structures has been adequately assessed and mitigated. There is sufficient evidence to assure the ExA that a technically deliverable approach to HDD can be delivered within the relevant Works site and that the design of the Proposed Development, including embedded mitigation, would be resilient to coastal erosion and would not contribute to coastal change, taking into account climate change. The LCMS would be secured by R13 of the dDCO and would include full details on geotechnical surveys, HDD design and methodology and monitoring.
- 11.5.15. The ExA agrees that there would be no significant cumulative impacts on the marine geology, oceanography and physical processes between the Proposed Development and other nearby marine developments and activities (including other windfarm developments, marine aggregate dredging and marine disposal).
- 11.5.16. Consequently, it is the ExAs view that the relevant policy tests contained within NPS EN-1 and the MPS have been adequately addressed.

11.6. CONCLUSION ON COASTAL PROCESSES

- 11.6.1. Taking all relevant evidence and policies into account, the ExA concludes as follows:
- The effects of the Proposed Development on costal processes have been adequately assessed and mitigated
 - There would be no significant cumulative effects on coastal processes
 - Relevant NPS and MPS policy tests are met
 - This issue is a neutral consideration in the overall planning balance

12. FINDINGS & CONCLUSIONS IN RELATION TO ONSHORE WATER QUALITY & RESOURCES

12.1. INTRODUCTION

- 12.1.1. This Chapter considers the effects of the Proposed Development on water quality and resources including the potential effects on the physical, biological or chemical character of surface waters or groundwater. Matters relating to drainage and flooding are considered in Chapter 6.

12.2. POLICY CONSIDERATIONS

National Policy

- 12.2.1. The Overarching National Policy Statement for Energy (NPS EN-1) Section 5.15 sets out that where a project is likely to have effects on the water environment, the Applicant should undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment as part of the Environmental Statement (ES) or equivalent.
- 12.2.2. The decision-maker will generally need to give impacts on the water environment more weight where a project would have adverse effects on the achievement of the environmental objectives established under the Water Framework Directive (WFD). Where such adverse impacts are likely to arise, they should be mitigated through attaching appropriate requirements to any development consent.
- 12.2.3. In terms of drainage and pollution control, NPS EN-1 notes at paragraph 4.10.2 that the planning and pollution control systems are separate but complementary. Paragraph 4.10.3 states that the decision-maker should focus on whether the development, itself, is an acceptable use of land, and on the impacts of that use, rather than the control of processes, emissions and discharges themselves.

Local Policy

- 12.2.4. Suffolk Coastal Local Plan (SCLP) 9.7 policy of the East Suffolk Council – SCLP (September 2020) 'Holistic Water Management', states that all new developments will incorporate water efficiency and re-use measures, including but not limited to:
- greywater recycling;
 - rainwater harvesting; or
 - water use minimisation technologies.
- 12.2.5. SCLP10.3 policy 'Environmental Quality', states that development proposals will be considered in relation to their impact on water quality and the achievement of WFD objectives.

12.3. THE APPLICANT'S CASE

- 12.3.1. The Applicant's case on the water environment is primarily contained within ES Chapter 20 [APP-068], Water Resources and Flood Risk [APP-068]. In relation to water quality and resources. This Chapter is supported by Appendix 20.4, WFD compliance Assessment [APP-497] and Appendix 20.5, Geomorphological Baseline [APP-498]. Additionally, ES Chapter 18 Ground Conditions and Contamination [APP-066] considers the potential impact on hydrology (surface water quality) and hydrogeology (groundwater quality and levels). ES Chapter 18 [APP-066] is supported by Appendix 18.3, Land Quality Risk Assessment [APP-489].
- 12.3.2. ES Chapter 20 defines the study area for water resources on the basis of surface hydrological catchments and includes catchments if they contain, or are hydrologically connected to (i.e. upstream or downstream) of the onshore development area. The Environment Agency's (EA's) WFD river water body catchments have also been used to delineate the boundaries of the study area and define surface water receptors [APP-265].
- 12.3.3. ES Chapter 20 and Chapter 18 employ the general impact assessment method set out in ES Chapter 5 EIA Methodology [APP-053]. More detailed methodology for the WFD compliance assessment is set out in Appendix 20.1 [APP-497].
- 12.3.4. The onshore infrastructure of the Proposed Development is located within the catchment of three surface watercourses that are designated by the EA as main rivers for part of their course. These are The Hundred River, Leiston Beck and The Friston Watercourse. For completeness, the Applicant included the coastal fringe as a receptor given that the landfall and a small part of the eastern end of the onshore cable corridor are located in an area of the coastal fringe which drains eastwards into the sea rather than south or westwards into The Hundred River catchment.
- 12.3.5. ES Chapter 18 states that the EA groundwater vulnerability data indicates parts of the onshore development area are designated as having a high groundwater vulnerability, indicating that there are soils which may be able to transmit a wide range of pollutants into any groundwater stored in strata beneath them.
- 12.3.6. There are two groundwater Source Protection Zones (SPZs) identified within the onshore development area and onshore study area. These are the Leiston (AN307) and Coldfair Green (ANO34) public water supply abstractions, shown in Figure 18.4 of Groundwater Receptors [APP-255]. These zones are associated with groundwater and abstraction for public water supply, suggesting that groundwater in this area is likely to be sensitive to change.
- 12.3.7. Using data from the EA the Applicant identified three abstraction licences within the study area, two groundwater abstractions and a surface water abstraction, all of which are for agricultural use (irrigation). There are also five unlicensed (private) abstractions known to the EA within or

adjacent to the onshore development area and a further three observation boreholes in the area

- 12.3.8. ES Chapter 20 identifies four potential impacts on water resources and flood risk receptors:
- Direct disturbance of water bodies;
 - Increased sediment supply;
 - Accidental release of contaminants; and
 - Changes to surface water runoff and flood risk (refer to Chapter 6 of this report for the Applicants case on this impact)
- 12.3.9. The impacts on each receptor resulting from direct disturbance are summarised in Table 20.13 of ES Chapter 20. The Applicant considers that with embedded and additional mitigation measures outlined in ES Chapter 20, the residual impact resulting from the direct disturbance of The Hundred River would be minor adverse and no impact on the coastal fringe, Leiston Beck, Friston Watercourse and groundwater.
- 12.3.10. Following the implementation of embedded and additional mitigation measures to reduce sediment supply to watercourses, the Applicant considers that the residual impact would be minor adverse in the Hundred River, Leiston Beck and Friston Watercourse catchments (see table 20.15 of ES Chapter 20) with no impacts on the coastal fringe or groundwater.
- 12.3.11. In terms of the potential for accidental release of contaminants from construction activities, the Applicant considers that following the implementation of embedded and additional mitigation measures the residual impact would be minor adverse for The Hundred River, Leiston Beck and Friston watercourse catchments and underlying groundwater (see Table 20.16 of ES Chapter 20) and no impact upon surface water receptors in the coastal fringe.
- 12.3.12. During operation, the Applicant considers that the negligible impact along the onshore cable route means that there is no requirement to introduce any additional mitigation measures in the Hundred River and Leiston Beck or Friston Watercourse catchments, or to prevent the direct contamination of groundwater.
- 12.3.13. The pollution risk from construction activities to controlled waters including groundwater is considered in ES Chapter 18. The Applicant anticipates that, after adopting the embedded mitigation measures set out in Table 18.2, the impact on groundwater quality of the Secondary and Principal Aquifers would be minor adverse. Similarly, after adopting the embedded mitigation measures, specifically the adherence to the EA pollution prevention plan, the impact on surface water quality from the contamination of groundwaters and subsequent discharge is also considered to be of minor adverse impact.

Cumulative Impacts

- 12.3.14. A summary of cumulative impacts is presented in Table 20.27 of ES Chapter 20 and Table 18.11 of ES Chapter 18. A full assessment of the two construction scenarios (simultaneous or sequential construction) is presented in Appendix 20.2 [APP-266]. It concludes that sequential construction represented the worst case impacts for water resources because although most impacts would be no greater than those resulting from the Proposed Development alone, impacts resulting from two distinct periods of watercourse disturbance are considered to be greater. A summary of those impacts can be found in Table 20.21 of ES Chapter 20.
- 12.3.15. Potential cumulative impacts with other projects can be found in Table 20.22 of ES Chapter 20. Following a review of projects which have the potential to overlap temporarily or spatially with the Proposed Development, two developments, Sizewell C Nuclear Power Station and Sizewell B Nuclear power station, were scoped in.
- 12.3.16. Both ES Chapter 20 and ES Chapter 18 conclude that there would be no increase from the minor adverse effects outlined for the Proposed Development alone either during construction or operation.

12.4. PLANNING ISSUES

- 12.4.1. The Councils' Local Impact Report (LIR) [REP1-132] did not identify water quality as a likely significant effect of the development, although it advised that additional consents are relevant to this issue, such as those issued under the Land Drainage Act 1991. The LIR stated that in issuing such consents, the Council would need to ensure that any works permitted are WFD compliant.
- 12.4.2. The impact of the Proposed Development on a private water supply at Ness House was raised in numerous representations throughout the Examination. For example, Tess Wotjtczack [REP1-377], [REP3-168] and [REP8-246], Elspeth Gimson [REP1-242], Christopher and Wendy Orme [REP1-233], Richard Reeves [REP4-167], [REP7-084] and The Wardens Trust [REP2-083].
- 12.4.3. The concerns related to a private water supply that is derived from a wellhead at Ness House property and serves the Warden's Trust – a charitable body- and other residential properties which lie close to the landfall location. Concerns included the potential of the proposed HDD at the landfall to pass through the aquifer and disturb/pollute the water supply, possible saline backfilling down the drill route and the risk of toxicity to the aquifer from non-road machinery (this is for both the entire cable route and not only landfall).
- 12.4.4. Despite the submission of a Landfall Hydrogeological Risk Assessment (LHRA) [REP6-021], HDD Verification Clarification Note [REP6-024] and the Outline Landfall Construction Method Statement (OLCMS) [REP6-022], at the end of the Examination, there remained outstanding concerns relating to the water supply, as outlined above and within the text of the Outline Code of Practice Plan (OCoCP).

- 12.4.5. For example, Richard Reeves, stated that he had concerns regarding the depth of the aquifer and that the quoted distance from Ness House to the boreholes was incorrect [REP7-084]. Tessa Wojtczak raised concerns that the risk assessment only addressed the landfall location and not the risk of toxicity along the whole cable route, the lack of detail in the OCoCP relating to the proposed mitigation measures contained within the LHRA, [REP8-246] and that the concerns raised had not been responsibly addressed by the Applicant [REP12-130 and REP13-128].
- 12.4.6. The Warden's Trust did not consider that the LHRA should be accepted as complete or valid nor an objective scientific assessment of risk. It was their opinion that without the exact nature of drilling and its positioning or angle of route being known the risk could not be quantified. Concerns were also raised about the proposed mitigation measures of utilising water bowsers for residents dependent upon the well should the quality of the water be affected, for example in [REP13-077].
- 12.4.7. Two independent Hydrological Risk Assessments were submitted into the Examination by The Wardens Trust [REP9-042 and REP13-076]. The report was highly critical of the LHRA finding it limited, basic, poor quality and inadequate. The report stated that the combination of changing the hydrogeological setting through the drilling, with the risk posed from surface and subsurface work all around Ness House; in addition to coast erosion, sea level rise, drought effects and climate change meant the proposal represents an existential threat to the well. The report recommended that before approval for any activities in the vicinity of Ness House should be granted, an extended period of data collection, ground investigation, hydrogeological monitoring, ground modelling and cooperation with the local stakeholders would be essential.

12.5. ExA RESPONSE

- 12.5.1. The concerns raised regarding the water supply from the well at Ness house were matters carefully considered by the ExA throughout the Examination.
- 12.5.2. The ExA recognises that the LHRA is not intended as a detailed method statement. In response to criticisms of the LHRA, the Applicant considers that the LHRA presents a Tier 1 assessment of the information contained within the HDD Verification Clarification Note [REP6-024] and the OLCMS regarding the potential effects of drilling within the aquifer underlying the landfall location. The Applicant considers that at this stage such an assessment is sufficient to provide a robust appraisal of potential risks, noting that no potential impact pathways have been identified and as such the proposed activities are considered to be low risk [REP10-027]. The LHRA concludes that there will be no degradation of the aquifer
- 12.5.3. Ground investigations would be undertaken post-consent to inform a more detailed hydrogeological risk assessment. The ExA notes that the monitoring proposed by the independent report submitted by The Wardens Trust is akin to that proposed in the LHRA.

- 12.5.4. Section 2 of the OLCMS [REP12-025] sets out the onshore investigations that would be undertaken at landfall. These include:
- Boreholes: Drilled to underlying rockhead and providing a profile of soil characteristics through the full depth. There will be a minimum of two boreholes onshore. Boreholes will be securely capped on completion;
 - Hydrological monitoring: At least one of the above-mentioned boreholes will be fitted with hydrological monitoring equipment (i.e. stand pipe and piezometer) to provide ongoing data on groundwater hydrology;
 - Trial Pits: Localised excavations to approximately 3-4m depth in the locations of possible HDD entry pits to identify measures necessary to facilitate construction. Trial pits will be reinstated upon completion;
 - Geotechnical, chemical and environmental laboratory testing: Testing undertaken on samples retrieved during the investigation to provide detailed ground soil profile characteristics and parameters to aid design; and
 - Cliff stability monitoring: Installation of vibration monitoring equipment to establish design parameters and baseline conditions to benchmark against during the HDD drilling works.
- 12.5.5. The OLCMS also sets out the drilling methodology (section 4), drilling fluid management (section 5) and the potential for bentonite mud outbreak (section 6). The Applicant acknowledges that that it is inevitable that at some point there would be a breakout of drilling fluid, to the surrounding ground, particularly as the HDD curves upwards to the exit on land and also eventually to the seafloor.
- 12.5.6. The use of environmentally friendly drilling fluids and drilling with a minimum practical flow rate of the drilling fluid are the main mitigation methods proposed. The OLCMS states that in the event of a drilling fluid break out, bentonite mud may be lost to the ground which could lead to potential degradation to the chemical status and quality of groundwater aquifers. However, a sub-surface breakout would be small and involve a localised release of biodegradable material. Bentonite is a fluid of high viscosity which seals the wall of the drill by the bentonite entering and sealing fissures within the bore, minimising the risk of a significant loss of drilling fluid to surrounding ground. The Applicant states that, as the bentonite used as the base for the drilling fluid is a naturally occurring, non-toxic clay, any losses into the aquifer will not lead to its contamination.
- 12.5.7. The HDD Clarification Note points out that spills of bentonite or machinery fluids and oils from the HDD temporary working area are also a potential risk. This risk would be mitigated at the potential source by the use of bunded containers, encased stationary plant (generators, mud pumps etc), plant nappies under machinery for refuelling and plant nappies placed beneath mobile machinery (excavators etc) while it is stationary. Further measures identified too intercept potential spills before they reach receptors are the standard site setup with geofabric

underlay across the site, and bunding and silt fencing around the site perimeter.

- 12.5.8. The Applicant acknowledges that potable water supplies are taken from the aquifer through which the HDD bores will pass and that the LHRA takes this into account. Given the proximity of the wells supplying Ness House and associated properties within the vicinity of the landfall, the OLCMS states that all affected landowners and water supplies would be monitored appropriately during construction works. Standard mitigation, where required, would include pre- and post-construction monitoring surveys of the water supply, development of risk management measures and, subject to voluntary agreements, the preparation of contingency supply arrangements.
- 12.5.9. In response to Mr Reeves concern regarding inconsistencies in the distances quoted from the bores to the well, the Applicant confirmed that the likely location of the HDD bores used for the risk assessment are shown in Appendix A of the HDD Verification Clarification Note [REP6-024] submitted at D6.
- 12.5.10. At D11, and following ExQ3, the EA assessed and provided comments on the LHRA both in relation to the wider effects on the aquifer and the abstraction at Ness House. The EA raised no objection to the work completed to date but stated that further study and explanation regarding protection of water supplies would be required prior to the commencement of construction [REP11-112].
- 12.5.11. The EA remarked that HDD is a fairly widely used technique and may be proposed to avoid disruption to surface water features or designated ecological sites. Noting that LHRA proposes the use of environmentally friendly drilling fluids and stop-loss additives during the HDD operation, the EA stated that this means that there should not be any significant adverse water quality impacts. Similarly it noted that the proposed monitoring of the drilling fluid and use of stop-loss additives would seal the HDD bore where necessary which should preclude significant losses of groundwater from the aquifer to the borehole and that such losses would be confined to the period between drilling and sealing.
- 12.5.12. The EA recommended that the LHRA should be refreshed and expanded prior to the commencement of construction including looking more directly at the potential for impacts at the Ness House well. The ExA notes that within the OLCMS (with which the final OLCMS must accord), the design of the final HDD works will be subject to a hydrogeological risk assessment, to be undertaken pre-construction to consider and assess the risk to groundwater from the works and ensure the protection of existing water abstractions (if any). The EA was satisfied that it would have the opportunity to review the final LMCS prior to its submission.
- 12.5.13. Section 1.4 of the OLCMS sets out that the Applicant will consult, amongst others, the EA in the preparation of the final LCMS prior to its submission to the relevant planning authority. This is secured by

Requirement (R)13 of the Applicant's final draft Development Consent Order (dDCO) [REP12-013]. The final LCMS must accord with the OLCMS.

- 12.5.14. Furthermore, the OCoCP details that hydrogeological risk assessments will also be undertaken prior to commencement of any construction activity:
- that could cause changes to aquifer flow or affect aquifer water quality within 500m of any groundwater dependent habitats within ecological sites;
 - that requires excavations below 1m within 250m of boreholes or springs;
 - within 250m of a groundwater abstraction.
- 12.5.15. The final Code of Construction Practice (CoCP), which must accord with the OCoCP is secured by R22 of dDCO. This requires that no stage of the onshore works may commence until for that stage a CoCP has been submitted to and approved by the relevant planning authority. The OCoCP also states that the EA will be consulted on the findings of all hydrological risk assessments undertaken prior to the relevant works commencing.
- 12.5.16. The final SoCG with the EA [REP12-071] states that the EA requires the WFD coming into force in 2021 to be considered. The Applicant has agreed that for each waterbody that could be affected by the Proposed Development, the Applicant will review whether the WFD status objectives have changed and determine whether such changes have any implications for the findings of the assessment. This is shown as agreed and the ExA are satisfied that this is noted in the Outline Landscape and Ecological Management Strategy and secured through the final Ecological Management Plan secured under R21 of the dDCO [REP12-013].
- 12.5.17. Taking all the above into consideration and noting the reasonable concerns raised by local residents regarding their water supply, on balance, the ExA agrees with the EA, that the Applicant has assessed the risk to the aquifer during HDD operations to a satisfactory level at this stage and that adequate investigations would be undertaken post consent as detailed in the OLCMS and OCoCP which are secured by R13 and R22 of the dDCO.
- 12.5.18. The ExA agrees that there would be no significant cumulative impacts on water quality and resources.
- 12.5.19. Consequently, it is the ExA's views that the relevant policy tests contained within NPS EN-1 have been adequately addressed.

12.6. CONCLUSION ON WATER QUALITY AND RESOURCES

- 12.6.1. Taking all relevant evidence into account, the ExA concludes that:
- The effects of the Proposed Development on water quality and resources have been adequately assessed and mitigated

- There would be no significant cumulative effect on water quality and resources
- Relevant NPS tests are met
- This issue is a neutral consideration in the overall planning balance

13. FINDINGS & CONCLUSIONS IN RELATION TO NOISE, NUISANCE & HEALTH EFFECTS ONSHORE

13.1. INTRODUCTION

- 13.1.1. This Chapter reports on the onshore noise, nuisance and health effects of the Proposed Development, taking into consideration the tests set out in the overarching National Policy Statement for Energy (NPS EN-1). The Examining Authority (ExA) identified noise, nuisance and health effects as principal issues in its initial assessment [PD 013].
- 13.1.2. The following Chapters of the Environmental Statement (ES) are relevant:
- Chapter 19 Air Quality;
 - Chapter 25 Noise and Vibration; and
 - Chapter 27 Human Health
- 13.1.3. Residential properties are close to the onshore works near landfall, south of Sizewell Gap Road, near the Aldringham Road crossing and at the substation site. The onshore development area is rural and the general background noise levels, particularly at the substation site, are very low.
- 13.1.4. The issues considered in this Chapter are:
- Noise effects, during both construction and operation;
 - Air quality during construction, including dust and vehicle emissions;
 - Light pollution;
 - Health impacts, including mental health and electric and magnetic fields (EMF); and
 - Common law nuisance and statutory nuisance.
- 13.1.5. This Chapter will cover each of the above issues in a separate section as follows:
- Policy considerations;
 - The Applicant's case;
 - Planning issues;
 - ExA response; and
 - Conclusions.
- 13.1.6. For convenience the ExA conclusions on each topic are gathered together at the end of this Chapter.
- 13.1.7. The generic impacts and assessment principles relevant to this Chapter are found in NPS EN-1 in
- Section 5.11 – noise;
 - Section 5.2 – air quality;
 - Section 5.6 – dust, odour, artificial light, smoke, steam and insect infestation;

- Section 4.13 – health; and
- Section 4.14 – common law nuisance and statutory nuisance.

13.2. NOISE EFFECTS

Policy Considerations

National Policy

- 13.2.1. Paragraph 5.11.1 of NPS EN-1 acknowledges that excessive noise can have wide ranging impacts on quality of life, health, and use and enjoyment of areas of value such as quiet places and areas with high landscape quality, noting that Government policy is set out in the Noise Policy Statement for England. Factors include operational noise and its characteristics, and proximity to noise sensitive receptors, quiet places and other areas particularly valued for their acoustic environment or landscape quality (NPS EN-1 paragraph 5.11.3).
- 13.2.2. Paragraph 5.11.4 of NPS EN-1 says that the applicant should identify noise sensitive premises and areas, and lists what the applicant should include in the noise assessment, including:
- Characteristics of the existing noise environment;
 - A description of the noise generating aspects of the development, including any distinctive tonal, impulsive or low frequency characteristics;
 - How the noise environment will change, both during construction and operation and at particular times of day;
 - How the changes will affect the noise environment at noise sensitive premises and in noise sensitive areas; and
 - Mitigation measures.
- 13.2.3. Paragraph 5.11.5 of NPS EN-1 says that the noise impact of ancillary activities, such as increased traffic, should also be considered.
- 13.2.4. NPS EN-1 paragraph 5.11.6 says that operational noise should be assessed with reference to NPS EN-3 for renewables and NPS EN-5 for electricity networks for assessing particular technologies using relevant British Standards.
- 13.2.5. Paragraph 5.11.8 of NPS EN-1 says that the project should demonstrate good design through selection of the quietest cost-effective plant available, containing noise within buildings, optimising layout, and use of landscaping, bunds and noise barriers to reduce noise transmission.
- 13.2.6. The decision maker should not grant consent (NPS EN-1 paragraphs 5.11.9, 5.11.10) unless satisfied that the proposals will
- Avoid significant adverse impacts on health and quality of life;
 - Mitigate and minimise other adverse impacts; and
 - Where possible contribute to improvements to health and quality of life through effective management and control of noise

and should consider including measurable requirements or specific mitigation to ensure that noise levels do not exceed limits specified in the order.

- 13.2.7. The decision maker should also consider additional mitigation measures: NPS EN-1 paragraph 5.11.12 gives examples of engineering, layout and administrative mitigation and NPS EN-1 paragraph 5.11.13 states that the decision maker may need to consider requiring improved sound insulation to dwellings.
- 13.2.8. NPS EN-5 section 2.9 provides additional technology-specific policy guidance in respect of noise.

Local Policy

- 13.2.9. Local Plan policies relevant to noise are:
- Policy SCLP10.3: Environmental Quality, with the expectation that development proposals should reduce all forms of pollution including noise pollution;
 - Policy SCLP10.4: Landscape Character, saying that proposals for development should protect and enhance the tranquillity and dark skies of East Suffolk; and
 - Policy SCLP11.2: Residential Amenity, which states that East Suffolk Council (ESC) will have regard to noise and disturbance with the expectation that developments will not cause an unacceptable loss of amenity for existing and future occupiers in the vicinity.

The Applicant's case

- 13.2.10. Volume 1, Chapter 25 of the ES [APP-073], supporting Figures 25.1 [APP-304] and 25.2 [APP-305] and Appendices 25.1 [APP-522] to 25.5 [APP-526] present the results of the Applicant's Environmental Impact Assessment of the potential impacts on existing noise levels during the construction, operation and decommissioning phases. The main sources of noise would be
- Construction noise, which would be experienced throughout the onshore development area; and
 - Operational noise from the proposed substations.
- 13.2.11. Pre-application consultation on noise quality matters was carried out by the Applicant via Expert Topic Group (ETG) meetings with relevant consultees [APP-522], including ESC which is the local planning authority for the study area. The main consultation issues were:
- Existing minimal background noise at Friston;
 - Substation noise levels during operation and switching;
 - Adequacy of screening and noise reduction measures;
 - Construction noise at the substation and on the cable route, including construction traffic;
 - Use of gas cooled substations to reduce noise;
 - Cumulative impact; and
 - The need for noise limits during construction.

Legislation, policy and guidance

- 13.2.12. The Applicant agreed with the ETG that impacts based on the construction programme and activities be assessed using BS5228, and that BS4142 be used to assess operational impacts. Other legislation relevant to the noise assessment is
- Environmental Protection Act 1990, which defines statutory nuisance (s79) and Best Practicable Means;
 - Control of Pollution Act 1974, which provides for prior consent (s61); and
 - The Environmental Noise (England) (Amendment) Regulations 2018.
- 13.2.13. In Table 25.4 of the ES [APP-073], the Applicant summarises the relevant paragraphs of NPS EN-1 and NPS EN-5, although paragraph 5.11.8 of NPS EN-1 in respect of demonstrating good design is not explicitly mentioned. The Applicant does however acknowledge
- National Planning Practice Guidance (PPG) for Noise, issued under the NPPF; and
 - the Noise Policy Statement for England 2010.
- 13.2.14. In Table 25.5 of the ES [APP-073], the Applicant also considers local planning policy DM23 in respect of residential amenity (now policy SCLP11.2) but does not consider Policy SCLP10.3: Environmental Quality, which expects that development proposals should reduce all forms of pollution including noise pollution, or Policy SCLP10.4: Landscape Character, which says that proposals for development should protect and enhance the tranquillity and dark skies of East Suffolk.
- 13.2.15. Table 25.6 of ES Chapter 25 [APP-073] lists other relevant guidance which has been applied to the noise and vibration assessment, and table 25.7 of ES Chapter 25 [APP-073] lists the various data sources which have informed the assessment.

Assessment

- 13.2.16. The ES has defined the study area as the onshore development area, and has broken it down into landfall, onshore cable corridor and onshore substation/National Grid infrastructure (Figure 25.1) [APP-304].
- 13.2.17. Onshore baseline noise surveys were conducted in 2018. The construction noise impacts were then assessed using BS5228 to identify threshold values and impact magnitudes (no impact, negligible, low, medium and high impact) for both daytime and evening/weekends using an indicative list of construction equipment.
- 13.2.18. The assessment used an impact significance matrix combining sensitivity of receptor (high, medium, low, negligible) with magnitude of effect (major, moderate, minor, negligible, no impact) to arrive at the impact significance (major, moderate, minor, negligible).

Construction impacts

- 13.2.19. The ES [APP-073] identified that the main impact during construction would be increased noise on residential receptors along the onshore cable route. The receptors were classed as being of medium sensitivity and the impact magnitude as no impact, resulting in a negligible impact significance. Paragraph 195 of the ES [APP-073] notes that there would be a small change if the onshore substation were constructed in the alternative location allowed for in the draft Development Consent Order (dDCO), but impacts would be no worse than those assessed for the intended location.
- 13.2.20. Increased noise on residential receptors from off site construction traffic was also assessed. 2023 was taken as the worst case year for assessment, as later years would have higher baseline traffic flows and hence a lesser magnitude of impact. The ES [APP-073] concluded that predicted impacts are at worst minor at a medium sensitivity receptor, which results in a minor adverse significance, so no additional mitigation is considered necessary.
- 13.2.21. Off site highway improvements at the A12/A1094 Friday Street junction, the A1094/B1069 junction and on the A12 at Marlesford Bridge are part of the onshore preparation works and are not included in the assessment presented in ES Chapter 25. These improvements will not generate vehicle movements which are greater than the worst case during construction, and will be undertaken within noise limits defined in BS5228 and as agreed with the local highway authority. The Applicant therefore considers that the off site highway works will not generate levels of noise which will have a potential impact on Noise Sensitive Receptors (NSR) [APP-073].
- 13.2.22. The Applicant has considered offshore airborne noise with offshore ornithology in Chapter 12 of the ES [APP-060] as part of the impacts on birds caused by plant, vessels and infrastructure.
- 13.2.23. The Applicant has also considered offshore airborne noise in respect of impacts on commercial fishing, aggregate extraction, and recreational and commercial sailing in Chapters 13, 14 and 17 of the ES [APP-061, APP-062, APP-065].

Operational impacts

- 13.2.24. Operational impacts were assessed using BS4142. The dominant operational noise sources are substation transformers, shunt reactors and rotating plant such as transformer coolers. The National Grid infrastructure does not contain any of these, so operational noise would come from switchgear and control systems, with noise levels imperceptible at the nearest NSR. The residual impact significance is assessed as negligible, and the highest change in noise level from the overhead line realignment is +1.3 dBA which is less than the 3dBA accepted as the lowest perceptible level [APP-073].
- 13.2.25. The ES concluded that decommissioning impacts are expected to be no greater than those for the construction phase [APP-073].

- 13.2.26. The ES also concluded that there are no transboundary noise impacts as the onshore development area is not sited near any international boundaries [APP-073].
- 13.2.27. Interactions of individual impacts on noise have also been assessed but the Applicant concludes that such impacts are no greater than the originally assessed impacts [APP-073].

Cumulative impacts

- 13.2.28. The Applicant has carried out a cumulative impact assessment (CIA) with the other East Anglia project [APP-523] under two scenarios:
- Scenario 1 – both projects are constructed at the same time; and
 - Scenario 2 – the projects are constructed one after the other.
- 13.2.29. In respect of noise, the Applicant considers that the overall significance of the impacts is the same for both scenarios [APP-523].
- 13.2.30. The Applicant has also carried out a CIA with Sizewell C New Nuclear Power Station and the Sizewell B Power Station Complex and concluded that there is the potential for cumulative noise effects depending on the Sizewell C construction programme relative to the construction programme for this project. However, on the basis that the Sizewell C project will implement its own mitigation measures, the Applicant does not anticipate that any cumulative effects during construction will be significant. The ES found that due to the distance from the substation site to the Sizewell C New Nuclear Power Station there will be no cumulative operational effects.

Mitigation

- 13.2.31. The Applicant committed in Requirement 27 in the dDCO to limiting operational noise from the onshore substation to a BS4142 noise rating (equivalent continuous sound pressure) level of no greater than 34dB LAeq (5 minutes) at any time at the nearest NSR. The Applicant's position is that this is up to 5dBA above the representative background noise level and hence in the PPG lowest observed adverse effect level (LOAEL) category which is minor adverse in terms of BS4142 impact magnitude and is therefore considered satisfactory.
- 13.2.32. Residual impacts of noise during construction will be monitored and mitigated through a Construction Phase Noise and Vibration Management Plan to be discharged through Requirement 22 in the dDCO.
- 13.2.33. Residual impacts of noise during operation will be monitored and mitigated through an operational noise restriction specified in Requirement 26 (this project only) and Requirement 27 (this project cumulatively with the other East Anglia project) in the dDCO.

Planning issues

Local Impact Report

- 13.2.34. Due to the proximity of residential property to the onshore development area, the key issues for the Councils (ESC and Suffolk County Council (SCC)) in their joint LIR [REP1-132] are:
- Noise and vibration during construction from plant and Heavy Goods vehicle (HGV) movements (temporary); and
 - Operational noise from the substations, which it is considered will permanently alter the noise climate.
- 13.2.35. Consequently, ESC and SCC *"disagree with the Applicant's conclusion that noise from the substations will not have a significant impact on the surrounding noise sensitive receptors. ... there is also significant concern regarding the Applicant's BS4142 assessment, which does not apply any acoustic feature corrections ... for tonality and other characteristics ..."*. [REP1-132].
- 13.2.36. ESC and SCC therefore consider that the Applicant has not satisfied the assessment requirements of NPS EN-1 paragraph 5.11.4 and that the application as made does not comply with local policy.

Written representations

- 13.2.37. In its relevant representation [RR-064], Public Health England (PHE) did not comment on noise. However, noise was mentioned in over 300 relevant representations, mostly in respect of construction working hours, impact on peace and tranquillity and noise from increased traffic. There were also nearly 70 relevant representations saying that the operational noise limits were unacceptable.
- 13.2.38. The Applicant commented on all relevant representations prior to the start of the Examination [AS-035] [AS-036] [AS-037] noting [AS-035] that *"The landscape at the substation site is not designated for any special qualities of peace or tranquillity; and consequently there is no assessment of these experiential special qualities within Chapter 25"* (of the ES) [APP-073].

Written questions

- 13.2.39. The ExA studied all the relevant representations and the Applicant's responses carefully and put written questions to the Applicant in respect of the baseline and the need for noise monitoring [PD-018]. The ExA considered the responses and decided to hold a hearing (ISH4) [EV-042] in respect of onshore construction and operational effects, including noise.

Issue-specific hearing (ISH4)

SASES submissions

- 13.2.40. At the hearing (ISH4) [EV-042], the ExA heard from IPs, including ESC [REP5-045] and Rupert Thornely-Taylor for SASES [REP5-100].
- 13.2.41. Mr Thornely-Taylor raised five points in respect of the Applicant's operational noise assessment:

- Tonal characteristics;
 - Standing waves and interference;
 - The noise limits specified in the dDCO;
 - Atmospheric conditions; and
 - Confidence limits.
- 13.2.42. On the first point, Mr Thornely-Taylor said that the existing noise levels in Friston are exceptionally low and the Applicant's BS4142 assessment has not taken account of tonal characteristics in establishing a rating penalty, which can add up to 6dB to the Applicant's predicted levels.
- 13.2.43. Secondly, SASES was not satisfied with the Applicant's position that tonality would be dealt with in the design process, particularly in the case where both projects are built. Furthermore, SASES referred the ExA to BS4142 which highlights that where two similar tonal sources are close together this can give rise to standing waves or interference patterns which can be up to 3dB higher than the standard noise level.
- 13.2.44. The third point made by Mr Thornely-Taylor was that, due to the very low existing noise levels (18 dBA at receptor SSR9) the rating level could be 10dBA greater than background and still be within the limit specified in the dDCO.
- 13.2.45. Mr Thornely-Taylor stated the importance of atmospheric conditions. He had considered the Applicant's assessment, which includes large amounts of excess attenuation due to the soft ground, but there are frequently occurring weather conditions such as wind from source to receiver when this attenuation will not occur, so sound levels will be materially higher than predicted [REP5-100].
- 13.2.46. Mr Thornely-Taylor's final point on operational noise was that there was no indication of confidence limits to reflect uncertainties in the model, source data, atmospheric conditions or interference, nor any validation against existing comparable sites.
- 13.2.47. SASES position is therefore that significant adverse operational noise effects cannot be excluded, and that further work is required by the Applicant to
- Use correct background noise levels;
 - Include uncertainty and a full consideration of tonality, atmospheric conditions and constructive interference; and
 - Establish that the necessary mitigation can be achieved.
- 13.2.48. Mr Thornely-Taylor also said in respect of construction noise that the Applicant had misapplied BS5228 and that the LOAEL should be set at background level in accordance with Highways England best practice guidance.

Applicant's responses

- 13.2.49. At the hearing the Applicant was asked by the ExA to respond to the points made by SASES and also about the need for noise monitoring,

noise sensitive receptors and whether any other monitoring locations were needed, the baseline methodology, and operational noise.

- 13.2.50. The Applicant explained [REP5-028] that construction noise would be controlled through the Code of Construction Practice secured through Requirement 22 in the dDCO. Operational noise levels would be within the limits in dDCO Requirement 26 (this project alone) and Requirement 27 (both this project and the other East Anglia project).
- 13.2.51. With reference to the first SASES point, the Applicant said that the operational noise assessment assumes that tonal emissions are controlled and so applies a 0dB rating penalty in accordance with BS4142.
- 13.2.52. In respect of the second and third of the five points put to the ExA by SASES, the Applicant said that [REP5-028]:
- Operational noise will be "*controlled, through appropriate mitigation, to levels where no significant impacts will be felt at any receptor.*";
 - the proposed limit has been reduced to 32dBLA_{eq} (5 min) at Woodside Cottages and 31LA_{eq} (5 min) at Little Moor Farm;
 - constructive interference has been ruled out as it "*would occur in a vanishingly small number of cases, even the slightest offset would destroy the effect.*" and no other DCO application has been required to assess such an effect.
- 13.2.53. With reference to the fourth SASES point, the Applicant responded that meteorological conditions are taken into account to establish a worst case. The results showed that the background measured levels are all below the 35dB specified in Requirement (24) in the made East Anglia ONE DCO, the highest measured sound level being 30.5dB.

ESC submissions

- 13.2.54. ESC welcomed the reduced operational noise limits but agreed with SASES that constructive interference is a known effect and does not occur in a vanishingly small number of cases [REP6-081]. ESC also considered that:
- The revised limits would have a significant adverse impact on the surrounding receptors;
 - noise from the proposed industrial sources would permanently alter the existing rural sound climate;
 - the proposed operating limits would set a precedent for future connections to the new National Grid substation; and
 - this would then lead to further and substantial noise creep in the area [REP5-045].
- 13.2.55. ESC also requested [REP5-045]:
- Clarification as to whether the new 31 and 32 dB limits were lowest achievable or based on impacts;

- Lower operational noise limits to minimise permanent changes to the existing sound climate, avoid significant adverse impact and control future noise creep;
- That the rating level for operational noise should be subject to acoustic feature corrections in accordance with BS4142;
- That the proposed National Grid substation is intrinsic to the overall development and should therefore be included in the cumulative operational noise limits set out in Requirement 27; and
- That the ExA considers holding a further hearing on noise issues.

13.2.56. ESC did not agree with the limits being set at background level (29dB)+5dB and said [REP5-045] [REP6-081] that the LOAEL should be set at the background level as stated in the LIR [REP1-132]. This would be 29dB at SSR5 NEW (Woodside Cottages) but reduced to 27dB at SSR2 (Grove Road) and 24dB at SSR3 (Little Moor Farm) [REP6-081]. Therefore, the operational noise limits in Requirements 26 and 27 should be set as 27dBLA,r at SSR2, 24dBLA,r at SSR3 and 29dBLA,r at SSR5 NEW.

13.2.57. ESC also noted [REP5-045] that:

- the Applicant had acknowledged that the National Grid substation site at Bramford was a significant source of noise in the surrounding area [REP5-022] which reinforced the ESC request for noise from the proposed National Grid substation at Friston to be included in the cumulative noise limits set out in Requirement 27 of the dDCO;
- ESC maintains its position that the context in which the sound will occur in this case *"is that of a new industrial noise source being introduced to an otherwise exclusively rural noise environment."* [REP6-081].

13.2.58. With reference to tonality, ESC was concerned that *"Given the limited options for post-completion mitigation, ESC considers the lack of consideration of tonality in the predicted operational noise rating levels to be a significant risk. If the Applicants are unable to provide the necessary 1/3 octave data this issue could potentially be resolved by redrafting Requirements 26 and 27 to include the types of pre-commencement and post-completion conditions set out in the Development Consent Order (DCO) for East Anglia ONE (as reproduced in paragraph 10 of East Anglia ONE operational noise assessment, [REP5-022])"*.

Applicant's Onshore Substation Operational Noise Assessment [REP5-022]

13.2.59. Following the discussion at ISH4, the ExA asked the Applicant to justify in post-hearing submissions its anticipated operational noise levels at the substation site [EV-059].

13.2.60. In response, the Applicant produced the Onshore Substation Operational Noise Assessment [REP5-022] which had been undertaken by East Anglia ONE Limited to measure the sound levels from the now operational East Anglia ONE substation in order to discharge DCO Requirement 24 in the East Anglia ONE DCO.

- 13.2.61. ESC responded to the Applicant's Onshore Substation Operational Noise Assessment [REP5-022] to say that the receptors at the EA1 substation at Bramford are affected by noise sources which are different from those at the proposed substation at Friston, including noise from the existing neighbouring National Grid substation. As the noise sources are different, partly due to there being no existing National Grid substation at Friston, the overall conclusions of the assessment are not applicable to this project.
- 13.2.62. ESC also notes agreement with the Applicant [REP5-022] that substations are expected to generate tonal noise which would normally be subject to an acoustic feature correction when assessed in accordance with BS4142.
- 13.2.63. SASES also responded [REP6-135] to the Applicant's Onshore Substation Operational Noise Assessment [REP5-022] to say that:
- The Applicant's report [REP5-022] is based on the unverified assumption that the EA1 substation was running at full capacity;
 - The testing process was flawed because;
 - testing was only over a very limited period;
 - testing was before the substation was commissioned, not after as requested by the ExA;
 - the conclusion is that there is no discernible or audible noise, which appears inconsistent with the additional noise testing at NMP4/VER1 which recorded 35dB
 - The East Anglia ONE substation (Bramford) is not comparable with this project's substation (Friston), either alone or in combination with the other East Anglia project substation because;
 - The substations for this project and for the other East Anglia project (Friston) are 800MW whereas the East Anglia ONE substation (Bramford) is 700MW;
 - The Bramford substation is 220kV whereas the Friston substations will be 275kV;
 - The Bramford substation has no harmonic filters (which can be significant emitters of noise) but the proposals for Friston show six in each substation;
 - Two substations are proposed at Friston, not one.
 - The Bramford substation site and relevant receptors are not comparable with the Friston substation site because the monitoring points for Bramford are approximately 600m away from the substation, whereas those proposed for Friston are approximately 250m away; and
 - As noted by ESC [REP6-081], the types of noise source at Bramford are different from Friston, for instance the presence of the National Grid substation at Bramford, the latter point also made by ESC.
- 13.2.64. SASES also maintained its disagreement with the Applicant's 0dB adjustment to the rating level for tonality.

Further issue-specific hearing (ISH12)

- 13.2.65. Following ISH4, the ExA considered the resulting oral and written representations and decided to hold a further hearing on noise (ISH12) [EV 124].
- 13.2.66. A week prior to the hearing (ISH12), the Applicant submitted an Expert Report on Noise [REP7-041], a revised dDCO [REP7-006], and a revised SoCG between the Applicant and ESC and SCC [REP7-056].
- 13.2.67. All requirements in respect of the control of operational noise are now in Requirement 27 in the revised dDCO [REP7-006], with an additional monitoring location and the proposed National Grid infrastructure now included.
- 13.2.68. In its expert report on noise [REP7-041], the Applicant says in respect of operational noise that:
- Policy requires the Applicant to avoid significant adverse impacts and to mitigate and minimise other adverse impacts, but not to prevent or avoid them as suggested by ESC;
 - ESC's position in respect of rating is incompatible with BS4142 because it has failed to consider the context in which the sound occurs: there is no reasonable justification for setting noise limits at a rating level lower than 35dB;
 - Existing industrial and/or commercial sounds, such as from the National Grid overhead lines, should be included in representative background sound levels;
 - Points made about uncertainty fall away because
 - BS4142 does not require any stated uncertainty to be added to the predicted noise levels but recommends that reasonable steps are taken to minimise the uncertainty; and
 - the DCO will impose a limit on the rating level itself and the Applicant is *"accepting the risk and will need to take all necessary steps to comply with the limit. This is a perfectly normal and satisfactory way of controlling noise of an industrial and commercial nature and entirely consistent with policy and practices that have been widely used on other major DCO projects. In setting a noise limit, any uncertainty will be avoided such that the impacts cannot be greater than expected. The Examining Authority should however be satisfied that any limit imposed is necessary, reasonable, and capable of being met without incurring excessive costs."*;
 - Interference patterns are highly improbable and can be adequately addressed during detailed design; and
 - The assertion in respect of excess attenuation in respect of soft ground is incorrect.
- 13.2.69. In respect of the SASES position that the EA1 substation is not directly comparable with those proposed for EA1N or EA2 so the Applicant's noise monitoring report is of little or no relevance, the Applicant responds [REP7-041] that

- there are differences but there are also similarities;
- the findings of the noise monitoring report for EA1 provide a useful indication of the likelihood of the presence of tones associated with substations incorporating modern technology; and
- the Examining Authority can be confident that the Projects can be designed to avoid any highly perceptible or clearly perceptible tones and it is likely that any tones can be avoided altogether.

13.2.70. In respect of construction noise [REP7-041], the Applicant states its position that:

"The Control of pollution (sic) Act 1974 (COPA) contains provisions for the control of construction noise from worksites. The Applicants and their contractors are placed under a legal duty to use Best Practicable Means (BPM), as defined by Section 72 of the 1974 Act, to minimise construction noise and vibration."

and that section 61 of COPA will be used, secured in the proposed COCP, to seek and obtain prior consent. The Applicant proposes to use the SOAEL levels contained in the HS2 Information Papers for Phases 1 and 2a as *"these values represent the best and most recent expression of policy on SOAELs for construction noise affecting residential premises ... the values are aligned with BS5228 ..."*.

13.2.71. The Applicant agrees with SASES that policy requires significant adverse impacts to be avoided, and notes that:

"... BPM is not a fixed standard and relates to the sensitivities of each worksite and the need to protect residents, or other sensitive occupiers. A bespoke plan could be incorporated into the application(s) for prior consent to be approved by ESC to protect any uses that are particularly sensitive to noise."

Outstanding issues

13.2.72. At ISH12 [EV-124] the ExA requested that the Applicants, ESC and SASES continue to discuss outstanding areas of disagreement. As requested by the ExA [EV-124a], at D8 the Applicant set out its understanding of the remaining outstanding issues in its Position Statement on Noise [REP8-039]. Both ESC [REP9-040] and SASES [REP9-082] responded and the Applicant's final position is documented in its SoCG with ESC and SCC [REP12-070], in its Final Position Statement [REP13-009] and in its Topic Position Statements [REP13-023].

Outstanding Issue 1: Operational noise - background sound level

13.2.73. The Applicant maintains [REP8-039] that the background sound level for the onshore substation is adequate and has been derived in a robust and repeatable way following industry-accepted guidance. In particular the approach adopted by the Applicant for SSR2 (Grove Road) considers the whole dataset and arrives at a fair and representative background sound level:

"8. For this location, the arithmetic average of the data was used which represents a point at which 50% of the total samples were above and 50% below that point and this value was taken as a representative background."

- 13.2.74. The Applicant says [REP8-039] that the ESC method is not invalid. However, the Applicant's approach is to be preferred because all the data have been considered and not just a subset - for example in the case of SSR2 although there is a modal peak at 27dB there is also a significant number of values within the 33dB to 38dB range, as shown in the Appendix to [REP8-039] which supports the Applicant's use of the median average to arrive at a higher background figure.
- 13.2.75. The Applicant also says [REP8-039] that if the ESC background values were to be applied this would indicate a potential adverse impact at SSR2 (Grove Road) and SSR3 (Little Moor Farm), but when the absolute level of sound is considered it can be concluded that no impacts will occur at these locations when the differences between the rating level and the background levels are considered in context.
- 13.2.76. ESC maintains [REP9-040] that the analysis methodology used to determine the figures reported in Appendix 4 of the LIR [REP1-132] should be used and that the Applicant's figures overestimate the true background sound level.
- 13.2.77. SASES maintains its position that *"Friston is an exceptionally quiet area"* which means that audibility or perceptibility of noise from the substation would be enhanced and that specific consideration of context is required [REP8-220].
- 13.2.78. The Applicant maintains [REP8-039] that discounting the background sound levels measured for SSR9 (Moor Farm) is acceptable because access to the original location was not granted and the revised location was considered to be not representative because:
- It is 350m away from the intended SSR9 location;
 - It is on the opposite side of the residential receptor to the proposed substation; and
 - It does not take into account background noise from the existing overhead lines.
- SSR3 (Little Moor Farm) and SSR12 (Owl's Hole, 700m west of SSR9) were considered suitable proxy for SSR9, which is further away from the proposed substation to which the noise limits in the dDCO apply, on the basis that ...*"when the absolute level of sound is considered it can safely be concluded that no impacts will occur."* so SASES representations on the background sound levels do not have any material implications on the Applicant's BS4142 assessment ...*"when the differences between the rating level and background sound level are considered in context."* [REP8-039].
- 13.2.79. ESC disagrees with the Applicant's reasoning for substituting the measured noise data with substantially higher levels measured

elsewhere. ESC maintains that *"the noise levels measured at SSR9 are consistent with the inherently quiet rural noise climate of the Friston area."* However, ESC accepts that there is a lower limit, where the LOAEL reaches an absolute threshold irrespective of how far below this the background level sound is, so the disagreement is therefore the extent to which any receptors fall into the region between the LOAEL and SOAEL thresholds, where the policy requirement is that all reasonable steps should be taken to mitigate and minimise adverse effects [REP9-040].

- 13.2.80. ESC also disagrees with the Applicant's position that sound from the National Grid overhead lines should be included in representative background sound levels, as this sound is not always present [REP5-048].
- 13.2.81. SASES also disagrees with the Applicant and states that, as the background level at SSR9 (Moor Farm) was 18dBA, applying BS4142 gives a rating level of 28dBA as SOAEL subject to context, but consideration of context does not change this, particularly as the Applicant's Position Statement on Noise states that it is not necessary or reliable to use methods other than BS4142. The dDCO as currently drafted allows 31dBA which would be well in excess of the SOAEL threshold and accordingly there would be significant adverse impacts [REP9-082].

Outstanding Issue 2: Operational noise - tonality

- 13.2.82. The Applicant stated [REP8-039] that the hum referred to by SASES and ESC is from older transformers in older substations designed to different standards. The Applicant has consistently maintained that the sound from the substation will not contain any perceptible tones at any of the receiver locations and that any equipment in the proposed substation capable of generating tones can be fully enclosed as far as is necessary to comply with the prescribed noise limits.
- 13.2.83. SASES maintains its position that the EA1 report which the Applicant relies on is deeply flawed [REP9-082] and provides information on other wind farm projects where the issue of tonality is addressed [REP13-058].
- 13.2.84. SASES also maintains that the Applicant has not provided information to show whether a tonal correction needs to be applied, and that a penalty for tonality *"is highly likely to be necessary..."* in which case the required rating level *"cannot be achieved and there is no identified mitigation measure which could be applied to ensure that it is achieved."*: consequently

"The Examining Authority should recommend refusal of development consent if it is not satisfied that an appropriately framed operational noise requirement (i.e. one which would avoid significant adverse effects, and minimise other noise impacts) is not demonstrably achievable. These matters cannot be left to enforcement after the scheme becomes operational, because absent any evidence that further mitigation is achievable, enforcement would either (a) result in the operation having

to cease (and thus the benefits of the schemes being lost) or (b) lead to an application to vary the noise limits out of necessity.” [REP8-220].

- 13.2.85. ESC agrees with the SASES position that the equipment used in the substations is highly likely to generate noise with strong tonal components and that the predicted rating levels should have a +6dB tonality correction applied unless it can be shown that this can be controlled. However, ESC understands that the Applicant has now committed to providing a pre-commencement Operational Noise Design Report which will require formal agreement from ESC. Consequently ESC is now satisfied that any concerns about tonality can be adequately considered at detailed design stage [REP9-040].

Outstanding Issue 3: Operational noise – constructive interference

- 13.2.86. The Applicant said that the East Anglia ONE substation has a pair of identical transformers and a pair of identical shunt reactors located in close proximity but no interference patterns have been observed either there, nor, to the Applicant’s knowledge, at any other operational substation. Requirement 12 has been revised [REP8-003] to include further provisions to ensure that this type of sound will not be audible at the operational noise assessment locations.
- 13.2.87. ESC understands that the Applicant has now committed to providing a pre-commencement Operational Noise Design Report which will require formal agreement from ESC. ESC is therefore now satisfied that any concerns about other acoustic characteristics can be adequately considered at detailed design stage [REP9-040].
- 13.2.88. SASES maintains that interference may occur and that the Applicant’s use of intensity summation gives a predicted value 3dB lower than pressure summation which SASES says should be used [REP8-220].

Outstanding Issue 4: Operational noise assessment method – BS4142

- 13.2.89. The Applicant’s expert report [REP7-041] explains how the absolute level of sound should be considered in accordance with section 11 of BS4142: if section 11 is applied correctly then *“the evidence is that no adverse impacts whatsoever will occur at a rating level of 35dB or lower.”*. The Applicant’s view, expressed in its Position Statement on Noise [REP8-039] is that other IPs have not applied BS4142 correctly or at all, and that ESC has *“focussed solely on background measurements to the exclusion of the absolute sound levels. This effectively failed to have proper regard to relevant parts of section 11 of BS4142 ...”*.
- 13.2.90. The Applicant maintains that WHO guidance and BS8233 can be used to consider the absolute level of sound having proper regard to the context. The Applicant quotes an example in BS8233 of a new item of plant at a commercial premises with the noise-sensitive location indoors with open windows which concludes that the 35dBA sound level from the plant,

equating to an internal level at the noise sensitive location of around 25dBA or lower, is suitable for a bedroom.

- 13.2.91. The Applicant states that the rating level proposed in its expert report [REP7-041] is highly precautionary because:
- The sound emitted from the substations will be benign compared with other sounds with a rapid rise and fall in level eg nearby road noise;
 - The rating level accounts for tonal and other features; and
 - It is significantly lower than the WHO guideline value (40dB) and the BS8233 criteria.
- 13.2.92. ESC agrees that there is a lower limit where the LOAEL reaches an absolute threshold regardless of how far below this the background sound level is, but does not agree that this is 35dB [REP9-040].
- 13.2.93. The Applicant considers that the SASES proposal that the Salford method and the NANR45 curve should be used to formulate an operational noise limit on sound from the substations should not be applied to this situation and that the correction to NANR45 is unsound.
- 13.2.94. At paragraph 23 of its Position Statement on Noise [REP8-039], the Applicant states that revising the maximum operational noise levels to 31dB at SSR3, 32dB at SSR2 and now 32dB at SSR5(NEW) as well (down from 34dB) *"provides further confidence that no adverse effects will occur whatsoever."*
- 13.2.95. ESC confirmed [REP9-040] that the Applicant's commitment to adopt Best Practicable Means (BPM) and the reduced operational noise limits now specified in Requirement 27 in the dDCO [REP7-006] are consistent with national policy at this stage, and noted that DCOs for other substations have a separate low-frequency noise limit, noted by SASES [REP8-220].
- 13.2.96. SASES maintains that the position in relation to operational noise is unsatisfactory [REP9-082] because:
- Reliance on a post consent pre-commencement condition to determine whether or not the necessary mitigation can be provided is contrary to law and policy; and
 - Whilst the Applicants and the Council may have agreed on a form of requirement, this is also flawed for the reasons already stated in [REP9-082] namely
 - The noise rating levels are too high and should be set at 30dB (see paragraph 2 of [REP8-220]);
 - there should be an additional requirement for tonality;
 - the substations may become noisier as they age;
 - There are only three residential receptors but there should be more because Friston is not like Bramford;
 - There is no requirement that assessment should occur when the substations are operating at full rated capacity; and

- Testing is only proposed on two occasions, so there is a real risk that measurements will be taken in atmospheric conditions that result in untypically low levels which may record compliance, whereas on many other days with atmospheric conditions more favourable for noise propagation the requirement limits will be exceeded by a significant margin.

13.2.97. SASES also included its proposed operational noise requirement without prejudice to its primary case that the Applicant has not demonstrated that the likely operational noise impacts can be mitigated so as to avoid significant adverse effects [REP8-220].

Outstanding Issue 5: Construction noise – BS5228

13.2.98. The Applicant reported that most matters are now agreed with ESC [REP8-114] and stated [REP8-039] that the Outline Code of Construction Practice has been updated [REP8-017] to reflect agreement at ISH12 in respect of the following matters:

- the relevant contractor will apply for section 61 approval;
- clarification of materiality of works will be covered by section 61 consent;
- a new policy section on LOAEL and SOAEL which will secure Table 5 of the Applicant's Expert Report on Noise [REP7-041];
- construction working hours (SASES feedback) and consenting provisions for works outside core hours;
- management of permitted construction traffic movements;
- community liaison;
- minimising adverse noise effects at St Mary's Church, Friston;
- increasing the noise sensitive buffer from 75m to 100m; and
- arrangements for noise monitoring.

13.2.99. ESC is satisfied with the revisions made by the Applicant to the Outline Code of Construction Practice [REP8-017].

13.2.100. SASES acknowledged that a compromise has been reached in respect of construction noise [REP9-082].

Outstanding Issue 6: Cumulative effects

13.2.101. ESC maintained its concern [REP8-146] about noise creep from future projects being assessed against a new noise climate, but welcomed the Applicant's commitment to include the National Grid substation within the overall cumulative noise limit in Requirement 27 in the dDCO [REP7-006].

Final positions at the close of the Examination

13.2.102. In its Topic Position Statement in respect of noise [REP13-023], the Applicant notes a small number of outstanding matters relating to operational noise, mainly differences of professional opinion on the application of guidance, but that ESC and SCC agree that the commitments made by the Applicant will ensure that no significant

adverse impacts will occur. Otherwise, all matters relating to the EIA, mitigation and the DCO are agreed.

- 13.2.103. In its Final Position Statement [REP13-009], the Applicant maintains its position following discussions of the outstanding issues with ESC and SASES and changes to the Outline Code of Construction Practice and the dDCO both before and following ISH12, noting in particular the lower limits now in Requirement 27, which must be achieved even if tonal penalties apply. Consequently, the Applicant considers that its approach is wholly in accordance with paragraph 5.11.9 of NPS EN-1, and that noise effects do not weigh against the consenting of the project, either in respect of construction or operation.
- 13.2.104. Notwithstanding the revised Requirement 27, ESC maintains its position in disagreeing with the representative background noise levels presented by the Applicants [REP13-034].
- 13.2.105. In its final LIR review [REP13-034], ESC notes that the updated Outline Code of Construction Practice [REP11-015] includes commitments by the Applicant in respect of the Control of Pollution Act (CPA) 1974 s61 consenting process, permitted activities within core working hours and shoulder hours at sensitive locations and receptors, construction noise monitoring, an operational noise report, the inclusion of National Grid infrastructure in the operational noise limit (Requirement 27) and tonality (Requirement 12).
- 13.2.106. SASES submitted its closing position [REP13-058] challenging the Applicant's position on tonality and stating that the ESs for three of the eight DCO/TCPA applications adopt approaches which should have been followed by the Applicant.
- 13.2.107. In its closing position [REP13-058], SASES also maintains its earlier position [REP6-135] in respect of its criticisms of the Applicant's Onshore Substation Operational Noise Assessment [REP5-022] and says that Requirement 27 should include the need for noise monitoring to take place annually when each substation is operating at full capacity.
- 13.2.108. SASES also challenges the Applicant's qualification "*insofar as these mitigation measures do not add unreasonable costs or delays to the project*" and states that paragraph 5.11.9 of NPS EN-1 is not qualified by reference to cost or delay [REP13-058].
- 13.2.109. SASES refers to a meeting of noise experts on 16 June 2021 and states that its concerns would be met if:
- the noise limit requirement in the DCO is reduced to a rating level of 30 dB LAeq (15 minute).
 - prior to grant of a DCO a 1/3 octave band assessment is carried out to determine the identification of any distinctive tonal characteristics, in conformity with NPS EN-1 5.11.4.
 - prior to grant of a DCO engineering consideration of the mitigation measures needed to mitigate any identified tonal character is provided, in conformity with NPS EN-1 5.11.4.

- the wording of the DCO is clarified so that the requirement 27 noise limits will apply at all times in the future, without regard to any compliance monitoring results that may have been previously submitted. [REP12-122].

ExA Response

13.2.110. The ExA undertook USI1 on 20 and 21 January 2020 which enabled it to view on foot the land and properties along the cable route, from landfall along the cable route to the site of the proposed substation and National Grid infrastructure at Friston [EV-005].

13.2.111. The ExA has considered

- the points made by SASES and ESC at ISH4 [EV 042] and the Applicant's responses;
- the Applicant's Onshore Substation Operational Noise Assessment [REP5-022] and submissions made in respect of it;
- an Expert Report on Noise [REP7-041];
- a revised dDCO [REP7-006];
- a revised SoCG between the Applicant and ESC and SCC [REP7-056]; and
- the closing positions of the Applicant [REP13-009] [REP13-023], ESC [REP13-034] and SASES [REP13-058].

13.2.112. At the close of the Examination, the ExA considered that the main outstanding issues related to operational noise, and in particular in respect of

- background sound level;
- tonality;
- constructive interference; and
- assessment method.

13.2.113. In respect of background sound level, the ExA finds that:

- The Applicant intends to refer to the median and not the arithmetic average, but this does not affect the Applicant's argument;
- Both the Applicant's and ESC's methods for calculating the level are valid;
- Friston is a quiet area so the context must be considered in respect of the introduction of new industrial sound sources;
- The readings at SSR9 should not have been discounted by the Applicant because
 - The noise levels measured at SSR9 are consistent with the inherently quiet rural noise climate of the Friston area; and
 - The Applicant's argument rests at least in part on use of a complete dataset;
- Nevertheless there is a lower limit where the LOAEL reaches an absolute threshold irrespective of how far below this the background level sound is, so the issue is therefore the extent to which any receptors fall into the region between the LOAEL and SOAEL

thresholds, where the policy requirement is that all reasonable steps should be taken to mitigate and minimise adverse effects;

- There is outstanding disagreement between ESC and the Applicants in respect of representative background noise levels.

13.2.114. In respect of tonality, the ExA finds that:

- the Applicant has not provided information to show whether a tonal correction needs to be applied;
- the Applicant is therefore relying on concerns about tonality being adequately considered and capable of satisfactory mitigation at detailed design stage.

13.2.115. In respect of constructive interference, the ExA finds that

- interference may occur and cannot be ruled out;
- the Applicant is relying on concerns about constructive interference being adequately considered and capable of satisfactory mitigation at detailed design stage.

13.2.116. In respect of the BS4142 assessment method, the ExA finds that

- In the BS8233 commercial premises example quoted by the Applicant, it is not clear whether the sensitive receptor is in the context of a quiet rural area such as Friston;
- the Applicant has not demonstrated that the likely operational noise impacts can be mitigated so as to avoid significant adverse effects;
- the Applicant is relying on future compliance with the limits in Requirement 27 of the dDCO; however
- the Applicant's commitment to adopt Best Practicable Means (BPM) and the reduced operational noise limits now specified in Requirement 27 in the dDCO are consistent with national policy.

13.2.117. The ExA has considered the Applicant's overall assessment of construction noise impacts and the final version of the Outline Code of Construction Practice [REP13-005] and finds that there are no significant outstanding issues in respect of construction noise which are not capable of satisfactory mitigation through Requirement 22 in the final version of the dDCO [REP12-013].

13.2.118. With regard to cumulative impacts, the ExA notes the possibility of noise creep from future projects. The ExA also notes the Applicant's commitment during the Examination to include the National Grid substation within the overall cumulative noise limit in Requirement 27 in the dDCO, and so finds that cumulative impacts have been adequately considered.

Conclusions on noise matters

- The ExA is in broad agreement with both the methodology and assessment of noise impacts arising during construction. The ExA therefore concludes that construction noise impacts are capable of satisfactory mitigation.

- In respect of operational noise impacts, having considered the application documents and representations, submission by the Applicant of various documents including an Onshore Substation Operational Noise Assessment [REP5-022] and an Expert Report on Noise [REP7-041], and the subsequent discussions between the parties, the ExA concludes that important and relevant differences remain unresolved in the context of industrial sound sources introduced to Friston, a tranquil location with dark skies: however, notwithstanding the differences of opinion, the ExA is satisfied that the Requirements in the dDCO must nevertheless be met, and consequently the ExA concludes that operational noise impacts can be satisfactorily mitigated.
- The application includes a new National Grid connection substation which is now included in the cumulative assessment along with the other East Anglia project. The ExA therefore finds that adequate account has been taken of cumulative noise impacts.
- Drawing these findings together, the ExA acknowledges the concerns expressed by the local community about the change to the noise climate and concludes that the Proposed Development may have adverse noise impacts, particularly during operation on receptors close to the proposed substation and National Grid infrastructure at Friston. These operational impacts may cause permanent harm and are therefore of medium significance, weighing negatively in the planning balance.

13.3. AIR QUALITY

Policy Considerations

National Policy

- 13.3.1. With reference to air quality and dust, paragraphs 5.2.1 and 5.6.1 of NPS EN-1 say that infrastructure development can have adverse effects on air quality in the construction, operation and decommissioning phases. Air emissions include dust, particulates and gases such as sulphur dioxide, carbon monoxide and nitrogen oxide. NPS EN-1 paragraph 5.2.2 notes that the decision maker does not need to address individual applications against carbon budgets.
- 13.3.2. Where the project is likely to have adverse effects on air quality, the applicant should assess the impacts in the ES (NPS EN-1 paragraphs 5.2.6, 5.6.4). The assessment should include the type, quantity and timing of emissions, effects on particular premises or locations, and the proposed mitigation (NPS EN-1 paragraphs 5.2.7 and 5.6.5).
- 13.3.3. Paragraph 5.2.11 of NPS EN-1 states that the decision maker should consider whether any additional mitigation measures are needed and whether there is a need for a construction management plan (NPS EN-1 paragraph 5.6.10). Paragraph 5.6.11 of NPS EN-1 gives examples of engineering, layout and administrative mitigation.

- 13.3.4. Paragraph 5.2.10 of NPS EN-1 says that the decision maker must always take account of any statutory air quality limits and refuse consent if a project will lead to non-compliance with a statutory limit.

Local Policy

- 13.3.5. Local Plan policies relevant to air quality are:
- Policy SCLP9.1: Low Carbon and Renewable Energy, which supports low carbon and renewable energy developments where they are within an area identified as suitable for renewable or low carbon energy or are complementary of the existing environment without causing any significant adverse impacts, particularly relating to residential amenity and air quality, unless those impacts can be appropriately mitigated;
 - Policy SCLP10.3: Environmental Quality, which states the expectation that development proposals will protect the quality of the environment and minimise and, where possible, reduce all forms of pollution and contamination including air pollution; and
 - Policy SCLP11.2: Residential Amenity, which identifies air quality and other forms of pollution as a key consideration the local authority will take into consideration when assessing the impact of development.

The Applicant's case

- 13.3.6. Volume 1, Chapter 19 of the ES [APP-067], supporting Figures 19.1 [APP-259] to 19.6 [APP-264] and Appendices 19.1 [APP-490] to 19.4 [APP-493] present the results of the Applicant's Environmental Impact Assessment of the potential impacts on air quality during the construction, operation and decommissioning phases.
- 13.3.7. All offshore air quality impacts have been scoped out of the assessment as the principal source of emissions would be vessels at sea, which were expected to have a negligible impact on air quality.
- 13.3.8. Onshore traffic and use of non-road mobile machinery will be very limited during the operational phase so onshore operational phase impacts have also been scoped out of the assessment, leaving only onshore construction impacts to be assessed.
- 13.3.9. Pre-application consultation on air quality matters was carried out by the Applicant via ETG meetings with relevant consultees [APP-522], including ESC which is the local planning authority for the study area. The main consultation issues were:
- Dust and air pollution from increased traffic;
 - Diesel fumes from construction vehicles and generators;
 - Exceeding allowable oxides of nitrogen (NOx) levels; and
 - Windblown dust from haul roads.

Legislation, policy and guidance

- 13.3.10. The Applicant has considered the following legislation and policy:

- European Union Air Quality Framework Directive 96/62/EC on Ambient Air Quality Assessment and Management 1996;
- European Union Directive 2008/50/EC Ambient Air Quality and Cleaner Air for Europe 2008;
- Environment Act 1995;
- The Clean Air Strategy (DEFRA 2019);
- The Air Quality (England) Regulations 2000;
- The Air Quality (England) Amendment Regulations (2002); and
- The Air Quality Standards Regulations 2010;

and has set out the relevant air quality standards for NO₂ and for PM₁₀ and PM_{2.5} particulates.

- 13.3.11. The Applicant acknowledges the relevant paragraphs of NPS EN-1 and relevant Local Plan policies [APP-067].

Assessment

- 13.3.12. The onshore study area was agreed with the ETG and the ESC environmental health officers as:
- For construction phase dust and fine particulate matter emissions,
 - Human receptors within 350m of the cable corridor and 50m of routes used by construction vehicles, up to 500m from the cable corridor boundary;
 - Ecological receptors within 50m of the cable corridor and 50m of routes used by construction vehicles, up to 500m from the cable corridor boundary;
 - For construction traffic, for both human and ecological receptors within 200m of roads with increased traffic movements.
- 13.3.13. To inform the assessment, the Applicants consulted several data sources including ESC and DEFRA to obtain baseline information, DEFRA in respect of Local Air Quality Management (LAQM) technical guidance, and the Institute of Air Quality Management (IAQM) and Design Manual for Roads and Bridges (DMRB) in respect of assessment methodology.
- 13.3.14. ESC undertakes air quality monitoring on the A12 within the study area, including the Air Quality Management Area (AQMA) at Stratford St Andrew, where the Applicant notes that annual mean NO₂ concentrations dropped below the annual mean objective in 2017 and dropped again in 2018.
- 13.3.15. Background concentrations of NO₂, PM₁₀ and PM_{2.5} were obtained from DEFRA and are less than 75% of the relevant annual mean objectives.
- 13.3.16. The Applicant's assessment process for the construction phase involved, for demolition, earthworks, construction and transport onto the public road network:
- Screening the need for a more detailed assessment;
 - Determining the magnitude of potential dust emissions;

- Determining the sensitivity of the area;
- Combining magnitude and sensitivity to establish the risk of dust impacts;
- Determining site specific mitigation; and
- Examining the residual effects in case additional mitigation is required.

13.3.17. In respect of road traffic emissions during construction, the increases in traffic flows were screened using IAQM/EPUK and DMRB guidance, and queues and speed data input to the dispersion model.

13.3.18. Receptors were identified within the onshore study area and assessed against the magnitude of construction and road traffic emissions and dust.

13.3.19. The Applicant concludes [APP-067] that:

- Predicted residual impacts on air quality are not significant;
- Decommissioning impacts are expected to be no greater than those for the construction phase;
- There are no transboundary air quality impacts as the onshore development area is not sited near any international boundaries; and
- Interactions of individual impacts on air quality have also been assessed but such impacts are no greater than the originally assessed impacts.

Cumulative impacts

13.3.20. The Applicant has carried out a cumulative impact assessment (CIA) with the other East Anglia project [APP-491] under two scenarios:

- Scenario 1 – both projects are constructed at the same time; and
- Scenario 2 – the projects are constructed one after the other.

13.3.21. In respect of air quality, the Applicant considers that scenario 1 is the worst case [APP-491].

13.3.22. The Applicant has also carried out a CIA with Sizewell C New Nuclear Power Station and the Sizewell B Power Station Complex and concluded that there is the potential for cumulative effects in the construction phase in respect of dust and road vehicle emissions depending on the Sizewell C construction programme relative to the construction programme for this project. However, on the basis that the Sizewell C project will implement its own mitigation measures, the Applicant does not anticipate that any cumulative effects during construction will be significant [APP-067].

Mitigation

13.3.23. The movement of HGV is set out in the Outline Construction Traffic Management Plan (OCTMP) [REP11-017] and movement of construction personnel in the Outline Travel Plan (OTP) [REP11-022], both secured under Requirement 28 in the dDCO [APP-023]. The Applicant will commit to the use of Euro VI standard vehicles where possible.

- 13.3.24. The Applicant has also committed to air quality management measures which are listed in the Outline Code of Construction Practice (OCOCPP) [REP13-005], and air quality impacts will be monitored and mitigated through an Air Quality Management Plan (AQMP), both secured through Requirement 22 in the dDCO [APP-023].

Planning issues

Local Impact Report

- 13.3.25. The Councils (ESC and SCC) consider that the main impacts on air quality, including emissions and dust, will be during construction, specifically:
- Dispersion of materials from works areas into neighbouring communities, particularly wind blown dust and wind whipping of light sandy soils from stockpiled topsoil along the cable route;
 - Emissions from construction vehicles, particularly HGV; and
 - Impact on the A12 Stratford St Andrew AQMA, where NO₂ levels fell below the objective in 2017 and continued to fall slightly in 2018 and 2019 [REP1-132].
- 13.3.26. The LIR has considered these impacts in some detail and concludes that the assessment has mostly been undertaken in accordance with best practice guidance and that relevant local policies have been considered. However, ESC and SCC consider that additional information is required to demonstrate that adverse impacts due to the project alone and in combination with other construction projects have been completely mitigated. Until such information has been submitted and reviewed, the ESC and SCC view is that the proposals are not considered to be compliant with local policy [REP1-132].
- 13.3.27. ESC and SCC consider that the following matters need consideration by the Applicant to allow a full assessment of project impacts:
- Justification for screening out re-routed traffic resulting from road improvements at the A12/A1094, A1094/B1069 and Abnormal Indivisible Load (AIL) works at Marlesford Bridge from the air quality assessment;
 - Inclusion of a sensitivity test for potential higher background levels in respect of acid deposition from vehicle emissions on ecological receptors;
 - Assessment of emissions from re-routed traffic, particular areas of concern being Leiston, Saxmundham and Yoxford;
 - Assessment of effects of emissions from haul road construction traffic on ecological receptors and human health; and
 - A quantitative assessment of the cumulative impacts with the other East Anglia project and with the Sizewell C project [REP1-132].
- 13.3.28. ESC and SCC also conclude in the LIR [REP1-132] that the following mitigation is required to address potential air quality impacts adequately:
- Submission of an outline Port Travel Plan, including a commitment that it will include an air quality assessment of port related traffic;

- Commitment to funding monitoring and mitigation measures, if required, in the Stratford St Andrew AQMA; and
- Updating the Outline Code of Construction Practice (OCOCP) to address dust nuisance and to provide a commitment to and compliance monitoring of Euro VI standards for construction vehicles and Stage V for Non-Road Mobile Machinery (NRMM).

Written representations

- 13.3.29. In its relevant representation [RR-064], Public Health England did not object. However, air quality impacts were mentioned in over 200 relevant representations, with over 70 relevant representations expressing concerns about impacts on human health related to air quality.
- 13.3.30. The Applicant commented on all relevant representations prior to the start of the Examination [AS-035] [AS-036] [AS-037] noting [AS-035] that *"The change in NO₂ concentrations was no greater than 1% at all receptors: this corresponded to a 'negligible' impact in accordance with IAQM and Environmental Protection UK guidance ..."*.

Written questions

- 13.3.31. The ExA studied all the relevant representations and the Applicant's responses carefully and put written questions to the Applicant in respect of the baseline and the need for noise monitoring [PD-018].
- 13.3.32. Following SoCG discussions with ESC and SCC, the Applicant submitted an Air Quality Clarification Note [REP1-040] which concluded that:
- the assessment had been carried out broadly in accordance with the latest IAQM ecological guidance, which was released after the application had been submitted;
 - impacts on ecological receptors from airborne NO_x concentrations is relatively low;
 - impacts on ecological receptors from acid deposition were not significant;
 - the likelihood of significant impacts on ecological receptors from NRMM was low;
 - the discrepancy between the worst case traffic forecasts used in the air quality assessment and the traffic and transport assessment arises because worst case values are used for each assessment, so 24-hour Annual Average Daily Traffic (AADT) flows are used for air quality dispersion modelling and 18-hour AADT flows are used for capacity assessment: both assessments are based on the same worst case traffic data;
 - in respect of haul road traffic emissions, there were no significant human or ecological impacts, so no detailed assessment is required; and
 - regarding traffic diverted by the proposed off site highway works, a commitment to consider these impacts would be included in the OCTMP.

- 13.3.33. The ExA considered all the responses and decided to hold an issue-specific hearing (ISH4) [EV-042] in respect of onshore construction and operational effects, including air quality matters.
- 13.3.34. Ahead of the hearing, and following further discussions with ESC, the Applicant submitted a further Air Quality Clarification Note [REP3-061] which gave a quantitative assessment of the impacts of NRMM emissions and concluded that the landfall Horizontal Directional Drilling (HDD) works would give rise to short term elevated NO_x concentrations and nitrogen and acid deposition.

Hearings

- 13.3.35. At Open Floor Hearing 3 (OFH3) [EV-009], SEAS spoke about air quality impacts on the A1094 and submitted its written evidence [REP1-327]. The air quality issues raised were in respect of current air quality problems and additional air pollution from diesel HGV.
- 13.3.36. The Applicant responded [REP2-005] to say that the assessment in Chapter 19 of the ES [APP-067] shows that pollutant concentrations along the A1094 will be less than 75% of the statutory air quality objective values and that a commitment to the use of Euro VI vehicles will minimise emissions as far as possible.
- 13.3.37. At ISH4, the ExA heard from IPs, including ESC and Mr Redmore for SEAS. The main topics discussed related to traffic and transport, particularly HGV, non-road mobile machinery (NRMM) and the application of Euro standards.
- 13.3.38. ESC confirmed [REP5-045] that it had worked with the Applicant to provide an extensive and detailed SoCG [REP1-072] and consequently only the following concerns remained outstanding:
- The potential for cumulative impacts in the Stratford St Andrew AQMA if the Sizewell C project goes ahead; and
 - The potential for impacts from NRMM at designated habitat sites.
- 13.3.39. ESC is of the view that to mitigate the risk of adverse impacts in the Stratford St Andrew AQMA, the Applicant should preferably commit to a minimum of 70% Euro VI standard construction vehicles, the rest being Euro V. Alternatively, ESC would like the Applicant to commit to funding a monitoring programme in the Stratford St Andrew AQMA [REP5-045].
- 13.3.40. In respect of designated habitat sites, ESC considers [REP5-045] that the Applicant should state in the Outline Code of Construction Practice that all NRMM used for HDD will comply with Stage V standards.
- 13.3.41. Following ISH4, SEAS submitted a report [REP5-109] detailing its concerns, which are that:
- impacts from vessel emissions have not been considered;
 - impacts from ammonia emissions from road traffic and NRMM have not been considered;

- optimistic assumptions have been made about generator exhausts in the assessment of NRMM and haul road emissions;
- the sensitivity analysis results have not been given any weight when determining the significance of air quality effects; and,
- projects have not been considered in the cumulative assessment.

13.3.42. SEAS therefore considers that impacts at human and ecological receptors may have been underestimated and that consequently it is not possible to determine whether the effects are likely to be significant.

Cumulative impacts

13.3.43. In respect of cumulative assessment, both ESC [REP5-045] and SEAS [REP5-109] are of the view that there is the potential for significant cumulative impacts on human receptors in the Stratford St Andrew AQMA if the Sizewell C project goes ahead.

13.3.44. In view of these concerns, the Applicant has committed to 70% of HGV to Euro VI standards where the construction periods of this project, the other East Anglia project and the Sizewell C project overlap, in both the Outline Construction Traffic Management Plan [REP6-009] and the Outline Code of Construction Practice [REP6-003].

Outstanding issues

13.3.45. At ISH13 (Traffic and Transport) [EV-125] the Applicant identified the works required on the A12 at Marlesford Bridge, so ESC is satisfied that further assessment is not required and that all other outstanding matters are now addressed [REP13-034].

13.3.46. In its Topic Position Statement [REP13-023] the Applicant considers that all matters are now agreed with ESC and SCC.

13.3.47. SEAS maintains its position in respect of ammonia emissions and associated impacts on ecological receptors [REP13-069].

ExA Response

13.3.48. The ExA undertook USI1 on 20 and 21 January 2020 which enabled it to view on foot the onshore development area, from landfall along the cable route to the site of the proposed substation and National Grid infrastructure at Friston [EV-005]. The ExA also undertook USI4 [EV-007a] to inspect the access routes to be used by construction traffic.

13.3.49. The ExA considered the points made at ISH4 by ESC, SASES and the Applicant, and all related submissions, including the clarification notes provided by the Applicant [REP1-040] [REP3-061] and submissions from ESC [REP5-045] and Mr Redmore for SEAS [REP5-109], and is satisfied that impacts relate only to the construction phase.

13.3.50. The ExA has also considered the Applicant's revisions during the Examination to both the Outline Construction Traffic Management Plan and the Outline Code of Construction Practice in response to discussions

and submissions relating to the concerns expressed in respect of air quality.

Conclusions on air quality matters

- The ExA concludes that impacts on air quality arise only during construction and is in broad agreement with both the methodology and assessment of impacts.
- Following commitments made in respect of the Stratford St Andrew AQMA, the ExA finds that adequate account has been taken of cumulative air quality impacts.
- The ExA notes that reliance is placed by the Applicant on its ability to satisfy particular air quality requirements in the dDCO at a future date. However, the ExA concludes that there is no reason why these requirements are not capable of being met.
- Drawing these findings together, the ExA concludes that the Proposed Development will have adverse air quality impacts during construction, but these impacts will be temporary and adequately mitigated and are therefore of low significance and negative weight in the planning balance.

13.4. LIGHT POLLUTION

Policy Considerations

National Policy

- 13.4.1. With reference to artificial light, paragraph 5.6.1 of NPS EN-1 says that infrastructure development has the potential for the release of a range of emissions including artificial light, and paragraph 5.6.4 says that the applicant should assess the potential for artificial light to have a detrimental impact on amenity as part of the ES.
- 13.4.2. The assessment should include effects on particular premises or locations, and the proposed mitigation (NPS EN-1 paragraph 5.6.5).
- 13.4.3. Paragraph 5.6.7 of NPS EN-1 says that the decision maker should be satisfied that an assessment of the potential for artificial light emissions to have a detrimental impact on amenity has been carried out and that such impacts have been minimised. The decision maker should also consider whether any additional mitigation measures are needed and whether there is a need for a construction management plan (NPS EN-1 paragraph 5.6.10). Paragraph 5.6.11 of NPS EN-1 gives examples of engineering, layout and administrative mitigation.

Local Policy

- 13.4.4. Local Plan policy SCLP10.3 is relevant, with the expectation that development proposals should reduce all forms of pollution including light pollution.
- 13.4.5. Also relevant is policy SCLP10.4: Landscape Character, which states that exterior lighting should be sensitive to the need to protect the tranquillity and dark skies of East Suffolk.

The Applicant's case

- 13.4.6. Lighting is considered briefly at paragraph 409, paragraphs 475 to 478 and paragraphs 485-486 of Chapter 6 of the ES (Project Description) [APP-054] and also briefly at Tables 29.1 and 29.3 of Chapter 29 Landscape and Visual Impact Assessment [APP-077].
- 13.4.7. No 24-hour construction lighting is anticipated along the cable route except at HDD sites and at Construction Consolidation sites, and no additional lighting is proposed along Grove Road or along the substation access roads. During operation, there will be security lighting around the perimeter fence to enable CCTV, car park lighting, and task related floodlights for repair and maintenance.
- 13.4.8. Control of artificial light emissions during construction is to be exercised through an artificial light emissions management plan secured through Requirement 22 in the dDCO [APP-023].
- 13.4.9. Control of artificial light emissions during operation is to be exercised through an operational artificial light emissions management plan secured through Requirement 25 in the dDCO [APP-023]. This plan relates to Work No 30 (the onshore substation) and Work No 41 (the new National Grid substation and access).

Planning issues

Local Impact Report

- 13.4.10. The Councils (ESC and SCC) consider that the main impacts of external lighting on the dark skies, which currently have little intrusion from light sources, will arise at the substation site, during both construction and operation. ESC and SCC consider that any lighting has the potential to cause light pollution and appear intrusive in this rural dark locality.
- 13.4.11. The LIR has considered these impacts and notes that they are to be mitigated through requirements 22 and 25 in the dDCO [APP-023]. The LIR concludes that the proposals in the Outline Code of Construction Practice [APP-578] and in Chapter 6 of the ES [APP-054] would be compliant with local policy, subject to the detail submitted for the artificial lighting schemes for both the construction and operational phases of the development.

Written representations

- 13.4.12. In its relevant representation [RR-064], Public Health England did not object. However, there were over 200 relevant representations in total, with the majority expressing concerns about lighting during operations and maintenance, and including over 80 representations about impacts on dark skies and around 60 about impacts of lighting on animals.
- 13.4.13. The Applicant commented on all relevant representations prior to the start of the Examination [AS-035] [AS-036] [AS-037] noting [AS-035] that there will be temporary effects experienced over short 2 to 3 month

periods during construction and not continuously, and that "*The operation of the onshore substation and National Grid infrastructure will have no significant effects on the character or special qualities of the AONB.*". In respect of animals, the Applicant notes the various mitigation measures described in ES Chapter 22 Onshore Ecology [APP-070] and in the Outline Landscape and Ecological Management Strategy (OLEMS) [APP-584].

Written questions

- 13.4.14. The ExA considered the application documents and relevant representations carefully and asked the Applicant to clarify and expand on the detail of lighting effects and how these would be controlled and mitigated [PD-018].
- 13.4.15. The ExA considered all the responses and decided to hold an issue-specific hearing (ISH4) [EV-042] in respect of onshore construction and operational effects, including light pollution matters.

Hearings

- 13.4.16. At ISH4, the ExA invited written submissions [EV-059]. The Applicant confirmed its proposals [REP5-026] and amended Requirement 25 to include Work No 38 (the sealing end compounds) [REP5-003]. ESC confirmed that it was satisfied with the proposals subject to more detail being provided for discharge of requirements [REP5-043].

Cumulative impacts

- 13.4.17. No particular assessment of cumulative impacts of light pollution appears to have been carried out.

Outstanding issues

- 13.4.18. At the close of the Examination, there were no outstanding issues identified by either the Applicant [REP13-023] or ESC [REP13-034].

ExA Response

- 13.4.19. The ExA undertook USI1 on 20 and 21 January 2020 which enabled it to view on foot the onshore development area, from landfall along the cable route to the site of the proposed substation and National Grid infrastructure at Friston [EV-005].
- 13.4.20. Following the USI and consideration of the application documents and relevant representations, the ExA invited written representations at ISH4 and is satisfied that impacts relate chiefly to the substation site during construction and operation.
- 13.4.21. Although no particular assessment of cumulative impacts of light pollution appears to have been carried out, the ExA has considered this issue and is satisfied that because of the spatial separation of the relevant projects any cumulative impacts will be negligible.

- 13.4.22. The ExA has also considered the Applicant's amended Requirement 25 which now includes Work No 38 (the sealing end compounds) [REP5-003] and notes that at the close of the Examination there were no outstanding issues identified either by the Applicant [REP13-023] or by ESC [REP13-034] in respect of light pollution.

Conclusions on light pollution

- The ExA concludes that the potential for adverse light pollution impacts to arise is chiefly at the substation site during construction.
- The ExA notes that there is no formal assessment of light pollution impacts but is in broad agreement with the material submitted and that any adverse impacts are capable of satisfactory mitigation through Requirement 22 and Requirement 25 in the dDCO.
- The ExA notes that there is no cumulative assessment of light pollution but is satisfied that any cumulative impacts will be negligible.
- Drawing these findings together, the ExA concludes that the Proposed Development will have minor adverse impacts in respect of light pollution, both during construction and operation, but these impacts are capable of satisfactory mitigation and are therefore of low significance and negative weight in the planning balance.

13.5. IMPACTS ON HUMAN HEALTH

Policy Considerations

National Policy

- 13.5.1. In respect of assessment principles for health, NPS EN-1 recognises that energy production has the potential to impact on the health and wellbeing of the population and that, although access to energy is clearly beneficial to health, production and distribution may have negative impacts (paragraph 4.13.1).
- 13.5.2. Paragraph 4.13.2 of NPS EN-1 says that the ES should identify any adverse health impacts and measures to avoid, reduce or compensate for the impacts identified, and should consider the cumulative impact on health of more than one development.
- 13.5.3. NPS EN-1 acknowledges that for energy infrastructure projects most likely to have a significantly detrimental impact on health, effective mitigation is provided through separate regulation, but that account should be taken of health concerns in the setting of requirements (paragraph 4.13.5).
- 13.5.4. NPS EN-5 section 2.10 provides additional technology-specific policy guidance in respect of EMF.

Local Policy

- 13.5.5. In respect of open space, the ESC Local Plan acknowledges that open space and recreational facilities are vital for the promotion of healthy communities, and that providing access is important for people's mental

and physical wellbeing, with a presumption against development involving the loss of open space.

- 13.5.6. In respect of safer and healthier communities, the SCC Transport Strategy says that a healthier workforce will increase productivity and that ways to improve health include creating pedestrian and cycle-friendly environments.

The Applicant's case

- 13.5.7. Volume 1, Chapter 27 of the ES [APP-075], supporting Figures 27.1 [APP-313] and 27.2 [APP-314] and Appendices 27.1 [APP-553] to 27.3 [APP-555] present the results of the Applicant's Environmental Impact Assessment of the potential impacts on human health as defined by the WHO. The focus is on community health and wellbeing rather than occupational health and is informed by other topic areas including air quality, noise and vibration, and traffic and transport.

- 13.5.8. Pre-application consultation on noise quality matters was carried out by the Applicant. The main consultation issues were health impacts related to:

- Noise;
- Stress and anxiety;
- EMF;
- Disruption and distress;
- Traffic pollution;
- Access to emergency services;
- Loss of footpaths reducing health and wellbeing.

Legislation, policy and guidance

- 13.5.9. The Applicant has cited the following legislation as having informed the assessment:

- Health and Safety at Work Act 1974;
- Control of Major Hazards Regulations 2015;
- Health Protection Regulations 2010;
- Clean Air Act 1993;
- Part III Environmental Protection Act 1990, in respect of control of emissions prejudicial to health or a nuisance;
- International Convention for the Prevention of Pollution from Ships (MARPOL);
- Bathing Water Directive 2006/7/EC; and
- Water Framework Directive 2000/60/EC.

- 13.5.10. The Applicant acknowledges the relevant paragraphs of NPS EN-1 and NPS EN-5, with several references overlapping with noise, air quality, ground and/or water contamination, physical activity, journey times, employment and EMF.

- 13.5.11. Guidance documents referred to include:

- PPG on EIA (MHCLG 2017);

- Health in Environmental Assessment (IEMA 2017);
- PHE) briefing note on health in EIA;
- Health Impact Assessment (HIA) guidance (DoH 2010);
- World Bank Group guidance 2015;
- PHE 2013 guidance on exposure to electric and magnetic fields;
- National Radiological Protection Board (now PHE) advice on limiting public exposure to EMF, which recommended adopting the International Commission on Non-Ionizing Radiation Protection (ICNIRP) EMF exposure guidelines referred to in NPS EN-5 section 2.10; and
- Precautionary findings of the UK Stakeholder Advisory Group on Extremely Low Frequency Electric and Magnetic Fields (SAGE), adopted by DoH (2010).

13.5.12. The Applicant has undertaken a Scientific Literature Review Relevant to Human Health, which is documented in the application at Appendix 27.2 [APP-554].

13.5.13. The Applicant also considers the potential impacts of the proposals on the Joint Health and Wellbeing Strategy 2012-2022 (Suffolk County Council 2019) which has the following priorities:

- Every child has the best start in life;
- People of working age are supported to optimise their health and wellbeing;
- Older people in Suffolk have a good quality of life; and
- People in Suffolk have the opportunity to improve their mental health and wellbeing.

Assessment methodology

Groups potentially impacted

13.5.14. The Applicant has used five geographic area classifications in the assessment:

- Site-specific;
- Local (Suffolk Coastal district);
- Regional (Suffolk county);
- National (England); and
- International

13.5.15. Within these study areas 14 population groups have then been defined, either by geography or as potentially vulnerable.

13.5.16. The geographic groups are the population

- Near landfall;
- Along the cable route and near the substation and National Grid infrastructure;
- Of Suffolk Coastal district (now part of ESC);
- Of Suffolk county; and
- Nationally and internationally.

- 13.5.17. The potentially vulnerable groups are those defined by protected characteristics under s149 Equality Act 2010:
- Age;
 - Disability;
 - Gender reassignment;
 - Marriage and civil partnership;
 - Pregnancy and maternity;
 - Race;
 - Religion or belief;
 - Sex; and
 - Sexual orientation.
- 13.5.18. The protected characteristics of age and disability are considered to be potentially vulnerable and are broken down further into:
- Children and young people;
 - People over 65;
 - People with existing poor health; and
 - People living in deprivation or on low incomes

acknowledging that people in more than one group may be especially sensitive.

Duration of impact

- 13.5.19. The Applicant has then defined temporal scope as
- Very short term – hours/days/weeks, eg effects due to cable laying past a particular property;
 - Short term – months, eg effects along the cable route generally;
 - Medium term – years, eg local employment or need for workforce accommodation;
 - Long term – decades, such as during operation.
- 13.5.20. The Applicant then explains those potential offshore and onshore health effects which have been scoped out of the assessment and lists the remaining potential sources of impact leading to potential health effects. These are during construction, during construction and operation, and during operation only, with potential receptors and pathways, and the worst case for each potential impact is then established.

Baseline information

- 13.5.21. Baseline information has been obtained from PHE and Office for National Statistics (ONS) and is shown in Table 27.7 of ES Chapter 27 [APP-075]. Anticipated trends in the baseline have also been assessed at paragraph 27.5.9 of ES Chapter 27 [APP-075].

Assessment method

- 13.5.22. The assessment then identifies the likelihood of effects on health under a range of impacts and, if an effect is likely, the sensitivity of the population, the magnitude of any change and hence the significance of that effect, with regard to:

- the general population and vulnerable groups; and
- sensitivity of the receptor and change in the population's health.

Perception of risk

- 13.5.23. This issue was raised by PHE [APP-553] who highlighted that it may have a greater impact than the hazard itself. It is included in Table 27.2 [APP-075].
- 13.5.24. The Applicant says at paragraph 251 of ES Chapter 27 [APP-075] that

"251. The only way to mitigate against uncertainty is through strong communication and provision of information by the Applicant. This has been affected through a series of PIDs (section 27.2) as well as targeted briefings and public meetings. Full details of the proposed East Anglia ONE North project consultation process are presented in the Consultation Report (document reference 5.1), which is provided as part of the DCO application. This will be on-going throughout the development process through the production of a Stakeholder Communications Plan, as secured under the requirements of the draft DCO."

Other impacts

- 13.5.25. The Applicant concludes [APP-075] that:
- Decommissioning impacts are expected to be no greater than those for the construction phase;
 - It is not yet possible to determine what non-UK input there will be to the proposed project, but the Applicant considers it unlikely that any transboundary health impacts will be significant; and
 - Interactions of individual impacts on health have also been assessed but the Applicant concludes that such impacts are no greater than the originally assessed impacts.

Cumulative impacts

- 13.5.26. The Applicant has carried out a CIA with the other East Anglia project [APP-523] under two scenarios:
- Scenario 1 – both projects are constructed at the same time; and
 - Scenario 2 – the projects are constructed one after the other.
- 13.5.27. In respect of health impacts, the Applicant has conducted a CIA using scenario 1 as the worst case as effects would be increased.
- 13.5.28. The Applicant concludes that there is an increased likelihood of inter-project cumulative effects on the vulnerable population, but that this will be at worst minor adverse [APP-075].
- 13.5.29. The Applicant has also carried out a CIA with Sizewell C New Nuclear Power Station and the Sizewell B Power Station Complex and concluded that there are no significant health effects on either the general or vulnerable population.

Mitigation

- 13.5.30. The Applicant has committed to various embedded mitigation measures related to:
- Site selection: avoiding proximity to residential dwellings, and minimising impacts on access to services, road use and footpath closures;
 - Construction: use of relevant best practice;
 - Perception of risk: community engagement;
 - Foul drainage at substation: mains connection or septic tank;
 - Pollution prevention: impermeable bund and other measures detailed;
 - EMF: all equipment assessed in accordance with the UK Government Code of Practice on Compliance, which complies with ICNIRP 1998 guidance.
- 13.5.31. Residual impacts arising during construction and operation will be monitored and mitigated through the Outline Code of Construction Practice [REP13-005] and the Outline Construction Traffic Management Plan [REP11-017], to be discharged through Requirement 22 and Requirement 28 respectively in the dDCO.

Applicant's overall conclusions

- 13.5.32. The Applicant has drawn conclusions at a population rather than at an individual level [APP-075]:
- The main effects arise through the construction process and associated traffic, including noise, dust and emissions.
 - For the general population there would be no significant effect on human health.
 - It is unlikely that any particular health determinant will have a significant effect on vulnerable groups due to the extensive mitigation proposed; and
 - No cumulative effects are anticipated.

Planning issues

Local Impact Report

- 13.5.33. There is no specific consideration of human health issues in the LIR [REP1-132], other than consideration of those already considered in respect of noise, air quality and light pollution.

Written representations

- 13.5.34. In its relevant representation [RR-064], Public Health England said that
- "we are reassured that earlier comments raised by us on 6th December 2017 and 26th March 2019 have been addressed. In addition, we acknowledge that the Environmental Statement (ES) has not identified any issues that could significantly affect public health. We are satisfied that the wider determinants of health have been adequately assessed, using a suitable methodology. On the basis of the documentation provided we have no additional comments to make."*

- 13.5.35. There were over 200 relevant representations in total, with the majority expressing concerns about mental health impacts and over 50 representations about EMF.
- 13.5.36. The Applicant commented on all relevant representations prior to the start of the Examination [AS-035] [AS-036] [AS-037] noting [AS-035] that issues related to EMF have been considered in ES Chapter 27 [APP-075] and in the Applicant's scientific literature review at Appendix 27.2 [APP-554].
- 13.5.37. SASES submitted a written representation detailing a range of health and wellbeing impacts including anxiety and stress which it maintains are not insignificant or negligible, citing PPG and NPPF [REP1-343].
- 13.5.38. SEAS submitted a Health Impact Assessment [REP5-110]. The report was written for SEAS by Professor Kevork Hopayian on both the direct and indirect effects of a major construction project on a small local population, based on his experience as a GP during construction of Sizewell B.
- 13.5.39. The ExA considered these and other submissions and the responses to them and decided to hold an issue specific hearing to consider outstanding issues relating to health and social wellbeing matters in further detail (ISH10) [EV 122].

Hearings

- 13.5.40. At ISH10, the ExA noted the overlap with other matters already heard, and invited the Applicant to put points related to mental health, including anxiety and stress. The Applicant then outlined its plans for pre-construction information events, substation design workshops, the role of the Community Liaison Officer, roadshows, outreach programmes and project updates, based on the East Anglia ONE project.
- 13.5.41. The ExA then heard from IPs including Cllr Fellowes of Aldeburgh Town Council who raised questions about the impacts of HGV emissions and the uncertainties associated with prolonged sequential construction.
- 13.5.42. SASES referred to its earlier submission [REP1-343] and said that uncertainty was the greatest impact of the proposals bearing on mental health and wellbeing of local people, due to:
- Poor consultation, loss of trust and understanding;
 - Uncertain pre-construction and construction planning and controls;
 - Cumulative impacts, especially Sizewell C, Nautilus and Eurolink interconnectors and other potential projects under consideration;
 - The mental and resource ability to cope with a succession of Examinations over the next ten years.

and that the substantive issues relating to health and wellbeing which in its view remain unresolved or are of continuing uncertainty relate to:

- Flood risk and drainage – to what extent the proposals will exacerbate existing flooding issues in Friston;
- Noise intrusion on the quiet communities and countryside;
- Resilience of and damage to the highways network;
- Air quality, emissions and dust;
- Loss of landscape, heritage and amenity such as footpaths.

SASES considers that these issues are considered not to be insignificant or negligible, particularly for older people.

- 13.5.43. Dr Jane McNeill spoke about anxiety on behalf of SEAS [REP8-234]. She quoted the PPG definition of a healthy place and paragraph 91c) of the (2019) NPPF which says which says that planning decisions should *"enable and support healthy lifestyles ..."* She said that untreated anxiety can have a significant effect on wellbeing and other chronic health problems and that the project poses a threat to protective factors which are beneficial to mental health, particularly open space and public rights of way.
- 13.5.44. There were no substantive submissions in respect of EMF.
- 13.5.45. The Applicants responded to points raised by IPs, particularly noting that no common or open land is affected, there has been consideration of PRoW and the NPPF is not the primary policy driver [REP9-014]; also that communication is vital to reduce anxiety [REP8-095].
- 13.5.46. As requested by the ExA, the Applicant submitted an appendix (3) to the Outline Code of Construction Practice in respect of best practice in relation to community consultation and engagement [REP8-017]. The Applicant also responded to the points raised by Cllr Fellowes for Aldeburgh Town Council [REP8-093].

Cumulative impacts

- 13.5.47. In its cumulative assessment, the Applicant maintains that it has covered, as far as possible, consideration of Sizewell C, given that Chapter 27 of the ES was written before the final detailed assessment of the health impacts of the Sizewell C project was available [REP8-095].

Outstanding issues

- 13.5.48. At the close of the Examination, there were outstanding matters in respect of air quality and noise assessments which have already been discussed. There were no substantive submissions on EMF during the Examination and mitigation in respect of EMF has been agreed. IPs maintained their positions but there were no further outstanding issues identified either by the Applicant [REP13-023] or ESC [REP13-034].

ExA Response

- 13.5.49. The ExA undertook USI1 on 20 and 21 January 2020 which enabled it to view on foot the onshore development area, from landfall along the cable route to the site of the proposed substation and National Grid infrastructure at Friston [EV-005].

- 13.5.50. At ISH10 the ExA heard IPs and the Applicant on a range of health and social wellbeing issues. There were no substantive submissions on EMF and the ExA is satisfied that health impacts relate chiefly to the pre-construction and construction phases.
- 13.5.51. The ExA notes the Applicant's plans for community engagement both before and during construction and considers that these events, if properly and effectively carried out, would be the most effective way to combat issues of mental health, including anxiety and uncertainty, arising from the proposals.
- 13.5.52. The ExA notes that a cumulative assessment has been undertaken based on the limited information available to the Applicant [REP8-095].
- 13.5.53. The ExA notes that at the close of the Examination there were no outstanding issues identified by either the Applicant [REP13-023] or ESC [REP13-034] in respect of human health.

Conclusions on human health

- The ExA concludes that the potential for human health issues to arise is chiefly before and during construction.
- The ExA is in broad agreement with the material submitted in the application and that any adverse impacts on human health are capable of satisfactory mitigation, particularly through Appendix 3 of the Outline Code of Construction Practice, submitted during the Examination and secured by Requirement 22 in the dDCO.
- The ExA notes that there is a limited cumulative assessment of human health but is satisfied that any cumulative impacts will be negligible.
- Drawing these findings together, the ExA concludes that the Proposed Development may have minor adverse impacts on human health, both before and during construction, but these impacts are capable of satisfactory mitigation and are therefore of low significance and negative weight in the planning balance.

13.6. COMMON LAW NUISANCE AND STATUTORY NUISANCE

Policy Considerations

National Policy

- 13.6.1. In respect of common law nuisance and statutory nuisance, NPS EN-1 paragraph 5.6.1 says that a range of emissions has the potential to cause a common law nuisance or statutory nuisance under Part III Environmental Protection Act 1990. NPS EN-1 paragraph 4.14.1 says that s158 of PA2008 confers statutory authority, but only for the purpose of providing a defence in any civil or criminal proceedings for nuisance.
- 13.6.2. This defence does not extinguish the local authority's duties to investigate complaints of statutory nuisance and serve abatement notices, nor is it intended to extend to proceedings where the matter is

prejudicial to health. In view of the availability of this defence, it is important that the potential for impacts is considered (NPS EN-1 paragraph 5.6.2) and that impacts are kept to a minimum and at a level that is acceptable (NPS EN-1 paragraph 5.6.3).

- 13.6.3. NPS EN-1 says that, as well as including relevant requirements in the order (paragraph 4.14.2), the decision maker can also disapply s158 PA2008 in whole or in part in any particular case, having regard to whether any particular nuisance is an inevitable consequence of the development (paragraph 4.14.3). Paragraph 5.6.8 says that if the decision maker cannot conclude that there is justification for all the authorised project to be covered by the s158 PA2008 defence, then the defence should be disapplied in whole or in part through a provision in the order.

The Applicant's Case

- 13.6.4. The Applicant's defence to proceedings in respect of statutory nuisance is at Article 7 of the dDCO [APP-023]. The control of activities which may give rise to a claim in nuisance is in the Requirements in the dDCO: in particular, noise is governed by Requirements 22, 26 and 27.

Planning Issues

- 13.6.5. At ISH6 [EV-045], SASES referred to its earlier written representation [REP1-367] on the defence to a claim for nuisance and stated that the "reasonably be avoided" test was unnecessary as the defence would be that of using best practicable means, and that a new paragraph 3 should be added to say that the provisions of Article 7(1) and 7(2) shall only have effect if the undertaker has and is complying with the requirements [REP5-102]. The Applicant argued that the provisions as drafted are reasonable and proportionate for a NSIP and should remain [REP5-030].
- 13.6.6. At ISH6 the ExA examined Article 7 and raised minor legislative concerns in its commentary [PD-031]. The Applicant responded confirming that the relevant sections of the CPA1974 are in force and that it did not consider any drafting amendments to be required [REP5-030].
- 13.6.7. There were no other substantive submissions by IPs in respect of common law or statutory nuisance during the Examination.
- 13.6.8. There were minor revisions to Article 7 which arose as a result of changes to Requirements 26 and 27 in respect of the control of noise during the operational phase, which have already been discussed earlier in this Chapter.

ExA Response

- 13.6.9. The ExA has considered representations made and examined the provisions of Article 7 and Requirements 22, 26 and 27 in the dDCO in respect of nuisance.

Conclusions on common law nuisance and statutory nuisance

- The ExA finds that the provisions in respect of nuisance in the application are satisfactory.

13.7. CONCLUSIONS

13.7.1. This section collates for convenience all the conclusions reached by the ExA in this Chapter in respect of noise, nuisance and health effects.

Conclusions on noise matters

- The ExA is in broad agreement with both the methodology and assessment of noise impacts arising during construction. The ExA therefore concludes that construction noise impacts are capable of satisfactory mitigation.
- In respect of operational noise impacts, having considered the application documents and representations, submission by the Applicant of various documents including an Onshore Substation Operational Noise Assessment [REP5-022] and an Expert Report on Noise [REP7-041], and the subsequent discussions between the parties, the ExA concludes that important and relevant differences remain unresolved in the context of industrial sound sources presented to Friston, a tranquil location with dark skies: however, notwithstanding the differences of opinion, the ExA is satisfied that the Requirements in the dDCO must nevertheless be met, and consequently the ExA concludes that operational noise impacts can be satisfactorily mitigated.
- The application includes a new National Grid connection substation which is now included in the cumulative assessment along with the other East Anglia project. The ExA therefore finds that adequate account has been taken of cumulative noise impacts.
- Drawing these findings together, the ExA acknowledges the concerns expressed by the local community about the change to the noise climate and concludes that the Proposed Development may have adverse noise impacts, particularly during operation on receptors close to the proposed substation and National Grid infrastructure at Friston. These operational impacts may cause permanent harm and are therefore of medium significance, weighing negatively in the planning balance.

Conclusions on air quality matters

- The ExA concludes that impacts on air quality arise only during construction and is in broad agreement with both the methodology and assessment of impacts.
- Following commitments made in respect of the Stratford St Andrew AQMA, the ExA finds that adequate account has been taken of cumulative air quality impacts.
- The ExA notes that reliance is placed by the Applicant on its ability to satisfy particular air quality requirements in the dDCO at a future

date. However, the ExA concludes that there is no reason why these requirements are not capable of being met.

- Drawing these findings together, the ExA concludes that the Proposed Development will have adverse air quality impacts during construction, but these impacts will be temporary and adequately mitigated and are therefore of low significance and negative weight in the planning balance.

Conclusions on light pollution

- The ExA concludes that the potential for adverse light pollution impacts to arise is chiefly at the substation site during construction.
- The ExA notes that there is no formal assessment of light pollution impacts but is in broad agreement with the material submitted and that any adverse impacts are capable of satisfactory mitigation through Requirement 22 and Requirement 25 in the dDCO.
- The ExA notes that there is no cumulative assessment of light pollution but is satisfied that any cumulative impacts will be negligible.
- Drawing these findings together, the ExA concludes that the Proposed Development will have minor adverse impacts in respect of light pollution, both during construction and operation, but these impacts are capable of satisfactory mitigation and are therefore of low significance and negative weight in the planning balance.

Conclusions on human health

- The ExA concludes that the potential for human health issues to arise is chiefly before and during construction.
- The ExA is in broad agreement with the material submitted in the application and that any adverse impacts on human health are capable of satisfactory mitigation, particularly through Appendix 3 of the Outline Code of Construction Practice, submitted during the Examination and secured by Requirement 22 in the dDCO.
- The ExA notes that there is a limited cumulative assessment of human health but is satisfied that any cumulative impacts will be negligible.
- Drawing these findings together, the ExA concludes that the Proposed Development may have minor adverse impacts on human health, both before and during construction, but these impacts are capable of satisfactory mitigation and are therefore of low significance and negative weight in the planning balance.

Conclusions on common law nuisance and statutory nuisance

- The ExA finds that the provisions in respect of nuisance in the application are satisfactory.

14. FINDINGS & CONCLUSIONS IN RELATION TO TRANSPORT & TRAFFIC

14.1. INTRODUCTION

- 14.1.1. This Chapter reports on the effects of the Proposed Development on onshore transport and traffic, taking into consideration the tests set out in the Overarching National Policy Statement for Energy (NPS EN-1). Transport and Traffic was identified as a principal issue in the ExA's initial assessment [PD-013].
- 14.1.2. Figure 26.1 of the Environmental Statement shows that there are no trunk roads in the onshore highway study area [APP-306]. All roads are single carriageway of varying widths and standards, the A12 being the main access route between the ports of Felixstowe and Lowestoft. The only other A road in the highway study area is the A1094, which runs to the south of the onshore development area in an east-west direction, linking Aldeburgh with the A12 at a priority junction at Friday Street. Although only a B road, the B1122 south from Yoxford to Sizewell is a recognised heavy load route [APP-532].
- 14.1.3. Traffic and transport-related effects on the living conditions of residents (including noise and air quality) and on tourism are covered separately in Chapter 13 on noise, nuisance and health effects onshore.
- 14.1.4. This Chapter is organised as follows:
- Policy considerations;
 - The Applicant's case;
 - Planning issues;
 - ExA response; and
 - Conclusions.

14.2. POLICY CONSIDERATIONS

National Policy

- 14.2.1. NPS EN-1 recognises that the transport of materials, goods and personnel to and from a development during all project phases can have a variety of impacts on the surrounding transport infrastructure (paragraph 5.13.1). The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development as set out elsewhere in NPS EN-1 (paragraph 5.13.2).
- 14.2.2. NPS EN-1 says that, if a project is likely to have significant transport implications, the Applicant's Environmental Statement (ES) should include a Transport Assessment (paragraph 5.13.3) and the Applicant should provide a travel plan (paragraph 5.13.4).
- 14.2.3. NPS EN-1 goes on to state that the decision-maker should ensure that the applicant has sought to mitigate these impacts, including during the

construction phase of the development. Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, requirements should be considered to mitigate adverse impacts on transport networks arising from the development (paragraph 5.13.6).

14.2.4. With regard to mitigation, NPS EN-1 states that water-borne or rail transport is preferred over road transport at all stages of the project (paragraph 5.3.10) and advises that requirements may be attached to a consent where there is likely to be substantial Heavy Goods Vehicles (HGV) traffic that:

- control numbers of HGV movements to and from the site in a specified period during its construction, and possibly the routing of such movements;
- make sufficient provision for HGV parking, either on the site or at dedicated facilities elsewhere, to avoid overspill parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; and
- ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force (paragraph 5.13.11).

14.2.5. The Department for Transport Water Preferred Policy: Guidelines for the movement of abnormal indivisible loads says that AIL should be off the road network as far as possible by using the nearest coastal port, and that where a water-based option exists it must be considered.

Local Policy

14.2.6. The Suffolk County Council (SCC) Local Transport Plan (LTP) seeks improvements to the A12 and in particular the A12 Four Villages Bypass, which would bypass Marlesford, Little Glemham, Stratford St Andrew and Farnham between the Wickham Market bypass and the Saxmundham bypass.

14.2.7. The East Suffolk Council – Suffolk Coastal Local Plan (SCLP) contains several policies relevant to transport and traffic.

14.2.8. Policy SCLP2.2 states that ESC will work with others to support and enable delivery of key strategic infrastructure, including

- Ipswich Northern Route;
- A12 improvements; and
- A14 improvements;

14.2.9. Policy SCLP3.4 says in respect of major energy infrastructure projects that ESC will take into account the nature, scale, extent and potential impacts throughout the project lifetime, including cumulative impacts. Particular policy requirements include:

- Highway measures including diversion routes to reduce pressure on local communities;

- Cumulative impacts are to be taken into account and not cause significant adverse impacts; and
- Monitoring to ensure effectiveness of mitigation measures.

In respect of transport, SCLP Table 3.6 lists a number of relevant issues to be considered, including

- Local roads are not well suited to the number and type of necessary vehicle movements;
- Cumulative impact of other growth across Suffolk; and
- Utilisation of existing rail networks.

- 14.2.10. Policy SCLP7.1 says that proposals should encourage non-car modes and that development with significant transport implications should have a Travel Plan.

14.3. THE APPLICANT'S CASE

Introduction

- 14.3.1. Volume 1, Chapter 26 of the ES [APP-074] and supporting Figures 26.1 to 26.7 [APP-306 to APP-312] present the results of the Applicant's Environmental Impact Assessment (EIA) of the potential impacts on traffic and transport during the construction, operation and decommissioning phases.
- 14.3.2. The Applicant also submitted various supporting technical documents as Appendices 26.1 to Appendix 26.26 [APP-527 to APP-552]. The ExA noted that no separate Transport Assessment was provided.
- 14.3.3. Pre-application consultation on traffic and transport matters was carried out by the Applicant with relevant consultees [APP-527], including SCC which is the local highway authority.

Policy and guidance

- 14.3.4. The Applicant acknowledges the relevant paragraphs of NPS EN-1, namely
- Paragraph 5.13.3, which says that, if a project is likely to have significant transport implications, the applicant's ES should include a Transport Assessment (paragraph 5.13.3); and
 - Paragraph 5.13.4, which says that the applicant should provide a travel plan.
- 14.3.5. The Applicant also refers to the National Planning Policy Framework (NPPF) and quotes
- Paragraph 11: a "*presumption in favour of sustainable development*";
 - Paragraph 109: "*development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.*"

- Paragraph 111: *"all developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed."*

concluding that Chapter 26 of the ES *"provides the required level of detail that would be contained within a standalone 'Transport Assessment'"*.

14.3.6. Reference is made by the Applicant to local planning policy, with reference to the recent merger of Suffolk Coastal District Council (SCDC) and Waveney District Council (WDC) into the new East Suffolk Council (ESC). This means that the relevant local plan policies are:

- Suffolk County Council Local Transport Plan 2011-2031;
- Suffolk Coastal District Local Plan July 2013;
- The emerging Suffolk Coastal Local Plan 2018-2036; and
- The Waveney Local Plan.

14.3.7. The Applicant has also referred to the Department for Transport Water Preferred Policy: Guidelines for the movement of abnormal indivisible loads.

Assessment methodology

14.3.8. The methodology used in the ES is based on the Guidelines for the Environmental Assessment of Road Traffic (GEART) (Institute of Environmental Management and Assessment 1993) and in particular:

- Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and
- Rule 2: Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more (or where the number of HGVs is predicted to increase by 10% or more).

14.3.9. GEART also says that *"It is generally accepted that accuracies greater than 10% are not achievable. It should also be noted that the day to day variation of traffic on a road is frequently at least some + or -10%. At a basic level, it should therefore be assumed that projected changes in traffic of less than 10% create no discernible environmental impact ... a 30% change in traffic flow represents a reasonable threshold for including a highway link within the assessment."*

14.3.10. The Applicant has therefore assumed that changes in traffic flows below the GEART thresholds will result in no discernible or negligible environmental effects and has not assessed these further, either for the project alone or cumulatively. The exception to this approach is consideration of driver delay and road safety with high baseline traffic flows, where lower changes can be potentially significant.

14.3.11. The significance of effects has been assessed by considering the interaction between the magnitude of the impact and the sensitivity of

the receptor in the vicinity of transport corridors. The following matters have been considered:

- Severance;
- Pedestrian and cycle amenity;
- Road safety;
- Driver delay (capacity);
- Driver delay (highway geometry); and
- Abnormal indivisible loads (AIL).

14.3.12. The Applicant describes the existing highway network with reference to the Suffolk route hierarchy developed by SCC and shows it on Figure 26.3 of the ES [APP-308].

14.3.13. Baseline flows have been obtained from various sources including Applicant commissioned Automatic Traffic Counts (ATC), and sensitive receptors have been established. Baseline collision data have also been examined to identify any areas potentially sensitive to changes in traffic.

14.3.14. Five collision cluster sites were identified and assessed to understand any emerging patterns or trends which might be exacerbated by an increase in traffic and these are shown on Figure 26.6 of the ES [APP-311]:

- A12/B1119 Rendham Road junction, west of Saxmundham;
- A1094/B1069 junction south of Knodishall;
- A12/A1094 at Friday Street;
- A1094/B1069 at Snape; and
- A12/B1122 at Yoxford.

The junctions identified by the Applicant as having an emerging pattern of collisions and hence requiring further assessment were the A12/B1119 junction at Rendham Road and the A12/A1094 junction at Friday Street.

14.3.15. Junctions which are sensitive due to capacity constraints were identified in consultation with Highways England and SCC, and include the A12/B1119, A12/A1094 and A12/B1122. Additionally, link 1 on the A12 near Woodbridge would only be sensitive when considered cumulatively with the Sizewell C project.

14.3.16. Junctions considered sensitive due to highway geometry are:

- The A1094/B1069 junction south of Knodishall; and
- The A1094/B1122 roundabout junction in Aldeburgh.

14.3.17. The Applicant has assumed for the purposes of the ES that the earliest date that construction could start is 2023 and has then agreed a proportionate approach to future traffic growth as described in Appendix 26.10 of the ES [APP-536], taking into account anticipated trends in the baseline such as sub-regional growth in housing and employment by factoring them into the future year base year 2023 using factors supplied by SCC.

- 14.3.18. The Applicant has then forecast the traffic generated by the project and distributed the vehicle trips to the highway network to establish a basis for assessing the worst case potential impacts, with reference to
- The likely minimum construction programme;
 - The earliest commencement date;
 - Demand for materials and personnel;
 - Likely mode share;
 - Likely shift patterns;
 - Likely delivery windows; and
 - Distribution of traffic.
- 14.3.19. In accordance with GEART rules 1 and 2, the onshore highway study area was screened to identify routes requiring further traffic impact assessment in respect of
- Pedestrian amenity;
 - Severance;
 - Road safety;
 - Driver delay (capacity); and
 - Driver delay (highway geometry).

Abnormal Indivisible Loads (AIL)

- 14.3.20. The substation transformers are large and heavy indivisible items which will have to be delivered by road. Their size and weight means that they are classed as Special Order Abnormal Indivisible Loads (AIL) requiring use of the Electronic Service Delivery for Abnormal Loads (ESDAL) process, which applies to all abnormal loads, including loads transported on standard HGV which are abnormal by virtue of size and/or weight.
- 14.3.21. The AIL study at ES Appendix 26.3 [APP-529] has identified that these loads could come from the ports of either Felixstowe or Lowestoft via the A12. The Lowestoft route is preferred as it is shorter and avoids tight bends in the village of Farnham (Farnham Bends), although the Farnham Bends are negotiable with full carriageway occupation and some kerb overrunning.
- 14.3.22. Network Rail has advised that its bridge carrying the A1094 over the railway should not be used, so the AIL study has considered the impacts associated with loads travelling along Heavy Load route HR100 from the A12 at Yoxford, passing along the B1122 to Lover's Lane. At this point the AIL would pass through Leiston on the B1069 to its junction with the A1094, and then continue to the substation site at Friston along a short section of the A1094 and then along the B1121. ES Appendix 26.5 [APP-531] shows the works required at the B1069/A1094 junction.

Cumulative impacts

- 14.3.23. The Applicant has undertaken a cumulative impact assessment (CIA) of the impacts associated with this project and with the other East Anglia project at Appendix 26.2 [APP-528] in situations where:

- The projects are both constructed at the same time (Scenario 1); and
 - The projects are constructed one after the other (Scenario 2).
- 14.3.24. The impacts for Scenario 2 would be no greater than for one project alone. Scenario 1, where the projects are constructed simultaneously, is the worst case due to the far greater traffic demand, but in the Applicant's view would only result in negligible or minor residual impacts during construction and no significant impacts during operation.
- 14.3.25. The Applicant has also undertaken a CIA for the project with the Sizewell C project and this is included in Volume 1 Chapter 26 of the ES [APP-074].
- 14.3.26. The CIA including other projects indicated that there would be significant impacts at the A12/A1094 Friday Street junction and at the A12/B1122/A1120 junction at Yoxford, but that these would each be replaced by a new roundabout junction as part of the Sizewell C project. The Applicant concluded that elsewhere the traffic from the Proposed Development would make a negligible contribution to cumulative impacts.

Mitigation

- 14.3.27. Mitigation measures are proposed for the construction phase as follows:
- Footway improvements at Theberton and Snape;
 - Road safety measures at A12/A1094 Friday Street junction; and
 - Employee traffic movement measures to reduce driver delay in respect of capacity at A12/A1094 Friday Street and A1094/B1069 junctions.
- 14.3.28. Swept path analysis was undertaken for the A1094/B1069 junction south of Knodishall and the A1094/B1122 roundabout junction in Aldeburgh. Mitigation measures in respect of driver delay due to highway geometry were not considered necessary, other than the use of a pilot vehicle for larger HGV at the A1094/B1122 roundabout.
- 14.3.29. The operational phase did not generate any significant impacts, due to infrequent traffic movements, and the impacts generated in the decommissioning phase were assessed as being no greater than those for the construction phase.
- 14.3.30. The Outline Construction Traffic Management Plan (OCTMP) [APP-586] reinforces the commitments made in the ES and presents the requirements and standards which will be incorporated into the final Construction Traffic Management Plan, referred to in Requirement 28 in the draft Development Consent Order (dDCO), which will set out the standards and procedures for managing the impact of HGV traffic during the construction period. It includes localised road improvements and traffic management necessary for the safe use of the existing highway network.
- 14.3.31. The certified plans referred to in the dDCO which support the OCTMP are

- the Outline Access Management Plan (OAMP) [APP-587] which sets out general layout and embedded mitigation measures for the access points (Requirement 16); and
- the Outline Travel Plan (OTP) [APP-588] which sets out how construction personnel traffic would be managed and controlled (Requirement 28).

14.3.32. The measures in these outline plans were developed further by the Applicant during the Examination. At the request of the ExA an Outline Port Construction Traffic Management and Travel Plan (OPCTMTP) was also submitted into the Examination [REP3-047], secured by Requirement 36 in the dDCO [REP3-011].

Applicant's Conclusions

14.3.33. The Applicant summarises its case as follows:

- Impacts arising during construction would be at worst minor adverse;
- There would be no significant impacts arising during operation;
- Decommissioning impacts are expected to be no greater than construction impacts;
- Transboundary impacts have been scoped out of the assessment;
- Interaction impacts are no greater than the originally assessed impacts;
- There would be only negligible or minor adverse cumulative impacts if both projects are constructed at the same time;
- There would be significant adverse cumulative impacts during construction when the Sizewell projects are included, but these impacts would be satisfactorily mitigated by construction of new roundabouts on the A12 at Friday Street and Yoxford;
- Elsewhere on the network the construction traffic from the proposed project would make a negligible contribution to cumulative impacts;
- There would be no significant cumulative operational impacts; and
- The proposed mitigation would reduce impacts to an acceptable level.

14.4. PLANNING ISSUES

14.4.1. There were several planning issues raised, both in the joint LIR submitted by ESC and SCC, and in relevant representations by parish councils and other IPs. These all relate to the construction phase of the project. They include

- Choice of mode;
- Choice of base port;
- AIL strategy and access routes to the substation site;
- The need for additional works on the A12 at Marlesford;
- HGV strategy and impacts, including at A12/A1094 Friday Street; and
- Cumulative impacts.

Local Impact Reports (LIR)

14.4.2. The joint LIR submitted by ESC and SCC [REP1-132] highlighted several key local issues:

- The assessment of AIL impacts is insufficient;
- The proposals at the A12/A1094 Friday Street junction are insufficient to avoid an increase in accidents: a traffic signal scheme under discussion with the Applicant would be acceptable;
- No provision has been made to enter into a planning obligation with the local highway authority to cover the cost of highway works;
- The operational, maintenance and decommissioning activities have been scoped out of the ES and Transport Assessment (TA);
- Controls of traffic movements have not been included in the OCTMP;
- Delivery of mitigation may compromise routes already in use by other projects e.g. Sizewell;
- The absence of protective provisions; and
- Cumulative impacts have not been adequately assessed, particularly in relation to the Stratford St Andrew Air Quality Management Area.

14.4.3. Other areas of concern in the LIR were:

- Lack of nuance in the GEART process;
- Monitoring and reporting of breaches of measures in the OCTMP;
- The resilience of the highway network;
- HGV impacts on local roads not designed for such traffic, particularly
 - On the A1094 tourist route;
 - On the B1069 at pinch points through Leiston;
 - On the B1122 – tourists and Sizewell B outages;
 - Of AIL through Leiston, particularly parking problems;
 - Of AIL through Stratford St Andrew, Farnham, Yoxford, Leiston (Park Hill footbridge), Knodishall and Friston; and
- Access from the B1122 Aldeburgh Road needs to be minimised.

14.4.4. The LIR concluded that for the following reasons the proposals are not compliant with local policy:

- Lack of planning obligations;
- Cumulative impacts of the projects in terms of offsite highway works, operation, decommissioning and port related activities and with respect to Sizewell C have not been adequately assessed;
- the proposals for the Friday Street A12/A1094 junction would not be adequate to avoid an increase in accidents and that a new roundabout is required;
- the transport impacts of future development of the substation, for example access by HGV or AIL, have not been considered; and
- The use of GEART without adjustment for local or cumulative factors may not give a true analysis of impact and does not allow for perception of impacts by local residents and road users.

Written representations

14.4.5. Both ESC [RR-002] and SCC [RR-007] made Relevant Representations which raised the above issues and also raised the following:

- major accidents and disaster assessment;

- the apparent absence of any reference to statutory civil contingency risk information;
- the lack of consultation with the Suffolk Local Resilience Forum; and
- the role of SCC in emergency planning to protect the public and the environment, such as the Sizewell emergency route.

14.4.6. Transport and traffic issues during construction were a key issue for stakeholders in the pre-application consultation feedback [APP-074] and also a common thread through over 500 Relevant Representations, including those from

- Aldeburgh Town Council [RR-001] in respect of HGV movements and cumulative impacts;
- Aldringham-cum-Thorpe Parish Council [RR-008] in respect of cumulative damage to road surfaces, traffic flow on narrow roads and congestion;
- Benhall and Sternfield Parish Council [RR-009] in respect of the need to route HGV on approved lorry routes;
- Campsea Ashe Parish Council [RR-010] in respect of:
 - the impact of traffic over a wider area as local traffic seeks to avoid increased heavy traffic on major routes; and
 - reduced road safety on B and unclassified routes not designed to cope with the volume of traffic;
- Friston Parish Council [RR-011] saying that
 - the mitigation measures proposed for the A12/A1094 junction are inadequate;
 - only HGV traffic will be monitored; and
 - no consideration has been given to cumulative impacts or the impact of the proposals on the Sizewell B evacuation plan;
- Knodishall Parish Council [RR-013] who said that the B1069 into Knodishall is not suitable for HGV;
- Leiston-cum-Sizewell Town Council [RR-004] about
 - the disruption to peak traffic on the B1069 west of Knodishall;
 - the need for a 40mph limit at the B1069/A1094 junction at Blackheath Corner;
 - problems at Friday Street (A12/A1094);
 - problems with AIL and on Sizewell Gap Road which is the only access route to and from Sizewell B;
- Snape Parish Council [RR-016] in respect of the lack of a detailed analysis of traffic impact including cumulative impact on events at Snape and Aldeburgh;
- Theberton and Eastbridge Parish Council [RR-017] in respect of potential cumulative impacts of construction HGV and associated traffic on the B1122 from the A12 (Yoxford) to Lovers Lane (Leiston);
- ONR [RR-062], seeking assurance from SCC emergency planners that the Proposed Development can be accommodated within the existing off-site emergency plan for Sizewell B; and
- Royal Mail [AS-011] about potential disruption to its operations.

- 14.4.7. The Applicant commented on all Relevant Representations prior to the start of the Examination [AS-036].

Written questions and hearings

- 14.4.8. The ExA studied all the Relevant Representations and the Applicant responses carefully and put written questions to the Applicant, ESC and SCC (ExQ1) [PD-018] on the following issues:
- AIL and AIL routes;
 - Mitigation at A12/A1094 Friday Street junction;
 - Lack of planning obligations;
 - Cumulative impacts;
 - The scoping out of operations, maintenance and decommissioning activities;
 - Traffic movements;
 - Mitigation compromising other schemes such as Sizewell C;
 - Protective provisions for SCC access as highway authority for inspection and maintenance;
 - The Outline Travel Plan;
 - The Outline Access Management Plan; and
 - The Outline Construction Traffic Management Plan
 - Use of the existing rail network;
 - Sensitive areas and the GEART threshold of 10%;
 - Choice of port;
 - Choice of construction access points; and
 - Road safety including pedestrian amenity and severance.
- 14.4.9. The ExA considered all the responses to its first written questions and decided to hold Issue Specific Hearing 4 (ISH4) [EV-042] [EV-051 to EV-059] to investigate:
- regional issues and effects including ports and AIL;
 - local issues and effects during construction and operation; and
 - cumulative effects
- 14.4.10. The ExA then considered the submissions made at ISH4 [EV-042] [EV-051 to 059] and put further written questions (ExQ2) [PD-030] to gain a better understanding of
- The A12/A1094 junction at Friday Street;
 - Port related traffic;
 - The AIL route, particularly at Friston and Marlesford;
 - HGV manoeuvres at sensitive junctions;
 - Residual concerns at the B1353 cable route crossing; and
 - Access to the cable route from the Aldeburgh Road at Aldringham.
- 14.4.11. The ExA considered all the responses to ExQ2 very carefully and decided to hold a further issue-specific hearing ISH13 [EV-125 to EV-125i] to explore and interrogate the principal issues in more detail:
- Choice of mode;
 - Choice of base port;
 - AIL strategy;

- The need for additional works at Marlesford;
- HGV strategy;
- HGV at A12/A1094 Friday Street junction;
- HGV on A1094;
- HGV in Aldeburgh and Leiston;
- AIL and HGV via Yoxford and Lover's Lane;
- Cable route crossing at the B1353;
- HGV access to the cable route from Aldeburgh Road;
- Cumulative effects; and
- Good design – mitigation and legacy.

Following submissions made at ISH13, these principal issues are discussed below. Reference is also made to earlier submissions made at ISH4 [EV-042] and to responses to the ExA's written questions (ExQ).

Principal issues

Choice of mode

- 14.4.12. At ISH13 [EV-125], the Applicant explained that rail was not considered viable for construction traffic because the location of the existing railhead at Leiston would mean HGV traffic on local routes to the west of Leiston and mean a greater HGV mileage on local roads to gain access to the cable route and substations site. There would also be other problems including the need for line upgrades, unloading and storage infrastructure, securing train paths, and noise impacts [REP8-098].
- 14.4.13. The Applicant said that transport by water to a marine offloading facility was not considered viable either, as (unlike Sizewell C) the project is linear with multiple access points. The Hundred River would also have to be crossed to access most of the cable route and the substation site. This would mean shuttle trips to and from the offloading facility which could double HGV traffic on local roads [REP8-098].
- 14.4.14. Discounting rail and water options leaves the Applicant with a road based strategy for construction traffic.
- 14.4.15. SCC said that it would support the use of any transport mode that reduces HGV traffic on the local network, including whether the Sizewell C project beach landing facility could be used by the Applicant [REP8-174].

Choice of base port

- 14.4.16. The Applicant outlined the Department for Transport Water Preferred Policy, which directs that the nearest coastal port must be used to minimise the distance abnormal indivisible loads (AIL) travel by road [REP8-098]. A review undertaken for the Applicant identified Lowestoft and Felixstowe as the nearest ports that could accommodate the necessary AIL deliveries. Highways England had advised the Applicant to consider the feasibility of using Belvedere Yard at Lowestoft, in line with the Department for Transport's water preferred policy of using the nearest suitable port [APP-529].

- 14.4.17. In response to a question from the ExA at ISH13 [EV-125] the Applicant clarified that the Lowestoft heavy load facility is at Belvedere Yard, which is on the south quay, so the AIL route is not constrained by the load capacity of the bascule bridge on the A47 [REP8-098]. The Applicant therefore promotes Lowestoft as its preferred port, but holds Felixstowe in reserve in case Lowestoft is unavailable.
- 14.4.18. However, at this stage the Applicant has not yet identified the port or ports to be used for offshore construction or operation and this is reflected in the revised Outline Port Construction Traffic Management and Travel Plan [REP8-091].
- 14.4.19. Because the base port has not yet been selected, the Applicant has assumed that all HGV traffic would originate outside the onshore study area and has assumed 100% of peak construction traffic is assigned to both the A12 north (Lowestoft direction) and the A12 south (Felixstowe direction). The Applicant therefore considers that the assessment covers travel from multiple origins and has applied it to the Sizewell C Cumulative Impact Assessment [REP6-043].
- 14.4.20. SCC expressed concern that although the Applicant was committed to assessing port traffic impacts once the port is known, omission of port traffic impacts means that
- the total impacts of the project cannot be assessed [REP5-055]; and
 - the Port Construction Traffic Management and Travel Plan should include the interaction between port traffic and the onshore works [REP8-174].

AIL strategy

- 14.4.21. At ISH4 [EV-042] the Applicant explained [REP5-028] that the substation transformers are AIL and that there would be two such AIL deliveries. Each of these AIL would be transported from the base port to the substation site on special order vehicles under a police escort [APP-529].
- 14.4.22. Access from Lowestoft is preferred in accordance with the water preferred policy as it is the closest suitable port. An alternative port such as Felixstowe would only be permitted if Lowestoft were unavailable. The routes from both Lowestoft and Felixstowe would require further detailed structural assessments to the satisfaction of SCC [REP8-098].
- 14.4.23. Network Rail had confirmed to the Applicant that its bridge to the east of the A12/A1094 Friday Street junction carrying the A1094 over the railway is unable to accommodate the proposed AIL and that substantial remedial works would be required [APP-529]. SCC had asked whether there had been any discussions with Network Rail about strengthening this bridge. The Applicant responded that Network Rail had advised that a more detailed structural assessment was not worth pursuing so this option had been discounted [REP5-028].
- 14.4.24. The proposed AIL route from the preferred port (Lowestoft) therefore utilises the Highways England designated Heavy Route HR100, which is

the A12 to Yoxford, then the B1122 as far as Lover's Lane, as used by Sizewell A and Sizewell B. If Felixstowe is used, then the proposed AIL route would be the A14 and A12 to Yoxford, which is not designated, and then HR100 along the B1122 as far as Lover's Lane, as for the Lowestoft route. The final leg of the proposed AIL route from Lover's Lane to the Friston substation site is via the B1069, A1094 and B1121 and does not have a Heavy Route designation: Highways England has indicated that it is not currently minded to include additional routes [APP-529].

- 14.4.25. SCC said in its reply to a written question from the ExA (ExQ2.18.8) that Sizewell B had used HR100 in 2016 to deliver a 166t load and in 2018 a 170t load was moved from Felixstowe to Leiston along the proposed route [REP6-092]. SCC however voiced concerns about the availability of the proposed routes in terms of
- the condition of the structures, particularly from the Felixstowe direction;
 - the long term availability of the wharf at Lowestoft; and
 - the proposed extension of HR100 through Leiston to Friston on roads not used to carrying such loads.
- 14.4.26. At ISH4 [EV-042] SCC also said that if consent were granted then it would expect the Applicant to support it in developing a suitable route for AIL, bearing in mind that if the route to Friston were to be incorporated into the heavy route network this could fetter SCC ability to undertake works on the route, for instance for non-motorised users. SCC said that it feared that the highway network would remain unsuitable for long, wide, high or heavy vehicles [REP5-062].
- 14.4.27. SASES supported the SCC view and said that this was because the Applicant's red-amber-green (RAG) assessment gave Friston a green rating in respect of accessibility. SASES also said that the contrast with Bramford "*could not be more stark*" due to easy access from the A14 major trunk road with no railway lines to cross and only a single watercourse [REP8-223].
- 14.4.28. Simon Fulford supported SASES view on Bramford, saying that "*This application has frequently been compared to EA1 at Bramford. Friston quite simply has absolutely nothing in common with this site. Whether it be transport links, proximity to a rural village, ambient noise levels, dark skies, the list of negative comparisons is almost infinite.*" [REP8-215].
- 14.4.29. SCC pointed out that "*As well as the bridge at Marlesford, there are a further 54 qualifying structures identified ...*" on the routes proposed for AIL, both HR100 from Lowestoft and the undesignated route from Felixstowe, and said that "*A significant number of these will require further investigation ...*".
- 14.4.30. SCC summarised its position in respect of AIL movements as follows [REP8-174]:
- "... while the transport impacts are not severe enough nor unacceptable in highway terms for the LHA to object to the development there are*

negative impacts resulting from movement of large loads between Leiston and Friston. This would be exacerbated if additional substation sites relied on the same route.

To move large loads on this part of Suffolk's highway network will require considerable planning particularly with regard to the strength of structures. While processes are in place to manage this the scale of impacts associated with making the roads suitable for these movements is unknown, nor is the potential of any legacy for later movements."

- 14.4.31. In response to questions from the ExA at ISH4 [EV-042], the Applicant said that transformers were not expected to fail in service so there should be no need for AIL movements during operation, but should there be a need due to failure in service then a replacement transformer would take 12 to 24 months to obtain, giving enough time to plan, and the standard ESDAL process would be used [REP5-028].
- 14.4.32. At ISH4 [EV-042], the Applicant explained that there may also be up to a maximum of three smaller non-special order abnormal load movements per day, eg plant and cable drums. The majority would be transported on a standard HGV and would also follow the established ESDAL process. The Applicant did not consider that these abnormal loads would cause significant delay on the highway network [REP5-028].
- 14.4.33. Concern was expressed by SASES at ISH4 [EV-042] about construction traffic and AIL using the B1121 through Friston to gain access to the substation site [REP5-100].
- 14.4.34. Susan Seabrook said in respect of the transport of AIL that the plans were "woolly" and *"Beyond the A12 our local roads are narrow and badly maintained."* She also expressed concerns over satisfactory alternative routes for traffic during AIL movements, that the A12 could *"become completely blocked if things go wrong"*, and the need not to affect the Sizewell escape route [REP8-245].
- 14.4.35. At ISH13 [EV-125] the ExA asked whether the haul road had been considered for access to the substation site from B1069 Snape Road. The Applicant said that using the haul road would be longer and the necessary strengthening would not be proportionate for a maximum total of 4 deliveries (in the case where both this and the other East Anglia project were consented and built together) [REP8-093].
- 14.4.36. In its comments on the Applicant's topic position statement [REP9-009] SCC noted [REP10-041] that:

"as stated in the Statement of Common Ground [REP8-114] the Councils have in-principle concerns with the lack of national policy to address the management of AIL routes and the resilience of the local highway network providing access to the substation site."

The need for additional works at Marlesford

- 14.4.37. At ISH13 [EV-125], the Applicant explained [REP8-098] that the bridge on the A12 at Marlesford is on the proposed AIL route from Felixstowe.

This is not a designated heavy load route, there is less structural information, and Felixstowe may have to be used if Lowestoft is not available, so the Applicant had taken expert advice [APP-529] which is

- To obtain up to date structural information from SCC to establish whether structural intervention and haul precautions would be required, based on the worst case of a 280t load;
- If the assessment indicates it is necessary, to conduct a more detailed assessment to establish bearing capacity; and
- If capacity is insufficient for the AIL, to undertake a detailed engineering assessment to establish what temporary intervention is required.

14.4.38. As the bridge is of a relatively short span (6.1m), the Applicant considers that it may be possible to configure the AIL vehicle axle spacing to avoid overloading. Should intervention be required, the most likely solution would be a temporary steel bridge placed over the existing structure. This could be achieved under a single lane closure over a two day period which would avoid the need to divert traffic off the A12. As the lead in time for a transformer is 12 to 24 months, this leaves time for advance notice to be served and a programme to be agreed with SCC to avoid local major events, so the Applicant concludes that driver delay would not be significant [REP8-098].

14.4.39. At ISH13 [EV-125], Marlesford Parish Council [REP8-199] said that even if the arrangements were temporary they should be conducted outside the main holiday summer months and avoid summer weekends, and urged the Applicant to make a decision on the port of entry for the transformers at the earliest opportunity to provide clarity for local residents and the landowners on whose land the laydown area will be sited.

14.4.40. SCC welcomed the additional information in the OCTMP [REP6-009] regarding the potential scope of work which may be necessary to strengthen Marlesford Bridge temporarily for AIL. However, SCC remains concerned about the disruption to traffic caused by such works, although SCC is satisfied that this can be managed through the existing consultation and permit process [REP8-174].

14.4.41. The Applicant has also committed in the OCTMP [REP8-021] to footway improvements proportionate to the contribution of the project to the overall cumulative impacts. The Applicant said that its proposals have taken into account the comments made by Marlesford Parish Council [REP8-199] and indicative details have been agreed with SCC which will be covered by the s278 agreement [REP8-174] [REP9-018].

HGV strategy

14.4.42. At ISH4 [EV-042], the Applicant explained [REP5-028] the approach it has taken in the Outline Access Management Plan [REP3-034] It is a hierarchical approach using the Suffolk Lorry Route network [APP-532] for 96% of journeys to reduce the impact of HGV traffic on the most

sensitive communities. The worst-case forecast is for a total of 270 HGV trips per day.

- 14.4.43. The Applicant said [REP5-028] [REP8-098] that A1094, B1069 and B1122 are designated as Zone Distributor routes suitable for local HGV trips. The proposed access points have been chosen to distribute rather than concentrate HGV movements. Detailed highway geometry assessment has been carried out at those locations identified in consultation with SCC and ESC, and the need for physical works at the A12/A1094 and A1094/B1069 junctions identified in Table 26.2 of ES Chapter 26 [APP-074] at the following locations:
- A12/A1094 Friday Street junction;
 - A1094/B1069 (Blackheath Corner) junction; and
 - A12 at Marlesford Bridge.
- 14.4.44. In response to written question ExQ1.18.19 [REP1-188], SCC said that it assumed that any works identified at Marlesford would be needed prior to use by AIL: SCC also confirmed that it would require the works at the A12/A1094 and A1094/B1069 junctions to be completed prior to any use by HGV and that it is not aware of any other locations requiring physical works.
- 14.4.45. The Applicant explained that HGV would be monitored as detailed in the outline Construction Traffic Management Plan (CTMP) [REP3-032] with a booking system and unique identifiers to allow project traffic to be distinguished from other traffic. The Applicant is discussing using GPS tracking with SCC. Monthly monitoring reports would review compliance. A Transport Co-ordinator would be established as part of the CTMP by the Applicant, charged with implementing the final CTMP and liaising with stakeholders [REP5-028].

HGV at A12/A1094 Friday Street junction

- 14.4.46. Following representations by SCC and ESC concerning the high projected increase (49%) in HGV turning right onto the A1094, the Applicant put forward additional mitigation proposals [REP4-026] [REP4-027] in the form of a traffic signal controlled junction to replace the existing priority junction, with objectives agreed with SCC and ESC that the measures:
- improve road safety both in terms of total collisions and severity;
 - are deliverable prior to commencement of construction;
 - are deliverable within the existing highway boundary;
 - do not prejudice a future two-village bypass;
 - minimise delays to the travelling public; and
 - are cost-effective.
- 14.4.47. The proposed measures would involve the installation of
- traffic signals on the A12 and A1094 arms of the junction;
 - high friction surfacing on all junction approaches;
 - 'traffic signals ahead' warning signs on all junction approaches;
 - new kerbs and traffic islands;
 - separate right and left turn lanes on the A1094 approach; and

- a reduced speed limit of 40mph as in the application proposals.

- 14.4.48. In response to questions from the ExA at ISH4 [EV-042], the Applicant stated [REP5-028] that accident data would continue to be available to the Local Highway Authority so monitoring traffic speeds and behaviour before and after construction and installation of the works was not necessary, and that the works would be removed at the end of construction unless SCC directed otherwise. However, the Applicant would adopt a "near miss" reporting system for all highways incidents involving the project's construction vehicles, with all accidents and near misses recorded and reported to the local highway authority in accordance with the Outline Construction Traffic Management Plan [REP3-032].
- 14.4.49. In response to a question from the ExA at ISH13 [EV-125 to EV-125i], the Applicant confirmed that it would enter into an agreement under s278 Highways Act 1980 to deliver the works, with a commitment to regular road safety audits which would be secured in the DCO as part of the approval of the CTMP under Requirement 28 [REP8-098]. The Applicant reported that the Stage 1 safety audit had been undertaken on the concept design [REP4-027].
- 14.4.50. SCC stated at ISH4 [EV-042] that it agreed in principle that a new traffic signal controlled junction would address its concerns relating to road safety at A12/A1094 Friday Street junction [REP5-062], and said that it is satisfied with the concept design [REP5-055]. SCC noted further that the Applicant had committed to the new traffic signal controlled junction [REP7-040] [REP6-009] and that an overarching s278 agreement was in the process of being signed by both parties [REP8-174].
- 14.4.51. There were representations from SASES [REP5-100] that the new layout would cause congestion on the A12 to the south and result in displacement of traffic along nearby lanes. SCC recognised that some users might experience additional delay but that this needed to be considered against the impacts on road safety [REP5-055].

HGV on A1094

- 14.4.52. The Applicant explained that the A1094 is designated by SCC as a Zone Distributor route, assessed as a suitable distributor for assigning HGV traffic to local routes, and is deemed suitable for the project's HGV traffic. The current HGV flow is 420 vehicles per day, the total daily flow being 8082 vehicles, and the project's HGV traffic would be a 5% increase which would not be discernible from daily fluctuations in traffic and would therefore not lead to significant driver delay [REP8-098].
- 14.4.53. The junction of the A1094 and B1069 in Snape had been raised as a safety concern, but the Applicant's analysis showed that there is no emerging pattern of collisions here which could be exacerbated by construction traffic [REP8-098]. The Applicant's commitment to ensure that the visibility splay is kept clear of vegetation and the road markings renewed as necessary during the construction phase of the project is secured in the OCTMP [REP8-021].

- 14.4.54. SCC reiterated its concerns around potential impacts of HGV and AIL [REP7-076] and the importance of robust monitoring and controls [REP8-174].
- 14.4.55. Paul Carlaw [REP9-144] [REP13-116] said that the A1094 and other small village roads are too narrow to take large loads.
- 14.4.56. Tim Beach of Snape Parish Council [REP8-216] confirmed that the SEAS data had been supplied by the Snape Speed Indicator Devices (SID). He also highlighted congestion problems in the summer and pointed out that the assumption made by the Applicant that because the A1094 was a designated HGV route that it was wide enough at all points between the A12 and Snape has no supporting analysis. Mr Beach also made the points that
- the designation *"reflects necessity rather than being appropriate."* and
 - *"when Mr Merry the SCC transport expert was pressed by the Inspectors on the road infrastructure capability and fragility he was clear that the A1094 was "the least worst option", and also reflected that it may well not have the resilience to cope with the other linked projects if they proceed."*
- 14.4.57. In her closing submission [REP13-106] Mary Seymour-Taylor said that the A1094 is a minor road which has day to day traffic problems especially when cyclists and buses/lorries pass each other.

HGV in Aldeburgh

- 14.4.58. At ISH13 [EV-125], the Applicant recognised the geometric constraints at the A1094/B1122 roundabout junction at Aldeburgh, and the OCTMP includes mitigation by way of a requirement that all HGV travel first to a construction consolidation site where the load is broken down into smaller loads in smaller vehicles prior to negotiating the roundabout. In reply to questions from the ExA, the Applicant said that where this is not possible, a pilot vehicle would be used [REP8-098]. The worst case with no loads transferred to smaller vehicles would be 10 movements per day. When the temporary haul road from access 9 is available the Applicant has committed to using access 9 instead [REP8-021].
- 14.4.59. SCC said that provided that the HGV are controlled to this number it does not foresee construction traffic causing significant problems on the B1122, [REP7-076] but reiterated the importance of robust monitoring and controls to demonstrate compliance and would like to see a preference for the use of GPS tracking in the OCTMP [REP8-174].
- 14.4.60. The Aldeburgh Society said that the reduction in projected HGV movements via Aldeburgh did not allay its alarm over the overall traffic impact of the proposals [REP8-186].
- 14.4.61. In response to further probing from the ExA at ISH13 [EV-125 to 125i], the Applicant said that the junction has waiting restrictions but a large HGV would have to traverse into the opposite lane to pass legally parked vehicles north of the roundabout, so the Applicant would use a pilot

vehicle and the Stop Works protocol to ensure safe passage of construction HGV: traffic signals could be used but would induce more vehicle delays [REP8-098] [REP8-093].

- 14.4.62. The Applicant also stated [REP8-098] that the baseline traffic data [APP-074] have been validated as recording 127 HGV per day making this manoeuvre.
- 14.4.63. SASES responded in respect of baseline data to say that "*A numerical distribution of vehicle types (by DfT class) should have formed the basis of (the Applicant's) analysis*" as "*Vehicles with Gross Weight in excess of 7.5 tonnes are at present a rarity*". SASES also pointed out that "*It has been accepted by DfT that Class 5 (HGV) counts are notoriously inaccurate.*" and that "*Most vehicles counted in Class 5 are actually small transit type delivery vans and lorries under 7.5 tonnes gross weight.*" ie smaller HGV rather than the large HGV which are proposed by the Applicant, meaning that some of the forecast percentage increases in HGV volumes would be gross underestimates [REP8-223].
- 14.4.64. SEAS also had "*grave doubts about the correct classification*" of the Applicant's traffic data, particularly the accuracy of the HGV classification, and expressed concern about the impacts during the summer tourist season [REP8-236].

HGV in Leiston

- 14.4.65. The Applicant confirmed that the OCTMP states (paragraph 34) that HGV and non-special order abnormal loads would not be permitted to travel through Leiston [REP8-021].

AIL and HGV via Yoxford and Lover's Lane

- 14.4.66. In view of representations made about road safety on the A1094, the ExA asked the Applicant at ISH13 [EV-125] whether consideration had been given to directing all AIL and HGV from the A12 down the B1122 and Lover's Lane from Yoxford. Among other things this would remove the need for right turning HGV construction traffic at the A12/A1094 Friday Street junction, which might call into question the need for improvements at that junction.
- 14.4.67. The Applicant agreed that this would reduce traffic along the A1094 through Snape and Aldeburgh but would mean additional HGV traffic through the 'high sensitive' communities of Yoxford, Theberton, Leiston, Knodishall and Coldfair Green. It would not be possible to use Lover's Lane for all trips as the haul road does not cross the Hundred River, but should the Sizewell C relief road become available, the Applicant would seek to use it instead of the B1122 for trips east of the Hundred River in the final CTMP. The Applicant's view was therefore that there was still a need for improvements at the A12/A1094 Friday Street junction [REP8-098].
- 14.4.68. At ISH13 [EV-125] SCC reiterated its response to ExQ2.18.14 [REP6-092] and said that although the B1122 from Yoxford to Sizewell B

is an accepted access route for large vehicles, it would have reservations if HGV traffic were routed through Yoxford, Leiston and Knodishall as this would mean HGV passing through significantly larger residential areas than using the A1094, as well as the likelihood of longer journeys [REP8-174].

Cable route crossing at the B1353

- 14.4.69. In response to a question from the ExA, the Applicant said that the B1353 is no longer under consideration as an access point. Construction traffic on the cable route still needs to cross the B1353, but the Applicant said that there are no residual concerns [REP8-098].
- 14.4.70. SCC accepted the proposals for a crossing point on the B1353 [REP6-009] as being preferable to an access. SCC also pointed out that as part of any agreement there will be a requirement to monitor the crossing and for the Applicant to undertake any actions SCC considers necessary to maintain and operate the crossing safely [REP8-174].

HGV access to the cable route from Aldeburgh Road

- 14.4.71. At ISH13 [EV-125], the ExA asked for an update on access to cable route section 3b) from the B1122 Aldeburgh Road, whether all accesses were required and how safe access for HGV from the B1122 in a forward gear would be achieved. The Applicant described the three accesses [APP-307]:
- Direct access from Sizewell Gap Road (access 2)
 - Direct access from Snape Road (access 9); and
 - Direct access from the B1122 Aldeburgh Road (accesses 5 and 6).
- 14.4.72. The Applicant explained that access 2 cannot be used to reach section 3b) of the cable route as the haul road does not cross the Hundred River, that traffic via Aldeburgh Road is restricted to 10 movements per day (5 each way) and that access 9 would be used for the cable route both west and east of Aldeburgh Road as soon as it is available: in the OCTMP [REP8-021] the Applicant commits to not using the Aldeburgh Road for access once access 9 is available [REP8-098].
- 14.4.73. SCC said that the layout of accesses 5 and 6 (Aldeburgh Road) is acceptable but because large vehicles enter the opposite carriageway particularly from the east turning south SCC recommended that traffic on the B1122 and entering/leaving the site should be controlled by temporary traffic signals. SCC said that this would be preferable to widening the road which would result in considerable loss of roadside hedges and trees [REP8-174].

Cumulative effects

- 14.4.74. At ISH4 [EV-042] [EV-051 to 059] the Applicant acknowledged that following consultation Sizewell C had revised its transport strategy with a move towards greater use of rail and water to transport construction materials. SCC considered that the Applicant should reassess its position after reviewing the revised Sizewell C Transport Assessment [REP5-062]

and the Applicant said that it would review and comment on the revision [REP5-028].

- 14.4.75. At ISH4 [EV-042] the Applicant referred to its Sizewell Projects Cumulative Impact Assessment (Traffic and Transport) Clarification Note [REP2-009] and explained that Scenario A considers construction of
- the Sizewell B Relocated Facilities project; and
 - the early years of the Sizewell C project; and
 - peak flows for Scenario 1 (simultaneous construction of both the East Anglia projects).
- 14.4.76. Following consideration of revisions to the Sizewell C project application increasing the import of materials by rail and sea, the Applicant engaged with SCC and updated its Sizewell Projects Cumulative Impact Assessment (Traffic and Transport) Clarification Note [REP6-043]. The Applicant concluded that due to the nature of the Sizewell C project the traffic flows would be considerably higher than for this project, and consequently the potentially significant cumulative impacts are *"without exception triggered by the traffic demand from the Sizewell Projects."*
- 14.4.77. SCC responded to say that it disagreed with those links originally scoped out based on the impacts of the project alone also being scoped out of the Applicant's cumulative impact assessment, although it considers it unlikely that this will affect the overall conclusions [REP7-076].
- 14.4.78. In response to a question from the ExA at ISH13 (Action Point 9) [EV-125i] the Applicant stated that the Sizewell C Transport Assessment was used to obtain the predicted construction traffic flows for the Sizewell B relocated facilities project, noting that the Sizewell C Transport Assessment Addendum states that the proposed change to the Sizewell B project would not alter the peak flows considered in the Sizewell C early years [REP8-093].
- 14.4.79. In response to a question from the ExA at ISH13 [EV-125i] about the possibility of grouping AIL movements together with Sizewell C, the Applicant said that this was unlikely, as there are only three AIL vehicles available which are capable of transporting a 280t transformer: consequently the Applicant's preferred strategy is to implement structural intervention that can be rapidly deployed and dismantled [REP8-093].
- 14.4.80. In respect of other non special order abnormal loads, the Applicant considers that these are infrequent so grouping these movements is not considered beneficial and may affect the construction programme adversely. In any case, the OCTMP commits to the use of ESDAL for all abnormal loads, whether AIL or not [REP8-093].
- 14.4.81. In response to a further question from the ExA at ISH13 [EV-125i], about how separate contractors would cooperate and work side by side if both East Anglia projects were under construction at the same time, for instance the use of shared compounds, the Applicant said that this situation was common on large scale infrastructure projects and would be controlled through interface agreements [REP8-093].

- 14.4.82. The Applicant also said that it would engage regularly with both the Sizewell B and Sizewell C projects during design and construction to coordinate matters as far as reasonably practicable [REP8-098].
- 14.4.83. Although NGV had stated that "*NGV feasibility work to date has been based on an assumption that the proposed NGET substation at Friston ... is a potential connection point ...*" [REP3-112], the ExA noted that the cumulative impact assessment carried out by the Applicant did not include the NGV interconnector projects.
- 14.4.84. SCC said it was not convinced how this would mitigate impacts and the Applicant should consider whether controls are necessary at Lover's Lane [REP8-174].
- 14.4.85. In response to a question from the ExA at ISH13 [EV-125i], the Applicant stated that the Proposed Development at Martlesham Heath has been taken into account by factoring future year baseline flows, that the A12 Seven Hills to A1152 is too recent to have been considered, and that it is not aware of information on future traffic demand of any "*National Grid Project*" so has not carried out any cumulative traffic assessment [REP8-093].
- 14.4.86. In response to a further question from the ExA [EV-125i], the Applicant confirmed that it has committed to footway improvements at Yoxford and Marlesford proportionate to the project's contribution to the cumulative impact with the Sizewell projects, and that these improvements are secured in the OCTMP and by s278 agreement [REP8-093].
- 14.4.87. SCC welcomed the mitigation proposals for Marlesford and Yoxford as proportionate to the impacts of the project, assuming that this mitigation is delivered even if only one of the East Anglia projects goes ahead [REP7-076].
- 14.4.88. SCC also said that the cumulative impacts associated with AIL movements at Sizewell C (four per day every other day) would have a negative impact on the highway network and it would look to the Applicant to help minimise these unassessed impacts [REP8-174].
- 14.4.89. In respect of other projects, SCC stated that good planning and integration require a clear understanding of what projects are coming forward and when: it provided a list of projects [REP8-174] as follows:
- "Those which are permitted with a confirmed programme:*
- *Lake Lothing Third Crossing (construction Q2 2021 to q4 2023);*
- Those which are permitted but without a confirmed start date:*
- *Brightwell Lakes (Adastral Park); and*
- Schemes within the planning process but with little certainty regarding delivery times:*
- *A12 Major Road Network (outline business case in preparation);*
 - *A12 Saxmundham development (adopted Local Plan allocation);*

- *Nautilus interconnector (pre-application);*
- *Eurolink interconnector;*
- *Galloper Windfarm Extension; and*
- *Greater Gabbard Windfarm Extension.”.*

14.4.90. However, due to the lack of clarity regarding energy projects in East Suffolk, SCC said that it is difficult for it to plan a coherent transport strategy: the primary problem with this project is the access to what may be an expanding number of substations located at Friston and the resilience of the local highway network to support them [REP8-174].

14.4.91. SCC also stated that if either or both of the East Anglia projects is constructed concurrently with Sizewell C then a formal engagement of the Applicant’s Transport Coordinator with the Sizewell Transport Review Group would be necessary so that emerging cumulative impacts can be monitored and action taken if necessary [REP5-062].

14.4.92. SCC’s overall position in respect of the cumulative assessment [REP8-174] is that:

“The LHA is finding that the number of NSIPs and other projects coming forward on the east coast of Suffolk is placing a strain on its ability to manage and minimise the impact on the transport network. Specifically, the disruption of the construction phases and associated highway mitigation has to be managed in a way that minimises disruption to the residents and economy of Suffolk and the region.

The LHA position is that the cumulative impacts of all these schemes should be considered in the planning process and for planners, applicants and the highway authorities to cooperate in delivering the optimal solution. For example, this may result in joint delivery or early start of mitigation schemes to avoid creating adverse impacts on construction routes e.g. Marlesford, Theberton, Snape.”.

14.4.93. SASES said that the Applicant had made no attempt to assess the cumulative impact of future energy projects, in particular the two NGV projects Nautilus and Eurolink, that there should be sufficient information available to conduct a CIA albeit with assumptions, and that *“It is not acceptable that no attempt whatsoever has been made to cumulatively assess traffic impacts not least on the A12 and at the Friday Street junction which will inevitably be used as the access to this area.”* [REP8-223].

14.4.94. Marlesford Parish Council [REP8-199] argued that its preferred four village bypass will be needed if the Sizewell C project goes ahead as well as both the East Anglia projects.

14.4.95. SCC said [REP8-174] that its view *“... is that a four-village bypass would, in our view, have provided significant legacy benefit to the area and not just for SZC construction but we consider it unnecessary for the SPR projects on their own. The 4VBP would provide benefits to the regional economy including the energy sector and support East Suffolk’s Local Plan.”.*

Good design – mitigation and legacy

- 14.4.96. The Applicant stated at ISH13 [EV-125] that the amenity footway improvements in Snape, Theberton, Marlesford and Yoxford would remain, be adopted by SCC and represent a legacy benefit, and that in the event that there is a gap between the end of the construction period and the start of the Sizewell C early works SCC has the option of retaining the Friday Street signals and associated benefits until completion of the new roundabout [REP8-098]. There is also a joint statement on good design outcomes in the SoCG with SCC [REP8-114], including
- HGV routed via the Suffolk Lorry Route Network;
 - HGV trips reduced by the onshore haul road and careful positioning of accesses;
 - If both East Anglia projects are constructed simultaneously (Scenario 1) then shared activities will minimise HGV demand;
 - The minimum onshore distance travelled by road for AIL in accordance with the Water Preferred policy; and
 - Integration of mitigation with Sizewell C where there is temporal overlap.
- 14.4.97. SCC's view is that the temporary Friday Street scheme is temporary and so not currently considered to be a legacy benefit, and the proposed minor improvements at Theberton, Snape, Marlesford and Yoxford are considered to be minor transport legacy benefits [REP8-174].

Outstanding issues

- 14.4.98. At the close of the Examination and following updates by the Applicant to various application documents, the Applicant notes in its Final Position Statement *"a very high level of agreement with Suffolk County Council in relation to transport matters"* [REP13-009] and considers that all matters are agreed in the Statement of Common Ground (SoCG) between the Applicant and the Councils (ESC and SCC) [REP12-070].
- 14.4.99. There are no outstanding matters identified in the final LIR review [REP13-034].
- 14.4.100. The Applicant's closing position in respect of transport and traffic issues is in its Topic Position Statements [REP13-023], where it notes that *"All matters ... are agreed with the Councils and Highways England."* and that, on the basis of agreed wording in the OCTMP, OAMP and OTP, *"SCC has confirmed that protective provisions are not required."*

14.5. EXA RESPONSE

General issues

- 14.5.1. The ExA has considered the application documents, relevant representations and all relevant documents submitted into the Examination, including responses to written questions and comments on those responses. The ExA has also given particular consideration to the

issues raised by SCC as local highway authority and responded to by the Applicant during the Examination.

- 14.5.2. The ExA undertook Unaccompanied Site Inspection 1 (USI1) [EV-005] on 20 and 21 January 2020 which enabled it to view on foot the land through which the cable route is proposed to pass, from landfall along the cable route to the site of the proposed substation and National Grid infrastructure at Friston. The inspection also included the A12/A1094 junction at Friday Street and several of the cable crossing points where the cable route would cross the highway.
- 14.5.3. The ExA undertook further inspections (USI4 [EV-007a] and USI6 [EV-007c]) to be able to observe operating conditions on the local highway network, including Marlesford Bridge, the bends at Farnham and the A1094 between the A12 and Aldeburgh, including the A12/A1094 junction at Friday Street, both the A1094/B1069 junctions and the roundabout junction with the B1122 at Aldeburgh.
- 14.5.4. The ExA has given careful consideration to all the material from the application documents, relevant representations, USI, responses to written questions and hearing submissions.
- 14.5.5. The ExA finds that impacts all relate to the construction phase of the project that there are no significant impacts during operation.

Base port and AIL

- 14.5.6. The ExA has considered and is satisfied with the Applicant's investigation of the available modes of transport for construction traffic and the Applicant's assessment of port related traffic. The ExA notes that the Applicant has identified a preferred base port (Lowestoft) and an operationally feasible and therefore satisfactory reserve (Felixstowe) in case Lowestoft is unavailable. The ExA is hence satisfied that the Applicant has taken all reasonable steps to minimise transport of AIL by road in accordance with the Government's Water Preferred policy.
- 14.5.7. The ExA notes that routing AIL along the A1094 has been ruled out by the Applicant due to problems with the bridge over the railway, but is satisfied that the Applicant has investigated the practicalities of the AIL movements necessary to deliver the transformers from base port to the substation site.
- 14.5.8. The ExA has considered the necessary AIL movements in the context of the existing highway network, and the concerns expressed by SCC and other IPs about the limitations of the local highway network, and the extent to which the adverse impacts of AIL movements can be mitigated satisfactorily. Bearing in mind that there are only two AIL movements for this project and four in total with the other East Anglia project, the ExA is satisfied that the impacts will be temporary and of short duration, and that this limited number of movements can be completed satisfactorily. However, sufficient careful planning will need to be undertaken by the Applicant in conjunction with SCC and properly communicated to all those affected, with particular reference to the route through Leiston, the

route along the B1121 through Friston and the Sizewell emergency evacuation route.

- 14.5.9. The ExA has also given careful thought to representations made by IPs concerned about the uncertainty associated with the works which may be needed at Marlesford if Felixstowe were to be used as the base port and the bridge required temporary strengthening. The ExA considers that as the project is an NSIP certainty of delivery route for AIL is necessary and that the Applicant's proposals are reasonable, but that it is important that the Applicant should give notice of its intentions to local people, and particularly the affected landowners, at the earliest opportunity.

HGV traffic

- 14.5.10. In respect of HGV movements during construction, the ExA has considered the Applicant's approach, which utilises the Suffolk Lorry Route network for 96% of journeys to reduce the impact of HGV traffic on the most sensitive communities. The ExA has also reviewed and inspected those locations which the Applicant has identified as requiring physical safety measures, and the proposed arrangements for monitoring construction HGV traffic, and is satisfied that these are sufficient and adequately secured in the dDCO. The ExA finds that the local highway network is generally not well suited to the number and type of necessary vehicle movements, but is satisfied with the Applicant's approach to minimising the impacts of HGV and other construction related traffic on the local highway network, that the mitigation proposed is reasonable and that it is adequately secured in the dDCO.
- 14.5.11. The ExA notes that the A1094 is designated by SCC as a Zone Distributor route assessed as a suitable distributor for assigning HGV traffic to local routes, and is therefore deemed suitable by the Applicant for the project's HGV traffic. The ExA has also taken account of concerns expressed by SCC and other IPs about the suitability of the A1094 for HGV and is satisfied that these concerns can be adequately addressed through robust monitoring and controls, as secured in Requirement 28 through the CTMP.
- 14.5.12. The ExA notes concerns from SASES and others that the Applicant's proposals for new traffic signals at the A12/A1094 Friday Street junction would cause congestion on the A12 to the south and result in displacement of traffic along nearby lanes. The ExA also notes the SCC position, which recognises that some users might experience additional delay but that this needs to be considered against the impacts on road safety. The ExA notes that the improvements would be complete in advance of construction of the project and would be covered by a s278 agreement. The ExA has also considered the traffic signal modelling information provided by the Applicant and notes that delays to traffic on the A12 will be minor. The ExA is in broad agreement with the methodology, assessment and mitigation of impacts, and is satisfied that the Applicant's proposals to install traffic signals at the A12/A1094 junction will address the issue of HGV traffic turning right from the A12 to the A1094.

- 14.5.13. In respect of HGV in Aldeburgh making the manoeuvre between the A1094 and the B1122, the ExA notes that 127 HGV per day currently make this manoeuvre. The ExA also notes submissions by SASES and SEAS in respect of the accuracy of the Applicant's HGV classified count data, and in particular that there will be a tendency for the percentage increase in larger HGV to be underestimated. The ExA therefore considers it likely that the Applicant's HGV would be larger than HGV currently making the manoeuvre from the A1094 to the B1122. The ExA also notes that the worst case with no loads transferred to smaller vehicles would be a total of 10 movements per day, that pilot vehicles would be used to ensure the safety of other road users, that SCC is satisfied that delays would not be significant, and that there would be no HGV in Aldeburgh once the temporary haul road from access 9 is available. The ExA has weighed the arguments put by the Applicant and other parties and is satisfied that the limited and temporary disruption at the A1094/B1122 junction can be adequately controlled and mitigated.
- 14.5.14. The ExA notes the arguments put by the Applicant and SCC against routing all HGV along the B1122 AIL route to avoid using the A1094, and the Applicant's confirmation that HGV and non-special order abnormal loads would not be permitted to travel through Leiston. The ExA is therefore satisfied that the Applicant's HGV strategy is adequate.

Cumulative impacts

- 14.5.15. The ExA has considered submissions from National Grid Ventures (NGV) and SCC in respect of cumulative impacts and is satisfied that Friston is a potential connection point for the proposed NGV interconnector projects (Nautilus and Eurolink).
- 14.5.16. The ExA has considered the cumulative impact assessment carried out by the Applicant, noting that it has been updated to include the revised transport assessment undertaken for the Sizewell C project. The ExA notes that the Applicant considers that construction traffic for the Sizewell C project is the main driver for cumulative impacts and that the Applicant has concluded that there is insufficient information about the proposed NGV interconnector projects (Nautilus and Eurolink) so has not included them in its cumulative impact assessment.
- 14.5.17. The ExA agrees that construction traffic for the Sizewell C project would be the main driver for cumulative impacts. However, notwithstanding the Applicant's view that there is limited detailed information about the proposed NGV interconnector projects, the ExA considers that satisfactory assumptions could nevertheless have been made by the Applicant about the likely levels of traffic which would be generated by the proposed NGV interconnector projects to enable them to be included in the Applicant's cumulative impact assessment.

14.6. CONCLUSIONS

- The ExA concludes that impacts all relate to the construction phase of the project and that there are no significant impacts during operation.

- The ExA concludes that the Applicant's investigation into the available modes of transport for construction traffic is satisfactory.
- The ExA concludes that the Applicant's selection of Lowestoft as preferred base port and Felixstowe as reserve in case Lowestoft is unavailable is satisfactory, as is the Applicant's assessment of port related traffic.
- The ExA concludes that the Applicant has taken all reasonable steps to minimise transport of AIL by road and that the Applicant's proposals in respect of port selection and movement of AIL are satisfactory, but that a great deal of careful planning will be required to minimise AIL impacts on the highway and on those affected.
- In respect of the potential AIL works at Marlesford, the ExA concludes that the Applicant should consider giving notice of its intentions to local people, and particularly the affected landowners, at the earliest opportunity, as part of its communications strategy.
- The ExA concludes that impacts of construction traffic on the local highway network have been minimised and that concerns about the suitability of the A1094 for HGV can be adequately addressed through the CTMP secured in Requirement 28 of the dDCO.
- The ExA concludes that the Applicant's proposals to install traffic signals at the A12/A1094 junction will address the issue of HGV traffic turning right from the A12 to the A1094 without significant rerouteing or delay to other traffic.
- In respect of HGV in Aldeburgh making the manoeuvre between the A1094 and the B1122, the ExA concludes that these manoeuvres can be properly controlled so as not to cause significant problems.
- Drawing these findings together, the ExA concludes that the Proposed Development will have adverse transport and traffic impacts during construction, particularly during transport of AIL and in respect of HGV on the A1094 and at Aldeburgh, but that provided that robust and effective controls are in operation, these adverse impacts are capable of being satisfactorily managed and minimised; however, these impacts will nevertheless cause harm, albeit temporary, and are therefore of medium significance and negative weight in the planning balance.

15. FINDINGS & CONCLUSIONS IN RELATION TO SOCIO ECONOMIC EFFECTS ONSHORE

15.1. INTRODUCTION

15.1.1. This Chapter deals with the socio-economic effects of the Proposed Development and is initially based on Chapter 30 of the Environmental Statement (ES), 'Tourism, Recreation and Socio-Economics' [APP-078].

15.1.2. The Chapter is split into the following sections:

- Policy Considerations
- The Applicant's Case
- Planning Issues
- ExA Response
- Conclusion

15.2. POLICY CONSIDERATIONS

National Policy Statement

15.2.1. Paragraph 5.12.2-3 of the Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) states that where a project is likely to have socio-economic impacts at local or regional levels, the Applicant should undertake and include in their application an assessment of these impacts as part of the ES. This assessment should consider all relevant socio-economic impacts, which may include the creation of jobs and training opportunities, the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities, effects on tourism, and the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. NPS EN-1 notes that this latter category could change the local population dynamics and alter the demand for services and facilities in the settlements nearest to the construction work and that there could also be effects on social cohesion depending on how populations and service provision change as a result of the development.

15.2.2. NPS EN-1 also states that cumulative effects should be considered, noting that if development consent were to be granted for a number of projects within a region and these were developed in a similar timeframe, there could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs of other industries and major projects within the region.

15.2.3. Applicants should describe the existing socio-economic conditions in the areas surrounding the Proposed Development and should also refer to how the development's socio-economic impacts correlate with local planning policies. Socio-economic impacts may be linked to other impacts

but may also have an impact on tourism and local businesses (paragraph 5.12.4).

- 15.2.4. The Secretary of State (SoS) should have regard to the potential socio-economic impacts of new energy infrastructure identified by the Applicant and should consider any relevant positive provisions the developer has made or is proposing to make to mitigate impacts (for example through planning obligations) and any legacy benefits that may arise as well as any options for phasing development in relation to the socio-economic impacts. The SoS should consider whether mitigation measures are necessary to mitigate any adverse socio-economic impacts of the development; for example, high quality design can improve the visual and environmental experience for visitors and the local community alike.

Development Plans and other local and regional policies

- 15.2.5. Policy SCLP6 of the Suffolk Coastal Local Plan (September 2020) states that tourism is a substantial and important part of the overall economy, which brings benefit to quality of life and well-being of communities.
- 15.2.6. Policy SCLP4.5 of the same plan states that proposals will be supported that grow and diversify the rural economy, particularly where this will secure employment locally, provided that the design and construction does not have an adverse impact on the character of the surrounding area and landscape and provides additional community, cultural or tourism benefits.
- 15.2.7. Regional strategies and plans including the East Suffolk Economic Growth Plan 2018-23, the East Suffolk Tourism Strategy 2017-2022, and the New Anglia¹⁹ Local Economic Partnership (NALEP) Norfolk and Suffolk Economic Strategy (2017) identify that Suffolk has a competitive advantage in the energy sector and highlights the importance of the tourism sector and the economic benefits it brings.

15.3. THE APPLICANT'S CASE

Introduction

- 15.3.1. This section is organised to consider the scope, methodology and existing socio-economic environment first before considering the impacts of the Proposed Development noted in the ES. Cumulative effects are then considered.

Scope, Methodology and Existing Environment

- 15.3.2. Pre-application consultation with regards to socio-economic effects took place from around 2017. Public consultation days and meetings raised issues such as the impacts on tourism and recreation from the proposal, including upon existing tourist accommodation, upon the Area of Natural

¹⁹ New Anglia in the NALEP consists of Norfolk and Suffolk.

Beauty (AONB) and Sandlings, economic impacts on the holiday trade and farming, increased traffic and knock-on effects on tourism and a view that only short-term construction jobs would be created.

- 15.3.3. The economic study area for the assessment was defined by the 60-minute travel to work radius for residential workers, with the most likely origin of workers being Ipswich, Lowestoft, and Great Yarmouth. The tourism and recreation study area was defined directly by the proposed onshore development area with certain radius defined for indirect impacts – such as for instance 1km from the development area for noise impacts. There is also noted the potential for tourism to be affected by non-residential workers.
- 15.3.4. For onshore employment it was assumed that construction would take three years in total amounting to 502 full time equivalent (FTE) years. Indirect and induced employment multipliers were calculated based on a supply chain assessment for the East Anglia One project, of 1.31 and 1.21 at a regional scale. Offshore employment has again been based on East Anglia One effects and assumes direct employment between 500 and 1,500 FTE jobs.
- 15.3.5. A non-legally binding Memorandum of Understanding (MoU) was agreed between the Applicant and Suffolk County Council (SCC). This aimed to promote employment and re-skilling opportunities, inform and inspire teachers and students, make best of existing local and national education and skills infrastructure, utilise the Applicant's existing parent company skills programmes where possible, and work in collaboration with supply chain partners.
- 15.3.6. For the existing environment the ES notes that the proportion of people that are over 65 is around 5% higher than the national average in Suffolk and that the proportion of working age people in Suffolk is around 4% lower than the national average. Suffolk is also below the mean qualification level across English counties for Level 4 education (Graduate). Census data from 2011 suggests most commute to work by car for between 36 and 50 minutes, approximately correlating to the 60 minute travel to work radius defined for the economic study area. Non-residential workers are assumed to prefer hotels/accommodation closer to their work, within 45 minutes.
- 15.3.7. Economic activity within those aged 16-64 is marginally higher locally and in Suffolk as a whole than the British average and employment levels are increasing, with pockets such as Ipswich where employment is decreasing. In terms of sectors the highest proportion of people are employed in health, retail, and manufacturing respectively. The ES suggested that the labour market has a significant number of people in skilled trades and professional and technical operations that could benefit through the employment opportunities that the Proposed Development could bring.
- 15.3.8. Average weekly earnings for the NALP area are significantly lower than in the UK as a whole and are shown to be around 10% lower:

Figure 1 Mean Weekly Earnings for full time workers in the New Anglia LEP and the UK

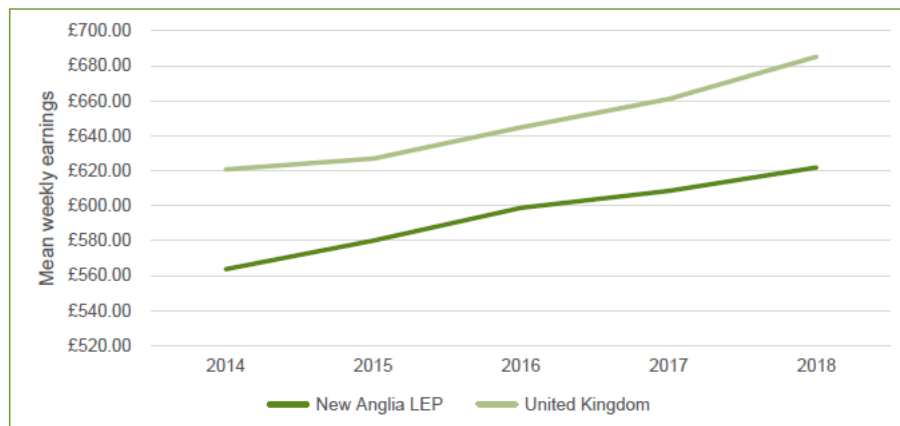


Plate 30.16 Mean Weekly Earnings for full time workers in the New Anglia LEP compared to the UK as of December 2018

- 15.3.9. The percentage of people employed in tourism and hospitality is around 20% and the ES states that there is a ratio of around one FTE job per £61,767 of tourism expenditure. Education deprivation is evident in both the NALEP and Suffolk. There is relatively low crime across the NALEP area. Great Yarmouth, Waveney, and Ipswich have higher relative deprivation suggesting that such areas would benefit from employment creation.
- 15.3.10. The effect of offshore wind on tourism is considered, with the ES stating that on average 75-80% of people surveyed across multiple studies expressed neutral or positive views of wind energy and stated that it would not deter them from visiting an area.
- 15.3.11. A survey of TripAdvisor reviews was conducted for beaches where there is a view of offshore wind turbines. This included areas around Barrow, the Wirral, Teeside, Spurn Point, Skegness, Great Yarmouth, Clacton, Whitstable and Brighton. Reviews were searched for terms relating to wind farms/turbines and then assessed for whether the reviewer was expressing a positive, neutral, or negative view. This search showed that of 12,710 reviews only 92 mentioned windfarms/turbines with some 26 positive, 35 negative and 31 neutral. The ES concluded that this indicates that the majority of visitors to the coast of England do not hold strong enough opinions about the location of offshore wind development to comment or feel negatively towards offshore wind farms or did not notice the infrastructure.
- 15.3.12. The ES noted that there are 38 public rights of way (PROW) that may be affected by the construction of the Proposed Development and 46 self-catering cottages/ holiday accommodation/ visitor attractions within 1km of the onshore development area. These are primarily in Friston and Thorpeness. 'Natural capital' in terms of areas that can be used for recreation or visitor attractions is also assessed, with commons such as those at Sizewell, Thorpeness, Aldringham and Knodishall as well as the

Suffolk Coast & Heaths Area of Outstanding Natural Beauty Partnership (SCHAONB) and local beaches being included.

Potential Impacts

- 15.3.13. Potential impacts are seen as positive – employment created directly, indirectly or induced or by tourism spending by non-residential employees whilst working on the Proposed Development, or negative – by tourism and recreational assets affected by physical disturbances, or by tourists being put off in the long term by the physical infrastructure.
- 15.3.14. As agreed with East Suffolk Council (ESC), it was assumed that 36% of direct employment would be sourced locally, with a further 48% from within the NALEP area and 16% from outside the NALEP. Total employment is estimated during onshore construction at an average of 265 FTE per year for construction (86 local, 127 NALEP, 41/62 outside²⁰). These figures were compared with existing labour market sizes, where it is concluded that the change would be small.
- 15.3.15. Baseline assessments, summarised above, indicate that people locally on average have lower qualifications than regionally and nationally and that there is growth in economic activity in local areas except Ipswich. It is assumed therefore that economic opportunities may be particularly beneficial for people in Ipswich. Significance of onshore construction impact is considered to be moderate beneficial.
- 15.3.16. Offshore construction is more uncertain given timescales and the range of the supply chain. It is predicted that FTE posts would range between 1,600 to 4,100 on minimum and maximum estimates. Of these 100-300 could be from the NALEP area (Great Yarmouth). The midpoint of both these estimates (2,700 and 200) is used for assessment. A 'load out' port within the NALEP would add to the NALEP percentage of the overall figures. Significance of offshore construction impact is considered to be moderate beneficial.
- 15.3.17. A range of assumptions are used to consider the impact of non-residential workers' spending in the local economy based on likely average number of nights per month and whether they would displace visitors who may ordinarily stay in such accommodation. Based on cited studies a figure of £62 spending per person per night was used, along with a figure of £60,000 spent in the area per one new ATE job in tourism. This could lead to five to 10 FTE during the construction period – a mean of seven is taken for assessment. The ES also considered that such workers would not displace tourism visitors and so would not adversely affect businesses in this way. The construction impact is assessed as having major beneficial significance for local businesses.
- 15.3.18. In terms of negative impacts, based on the assessment of natural capital and the impacts contained elsewhere in the ES for water and air quality, noise and traffic, and landscape, seascape and visual effects, as well as

²⁰ Differing figures for outside taken from paragraph 182 and Table 30.51.

perception, the onshore construction impact is assessed as having negligible significance for local businesses and people working for them.

- 15.3.19. Assessments are considered for impacts during operation, considering a mid-point of around 600 FTE jobs would be created by the Proposed Development, with around 500 of them in the NALEP area. The ES stresses that this would be continuous employment with wages above the national average and would be likely to drive other effects, such as inward migration and retention of local young people. Onshore construction impact is assessed as having major beneficial significance regionally and moderate beneficial significance nationally.
- 15.3.20. Long term effects on tourism are considered, both in terms of the visual effects of the proposed onshore substations site and of the offshore wind turbines. A report from the Suffolk Coast Destination Management Organisation (Suffolk Coast DMO) is noted but not included in the ES due to timing. For onshore infrastructure the ES considers that the density of tourism receptors with viewpoints of the substations is very low and a National Grid (NG) survey is cited which considered that business operators and recreational users would not be affected by NG projects in their area. The ES considers that this would equate to a negligible impact on the tourism industry in Suffolk Coastal District and Suffolk County.
- 15.3.21. For offshore infrastructure the ES cites the TripAdvisor study noted above and considers that the impact will have negligible significance for the tourism industry in Suffolk Coast AONB, Suffolk Coastal District and Suffolk County.

Cumulative impacts

- 15.3.22. Cumulatively the impact of the Proposed Development when considered with the other East Anglia application is considered. This is considered in two scenarios; firstly, the proposals are constructed simultaneously, and secondly, the proposals are constructed sequentially.
- 15.3.23. When constructed simultaneously onshore construction would increase from 167 to an average of 197 FTE per year and peak employment over the three years of construction would rise to 307. Offshore construction numbers would double. Operational job figures are assumed to double although it is acknowledged that this may reduce with economics of scale. Both windfarms would be visible from shore, but they would only be visible during good visibility and it is considered that evidence shows that tourism visitors do not have strong opinions about the presence of offshore windfarms.
- 15.3.24. When constructed sequentially the employment figures would be the same as for the Proposed Development but the duration would double.
- 15.3.25. Building both projects concurrently would put a larger demand on the local and regional labour market and both scenarios would increase the demand for accommodation. Building both projects sequentially would increase disturbance to visitors.

- 15.3.26. The ES concludes that the cumulative impact significance will be the same as for the Proposed Development; that is:
- Moderate beneficial for onshore construction employment;
 - Moderate beneficial for offshore construction employment;
 - Major beneficial for tourism employment;
 - Negligible for tourism and recreational disturbance;
 - Major beneficial for long term employment; and
 - Negligible for long term tourism.
- 15.3.27. Cumulative assessment is also considered for the two East Anglia projects and the Sizewell C Project (SZC) together. This indicates a peak demand for staff of 2,167 if all three projects were to have simultaneous peak construction times. If this were to happen major beneficial significance for onshore construction is predicted. Offshore construction remains the same with SZC as there is no offshore construction for SZC.
- 15.3.28. For tourism employment the assessment remains at major beneficial, due to unknowns around the potential construction period/phasing for SZC and as EDF Energy consider that workers are more likely to stay in rented accommodation due to the length of the construction project.
- 15.3.29. In terms of tourism and recreational disturbance the ES considers effects to remain negligible but acknowledges that this does not include traffic impacts due to work on a freight management strategy for SZC not being available. The ES also notes that SZC has a high public profile which could affect public perception. Long term employment effects are considered to be major beneficial.
- 15.3.30. Cumulative assessment is also considered for offshore construction employment including the proposed Boreas, Vanguard, and Hornsea 3 Wind farms. While employment would still have a low magnitude impact the ES considers that the assessment would increase to major beneficial, due to the pipeline of employment from the three projects being long term and leading to secondary benefits such as investor confidence, regional expenditure and clustering of supply chain businesses.

15.4. PLANNING ISSUES

- 15.4.1. The ESC and SCC Joint Local Impact Report (LIR)[REP1-132] stated that the Councils welcomed the overall economic opportunity that the construction of the Proposed Development (along with the other East Anglia project) would open up for the area. They noted that they have had a positive collaborative relationship with the developments through the projects of East Anglia One and East Anglia Three and have been able to deliver benefits for the region and the developer through the MoU.
- 15.4.2. The Councils also noted [REP1-132] that opportunities exist for local businesses to become part of the onshore and offshore supply chain as demonstrated by East Anglia One and that the potential scale of local economic growth depends on the choice of base and marshalling posts.

Memorandum of Understanding (MoU)

- 15.4.3. The Councils stated that the MoU establishes a commitment for the developer to work with the Councils to maximise the education, skills and economic benefits of the offshore wind projects, and the flexible nature of the process allows this to adapt and flex to ensure it is still relevant. The Councils also welcomed the developer's involvement in the All Energy Industry Council and their commitment to deliver local content through this.
- 15.4.4. The Examining Authority's first written questions (ExQ1) [PD-018] asked if the MoU would be binding, how it would be enacted and if securing it more directly, via a requirement in the draft Development Consent Order (dDCO) or as a planning obligation would be necessary (ExQ1.17.4).
- 15.4.5. The Applicant was of the view [REP1-120] that securing the MoU through the formal planning process was not necessary and noted that the flexible nature of the MoU, particularly during the COVID-19 pandemic, had allowed the Applicant to create new methods of engagement. SCC stated [REP1-188] that they considered all means of securing the commitments but did not consider it necessary or achievable and considered that they have achieved far more working together with the Applicant on the MoU than they have through a skills plan which was secured through the East Anglia One project.
- 15.4.6. Norfolk County Council [RR-005], [REP1-176] considered that the Proposed Development should develop a local skills strategy to ensure there are sufficient skilled workers, including measures to enable any permanent long term job opportunities to be taken up by local people and that the dDCO should have a planning requirement setting out the need for an education, employment and skills strategy.
- 15.4.7. Substation Action Save East Suffolk (SASES) [REP2-068] considered that there is no information as to the verifiable benefits being delivered by the existing projects of East Anglia One or East Anglia Three. They noted that to their understating the overall investment in East Anglia One was £2.5billion and that in this context £30million is insignificant. They considered that there are no binding targets, deliverables or quantified investment of resources, and also noted that paragraph 5.12.7 of NPS EN-1 states that limited weight is to be given to assertions of social economic impacts that are not supported by evidence.
- 15.4.8. The Applicant stated [REP3-072] that it had developed and delivered multiple skills programmes in East Anglia independently and in collaboration with other developers and local stakeholders, covering education and employment readiness programmes, including the creation of the SPR apprenticeship programme, supporting the Offshore Wind Skills Centre to ensure the training of 26 adult learners for the industry, carrying out STEM workshops to over 3,000 young people and supporting local internships such as The East Coast Energy Internship programme. Further information and discussions around any quantified benefits of East Anglia One and East Anglia Three took place at Issue Specific Hearing 5 (ISH5) [EV-060 to 068] and during the written Examination process.

Effect on tourism – accommodation and spending patterns

- 15.4.9. The Council's LIR [REP1-132] considered that the projects together have the potential to create additional demand for accommodation in the peak tourist season, potentially deterring tourists due to occupancy rates or driving accommodation prices to a premium. They noted a survey commissioned by the Suffolk Coast DMO in 2019 which stated that this would dissuade regular tourists from returning in the future.
- 15.4.10. ExQ1.17.2 [PD-018] built on this issue and asked whether there was enough accommodation available for workers from the Proposed Development, the other East Anglia application, and SZC combined. At Deadline 1 (D1) the Applicant submitted a Socio-Economics and Tourism Clarification Note [REP1-036] to address these issues. This note considered that although the latest changes to the SZC information provided alterations to the worker numbers compared to those used in the ES, they did not consider that these would materially change the conclusions presented in the application. There would be excess demand only in peak season and only in the scenario where the projects are constructed in parallel, and this coincides with the SZC civils peak. They considered that this scenario was unlikely given the published construction programmes for the three projects.
- 15.4.11. ESC stated at Deadline 2 (D2) [REP2-029] that it accepted the conclusion that the updated SZC information would not materially change the applications' conclusions. SCC [REP2-034] also stated that they agreed with the Applicant's conclusions.
- 15.4.12. At D2 SASES [REP2-068] considered that the Applicant showed a lack of understanding of the tourism economy, noting that "peak season" is the most important time for the tourist economy, when it makes the majority of its profit. They stated that there is no comparison between the spending levels and patterns of people coming to work compared to those who are visiting the area on holiday. Suffolk Energy Action Solutions (SEAS) noted issues with some of the SZC statistics and stated that at Hinkley Point many long-term workers had moved to find accommodation off site, as opposed to living in provided "barrack hotels" [REP2-081].

Effects on tourism – visitor numbers

- 15.4.13. The LIR [REP1-132] noted that in combination with SZC there are concerns raised that the target market of visitors who are drawn to the beauty and tranquillity of the AONB and the Heritage Coast will be significantly impacted. They cited the Suffolk Coast DMO survey, referred

to above, which considered that visitor numbers are likely to drop by 17%, equating to around £20 to £30million²¹ of lost economic activity.

- 15.4.14. The Suffolk Coast DMO notes that [RR-082, REP1-194] the value of tourism in East Suffolk is approximately £695million per year, supporting 14,600 jobs, with some £228million of this being within the SCHAONB and supports around 5,000 jobs²². In 2019 the Suffolk Coast DMO commissioned a report from BVA BDRC²³ which was informed by 1,700 online and 69 face-to-face respondents and 113 businesses. The survey found that East Suffolk is first and foremost perceived as a place to relax and escape in a natural setting and that 29% of the regional market is less likely to visit during the construction phases of the projects, with 11% of those surveyed saying they were "a lot less likely to visit". Major areas of concern were around "loss of tranquillity, nature and unique charm" and "road and traffic problems". The majority of business respondents were in the accommodation sector, with 72% of all businesses either "fairly worried" or "very worried" about the developments.
- 15.4.15. The Suffolk Coast DMO was concerned that both the perception and reality of East Suffolk as a highly attractive visitor destination would be damaged by the onshore impacts of the Scottish Power projects (EA1N and EA2) and the five other major energy projects which are planned for the area. They considered that given the importance of the tourism economy to East Suffolk, an independent report should be commissioned on the impact of these projects on the tourist economy. They fundamentally disagreed with the assessments of the ES upon tourism and considered that the Proposed Development would cause significant damage to the East Suffolk tourist economy. Beach View Holiday Park, set between Thorpeness and Sizewell [REP2-044], were in full support of the Suffolk Coast DMO representations.
- 15.4.16. In a similar vein the Councils considered [REP1-132] that the reliance on desk-based research and Trip Advisor reviews were inadequate and not sufficiently robust, considering that they cannot accurately assess the tourism related impacts of the disruption caused by the construction work or realistically assess visitor perceptions of the completed windfarms and substations. SEAS noted that the TripAdvisor review analysed the concept of the public's reaction to offshore windfarms but does not address visitor's reaction to issues created by the development of offshore windfarms [REP2-081].
- 15.4.17. As mentioned above, the results of the Suffolk Coast DMO report were not included in the ES due to timing reasons. The Applicant was of the view [REP1-120] that the results of the report provided extra context on receptor sensitivity (taken as a generalised Suffolk coast visitor) but did

²¹ The Suffolk Coast DMO clarified these figures as contained within their report of actually stating that the negative impact of the two SPR projects and Sizewell C could be £24m - £40m per annum [REP2-082]

²² Figures taken from [REP1-194] as opposed to [RR-082]

²³ BVA BRDC are a consumer and business insight consultancy.

not ultimately change the conclusions of the impacts in the ES. The Applicant noted that although the Suffolk Coast DMO report tried to disentangle the wind farm proposals from the SZC, the headline results on impact are based on the cumulative position of all three schemes and not the Proposed Development alone, with no attempt to assess the impact of the Applicant's projects without SZC. They considered that the Suffolk Coast DMO report cannot be used to support any conclusions with regard to the Applicant's projects alone.

- 15.4.18. At D1 the Applicant submitted a Tourism Impact Review [REP1-102]. This aimed to consider further the predicted effects upon tourism during the construction phase of the Proposed Development and the other East Anglia application. The analysis considered potential impacts on areas with coastal landscape designations and more general coastal districts from offshore wind farm construction activity and used the level of employment in the accommodation and food services sector to identify potential changes in the expenditure of visitors. The review stated that no relationship was found between tourism, visitor spending and tourism related employment and the construction phase of 11 comparable offshore windfarm developments.
- 15.4.19. ESC considered at D2 [REP2-028] that the review did not show any comparable volume and value studies that they would normally rely on to analyse trends over time and that while it showed employment impacts in an area close to an AONB and also a National Park, most of the projects analysed were not close to areas similar to the Suffolk Coast. It was also of the view that the conclusions of the report seemed uncertain stating that employment data was only one possible measure of a tourism impact; there was no analysis of visitor numbers and spend and no capability of assessing in detail the impacts on areas of particular sensitivity.
- 15.4.20. SASES was also of the view that the research did not specifically relate to the area where the Proposed Development is planned [REP2-068] and SEAS [REP2-081] considered that the case studies chosen bore no resemblance in size, complexity or disruption to the Proposed Development. SEAS also took issue with some of the statistics used and considered that the impact of the Proposed Development on tourism would be far higher than stated.
- 15.4.21. SEAS submitted several reports on the impact of increased traffic and disruption on local roads and the impact of this on levels of tourism [REP5-113, REP8-236] which were responded to by the Applicant during the Examination process. A local brewery, Adnams plc, based in Southwold also raised concerns over the impacts of the Proposed Development upon their business, particularly caused by disruption to the local road network [RR-018, REP1-199]. Similar points were made by James White Drinks Ltd [RR-049].
- 15.4.22. Various local groups raised concerns over the impact of construction on tourist numbers, pointing out the range, variety, and popularity of tourism in the area and various local tourist attractions and events,

including Friston Parish Council [RR-011], Friston Parochial Church Council [REP1-140], Aldeburgh Town Council [RR-001], the Aldeburgh Society [REP1-210], the Aldeburgh Business Association [REP5-065], the Aldeburgh Golf Club [REP5-066] (references not exclusive).

- 15.4.23. At ISH5 (21/01/21), the Applicant stated that they considered the conclusions of the Suffolk Coast DMO report should not be considered as evidence as the process of arriving at the figure was fundamentally flawed [REP5-029] due to it being a perception-based study. They considered that respondents to the survey would have likely overstated how they would react to potential negative impacts and that information provided to the respondents was not up to date. They also stated that they considered that their submitted Tourism Impact Review was comparable for a range of reasons.
- 15.4.24. At the same ISH, ESC confirmed their view [REP5-046] that there could be negative impacts on the local visitor economy as highlighted in the DMO survey. They noted that engagement was taking place with the applicant with a view to a tourism fund being agreed to support marketing of the local area during construction.
- 15.4.25. This lead on from the Councils' LIR [REP1-132], where they stated that they were keen for adequate mitigation strategies to be drawn up as early as possible to offset the anticipated impacts that the projects could have on visitor numbers. Marketing activity could attract increased numbers of visitors to the area.
- 15.4.26. At Deadline 6 (D6) the Applicant confirmed [REP6-064] that they were in discussions with ESC over a tourism fund of £150,000, although they maintained the view that the Proposed Development would not have significant impacts upon tourism. This was confirmed as a commitment at Deadline 9 (D9) [REP9-041], although not secured within the dDCO.

Social issues

- 15.4.27. A further topic which arose during the Examination centred around social issues. At D2 SASES [REP2-068] stated that there was no consideration of the effects of holiday accommodation being shared by visitors and their families and construction employees or how this would impact on communities. They also raised concerns over the social impacts of a large influx of construction workers on the local area, citing issues which arose during the construction of the Sizewell B nuclear power station.
- 15.4.28. Representations were also made by The Wardens Trust [REP2-083], considering that the Proposed Development would adversely affect the Trust, a charitable trust situated to the north of the proposed landfall. The Trust provides valuable facilities for elderly disabled local residents to address social isolation and loneliness, as well as camping and recreational activities for children with disabilities and disadvantage. They were of the view that the Proposed Development would reduce the viability and attractiveness of the location and the Trust.

Cumulative impacts

- 15.4.29. Norfolk County Council [RR-005, REP1-176] considered that the Proposed Development needed to address the cumulative impacts on the local labour market and supply chain, fully taking into account other planned Nationally Significant Infrastructure Projects (NSIPs). Several Interested Parties (IPs), including SASES, SEAS and Adnams PLC, raised concerns over the cumulative impacts of the Proposed Development on local tourism taking place at the same time as the other East Anglia project and with SZC, as well as potentially other energy projects proposed for the area.

15.5. ExA RESPONSE

- 15.5.1. While due to the nature of the subject matter a specific unaccompanied site inspection (USI) was not possible, all the USIs undertaken assisted the ExA in understanding the area, its road network and the local tourist industry. Aldeburgh, Southwold, Thorpeness and other local tourist locations, both on the coast and inland, were visited and the ExA stayed in both Aldeburgh and Thorpeness on occasion.
- 15.5.2. ISH5 was held on 21 January 2021 and considered onshore social and economic effects including potential economic benefits and disbenefits [EV-043]. As well as the Applicant and the Councils (ESC and SCC), a wide range of invited IPs attended, including representatives from SEAS, SASES, Aldeburgh Town Council and the Aldeburgh Society, Friston Parochial Church Council, the DMO, the Wardens Trust and Beach View Holiday Park.
- 15.5.3. As stated above, the ES sees potential socio-economic impacts as either positive via employment created directly, indirectly or induced or by tourism spending by non-residential employees whilst working on the Proposed Development, or negative, by tourism and recreational assets affected by physical disturbances, or by tourists being put off in the long term by the physical infrastructure. At ExQ1 [PD-018] the ExA asked if there was an additional potential negative impact on tourism from those who may encounter disruption during construction and change/alter future plans to visit the area. All of these impacts and social effects are considered below.

Benefits

- 15.5.4. At ISH5 the Applicant explained how the energy sector in the East of England had evolved significantly since 2005, stating offshore wind to be a "huge success story for the East of England", contributing substantially to the regeneration of coastal communities [REP5-029]. East Anglia One is stated to have led to investment of over £76million in East Anglian companies during construction and over £24million during operation, with £30million invested in ports at Great Yarmouth and Lowestoft. [REP5-029]. Skills training and educational provision have been developed alongside local groups and the County Council with various initiatives supported, including scholarships and internships. The Applicant states that over 820 skilled jobs were carried out on the

onshore works and the skills outreach programme has engaged over 4,200 young people across the region [REP5-029].

- 15.5.5. The concept of the East Anglia Hub was also explained, bringing together the Proposed Development, the other East Anglia project and the East Anglia Three offshore windfarm. Capital expenditure for the three projects together is expected to be around £6.5bn, with a target of 55% UK content.
- 15.5.6. As stated above, the ES predicts around 265 FTE per year construction jobs, with 36% of such jobs local and further 48% from within the NALEP area. Offshore construction employment is estimated at around 2,700 with 200 of these from the NALEP area. A further seven FTE jobs are assumed from tourism benefits (resulting from spending of non-residential workers during construction). Some 600 FTE jobs are anticipated during operation with around 500 of them in the NALEP area. The provision of the load out port in Lowestoft (or Felixstowe as a second option) would assist in employment within the wider area.
- 15.5.7. During the Examination various IPs stated that employment figures for offshore wind are often overstated, with many procurement contracts going overseas [REP5-101]. Doubt was also raised over the use of differing terms for defining 'regional' or 'East Anglia', and whether local companies cited are based in the local area [REP5-101]. SASES state that the Applicant's apprentices' programme has only resulted in two apprentices being employed and note that given that East Anglia One was consented six years ago the number of young people engaged in the skills outreach programme across Suffolk and Norfolk is unimpressive [REP5-101].
- 15.5.8. The MoU approach to promote employment and re-skilling opportunities and maximise the benefits of investment in the area was considered during the Examination, with IPs such as Norfolk County Council and SASES preferring to see a requirement under the dDCO.
- 15.5.9. It is clear to the ExA that the size of the energy industry in East Anglia has the potential to deliver significant economic benefits, particularly in depressed coastal locations. The Proposed Development would contribute towards this. The majority of jobs created by the proposals would likely lie outside of the immediate vicinity of the Proposed Development's order limits. Benefit is likely to largely accrue to the areas within Suffolk and Norfolk such as Ipswich, Great Yarmouth and Lowestoft, as well as further afield within East Anglia (Norfolk, Suffolk and Cambridgeshire) and wider within the UK and Europe.
- 15.5.10. The ExA appreciate that in general the jobs created by the proposal would have wages above the national average and could potentially drive other beneficial effects such as the retention of young people in the local area.
- 15.5.11. IPs cast doubt over the effectiveness of programmes associated with East Anglia One, but the ExA note the support of ESC and SCC in this regard

based on their own prior experience. In a similar vein, the ExA have considered the issue of the MoU and whether this, or a skills strategy, should be required under a rDCO. The ExA is persuaded in this matter by the views of ESC and SCC following their experience with East Anglia One that the signed MoU approach gives them greater flexibility to change and adapt than a requirement would do so. The ExA acknowledges in this respect the recent experiences utilising the MoU during the Covid-19 pandemic.

- 15.5.12. In terms of levels of occupancy and stress on local accommodation the ExA note the Councils' agreement to the Applicant's conclusion that there would only be excess demand in the peak season and when the Proposed Development is constructed in parallel with the other East Anglia application and SZC, which was considered unlikely to happen given their respective construction programmes. The ExA agree with this analysis, and while also agreeing that non-residential construction workers are likely to contribute less to the local tourism economy than visitors, given the conclusions regarding the limited nature of excess demand consider that this is unlikely to have a significant effect.

Disbenefits

- 15.5.13. The question of disbenefits garnered significant representations during the Examination. The range of estimates of any negative effects on tourism caused by the Proposed Development ranged from negligible from the Applicant's point of view to £24million to £40million per year (cumulatively with the other East Anglia project and SZC) from the Suffolk Coast DMO to £140million from SEAS.
- 15.5.14. The Applicant consistently criticised the research and results commissioned by the Suffolk Coast DMO for the cumulative nature of the figures, the 'perception based' nature of the survey and for the use of certain stimuli within the survey. At Deadline 13 (D13) the Suffolk Coast DMO submitted new evidence [REP13-075] which contained headline findings on new research commissioned by themselves.
- 15.5.15. This research asked survey respondents how they thought others would respond as opposed to themselves (a criticism of the Applicant) and resulted in survey results of 37% of respondents considering that the construction of the Proposed Development **and** the other East Anglia project would deter other people like them from visiting the Suffolk Coast. However, 55% of respondents also considered that the positives of having wind turbines constructed off the coast would outweigh the negatives of the construction period. The Suffolk Coast DMO were of the opinion that the tourism fund was wholly inadequate mitigation for the effects of the proposals on the local tourism industry.
- 15.5.16. The SEAS evidence [REP5-113, REP8-236] comprises traffic-based submissions which focus on the effect of the Proposed Development on the A1094, the main east west route to Aldeburgh and its immediate coastal area from the north south A12 inland. The SEAS reports consider disruption along this road during construction of the Proposed

Development will lead to the loss of around 440 jobs and around £180million. The Applicant notes [REP6-032] various issues with the traffic data chosen, multipliers, and level of local tourism and that the calculations are based on the (original) DMO report which includes SZC within its calculations.

- 15.5.17. The ExA is not wholly convinced by the Applicant's Tourism Impact Review [REP1-102] and the justification of it provided at ISH5 [REP5-029]. The study used nine initial comparable cases yet none of them appeared on the face of it to be direct comparators with the local area for this application in terms of landscape sensitivity and local tourist industry levels. Two other cases of wind farm construction off the Norfolk Coast AONB and the South Downs National Park were looked at in an attempt to gain more meaningful comparisons with the SCHAONB in respect of landscape effects.
- 15.5.18. However, the nature of the review as a desk-based study considering numbers at a fairly high level detracts from the results, particularly when compared with the local interviewing methodology of the Suffolk Coast DMO research. The review uses figures for the whole of North Norfolk and three local authority areas for the South Downs construction works. A similar approach for the Proposed Development would entail using figures for East Suffolk, a wide-ranging area from Lowestoft in the north to Felixstowe in the south and going inland as far as Bungay and Framlingham.
- 15.5.19. It is quite possible that the development of the proposal would not affect tourism in many of these places, including the large seaside resorts of Felixstowe and Lowestoft. Due to the nature of the Proposed Development and its proximity to a fairly narrow cable corridor, even closer to the site significant tourist centres such as Southwold may not be affected substantially. However, local centres around the substation site, the cable corridor and landfall areas, including Friston, Aldringham and significantly in a tourism sense Thorpeness and Aldeburgh may be affected by the Proposed Development. A fairly high-level desk-based study would not pick up such localised effects.
- 15.5.20. The ExA do not place significant weight on the survey of TripAdvisor reviews within the ES given the restricted nature of using only those people who may review on TripAdvisor and the nature of searching for 'windfarms'. The Suffolk Coast DMO research confirms that many are supportive of windfarms themselves, but in the ExA's view it is not largely the question of the completed windfarm that may be the issue in a tourism sense, it is the effects of the construction of them which a survey of TripAdvisor reviews is unlikely to pick up in a significant way. Operation of the completed substations may have more effect on tourism local to the proposed site at Friston for this element of the Proposed Development.
- 15.5.21. The evidence submitted at D13 by the DMO [REP13-075] goes some way to addressing concerns that the initial results of their survey work was entangled with the proposal of SZC, a more well-known project to the

wider public. While the findings are submitted at a fairly summarised level, the local nature of this survey is considered by the ExA to be in general a more useful approach than that taken by the Applicant, although it is noted that due to the timing of the submission of this evidence that the Applicant was unable to respond directly.

- 15.5.22. The SEAS evidence submissions [REP5-113, REP8-236] provide very useful context but the ExA feel perhaps overstate the issue. The ExA take this view based on the levels of local tourism considered (Aldeburgh, Leiston and Thorpeness and Leiston area are considered to account for 50% of tourist activity in the SCHAONB) and the multipliers used within the report.
- 15.5.23. The tourism fund agreed by the Applicant with ESC seeks to deliver a marketing campaign over a three-year period during the construction of the Proposed Development. This sum of £150,000 would be paid in the event of one or both of the East Anglian applications being granted consent. The sum is not proposed to be secured in the rDCO and the Applicant agrees that the fund cannot be accorded weight by the ExA. The ExA also note that while the fund may have some temporary positive effects during construction, if visitors enticed by the marketing provided by the fund come to the area during the construction period, such construction may affect their propensity to return in future.
- 15.5.24. Disbenefits during operation of the Proposed Development are likely to be less significant. Effects of the Proposed Development on the seascape of the SCHAONB are considered in Chapter 8, but the ExA are of the view that this would not result in a significant drop in visitor numbers to the area. The village of Friston, particularly its northern edge may be adversely affected in socio-economic terms by the loss of some business for village self-catering accommodation during operation due to the location of the proposed substations.
- 15.5.25. Potential social effects of the Proposed Development are also considered in Chapter 12, Noise, nuisance and health effects. Given the number of non-residential construction workers predicted for the Proposed Development the social impacts of these on the local community are likely to be fairly minor. The ExA note the passionate views of the Wardens Trust and the excellent facility ran by this charity. Changes to the proposed cable corridor taking works further away from the Trust's location should assist in this regard although the ExA note that the Trust remains concerned.

Cumulative impacts

- 15.5.26. If the Proposed Development was constructed simultaneously with the other East Anglia project then onshore construction jobs would increase slightly but not dramatically, whereas offshore construction jobs would double. Operational job figures would likely near double but would be reduced by economies of scale. Disbenefits would likely remain at a similar level.

- 15.5.27. If the Proposed Developments were constructed sequentially the employment figures would be the same for the Proposed Development but the duration would double. Under this scenario disbenefits would likely double as well, as the sequential building time would increase disturbance to visitors.
- 15.5.28. Should the East Anglia applications be constructed alongside SZC then a significant amount of onshore construction would accrue around the same time with significant economic benefits. However, disbenefits would also rise significantly with issues of wider construction impact having more of a detrimental impact on local tourism both in terms of actual effects and public perception

15.6. CONCLUSIONS

- 15.6.1. During construction the Proposed Development has the potential to deliver significant employment, both onshore and more significantly offshore. The majority of offshore jobs are likely to come from outside the area. Although direct employment at the substations site would be minimal/ non-existent, operational employment is significant and would be primarily within Suffolk and Norfolk. Such employment is likely to provide wages above the national average and would consequently have wider benefits.
- 15.6.2. Associated programmes to maximise the education, skills and economic benefits of previous East Anglia offshore wind farms are appreciated and supported by ESC and SCC and it is clear that these have been successful. The Proposed Development seeks to extend and increase such programmes via the proposed MoU and this will increase the economic benefits of the proposal.
- 15.6.3. As stated above, the forecast level of any socio-economic disbenefits varied dramatically between the Applicant and objectors to the Proposed Development. The ExA is not convinced by the Applicant's evidence and considers it self-evident that the construction of the Proposed Development will have some socio-economic disbenefits, particularly in terms of tourism in the local area and that such disbenefits will have more than negligible effects.
- 15.6.4. While noting and agreeing to a certain extent that people's perception of their own likely future actions (and those of others) may produce a stronger reaction than in reality, the ExA considers that the construction of the Proposed Development would cause some harm to the local economy, particularly around the proposed substation site, cable route, and landfall area. This may not be to the same levels as predicted by the DMO (for the Proposed Development and the other East Anglia project) but would likely be closer to such levels than the negligible effect predicted by the Applicant.
- 15.6.5. Cumulatively with the other East Anglia project, if both projects were constructed simultaneously then job numbers would increase, particularly offshore while disbenefits would remain at a similar level. If the two

applications were constructed sequentially then employment figures would be the same (for a longer duration) but disbenefits would likely double due to the increase in time. Long periods of construction may have a longer-term impact on the propensity of tourists to return to the area as well.

15.6.6. Should the East Anglia applications be constructed alongside SZC then there would be large scale significant economic benefits. Disbenefits would also rise significantly with issues of wider construction impact having more of a detrimental impact on local tourism.

15.6.7. Overall, it is clear to the ExA that the size of the energy industry in East Anglia and the impact of the Proposed Development on its own, or in conjunction with the other East Anglia project, has the potential to deliver significant economic benefits, particularly in the wider NALP area and depressed coastal locations. However, it is also pertinent to note that areas likely to be directly affected socio-economically by the Proposed Development(s) do not comprise those depressed coastal locations.

15.6.8. To summarise, the Proposed Development would:

- Deliver a significant number of jobs during construction, both onshore and more significantly offshore. The majority of offshore jobs are likely to come from outside the area.
- Provide significant employment during operation which would be mainly within Suffolk and Norfolk.
- Provide such jobs which are likely to have wages above the national average and would consequently have wider benefits.
- Help to maximise the education, skills and economic benefits of the Proposed Development and would add to the economic benefits of the proposal via the MoU.
- Cause harm to the local economy, including to tourism, particularly around the proposed substation site, cable route, and landfall area during construction. The ExA comes to this view following assessment of the evidence submitted during the Examination. Such negative socio-economic effects are likely to be significantly reduced during operation (once the proposed development is constructed).

15.6.9. In the round it is considered that:

- the socio-economic benefits of the Proposed Development would outweigh the disbenefits, particularly in the long term. This may not be the case in the immediate vicinity of the Proposed Development.

15.6.10. Cumulatively, the Proposed Development:

- If constructed simultaneously with the other East Anglia project economic benefits would increase substantially while disbenefits would remain at a similar level.
- If constructed sequentially then economic benefits would increase but disbenefits would likely double due to the increase in time of the overall construction period.

- If constructed with the other East Anglia application and SZC there would be large scale significant economic benefits. Disbenefits would also rise significantly with issues of wider construction impact having more of a detrimental impact on local tourism.

15.6.11. Therefore:

- a simultaneous programme of construction with the other East Anglia application would provide greater socio-economic benefits. A sequential programme of construction would reduce socio-economic benefits.

15.6.12. Drawing these matters together, the ExA concludes that:

- The Proposed Development would provide socio-economic benefits. This provides positive weight for the Proposed Development. Likely socio-economic disbenefits reduce this positive weighting to medium.
- If constructed simultaneously with the other East Anglia project this weight would increase or reduce if constructed sequentially. Both weights would remain medium. Weighting would be similar if constructed simultaneously with SZC.
- The ES accords with the requirements of NPS EN-1 and would comply with policy SCLP4.5 of the Suffolk Coastal Local Plan. Harm to tourism causes conflict with policy SCLP6 of the same plan but this would be outweighed by the positive socio-economics effects of the proposed development.

16. FINDINGS & CONCLUSIONS IN RELATION TO LAND USE EFFECTS

16.1. INTRODUCTION

- 16.1.1. This Chapter reports on the effects of the Proposed Development on onshore land use taking into consideration the tests set out in the Overarching National Policy Statement for Energy (NPS EN-1). Land Use is identified as a principal issue in the ExA's initial assessment [PD-013].
- 16.1.2. The land in the onshore development area is predominantly agricultural. A significant proportion, particularly at the substation site, is best and most versatile (BMV) according to the Ministry of Agriculture, Fisheries and Food (MAFF) land classification.
- 16.1.3. The issues considered in this Chapter include the effects on agricultural land, soil quality, farming operations, public rights of way (PRoW), public open space, and land with the potential for development. The impacts on public rights of way are also considered in Chapter 8 Onshore Historic Environment.
- 16.1.4. This Chapter is organised as follows:
- Policy considerations;
 - The Applicant's case;
 - Planning issues;
 - ExA response; and
 - Conclusions.

16.2. POLICY CONSIDERATIONS

National Policy

- 16.2.1. NPS EN-1 recognises that an energy infrastructure project will have direct effects on the existing use of the proposed site and may have indirect effects on the use, or planned use, of land in the vicinity for other types of development (paragraph 5.10.1). It highlights that the Government's policy is to ensure that there is adequate provision of high-quality open space and sports and recreation facilities to meet the needs of local communities (paragraph 5.10.2).
- 16.2.2. NPS EN-1 also states that the Environmental Statement (ES) should identify existing and proposed land uses near the project together with any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan (paragraph 5.10.5).
- 16.2.3. Paragraph 5.10.6 says that Applicants will need to consult the local community if their proposals include building on open space land.

- 16.2.4. NPS EN-1 paragraph 5.10.7 states that the Local Planning Authority (LPA) should identify any concerns it has about the impacts during pre-application discussions.
- 16.2.5. NPS EN-1 goes on to state that applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality except where this would be inconsistent with other sustainability considerations. Applicants should also identify any effects and seek to minimise impacts on soil quality taking into account any mitigation measures proposed (paragraph 5.10.8).
- 16.2.6. The decision-maker should ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification and should give little weight to the loss of poorer quality agricultural land (grades 3b, 4 and 5) except in areas where particular agricultural practices may themselves contribute to the quality and character of the environment or the local economy (paragraph 5.10.15).
- 16.2.7. In considering the impact on maintaining coastal recreation sites and features, NPS EN-1 states that the decision-maker should expect applicants to have taken advantage of opportunities to maintain and enhance access to the coast (paragraph 5.10.16).
- 16.2.8. In terms of mitigation, NPS EN-1 requires that effects on existing uses are minimised by the application of good design principles, including the layout of the project (paragraph 5.10.19).
- 16.2.9. NPS EN-1 also recognises that rights of way, National Trails and other rights of access to land are important recreational facilities, for example for walkers, cyclists and horse riders. Applicants should take measures to address adverse effects on coastal access, National Trails and other rights of way. Where this is not the case consideration should be given to what mitigation requirements might be attached to any grant of development consent (paragraph 5.10.24).

Local Policy

- 16.2.10. Policy SCLP10.3: Environmental Quality, of the ESC Suffolk Coastal Local Plan 2020, seeks to protect the quality of the environment. The policy states that impacts on soils and the loss of agricultural land is one of the considerations in assessing development proposals, that proposals should seek to secure improvements wherever possible, and that the cumulative effect of development will be considered in this regard.
- 16.2.11. Other local policy relevant to land use is the East Economic Growth Plan 2018-2023 and the New Anglia Local Enterprise Partnership (NALEP) Economic Strategy for Norfolk and Suffolk, which identify agriculture as an important and long-established sector in East Suffolk.

16.3. THE APPLICANT'S CASE

Introduction

- 16.3.1. Volume 1, Chapter 21 of the Environmental Statement (ES) [APP-069], supporting Figures 21.1 [APP-268] to 21.6 [APP-273] and Appendices 21.1 [APP-499] and 21.2 [APP-500] present the results of the Applicant's Environmental Impact Assessment of the potential impacts on land use during the construction, operation and decommissioning phases. The agricultural land classification is shown on Figure 21.3 [APP-270].
- 16.3.2. Pre-application consultation on land use matters was carried out by the Applicant with relevant consultees [APP-499], including Suffolk County Council (SCC) and East Suffolk Council (ESC) which is the local planning authority for the study area. The main consultation issues were:
- Potential loss of agricultural land should be taken into account during connection point decision making;
 - Potential loss of high grade agricultural land;
 - Potential loss of agricultural land at the substation and onshore cable route;
 - Potential loss of food production;
 - Avoid greenfield land, place on brownfield; and
 - Degradation of soil quality.

Policy and guidance

- 16.3.3. The Applicant has considered the following UK legislation:
- The Marine and Coastal Access Act 2009;
 - The Commons Act 2006;
 - The Countryside and Rights of Way Act 2000;
 - The Weeds Act 1959;
 - The Ragwort Control Act 2003;
 - The Environmental Stewardship (England) Regulations 2005;
 - The National Planning Policy Framework 2019; and
 - The Natural Environment White Paper 2011.
- 16.3.4. The Applicant acknowledges the relevant paragraphs of NPS EN-1, particularly
- Paragraph 5.10.5, in respect of existing and proposed land uses near the project;
 - Paragraph 5.10.7 which says that the LPA should identify its concerns;
 - Paragraph 5.10.8 with regard to minimising impacts on best and most versatile agricultural land;
 - Paragraphs 5.10.10 and 5.10.12 in respect of Green Belt land; and
 - Paragraph 5.10.15, which says that applicants should not site their scheme on the best and most versatile agricultural land without justification.
- 16.3.5. Reference is also made by the Applicant to local planning policy, with reference to the recent merger of Suffolk Coastal District Council (SCDC) and Waveney District Council (WDC) into the new East Suffolk Council

(ESC). The Applicant has therefore assessed the proposals against the relevant policies in the ESC Suffolk Coastal Final Draft Local Plan 2019.

- 16.3.6. To assess the impacts of the proposals on land use and agriculture, the Applicant has also followed
- the Highways England Design Manual for Roads and Bridges (DMRB) Volume 11 Section 3 Part 6 (Land Use) and Part 11 (Geology and Soils); and
 - Ministry of Agriculture, Fisheries and Food (MAFF) (1988) Agricultural Land Classification (ALC).
- 16.3.7. Other documents from the Department for Environment, Food and Rural Affairs (DEFRA), MAFF, Environment Agency (EA) and Natural England (NE) have also been consulted as sources of best practice guidance on soil handling and construction management.

Assessment

- 16.3.8. To inform the assessment, the Applicant consulted several data sources, including:
- ESC (local plan);
 - NE (environmental stewardship schemes (ESS), common land and ALC);
 - Ordnance Survey (roads, railway lines, urban areas); and
 - Land agents and consultations (agricultural activities).
- 16.3.9. The Applicant has assessed the impacts of the proposals in terms of:
- Sensitivity of receptors (high, medium, low, negligible); and
 - Magnitude of effect (high, medium, low, negligible) with respect to spatial extent, duration, frequency and severity.
- 16.3.10. In terms of time period, the following definitions have been applied:
- Long term – greater than 5 years;
 - Medium term – 2 to 5 years; and
 - Short term – less than two years; or for the duration of the construction phase.
- 16.3.11. From an assessment of sensitivity and magnitude the Applicant has generated an Impact Significance Matrix, with categories of Major, Moderate, Minor, Negligible and No Change. Major and moderate impacts are classed as significant: minor impacts may also be significant when assessed cumulatively with the other East Anglia project. Transboundary impacts have been scoped out of the assessment.
- 16.3.12. The Applicant has undertaken a review of existing land use. This is predominantly agricultural and was worth £330 million in crops and livestock in 2004: it is reckoned to be worth £400 million at the time of the application.

16.3.13. The ALC is shown on Figure 21.3 [APP-270]. Breakdown by ALC class as a percentage of the total development area, (including 7.1% built-up) is:

- Grade 1 Excellent: none;
- Grade 2 Very Good: 26.9%;
- Grade 3 Good to Moderate: 36%;
- Grade 4 Poor: 30%;
- Grade 5 Very Poor: none.

The Grade 2 land is all at the substation/National Grid infrastructure site, which is made up entirely of Grade 2 and Grade 3 land [APP-270].

16.3.14. The extent of ESS agreements is shown on Figure 21.4 [APP-271]. These are almost all entry level plus higher level and to the east of the Hundred River: there are none at the substation/National Grid infrastructure site.

16.3.15. There are numerous Public Right of Way (PRoW) and cycle paths, which the Applicant considers in ES Chapter 30 Socio-Economics, Tourism and Recreation [APP-078]. An outline PRoW strategy [APP-581] was submitted with the application, secured under Requirement 32 in the draft Development Consent Order (dDCO) [APP-023].

16.3.16. Figure 21.5 [APP-272] shows the locations of known utilities: services are provided by Anglian Water, Essex and Suffolk Water, National Grid, UK Power Networks, Cadent Gas, BT Openreach, Interroute Communications, Vodafone and Virgin Media.

16.3.17. Figure 21.6 [APP-273] shows common land. The onshore development area is directly adjacent to but does not encroach directly on any common land, nor are there any planning policy designations within the onshore development area.

16.3.18. Details of construction activities are in the Project Description [APP-054]. In considering the impacts during the construction phase, the Applicant acknowledges that the onshore substation and National Grid infrastructure may have impacts which are different in type and magnitude from those on the cable route, so they are assessed separately.

16.3.19. The Applicant's assessment of the construction phase impacts are:

- Land taken out of existing use – minor adverse;
- Impact on environmental stewardship schemes (ESS) – minor adverse;
- Impact on land drainage – minor adverse;
- Degradation of the soil resource – minor adverse;
- Impact on utilities – no impact; and
- Impact on common land – no impact.

16.3.20. The Applicant's assessment of impacts during operation are:

- Permanent change of land use – minor adverse;
- Impact on ESS – minor adverse;

- Alterations to land drainage – no impact;
- Utilities – no impact; and
- Impact on common land – negligible on the cable route and no impact at the substations' site.

Electric and magnetic fields (EMF) are assessed in Chapter 27 of the ES as part of the Applicant's assessment of the impacts of the project on human health and are considered in this report in the Chapter on Noise, Nuisance and Health Effects.

- 16.3.21. Figure 21.6 [APP-273] shows that the cable corridor will be immediately adjacent to common land at Thorpeness Common and Sizewell Common, but the Applicant states in Chapter 21 of the ES [APP-069] at paragraph 151 that *"There will be no impact to common land."*
- 16.3.22. Other than for operational impact on common land, it is noted that the assessment gives the same results for both the landfall/cable route and the onshore substation/National Grid infrastructure site.
- 16.3.23. Decommissioning impacts are expected to be no greater than those for the construction phase.
- 16.3.24. There are no transboundary land use impacts as the onshore development area is not sited near any international boundaries.
- 16.3.25. Interactions of individual impacts on land use have also been assessed but the Applicant concludes that such impacts are no greater than the originally assessed impacts.

Cumulative impacts

- 16.3.26. The Applicant has carried out a Cumulative Impact Assessment (CIA) with the other East Anglia project [APP-500] under two scenarios:
- Scenario 1 – both projects are constructed at the same time; and
 - Scenario 2 – the projects are constructed one after the other.
- 16.3.27. In respect of land use and agriculture, the Applicant considers scenario 2 to be the worst case, with significant impacts on land taken out of use, ESS and land drainage due to the increased overall construction period.
- 16.3.28. The Applicant has also carried out a CIA with Sizewell C New Nuclear Power Station and the Sizewell B Power Station Complex and concluded that as there is no land overlap there is no change to the cumulative impacts.

Mitigation

- 16.3.29. The Outline Code of Construction Practice (OCoCP) [APP-578] reinforces the commitments made in the ES and presents the requirements and standards which will be incorporated into the final Code of Construction Practice, referred to in Requirement 22 in the dDCO. Requirement 22 also sets out the certified plans referred to in the dDCO which support the OCoCP, including a soil management plan, which the Applicant

proposes will be produced by a competent contractor and agreed with the relevant planning authority before construction commencement.

Applicant's conclusions

16.3.30. The Applicant concludes that:

- Impacts arising both during construction and during operation would be at worst minor adverse;
- Decommissioning impacts are expected to be no greater than construction impacts;
- There are no transboundary impacts;
- Interaction impacts are no greater than the originally assessed impacts;
- There would be significant cumulative impacts on ESS and land taken out of use if both projects are constructed at the same time but no change in respect of the cumulative impact of the Sizewell projects; and
- The proposed mitigation will reduce impacts to an acceptable level.

16.4. PLANNING ISSUES

Local Impact Report (LIR)

16.4.1. A joint Local Impact Report (LIR) submitted by East Suffolk Council (ESC) and Suffolk County Council (SCC) [REP1-132] highlights the key local issues as:

- The permanent loss of Grade 2 and Grade 3 agricultural land at the onshore substation and National Grid infrastructure;
- Minimising this loss through good design, including a GIS substation for National Grid;
- Temporary loss may result in degradation and soil damage;
- The need to minimise severance; and
- The East Anglia projects to be constructed at the same time to minimise disruption.

16.4.2. The LIR acknowledges that the Applicant will seek to minimise disruption to farming practices and has addressed the main logistical aspects relating to the PRow network. The LIR notes that the Outline PRow Strategy [APP-581] is broadly acceptable but will require more detail, and also notes that soil management issues are addressed in a Soil Management Plan as part of the Code of Construction Practice, secured under Requirement 22 of the Applicant's dDCO [APP-023] but requests greater coordination between this and the other East Anglia project should both be consented, including a commitment to ducting of the second project during construction of the first [REP1-132].

16.4.3. The LIR disputes the Applicant's assessment of the impacts in respect of the permanent loss of Grade 2 and Grade 3 agricultural land at the onshore substation and National Grid infrastructure, and says:

"The Councils have sought clarification from the Applicants as to why the significance of the impact on permanent changes to land use from such a substantial loss of Grade 2/3 agricultural is only identified as a minor adverse at a regional level and moderate adverse at a site level (Chapter 21, 21.6.2.1.2, paragraph 163). The ESs identify that the total permanent operational land take attributed to the onshore substations and National Grid infrastructure would be 33.59 hectares (Chapter 21, 21.6.2.1.2, Paragraph 162). Using the definitions in Table 21.8 this would be defined as a high magnitude of change, and the sensitivity of land has been defined as medium. This would result in an impact of major significance at a local site level. The Councils are currently discussing this matter with the Applicants, and it is understood that a clarification note will be provided."

The Applicant produced a clarification note [REP1-022] by way of response to these concerns. In particular, the note corrected an error in the magnitude of the impact of permanent loss of agricultural land. Because the area of land taken out of existing use permanently (ie for longer than 10 years) is greater than 20 ha, with reference to Table 21.8 of Chapter 21 of the ES [APP-069], the magnitude is high. Consequently, with reference to the impact significance matrix at Table 21.9 of Chapter 21 of the ES [APP-069], the local impact at the substation/National Grid infrastructure site in respect of land taken out of existing use is major adverse at a local level. The Applicant however concluded [REP1-022] that:

"19. This amendment to 'major' adverse at a site level of the substation and National Grid infrastructure has no influence on the overall conclusion reached in the ES which is that the footprint represents 0.01% of the County's farming resource and is assessed as 'minor' adverse significance in the context of Suffolk."

The Councils (ESC and SCC) reviewed the clarification note and continued to seek commitment from the Applicant to:

- Greater consolidation of infrastructure;
- Reduce the size of the substations, including the use of GIS for the National Grid substation; and
- Greater coordination of project delivery.

Written representations

- 16.4.4. The issue of the loss of an area of the best and most versatile agricultural land was raised in Relevant Representations by ESC [RR-002] and SCC [RR-007].
- 16.4.5. Land use was also mentioned in around 90 Relevant Representations. Most (around 70) raised the issue of the loss of Grade 2 and Grade 3 agricultural land at the substations site, and a further 20 or so were concerned about the siting of onshore infrastructure on greenfield land. There were 28 Relevant Representations from landowners.

- 16.4.6. The Applicant commented on all Relevant Representations prior to the start of the Examination [AS-035] [AS-036] [AS-037].

Written questions

- 16.4.7. The Examining Authority (ExA) studied all the Relevant Representations and the Applicant's responses carefully and put written questions to the Applicant to clarify both the above-mentioned issues and other issues relating to agricultural land take, land classification, ducting, biosecurity, land drainage, soil management, severance, production values, construction timetable, cumulative effects and PRow.
- 16.4.8. The ExA noted that the land required at the substation/National Grid infrastructure site is Grade 2 or Grade 3, but that Grade 3a) land had not been separately identified so as to be able to define the best and most versatile (BMV) land, which is Grade 1, Grade 2 and Grade 3a). The ExA therefore asked the Applicant to explain why the Grade 3 land had been added to the Grade 4 land to say that 65.9% is moderate to poor quality (ExQ1.9.9) [PD-018] rather than being subdivided into 3a) and 3b) to define the amount of best and most versatile (BMV) agricultural land (Grades 1, 2 and 3a)) [PD-018]. The Applicant responded [REP1-114] that it had not subdivided the Grade 3 land but taken a precautionary approach whereby all Grade 3 land is defined in Table 21.8 of ES Chapter 21 Land Use [APP-069] as BMV.
- 16.4.9. The ExA noted the Outline PRow Strategy [APP-581] and asked the Applicant about the physical impacts on PRow, particularly on the coast path, temporary closures without a diversion, and reinstatement.
- 16.4.10. The ExA considered the responses to its written questions, both from the Applicant [REP1-114] and from Interested Parties (IPs) commenting on the Applicant's responses. The ExA also considered the Land Use Clarification Note submitted into the Examination by the Applicant [REP1-022], which among other things corrected the Applicant's original assessment of the local impact of agricultural land taken out of existing use permanently, and the responses from ESC [REP2-029] and SCC [REP2-035] and decided that no further written questions were required.

Hearings

- 16.4.11. At ISH4 [EV-042] the ExA followed up on the Applicant's responses to its written questions and asked about how effects on users of the PRow would be minimised, and how the Applicant would ensure that sections of PRow which are stopped up temporarily are in a reasonable condition when they are reopened after construction completion.
- 16.4.12. The Applicant explained, with reference to the updated outline PRow Strategy [REP3-024], that following further consultation with SCC there will be a temporary diversion for each PRow closed temporarily for the duration of the temporary closure, so effectively all such PRow will remain open, and there will be pre- and post-construction surveys to ensure that all PRow are restored to their original condition. The three PRow permanently closed will be replaced by an expanded PRow

network around the substation and National Grid infrastructure to the satisfaction of the local highway authority, which will be consulted on to develop an attractive footpath that walkers can enjoy, resulting in a negligible adverse impact [REP5-028].

- 16.4.13. SCC was satisfied with the Applicant's updated outline PRow Strategy and Temporary Stopping Up of PRow Plans [REP3 024] [REP3-008] [REP4-066] but said that it was concerned on safety grounds that the Applicant was proposing to use a section of Grove Road as a permanent PRow diversion [REP6 094], as did SASES [REP4-104]. The Applicant responded that the permanent diversion had been moved away from Grove Road to alleviate these concerns: the southern third would be microsituated post consent [REP7-060].

Outstanding issues

- 16.4.14. The ExA notes that the Applicant has reduced its substation footprint and committed to install the cable ducting for the other East Anglia project (if consented) at the same time as for this project [REP2-013]. However, although the Applicant expressed a clear preference for gas insulated switchgear (GIS), National Grid had expressed concern about the sulphur hexafluoride (SF6) gas currently used in GIS and wanted to keep the option of using either air insulated switchgear (AIS) or GIS for its substation [REP6-108].
- 16.4.15. At the close of the Examination the following matters remained not agreed in the Statement of Common Ground (SoCG) between the Applicant and the Councils (ESC and SCC) [REP12-070]:
- The adequacy of assessment of cumulative impacts of new projects;
 - Whether the impacts on the best and most versatile land have been minimised, particularly in respect of the National Grid infrastructure; and
 - Whether the embedded mitigation in respect of the National Grid infrastructure is sufficient.
- 16.4.16. ESC undertook a final review of actions identified in the LIR [REP13-034] and noted that the following matters remained unresolved in respect of commitment from the Applicant to:
- Greater consolidation of infrastructure;
 - Reduce the size of the substations, including the use of GIS for the National Grid substation; and
 - Greater coordination of project delivery.
- 16.4.17. The Applicant's closing position in respect of design refinement of the National Grid substation and Cumulative Impact Assessment is in its Topic Position Statements [REP13-023].

16.5. EXA RESPONSE

- 16.5.1. The ExA has considered the application documents, Relevant Representations and documents submitted into the Examination,

including responses to written questions and comments on responses. The ExA has also given particular consideration to the issues raised by ESC and SCC and responded to by the Applicant in its Land Use Clarification Note, to ESC's final review and to the Applicant's closing position.

- 16.5.2. The ExA is in agreement with the Applicant that:
- decommissioning impacts are expected to be no greater than construction impacts;
 - There are no transboundary impacts;
 - Interaction impacts are no greater than the originally assessed impacts;
 - There would be significant cumulative impacts on ESS and land taken out of use if both projects are constructed at the same time but no change in respect of the cumulative impact of the Sizewell projects.
- 16.5.3. The ExA is hence in broad agreement with both the methodology and assessment of impacts arising both during construction and during operation. In particular, the ExA agrees with the Applicant that the local impact of agricultural land taken out of existing use permanently is major adverse and therefore significant.
- 16.5.4. The ExA undertook USI1 on 20 and 21 January 2020 which enabled it to view on foot the land through which the cable route is proposed to pass, from landfall along the cable route to the site of the proposed substation and National Grid infrastructure at Friston.
- 16.5.5. Following the USI and consideration of all the written material, the ExA decided that it had an adequate understanding of the key issues and outstanding points of difference between the Applicant and the other parties.
- 16.5.6. The ExA is satisfied that PRow concerns have been properly addressed and that the Applicant will seek to minimise physical disruption to PRow and farming practices, and notes that soil management issues are addressed in a Soil Management Plan as part of the Code of Construction Practice, secured under Requirement 22 of the Applicant's dDCO [APP-023].
- 16.5.7. The ExA is also satisfied with the Applicant's commitment to use of GIS at its substation and to ducting of the other East Anglia project (if consented) during construction of this project [REP2-013].
- 16.5.8. The ExA notes that the onshore development area is directly adjacent to but does not encroach directly on any common land. However, due to the close proximity of common land and the nature of the proposed construction activities, the ExA considers that the impact of the proposals on common land, albeit temporary due to the infrastructure being buried, would be greater than negligible, particularly with respect to the close proximity of the construction works to both Thorpeness Common and Sizewell Common.

- 16.5.9. The ExA notes that the Applicant's assessment is that residual impacts arising both during construction and during operation would be at worst minor adverse. The ExA considers that the impacts on land use at landfall and along the cable route are essentially of a temporary nature and are likely to occur chiefly during construction due to the infrastructure being buried, and therefore agrees with this assessment.
- 16.5.10. The impacts in respect of land taken out of existing use at the substation/National Grid infrastructure site are essentially extensive, above ground, long term and irreversible. The ExA therefore agrees with the Applicant that the sensitivity is high.
- 16.5.11. The area of Grade 2 and Grade 3 land taken out of existing use permanently at the substation/National Grid infrastructure site (i.e. for longer than 10 years) is greater than 20 ha. With reference to Table 21.8 of Chapter 21 of the ES [APP-069], the ExA therefore considers that the magnitude is also high. Consequently, with reference to the impact significance matrix at Table 21.9 of Chapter 21 of the ES [APP-069], the ExA concludes that the local impact of the substation/National Grid infrastructure site in respect of land taken out of existing use is major adverse. The ExA therefore agrees with the Applicant's revised assessment, as admitted in its Land Use Clarification Note [REP1-022].
- 16.5.12. The onshore development area is predominantly agricultural and the land at the proposed substation and National Grid infrastructure site is all classed as Grade 2 or Grade 3 [APP-270], which the Applicant has assumed on a precautionary basis is all BMV [REP1-114]. Paragraph 5.10.15 of NPS EN-1 says that the decision maker should ensure that applicants do not site their scheme on the best and most versatile (BMV) agricultural land without justification. Justification in respect of the siting of the proposed substation and National Grid infrastructure appears to be on the basis of the site selection process [APP-052]. However, the site selection process appears to have been conducted at a strategic level using the Connection and Infrastructure Options Note (CION) process which looks at technical, commercial, regulatory and deliverability aspects as well as environmental aspects [APP-052] with weight placed on cost to the consumer and environmental impact on the Area of Outstanding Natural Beauty (AONB). ALC is considered under the "community" heading in the assessment of potential locations for the Applicant's substation but does not appear to be considered as part of the National Grid substation assessment, and minimising loss of BMV agricultural land is not listed as a site selection principle, nor is BMV agricultural land listed as an area to be excluded for either the Applicant's substation or the National Grid substation [APP-443]. Consequently, the ExA considers that only limited weight has been placed on loss of BMV agricultural land at the proposed substation and National Grid infrastructure site.
- 16.5.13. The ExA has considered the Cumulative Impact Assessment carried out by the Applicant and whether the National Grid Ventures (NGV) interconnector projects should have been included, bearing in mind the submission from NGV stating that "*NGV feasibility work to date has been*

based on an assumption that the proposed NGET substation at Friston ... is a potential connection point ..." [REP3-112] and the submission from the Applicant that *"it is considered highly unlikely that there would be any change to the impacts assessed in Chapter 21 of the ES (APP-069)."* [REP8-074].

16.6. CONCLUSIONS

- Following submission by the Applicant of its Land Use Clarification Note, the ExA concludes that the methodology and assessment of impacts arising both during construction and operation is satisfactory, and consequently that the local impact of agricultural land taken out of existing use permanently is major adverse and therefore significant.
- Due particularly to the close proximity of the construction works to both Thorpeness Common and Sizewell Common, the ExA concludes that the construction impact on common land is greater than negligible.
- The ExA concludes that physical disruption to PRoW and farming practices has been taken into account and can be properly mitigated.
- The ExA notes that suitable connection points to the existing overhead line are limited, but concludes that limited weight has been given by the Applicant to the quality of the agricultural land required for the onshore substation and National Grid infrastructure in the site selection process, and consequently concludes that the justification for the loss of best and most versatile agricultural land at the proposed substation and National Grid infrastructure site is weak in respect of the policy test in paragraph 5.10.15 of NPS EN-1.
- Drawing these findings together, the ExA concludes that the Proposed Development will have adverse impacts on land use, particularly on agricultural land to be taken out of use permanently, which would cause permanent harm and therefore be of medium significance and negative weight in the planning balance.

17. FINDINGS & CONCLUSIONS IN RELATION TO OTHER ONSHORE MATTERS

17.1. INTRODUCTION

- 17.1.1. This Chapter provides a response from the ExA to the balance of all other matters raised in the Examination in respect of the effects of the Proposed Development onshore.

17.2. CONSIDERATION & ExA RESPONSE

- 17.2.1. The ExA has considered all remaining matters, issues and questions raised in the Examination in respect of the effects of the Proposed Development onshore. There are none which affect the balance of conclusions reached in the onshore analysis for Chapter 6 to Chapter 16 of this Report, or require any subsequent consideration in respect of the Overarching Analysis, Planning Balance, Land Rights, Statutory Provisions or Conclusions reported on in Volume 2 of this Report.

17.3. CONCLUSIONS

- 17.3.1. There are no further conclusions in relation to onshore development that require to be carried forward and evaluated in the planning balance.

END OF VOLUME 1

For additional report content please continue to:

Volume 2

- Offshore Analysis
 - Chapter 18: Offshore Ornithology
 - Chapter 19: Marine Mammals
 - Chapter 20: Other Offshore Biodiversity Effects
 - Chapter 21: Marine Physical Effects and Water Quality
 - Chapter 22: Offshore Historic Environment
 - Chapter 23: Offshore Socio-economic and Other Effects
- Overarching Analysis
 - Chapter 24: Habitats Regulations Assessment
 - Chapter 25: Alternatives
 - Chapter 26: Good Design
 - Chapter 27: Other Overarching Matters
- The Planning Balance
 - Chapter 28: Conclusions on the Case for Development Consent
- Land, Rights and Statutory Provisions
 - Chapter 29: Compulsory Acquisition and Related Matters
 - Chapter 30: The Draft Development Consent Order and Related Matters
- Conclusions
 - Chapter 31: Summary of Findings and Conclusions

Volume 3

- Appendices
 - Appendix A
 - Appendix B
 - Appendix C
 - Appendix D