



The Sizewell C Project

6.14 Environmental Statement Addendum Volume 1: Environmental Statement Addendum Chapter 10 Project Wide, Cumulative and Transboundary Effects

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10 PROJECT-WIDE, CUMULATIVE AND TRANSBOUNDARY EFFECTS

10.1 Introduction

10.1.1 This chapter of the **Environmental Statement (ES) Addendum** provides an update to **Volume 10** of the **ES** (Doc Ref. 6.11) [[APP-572](#), [APP-573](#), [APP-575](#), [APP-576](#), [APP-577](#), [APP-578](#), [APP-579](#), [APP-580](#) and [APP-581](#)]. The scope and methodology applied within this assessment is consistent with that presented within **Volume 10, Chapter 1** of the **ES** (Doc Ref. 6.11) [[APP-572](#)].

10.1.2 The chapter presents the Additional Information prepared and the proposed changes to the cumulative effects assessment as a result of changes to the Sizewell C Project, since the submission of the Application (May 2020). A review of any Additional Information and the proposed changes have been undertaken by Environmental Impact Assessment (EIA) specialists across all technical assessments presented in **Volume 10** of the **ES** (Doc Ref. 6.11) [[APP-572](#), [APP-573](#), [APP-575](#), [APP-576](#), [APP-577](#), [APP-578](#), [APP-579](#), [APP-580](#) and [APP-581](#)]. The subsequent sections of this chapter provide an update to these assessments, as relevant.

10.1.3 A summary of the Additional Information and proposed changes is presented within **Chapter 1** of this **ES Addendum**.

10.1.4 The following sections detail how the Additional Information and proposed changes have been considered within each of the parts of the cumulative effects assessment and where they have introduced the potential for new or different effects from those described within in **Volume 10** of the **ES** (Doc Ref. 6.11) [[APP-572](#), [APP-573](#), [APP-575](#), [APP-576](#), [APP-577](#), [APP-578](#), [APP-579](#), [APP-580](#) and [APP-581](#)].

10.2 Inter-relationship effects

a) Relevant Additional Information and/ or relevant changes

10.2.1 All of the Additional Information and proposed changes described in **Chapter 1** of this **ES Addendum** have been reviewed to determine the potential for new or different significant effects to occur with regards to the assessment of inter-relationship effects, presented within **Volume 10, Chapter 2** of the **ES** (Doc Ref 6.11) [[APP-575](#)]. There is only one instance where the Additional Information and proposed changes lead to an adverse change to the inter-relationships assessment. As a result of the updated road traffic noise assessment for Yoxford roundabout and other

highway improvements, as detailed in **Chapter 7** of this **ES Addendum**, there is now a high potential for combined effects. This combined effect would arise from noise and vibration, where noise effects during operation of Yoxford roundabout and other highway improvements at night in 2028 (peak construction of the Sizewell C Project), are now anticipated to be moderate adverse significant (an increase from minor adverse), with residual effects predicted for air quality (negligible, not significant) and views of the proposed infrastructure and lighting at night (slight to moderate adverse, not significant). Combined, these effects are likely to lead to an increased sense of disturbance for the receptors at The Old Barn (noise receptor location 14) during operation of Yoxford roundabout, peak construction of the Sizewell C Project, and so an additional significant adverse inter-relationship effect is likely. Mitigation as set out in the 'Noise Mitigation Scheme' in **Volume 2, Chapter 11 Appendix 11G** of the ES (Doc Ref. 6.3) [\[APP-210\]](#) will be applied, where appropriate.

- 10.2.2 Whilst there are some instances of residual effects improving for individual topic areas at specific residential receptors, when considered in combination there is no change to the likelihood of inter-relationship effects experienced at these receptors. Therefore all other inter-relationship effects are considered to be no worse than predicted within **Volume 10, Chapter 2** of the **ES** (Doc Ref 6.11) [\[APP-575\]](#).

10.3 Project-wide effects

a) Relevant Additional Information and/ or relevant changes

- 10.3.1 All of the Additional Information and proposed changes described within **Chapter 1** of this **ES Addendum** have been reviewed to determine the potential for new or different significant effects to occur with regards to the assessment of project-wide effects, presented within **Volume 10, Chapter 3** of the **ES** (Doc Ref 6.11) [\[APP-577\]](#).
- 10.3.2 A number of the assessments presented within **Chapter 2** of this **ES Addendum** present an assessment of the project-wide environmental effects (such as the transport, and related assessments). However, there is potential for new and/or different environmental effects to arise, in addition to those identified within the technical assessments in **Chapters 2 to 9** of this **ES Addendum**, where two or more of the components of the Sizewell C Project impact upon the same receptor.
- 10.3.3 The review has concluded that none of the Additional Information and proposed changes would change the conclusions of the project-wide effects assessment and effects would remain as presented within **Volume 10, Chapter 3** of the **ES** (Doc Ref 6.11) [\[APP-577\]](#).

10.4 Cumulative effects with other plans, projects and programmes

10.4.1 The following sub-sections discuss the Additional Information and proposed changes to the Sizewell C Project and any implications these changes may have on the assessment of cumulative effects with other plans, projects and programmes as presented within **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [\[APP-578\]](#). **Section 10.4 a)** discusses the Additional Information and proposed changes on an individual topic basis, drawing on the conclusions from **Chapters 2 to 9** of this **ES Addendum**. **Section 10.4. b)** discusses the potential cumulative effects with the preferred water supply strategy and the Sizewell C Project.

a) Additional Information and proposed changes

10.4.2 Additional Information and proposed changes to the Sizewell C Project have been reviewed to determine the potential for new or different significant effects to occur with regards to the assessment of cumulative effects with other plans, project and programmes, presented within **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [\[APP-578\]](#).

10.4.3 The Additional Information with specific relevance for the cumulative effects assessment is the updated water supply strategy, which is assessed within **section 10.4 b)**.

10.4.4 The following sections provide updates to the assessment of cumulative effects with other plans, projects and programmes, as a result of Additional Information or proposed changes to the Sizewell C Project. Where a specialist topic does not mention a specific proposed change to the Sizewell C Project, this is because there are no identified cumulative effects relevant for that proposed change.

10.4.5 The following topics have no new or different adverse effects described within **Chapters 2 to 9** of this **ES Addendum**. Therefore, there would be no change to the residual cumulative effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [\[APP-578\]](#);

- Conventional waste and material resources;
- Socio-economics;
- Terrestrial historic environment;
- Marine historic environment;
- Radiological considerations;

- Major accidents and disasters; and
- Climate change.

10.4.6 Where new or different effects is described within **Chapters 2 to 9** of this **ES Addendum**, the potential for new or different cumulative effects is described in the following sections.

a) i) Transport

10.4.7 This section provides an addendum to the original cumulative assessment with reference to **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)] submitted with the Application.

10.4.8 The methodology for assessing cumulative construction traffic effects for this addendum is consistent with the **Transport Assessment** (Doc Ref. 8.5(A)) [[AS-017](#)] and **Volume 2, Chapter 10** of the **ES** (Doc Ref. 6.3) [[APP-198](#)] which considers the effects of traffic for the proposed development in detail.

10.4.9 The zone of influence for this addendum is consistent with that outlined in the original cumulative assessment.

10.4.10 The traffic modelling that supported the **Transport Assessment** (Doc Ref. 8.5(A)) [[AS-017](#)] and **Volume 2, Chapter 10** of the **ES** (Doc Ref. 6.3) [[APP-198](#)] included committed development and committed highway works, as agreed with Suffolk County Council, as well as background traffic growth. The assessment also included traffic associated with an outage at Sizewell B and the Sizewell B relocated facilities works.

10.4.11 The assessment of the cumulative transport effects therefore only included non-committed developments to determine the potential cumulative transport effects should the considered developments get consent and are implemented. The original cumulative assessment assessed only the combined effects of the proposed Scottish Power Renewables Schemes, East Anglia ONE North (ID 13) and East Anglia TWO (ID 14) with Sizewell C. The same approach has been taken for this addendum.

a) i) b) Relevant Additional Information

10.4.12 The following Additional Information is relevant to the updated cumulative transport assessment, as reported within **Volume 10, Chapter 4.4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)]:

- updates to VISUM traffic modelling based on further engagement with key transport stakeholders, to re-assess the cumulative transport

effects arising from the construction and operation of Sizewell C. The updated VISUM flows are referred to within this assessment as the ‘Refined cumulative DCO’ flows. Further detail of the changes that have been made to the VISUM model are set out in the **Transport Assessment Addendum** (Doc Ref. 8.5 Ad); and

- assessment of additional scenarios to those assessed within **Volume 2, Chapter 10** of the **ES** (Doc Ref. 6.3) [[APP-198](#)]. The ES submission included a cumulative assessment of the Early Years and peak construction of the Project. For the peak construction phase, a worst case of the Sizewell C busiest day was assessed assuming 1,000 two-way HGV movements. This updated assessment also considers the typical day at peak construction with 650 two-way HGV movements to provide an understanding of the potential ‘typical’ environmental transport effects rather than only the worst-case effects. The difference between these scenarios is only with regards to HGV volumes and therefore primarily affects the links on the A12 and Sizewell link road during peak construction.
- refined pedestrian delay calculations utilising the equation for determining pedestrian delay, as published in the Transport Research Laboratory paper (TRL SR356, Goldschmidt, 1976) (Ref. 1). The refined pedestrian delay calculations set out in this section are based on the equation rather than the graph included in TRL SR356 (Ref. 1).

10.4.13 The sensitivity of traffic links applied to the cumulative assessment is summarised in **Appendix 10.4A** of this chapter. Traffic link screening has been undertaken for the cumulative traffic flows in line with the original assessment.

a) i) c) Relevant changes

10.4.14 The following proposed changes are relevant to the updated cumulative transport assessment:

- Potential to increase in the frequency of freight train movements to facilitate bulk material imports by rail (Change 1);
- An enhancement of the permanent beach landing facility and construction of a new, temporary beach landing facility (Change 2); and
- Greater flexibility as to where certain Sizewell B facilities are relocated to potentially avoid the need for car parking on Pillbox Field (Change 3).

a) i) d) Updated assessment – additional information

- 10.4.15 Some of the strategic VISUM model inputs and assumptions have been refined following further engagement with stakeholders. The strategic VISUM model has therefore been re-run for all of the modelling scenarios included in the **Transport Assessment** (Doc Ref. 8.5) [AS-017] and the updated traffic flows used to inform the updated cumulative assessment.
- 10.4.16 This section presents an updated cumulative assessment of the transport effects arising from the construction of the main development site and the construction, operation and removal and reinstatement of the associated development sites. This assessment has been informed by refined cumulative DCO flows presented in the **Transport Assessment Addendum** (Doc Ref. 8.5Ad).

a) i) d) b) Updated cumulative assessment – updated traffic link screening

- 10.4.17 As per the original ES submission, IEMA guidance (Ref. 2) has been used to determine which links are to be screened in/screened out of the updated cumulative assessment based on the Refined cumulative DCO traffic flows. Within the IEMA guidance, two broad rules are suggested that can be used as a screening process to define the scale and extent of the assessment:
- Rule 1: include highway links where traffic flows would increase by more than 30% (or the number of HGVs would increase by more than 30%).
 - Rule 2: include any other specifically sensitive areas where traffic flows would increase by 10% or more.
- 10.4.18 In line with the original assessment, this updated assessment has also included an additional rule in the screening process ('Rule 3'):
- Rule 3: include highways links which SCC has determined to be of particular sensitivity.
- 10.4.19 **Appendix 10.4A** summarises the updated traffic link screening based on the Refined cumulative DCO traffic flows. The links that have changed, when compared with the original screening are in red in the table.
- 10.4.20 As a result of the updated screening process, there are 3 additional links screened in and 8 screened out for 2023 Early Years compared to the original screening process. The additional screened in/out links in the 2023 Early Years assessments are:
- Screened in: Link 16 – A12 Wrentham

- Screened in: Link 18 – A145 Beccles
- Screened in: Link 19b – A1117 (N)
- Screened out: Link 19a A1117 (N)
- Screened out: Link 73 – B1078 south of 1116
- Screened out: Link 82 – B1438 Melton Hill
- Screened out: Link 84 – A12 south of B1126
- Screened out: Link 85 – A12 south of A1095
- Screened out: Link 86 – A12 south of B1387
- Screened out: Link 89 – A1120 east of A140
- Screened out: Link 91 – A1152 at Eyke

10.4.21 There are an additional 8 links screened in and 2 screened out for the 2028 peak construction (busiest and typical day) assessment compared to the original screening process. The additional screened in/out links in the 2028 peak construction assessments are:

- Screened in: Link 12a - B1121 (N)
- Screened in: Link 14 – A12 north of Darsham park and ride
- Screened in Link 19b – A12 (N)
- Screened in: Link 19c – B1384 Stradbroke Rd
- Screened in: Link 34d – A1214 Main Road (W)
- Screened in: Link 51 - B1078 (through Gibraltar)
- Screened in: Link 66 – B1122 west of B1125
- Screened in: Link 77 – Aldeburgh Rd (north of Aldringham Lane)
- Screened out: Link 7 - B1069 Coldfair Green
- Screened out: Link 89 – A1120 east of A140

a) i) d) c) DCO updated (Refined DCO flows) – Early Years cumulative assessment

10.4.22 A summary of the roads that the updated cumulative assessment shows have the potential to exhibit significant cumulative effects with East Anglia ONE North (ID 13) and East Anglia TWO (ID 14) during the early years is presented below, along with an explanation as to whether the effects are significant with the application of professional judgement.

10.4.23 The complete updated Early Years cumulative transport assessment based on the Refined cumulative DCO flows is included in **Appendix 10.4A** of this chapter.

a) i) d) c) a) Severance

10.4.24 The cumulative assessment of severance is based on percentage change in the total daily traffic (24hr AAWT).

10.4.25 The updated cumulative assessment shows that there are no new or different significant effects for severance in the early years. There remains a **moderate adverse** effect on pedestrian severance on the B1125 (Link 17b) but the same professional judgement applies as for the original cumulative assessment and the effect would be **not significant**.

a) i) d) c) b) Pedestrian Delay

10.4.26 Consistent with the original cumulative assessment, the updated assessment shows that there are no cumulative effects on pedestrian delay in the early years associated with the increase in time for pedestrians to cross the road as a result of the increase in traffic. Likewise, there are no cumulative effects to pedestrian delay associated with the diversion of Public Rights of Way (PRoW).

a) i) d) c) c) Amenity

10.4.27 The cumulative assessment concluded that there are no road links that experience a significant adverse effect on amenity based on the 24 hour annual average weekday traffic (AAWT). The updated cumulative assessment shows that there are no new or different significant effects for amenity in the early years based on the 24 hour AAWT flows.

10.4.28 The updated assessment shows that there would be no new significant cumulative amenity effects for the Early Years compared to those set out in the original cumulative assessment. These remain as follows:

- Sizewell Gap (link 1) – **moderate adverse** effect on amenity;

- B1122 (links 4c, 10, 13b, 64, 66 and 74) – **moderate adverse** effect on amenity for link 13b and **major adverse** effect for the other links;
- A1117 Elm Tree Road in Lowestoft (link 19a) - **moderate adverse** effect on amenity.

10.4.29 The same professional judgement applies to the above links for the updated cumulative assessment as for the original cumulative assessment. In summary, the effect on amenity in the Early Years would be significant on Link 1 and 10 and would be significant in terms of cycle amenity on links 4c, 13b, 64, 66 and 74 but not significant in terms of pedestrian amenity on these links.

a) i) d) c) d) **Fear and Intimidation**

10.4.30 The same thresholds have been used as in the original cumulative assessment to provide an approximation of the likelihood of fear and intimidation. The thresholds define the degree of hazard to vulnerable road users by average traffic flow per hour over an 18 hour day and HDV flow over an 18 hour day.

10.4.31 The cumulative assessment concluded that there would be no links that would experience an increased magnitude of impact in fear and intimidation during the Early Years. The updated assessment does not change these conclusions.

10.4.32 Consistent with the conclusions in the original cumulative assessment, the updated cumulative assessment shows that there would be some road links that would experience an increased magnitude of impact in fear and intimidation as a result of the cumulative increase in heavy duty vehicles (HDVs). These links are all on dual carriageway sections of the A12 with no footways or cycleways, and based on on-site observations, not used by pedestrians or cyclists. It can be concluded that the cumulative effect of the Sizewell C Project and East Anglia ONE North (ID 13) and East Anglia TWO (ID 14) on fear and intimidation in the early years would be **not significant**.

a) i) d) c) e) **Driver and passenger delay**

10.4.33 A cumulative assessment of driver delay in the Early Years of construction was considered within the **Transport Assessment** (Doc Ref. 8.5(A)) [[AS-017](#)] and summarised within **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)].

10.4.34 The updated cumulative assessment, based on the Refined VISUM strategic modelling described in the **Transport Assessment Addendum** (Doc Ref. 8.5(A)Ad), is not materially different from the DCO and concludes that there is expected to be a **minor adverse** effect on driver

delay and bus passenger delay during the Early Years, which would be **not significant**. This is consistent with the conclusions in the cumulative assessment summarised in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)].

- 10.4.35 With regards to rail, the ES cumulative assessment concluded that the Early Years rail operation associated with the movement of construction material would not have any effect on rail passenger journey times, which would be not significant. There will be no change to the effect on rail passenger delay during the Early Years based on the updated cumulative assessment.

a) i) d) c) f) [Accident and road safety](#)

- 10.4.36 The original cumulative assessment concluded that there would be a **negligible** effect on road safety in the Early Years. The updated cumulative assessment, based on the Refined VISUM strategic modelling described in the **Transport Assessment Addendum** (Doc Ref. 8.5(A)Ad), is not materially different from the DCO and concludes that there is expected to be a **negligible** effect on road safety in the Early Years, which would be **not significant**.

a) i) d) d) [Updated assessment \(Refined DCO flows\) – Peak Construction cumulative assessment \(busiest day\)](#)

- 10.4.37 A summary of the roads that have the potential to exhibit significant cumulative effects with East Anglia ONE North (ID 13) and East Anglia TWO (ID 14) during the peak year of construction is presented below, along with an explanation as to whether the effects are significant with the application of professional judgement.

- 10.4.38 The complete updated peak construction (busiest day) cumulative assessment based on the refined cumulative refined DCO flows is included in **Appendix 10.4A** of this chapter.

a) i) d) d) a) [Severance](#)

- 10.4.39 The updated cumulative assessment shows that the same roads as for the original cumulative assessment have a significant effect on severance during the peak construction (busiest day), with the exception of Main Road, Martlesham (Link 34b) which reduces from major adverse effect in the original assessment to minor adverse in the updated assessment, which is **not significant**. This is due to the refinements of the strategic VISUM model in the Martlesham and Woodbridge area rather than changes in traffic flows.

a) i) d) d) b) [Pedestrian delay](#)

10.4.40 The cumulative assessment concluded that there are no cumulative effects on pedestrian delay during peak construction (busiest day) associated with the increase in time for pedestrians to cross the road as a result of the increase in traffic. There are no changes to the cumulative effects on pedestrian delay as part of the updated assessment.

a) i) d) d) c) **Amenity**

10.4.41 The updated cumulative assessment shows that the same roads as for the original cumulative assessment have a significant effect on amenity. These are as follows:

- B1122 Abbey Road (link 5) – **moderate adverse** effect;
- B1122 (links 10, 66 and 74) – **major beneficial** effect;
- Sizewell link road (links 10a, 57, 63, 65) – **major adverse** effect;
- two village bypass (link 23a) – **major adverse** effect; and
- former A12 (Link 24) through Farnham and Stratford St Andrew – **major beneficial** effect.

10.4.42 The same professional judgement applies to the above links as for the original cumulative assessment. The updated cumulative assessment shows that there are no new or different significant effects for amenity in peak construction.

a) i) d) d) d) **Fear and Intimidation**

10.4.43 The updated cumulative assessment shows that the cumulative effects on fear and intimidation during peak construction (busiest day) would be consistent with the original cumulative assessment. There would be a cumulative effect on fear and intimidation on the A12 at Little Glemham and Marlesford, which would see the effect on fear and intimidation increase from **minor adverse** to **moderate adverse**, which is **significant**. This is as a result of the cumulative increase in HDVs on the A12. This cumulative effect would not arise in the peak construction typical day, with the effect remaining at minor adverse.

a) i) d) d) e) **Driver and passenger delay**

10.4.44 A cumulative assessment of driver delay during peak construction (busiest day) was considered within the **Transport Assessment** (Doc Ref. 8.5(A)) [\[AS-017\]](#) and summarised within **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [\[APP-578\]](#).

- 10.4.45 The updated cumulative assessment, based on the Refined VISUM strategic modelling described in the **Transport Assessment Addendum** (Doc Ref. 8.5(A)Ad), is not materially different from the DCO and concludes that there is expected to be a **minor adverse** effect on driver delay and bus passenger delay during peak construction (busiest day), which would be **not significant**. The conclusions are therefore unchanged from the DCO cumulative assessment summarised in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)].

a) i) d) d) f) Accident and road safety

- 10.4.46 The original cumulative assessment concluded that there would not be a significant effect on road safety at peak construction. The updated cumulative assessment, based on the Refined VISUM strategic modelling described in the **Transport Assessment Addendum** (Doc Ref. 8.5(A)Ad), is not materially different from the DCO and concludes that there is expected to be a **negligible** effect on road safety during peak construction, which would be **not significant**.

a) i) d) e) Updated assessment – peak construction assessment (typical day)

- 10.4.47 The ES assessment within **Volume 2, Chapter 10** of the **ES** (Doc Ref. 6.3) [[APP-198](#)] assessed a worst case of the busiest day at peak construction. This updated cumulative assessment has also assessed the effects of peak construction during a typical day. The difference between the typical and busiest day is the volume of Sizewell C HGVs. All other Sizewell C traffic volumes remain constant between the peak construction typical and busiest day scenarios and therefore any change in effect will be on the HGV routes via the A12 and Sizewell link road during peak construction.

- 10.4.48 There are no changes in significance for any peak construction cumulative assessment typical day for severance, pedestrian delay and amenity when compared to that of busiest day. There is a reduced effect on fear and intimidation on the A12 at Little Glemham and Marlesford during the typical day of peak construction when compared to the busiest day. The cumulative effect would be minor adverse, which is **not significant**.

a) i) d) f) Updated assessment (refined DCO flows) – Operational phase

- 10.4.49 The operational year for Sizewell C (2034) has not been assessed cumulatively as the East Anglia ONE North and East Anglia TWO developments are anticipated to be operational before 2034.

a) i) e) Updated assessment – reduction in HGV movements (**Changes 1 and 2**)

10.4.50 This section considers the potential changes in the cumulative transport effects that are expected from the proposed **Changes 1 and 2**. The proposed changes would lead to a reduction in the number of HGVs on the road network during peak construction by up to 150 two-way HGV movements during the typical day and up to 300 two-way HGV movements during the busiest day that would occur as a result of the proposed changes to rail and marine capacity, as explained in the **Freight Management Strategy** (Doc Ref. 8.18).

a) i) e) b) Severance

10.4.51 The reduced HGV cumulative assessment (busiest and typical day) shows that the same roads as for the original cumulative busiest and typical day assessment have a significant effect on severance respectively.

10.4.52 There are no new or different significant cumulative effects for severance during peak construction (typical and busiest day) based on the reduced HGV flows resulting from **Changes 1 and 2** compared to the updated Refined DCO flow assessment.

a) i) e) c) Pedestrian delay

10.4.53 There are no new or different significant cumulative effects for pedestrian delay during peak construction (typical and busiest day) based on the reduced HGV flows resulting from **Changes 1 and 2** compared to the updated Refined DCO flow assessment.

a) i) e) d) Amenity

10.4.54 There are no new or different significant cumulative effects for amenity during peak construction (typical and busiest day) based on the reduced HGV flows resulting from **Changes 1 and 2** compared to the updated Refined DCO flow assessment.

a) i) e) e) Fear and Intimidation

10.4.55 The cumulative effect of fear and intimidation on the A12 at Little Glemham and Marlesford would be minor adverse during peak construction (typical and busiest day) based on the reduced HGV flows resulting from **Changes 1 and 2**, which is **not significant**.

a) i) e) f) Driver and passenger delay

10.4.56 The proposed **Changes 1 and 2** would reduce the busiest day HGVs from 1,000 movements per day to 700 movements per day. This scenario has not been assessed within the VISUM model, rather a manual adjustment was made to the Refined VISUM model traffic flows within the **Transport Assessment Addendum** (Doc Ref. 8.5(A)Ad), however it is expected that the reduction in HGVs on the road network would likely reduce journey time impacts for drivers and passengers.

10.4.57 With regards to rail, the updated ES assessment conclusions are unchanged from the DCO conclusions summarised within **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [APP-578], that the peak construction rail operation associated with the movement of construction material, under the Integrated Freight Management Strategy set out in **Chapter 11** of the **Transport Assessment** (Doc Ref. 8.5(A)) [AS-017], would not have any effect on rail passenger journey times, which would be **not significant**. With the proposed changes to the Freight Management Strategy, rail movements would increase from three trains per day to four or five trains per day, however the net increase in day-time rail movements would be unchanged and so there will be no changes to the effect on rail passenger delay during the peak construction (busiest day) based on the proposed changes to the Freight Management Strategy.

a) i) f) Additional mitigation and residual effects

10.4.58 There are no additional residual cumulative effects based on the updated assessment in this addendum and therefore no additional mitigation.

a) ii) Noise and Vibration

10.4.59 Noise and vibration assessments have been reviewed and revised where necessary to take account of the Additional Information and proposed changes and in relation to the main development site; the two village bypass, Sizewell link road, Yoxford roundabout and other highway improvements; the southern park and ride site and the rail proposals.

a) ii) a) Main development site

10.4.60 A review of the noise and vibration assessment has been carried out and outputs revised where necessary to take account of the Additional Information and proposed changes, including:

- The enhancement of the design of the permanent Beach Landing Facility (BLF) for the delivery of Abnormal Indivisible Loads and the

provision of a new temporary BLF for the delivery of bulk materials (**Change 2**).

- The change to certain parameter heights and activities on the main development site to facilitate the construction process (**Change 4**).
- The change to the location of the water resource storage area and the addition of flood mitigation measures to lower flood risk (**Change 5**).
- The extension of the Order Limits to provide for additional fen meadow habitat at Pakenham as mitigation for fen meadow loss (**Change 13**).
- The changes to road traffic noise levels on existing roads as a result of refinements to the strategic traffic model, (refer to **Transport Assessment Addendum** (Doc Ref. 8.5(A)Ad)); and reductions in HGVs due to the potential to increase rail movements (**Change 1**) and the proposed additional temporary BLF (**Change 2**), as described within **Chapter 2** of the **ES Addendum** and detailed in the update of the **Freight Management Strategy** (Doc Ref 8.18).

10.4.61 There would be some changes to the predicted noise levels at some noise sensitive receptors presented in **Volume 2, Chapter 11** of the ES (Doc Ref. 6.3) [[APP-202](#)] as a result of the Additional Information and proposed changes associated with the main development site. Some of these changes in noise levels have resulted in changes to predicted effects. However as reported in **section 2.6** of this **ES Addendum**, with the exception of the additional traffic modelling and assessment undertaken, there would be no changes to the assessment conclusions presented within **Volume 2, Chapter 11** of the ES (Doc Ref. 6.3) [[APP-202](#)] and there would be no changes to the cumulative effects assessment of noise and vibration presented within **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)].

10.4.62 There is the potential for change to the cumulative effects assessment as a result of the additional traffic modelling and assessment for the two village bypass, Sizewell link road and Yoxford roundabout.

10.4.63 Revisions have been carried out to the road traffic noise predictions to take account of the following three changes:

- A correction to the road traffic noise calculations presented in **Volume 5, Chapter 4** of the **ES** (Doc Ref 6.6) [[APP-415](#)]; **Volume 6, Chapter 4** of the **ES** (Doc Ref 6.7) [[APP-451](#)]; and **Volume 7, Chapter 4** of the **ES** [[APP-484](#)].
- Refinements to the strategic traffic model (refer to **Transport Assessment Addendum** (Doc Ref. 8.5 Ad) for further information).

- A reduction in HGV numbers which would occur as a result of Change 1 (potential changes to increase rail movements) and Change 2 (the proposed additional temporary BLF).

10.4.64 The review has identified changes to predicted noise levels at some noise sensitive receptors as presented in **Chapter 4 of Volumes 4, 5 and 6** of the **ES** (Doc Refs. 6.5 to 6.7) [[APP-415](#), [APP-451](#) and [APP-484](#)]. Some of these changes in predicted noise levels have resulted in changes to predicted effects and these are reported in **sections 5.3, 6.3 and 7.3** of this **ES Addendum**. These include changes to the significance of the predicted effects.

10.4.65 Although changes in residual effects from the noise and vibration assessment within the **ES** are predicted, there are no changes to cumulative effects assessment of noise and vibration presented within **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)]. There were previously assessed to be no significant adverse cumulative noise and vibration effects associated with the construction and operation of these associated developments and none of the changes in outcomes would result in a combined change to predicted effects with the plans, projects and programmes considered previously.

a) ii) b) Southern park and ride

10.4.66 The minor changes to the layout, retention of the private access and revisions to the Order limits of the southern park and ride site (**Change 10**) would not change the assessment of noise and vibration effects presented in **Volume 4, Chapter 4** of the **ES** (Doc Ref. 6.5) [[APP-384](#)]. There would therefore be no changes to cumulative effects assessment of noise and vibration presented within **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)].

a) ii) c) Rail

10.4.67 Revisions have been carried out to the rail airborne noise and groundborne noise and vibration predictions to take account of the following:

- A correction to the airborne rail noise calculations presented in **Volume 9, Appendix 4B** of the **ES** (Doc Ref 6.10) [[APP-546](#)].
- Additional Information gathered in August 2020 on the propagation of ground-borne noise and vibration as a result of the passage of construction trains. This has enabled a more refined, and more robust, assessment method to be used, that takes account of the specific circumstances that apply to the Sizewell C Project.

- The potential increase in construction trains (**Change 1**).

- 10.4.68 Additional Information was also gathered in August 2020 on the amount of airborne noise generated by construction trains. While this information suggests that the effects set out in **Volume 9, Chapter 4** of the **ES** (Doc Ref 6.10) [APP-545] were over-estimated, the same airborne noise source terms previously used have been retained to provide a robust assessment. No changes have been made to the airborne noise calculations as a result of this Additional Information.
- 10.4.69 The airborne noise outcomes are not changed from those set out in **Volume 9, Chapter 4** of the **ES** (Doc Ref 6.10) [APP-545]. While some of the overall night-time L_{Aeq} noise levels have increased by a small amount, no changes in the level of effect has resulted, and the outcomes are still determined by the maximum noise levels (L_{AFmax}) associated with each construction train.
- 10.4.70 The approach adopted in **Volume 9, Chapter 4** of the **ES** (Doc Ref 6.10) [APP-545] is that a single event above one of the maximum noise level assessment thresholds is deemed to result in the associated effect; this more stringent approach to the assessment of night-time maximum sound levels means that the locations where adverse effects were anticipated in **Volume 9, Chapter 4** of the **ES** (Doc Ref 6.10) [APP-545] will still have the same adverse effects. They will occur more frequently, in proportion to the number of construction trains, but the significance of the outcome will remain as described in **Volume 9, Chapter 4** of the **ES** (Doc Ref 6.10) [APP-545].
- 10.4.71 The Additional Information has resulted in a new, more stringent approach to assessing groundborne noise, where groundborne noise is now assessed in combination with low frequency airborne sound and additional criteria are identified for the daytime period.
- 10.4.72 These amendments to the assessment method are due to the specific circumstances associated with the Sizewell C Project, where groundborne noise from trains will be heard in combination with low frequency airborne noise entering the dwellings primarily through the windows, and trains are introduced to an existing line and those trains are different to the majority of the existing regular services. These are not typical for ground-borne noise assessments.
- 10.4.73 The Additional Information on groundborne noise and vibration has resulted in the predicted effects being marginally less adverse than had been predicted in **Volume 9, Chapter 4** of the **ES** (Doc Ref 6.10) [APP-545], and has enabled the identification of more detailed mitigation.

- 10.4.74 The mitigation proposed for railway noise is captured in the draft ‘Rail Noise Mitigation Strategy’, which is contained in **Appendix 9.3.E** of this **ES Addendum** (Doc Ref 6.14). The mitigation includes:
- Track and signalling upgrade allow the potential for construction trains to enter or leave the Saxmundham to Leiston branch line without stopping.
 - Upgrade to the Saxmundham to Leiston branch line track to include continuous as-rolled rail with welded joints.
 - Night-time 10mph speed limits for construction trains on the East Suffolk line in Woodbridge/Melton, Campsea Ashe and Saxmundham.
 - A 10mph speed limit on the Saxmundham to Leiston branch line in the early years.
 - Pending the results of further assessment of the upgraded and mitigated Saxmundham to Leiston branch line during the early years operation, the speed limit on Saxmundham to Leiston branch line may be increased to 20mph.
 - The speed limit on the proposed rail extension route will match that applied to the Saxmundham to Leiston branch line in the later years. This will enable constant train speeds to be maintained, thereby avoiding accelerating locomotive noise close to the north-western corner of Leiston.
 - No construction train movements through Leiston between 23:00 hours and 07:00 hours.
 - Use of Class 66 locomotive, where there is equivalent choice.

- 10.4.75 On the basis of the above, there would be no change to the conclusion of the cumulative effects assessment for noise and vibration presented within **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)].

a) iii) Air Quality

- 10.4.76 Air Quality assessments have been reviewed and revised where necessary to take account of Additional Information and proposed changes in relation to the main development site; the northern park and ride site; the southern park and ride site the two village bypass, Sizewell link road, Yoxford roundabout and other highway improvements; the freight management facility; and the rail proposals.

a) iii) a) Additional Information and proposed changes

a) iii) a) a) Main development site

10.4.77 A review of the air quality assessment has been carried for the main development site, to take account of the Additional Information and proposed changes, including:

- updates to correct errors within **Volume 2, Chapter 12** and **Appendix 12A** of the **ES** (Doc Ref. 6.3) [[APP-212](#); [APP-213](#)];
- updated air quality modelling of transport emissions to take into account the following:
 - refined traffic representative estimate of 24-hour Annual Average Daily Traffic (AADT) for 2018 and future baseline scenarios, 2023 early year, 2028 peak year and 2034 operational scenarios (refer to **Transport Assessment Addendum** for further information (Doc Ref. 8.5(A)Ad));
 - Emissions Factors Toolkit (EFT) version 10.1 (Ref. 3);
 - Defra's projected 2018-based Background Pollutant Concentration Maps (Ref. 4);
 - NO_x to NO₂ conversion tool v8.1 (Ref. 5);
- additional sensitivity testing, comprising:
 - transport emissions sensitivity testing of 100% HGVs from the south; and
 - Stratford St Andrew Air Quality Management Area (AQMA) sensitivity testing (refer to **Volume 3, Appendix 2.7.A** of the **ES Addendum** for further information).

10.4.78 The following changes have been considered within the revised assessment for air quality at the main development site:

- enhancement of the permanent BLF and construction of a new temporary BLF (**Change 2**);
- change to certain parameter heights and activities on the main development site (**Change 4**); and
- extension of the Order Limits to provide for additional fen meadow habitat at Pakenham (**Change 11**).

- 10.4.79 The potential increase in rail movements during construction of Sizewell C (**Change 1**) and the additional temporary BLF (**Change 2**) would result in a reduction in construction traffic (heavy duty vehicles (HDV)¹) movements and an increase in the number of freight trains and vessel movements by sea during construction, as described in **section 2.2** of this chapter. The air quality assessment of the associated transport emissions is set out in **Volume 3, Appendix 2.7.C** of the **ES Addendum**.
- 10.4.80 All other proposed changes described in **Chapter 2** of the **ES Addendum** would not alter the assessment of air quality effects and, therefore, have not been considered further.
- a) iii) a) b) Northern park and ride
- 10.4.81 There is no relevant Additional Information for the assessment of air quality effects at the northern park and ride.
- 10.4.82 Proposed changes relevant to the assessment of effects on air quality at the northern park and ride include:
- the reduced HGV movements during construction of Sizewell C with the proposed changes to increase rail movements (**Change 1**); and
 - the additional temporary BLF (**Change 2**).
- 10.4.83 All proposed changes described in **Chapter 3** of this **ES Addendum** would not alter the assessment of cumulative effects on air quality at the northern park and ride site and, therefore, have not been considered further.
- a) iii) a) c) Southern park and ride
- 10.4.84 There is no relevant Additional Information for the assessment of air quality effects at the southern park and ride.
- 10.4.85 Relevant proposed changes for the assessment of effects on air quality at the southern park and ride include:
- the reduced HGV movements during construction of Sizewell C with the proposed changes to increase rail movements (**Change 1**);
 - and the enhancement of the permanent BLF and additional temporary BLF (**Change 2**); and

¹ The term heavy duty vehicle (HDV) is used in the air quality assessment as an extension of heavy good vehicles (HGVs) to include consideration of other heavy vehicles, for example buses and/or coaches.

- the extension of the landscape bund along the north-west boundary of the northern park and ride site.

10.4.86 All other proposed changes described in **Chapter 4** of this **ES Addendum** would not alter the assessment of cumulative effects on air quality at the southern park and ride site and, therefore, have not been considered further.

a) iii) a) d) Two village bypass

10.4.87 There is no relevant Additional Information for the assessment of air quality effects at the two village bypass.

10.4.88 Relevant proposed changes for the assessment of effects on air quality at the two village bypass include:

- the reduced HGV movements during construction of Sizewell C with the proposed changes to increase rail movements (**Change 1**); and
- the enhancement of the permanent BLF and additional temporary BLF (**Change 2**).

10.4.89 All other proposed changes described in **Chapter 5** of this **ES Addendum** would not alter the assessment of cumulative effects on air quality at the two village bypass and, therefore, have not been considered further.

a) iii) a) e) Sizewell link road

10.4.90 There is no relevant Additional Information for the assessment of air quality effects at the Sizewell link road.

10.4.91 Relevant proposed changes for the assessment of effects on air quality at the Sizewell link road include:

- the reduced HGV movements during construction of Sizewell C with the potential changes to increase rail movements (**Change 1**); and
- the proposed additional temporary BLF (**Change 2**).

10.4.92 All other proposed changes described in **Chapter 6** of this **ES Addendum** would not alter the assessment of cumulative effects on air quality at the Sizewell link road and, therefore, have not been considered further.

a) iii) a) f) Yoxford roundabout and other highway improvements

10.4.93 There is no relevant Additional Information for the assessment of air quality effects at the Yoxford roundabout site.

- 10.4.94 Relevant proposed changes for the assessment of effects on air quality at the Yoxford roundabout site include:
- the reduced HGV movements during construction of Sizewell C with the potential to increase rail movements (**Change 1**); and
 - the proposed additional temporary BLF (**Change 2**).
- 10.4.95 All other proposed changes described in **Chapter 7** of this **ES Addendum** would not alter the assessment of cumulative effects on air quality at the Yoxford roundabout site and, therefore, have not been considered further.
- a) iii) a) g) Freight Management Facility
- 10.4.96 There is no relevant Additional Information for the assessment of air quality effects at the freight management facility.
- 10.4.97 Relevant proposed changes for the assessment of effects on air quality within the study area of the freight management facility site include:
- the reduced HGV movements during construction of Sizewell C with the potential changes to increase rail movements (**Change 1**); and
 - the proposed additional temporary BLF (**Change 2**).
- 10.4.98 All other proposed changes described in **Chapter 8** of this **ES Addendum** would not alter the assessment of cumulative effects on air quality at the freight management facility and, therefore, have not been considered further.
- a) iii) a) h) Rail proposals
- 10.4.99 There is no relevant Additional Information for the assessment of air quality effects at the rail proposals.
- 10.4.100 Relevant proposed changes for the assessment of effects on air quality include:
- the potential increase in rail movements during construction of Sizewell C (**Change 1**), as well as the reduction in HGV movements as a result of the potential increase in rail movements (**Change 1**); and
 - the proposed additional temporary BLF (**Change 2**), as described within **Chapter 2** of the **ES Addendum**.

10.4.101 All other proposed changes described in **Chapter 9** of this **ES Addendum** would not alter the assessment of cumulative effects on air quality at the rail proposals and, therefore, have not been considered further.

a) iii) b) Updated Assessment

10.4.102 The Additional Information or proposed changes do not change the assessment conclusions for construction dust and the cumulative assessment as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)].

a) iii) b) a) Additional Information - Traffic modelling and assessment: 2023 Early years

10.4.103 The updated traffic modelling and assessments undertaken do not significantly change the potential air quality effects resulting from transport emissions associated with the other plans, project and programmes on the cumulatives shortlist (**Volume 10, Appendix 1B** of the **ES** (Doc Ref. 6.11) [[APP-573](#)]) and early year (2023) construction and peak year (2028 average and busiest day) construction of the Sizewell C project.

10.4.104 Predicted NO₂, PM₁₀ and PM_{2.5} concentrations for individual representative receptors during the 2023 early year cumulative scenario are presented in **Table 1** to **Table 6** and **Table 7** to **Table 9** of **Volume 3, Appendix 10.4.B** to this **ES Addendum**.

10.4.105 The predicted change in impacts from transport emissions for the cumulative 2023 early year scenario compared to the 2023 reference case scenario would have a 'negligible' effect at most receptors. A limited number of receptors would experience beneficial effects on local air quality that would be 'minor'. This is the same as the 'negligible' effect at most receptors and a 'minor' beneficial effect at a limited number of receptors that was reported in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)]. The overall effect resulting from transport emissions associated with the early year construction and peak year of construction of the main development site and associated developments, combined with effects from transport emissions associated with the shortlisted non-Sizewell C developments (**Volume 10, Appendix 1B** of the **ES** (Doc Ref. 6.11) [[APP-573](#)]), would have no change from the overall effect described in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)] and therefore would be **not significant** for all sensitive receptors within the study area.

a) iii) b) b) Additional Information - Traffic modelling and
assessment: 2028 - Average and Busiest Day

10.4.106 As reported in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)], the predicted change in impacts from transport emissions for the cumulative 2028 average and busiest day scenarios compared to the 2028 reference case scenario would have a ‘negligible’ effect at most receptors. a limited number of receptors near the two village bypass would experience a ‘minor’ adverse effect. A limited number of receptors would experience beneficial effects on local air quality that would be ‘minor’ or ‘moderate’, compared to a ‘negligible’ effect at most receptors, ‘moderate’ beneficial effect at a limited number of receptors and ‘minor’ or ‘moderate’ adverse effects that were reported in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)]. The overall effect resulting from transport emissions associated with the peak year average and busiest day construction of the main development site and associated developments, combined with effects from transport emissions associated with the shortlisted non-Sizewell C developments (**Volume 10, Appendix 1B** of the **ES** (Doc Ref. 6.11) [[APP-573](#)]), would have no change from the overall effect described in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)] and therefore would be **not significant** for all sensitive receptors within the study area.

a) iii) b) c) Reductions in HDVs due to the potential to increase rail
movements (Change 1) and the proposed additional temporary BLF
(Change 2)

10.4.107 The predicted change in impacts from transport emissions from the reductions in HDVs due to the potential to increase rail movements (**Change 1**) and the proposed additional temporary BLF (**Change 2**) would have a ‘negligible’ effect at most receptors for the cumulative 2028 average and busiest day scenarios compared to the 2028 reference case scenario; a limited number of receptors near the two village bypass would experience a ‘minor’ adverse effect. A limited number of receptors would experience beneficial effects on local air quality that would be ‘minor’ or ‘moderate’. The overall effect resulting from transport emissions associated with the peak year average and busiest day construction of the main development site and associated developments, combined with effects from transport emissions associated with the shortlisted non-Sizewell C developments (**Volume 10, Appendix 1B** of the **ES** (Doc Ref. 6.11) [[APP-573](#)]), would have no change from the overall effect described in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)] and therefore would be **not significant** for all sensitive receptors within the study area.

a) iv) Landscape and Visual

10.4.108 Landscape and visual assessments have been reviewed and revised where necessary to take account of the Additional Information and proposed changes in relation to the main development site; the southern park and ride site; the two village bypass and Sizewell link road.

a) iv) a) Main development site

10.4.109 The Additional Information summarised in **Chapter 2, section 2.2** of this **ES Addendum** does not alter the landscape and visual assessment undertaken in **Volume 2, Chapter 13** of the **ES** (Doc Ref. 6.3) [APP-216].

10.4.110 The following design changes have been considered within the revised assessment for landscape and visual receptors at the main development site:

- enhancement of the permanent BLF (**Change 2**);
- construction of a new, temporary BLF (**Change 2**);
- greater flexibility as to where certain Sizewell B facilities are relocated (**Change 3**);
- change to certain parameter heights and activities on the main development site (**Change 4**);
- change to the location of the water resource storage area and the addition of flood mitigation measures (**Change 5**);
- change to the SSSI crossing design to a single span bridge with embankments (**Change 6**);
- revisions to tree retention on the main development site (**Change 7**);
- surface water removed early in the construction process to be discharged to the foreshore via a temporary outfall structure (**Change 8**);
- change to the sea defence to make the scheme more efficient and resilience to climate change (**Change 9**);
- extension of the Order Limits to provide additional fen meadow habitat at Pakenham (**Change 11**);

- minor extensions and reductions of the Order Limits for works on the main development site and related sites (fen meadow mitigation and marsh harrier improvement sites) (**Change 13**); and
- a new bridleway link between Aldhurst Farm and Kenton Hills (**Change 15**).

10.4.111 All other proposed changes described in **Chapter 2** of this **ES Addendum** would not alter the assessment of landscape and visual effects and, therefore, have not been considered further.

10.4.112 **Chapter 2, section 2.8** of this **ES Addendum** considers the landscape and visual effects of the Additional Information and proposed changes relating to the main development site. The assessment identifies increases in the significance of effects on some areas of landscape and seascape character, visual receptors and the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) and Suffolk Heritage Coast along the coastline, as a result of the changes to the construction and operation of the temporary BLF, during construction.

10.4.113 As set out in the landscape and visual section of **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)], for most landscape and seascape character types and visual receptors, the addition of the other plans, project and programmes would not result in an increase to the significance of the effects during construction from those assessed for the Sizewell C Project alone.

10.4.114 In relation to the construction and operation of the temporary BLF, **Chapter 2, section 8** of this **ES Addendum** identifies changes in the level of significance for the following receptors:

- Visual Receptor Group 20: Sizewell to Thorpeness Coast - combined major-moderate significant to moderate adverse not significant effects from the Sizewell C Project during construction, both during the day and at night. The landscape and visual section of **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)] predicted an increase in the significance of effects for this Visual Receptor Group during construction when considered in combination with construction effects of the East Anglia ONE North (ID 13) and East Anglia TWO (ID 14) landfall and cable route, including the presence of construction compounds. This overall increase to major-moderate adverse significant effects in the medium term would remain.

10.4.115 For Visual Receptor Group 18: Knodishall and Aldringham and Visual Receptor Group 19: Aldringham Common and The Walks, the predicted increase in the significance of effects during construction when considered in combination with construction effects of the East Anglia

ONE North (ID 13) and East Anglia TWO (ID 14) landfall and cable route, including the presence of construction compounds, would remain.

a) iv) b) Southern park and ride

10.4.116 There is no relevant Additional Information for the assessment of landscape and visual effects at the southern park and ride site.

10.4.117 The only relevant proposed changes for the assessment of landscape and visual effects at the southern park and ride site is:

- the extension of landscaped bund, other minor changes at the southern park and ride, including a minor reduction of the site boundary (**Change 10**).

10.4.118 There is no potential for new or different significant effects to occur with regards to the assessment of cumulative landscape and visual effects with other plans, project and programmes associated with the changes at southern park and ride.

a) iv) c) Two village bypass

10.4.119 The Additional Information relating to provision of a second indicative area for a temporary contractor compound at the western end of the two village bypass has been considered.

10.4.120 Relevant proposed changes for the assessment of landscape and visual effects at the two village bypass site include:

- changes to the site boundary as a result of:
 - highway changes;
 - Public Rights of Way changes; and
- additional floodplain grassland mitigation.

10.4.121 There is no potential for new or different significant effects to occur with regards to the assessment of cumulative landscape and visual effects with other plans, project and programmes associated with the changes to the two village bypass.

a) iv) d) Sizewell link road

10.4.122 The Additional Information relating to the location of two temporary contractor compounds at the Sizewell link road site has been considered.

10.4.123 Relevant proposed changes for the assessment of landscape and visual effects at the Sizewell link road site include changes to the site boundary as a result of:

- highway changes including alteration of PRow;
- drainage changes;
- changes as a result of topographical survey information; and
- reductions in permanent land take.

10.4.124 There is no potential for new or different significant effects to occur with regards to the assessment of cumulative landscape and visual effects with other plans, project and programmes associated with the changes to the Sizewell link road.

a) v) Terrestrial ecology and ornithology

10.4.125 Terrestrial ecology and ornithology assessments have been reviewed and revised where necessary to take account of the Additional Information and proposed changes in relation to the main development site; the northern park and ride site; the southern park and ride site; the two village bypass, Sizewell link road; and the rail proposals.

a) v) a) Main development site

10.4.126 Relevant Additional Information for the assessment of effects on terrestrial ecology and ornithology at the main development site includes the following new baseline survey reports submitted to the Examining Authority in November and December 2020:

- Phase 1 Habitat Survey Update 2020 Doc Ref. 6.13) [[AS-021](#)];
- National Vegetation Classification (NVC) Survey Report 2020 (Doc Ref. 6.13) [[AS-021](#)];
- Bat Tree Inspection Survey Report 2020 (Doc Ref. 6.13) [[AS-021](#)];
- Bat Backtracking Survey Report 2020 (Doc Ref. 6.13(A)) [[AS-037](#)];
- Bat Static Monitoring Survey Report 2020 (Doc Ref. 6.13(A)) [[AS-037](#)];
- Breeding Birds and Waterfowl Survey Report (Doc Ref. 6.13) [[AS-021](#)];
- Tern Survey Report 2020 (Doc Ref. 6.13) [[AS-022](#)];

- Marsh Harrier Survey Report 2020 (Doc Ref. 6.13(A)) [[AS-036](#)];
- Barn Owl and Nightjar Survey Report 2020 (Doc Ref. 6.13(A)) – [[AS-036](#)];
- Reptile Survey Report 2020 (Doc Ref. 6.13(A)) [[AS-036](#)];
- Great Crested Newt Survey Report 2020 (Doc Ref. 6.13) [[AS-021](#)];
- Natterjack Toad Survey Report (Doc Ref. 6.13) [[AS-021](#)];
- Fish Survey Report 2020 (Doc Ref. 6.13(A)) [[AS-036](#)]; and
- Invertebrate Survey Report 2020 (Doc Ref. 6.13(A)) [[AS-036](#)].

10.4.127 In addition, to the above survey reports, the following documents are submitted as appendices to this ES Addendum:

- Additional baseline survey reports (refer to **Volume 3, Appendix 2.9.A of this ES Addendum**), comprising:
 - Badger Survey Report 2020;
 - Otter and Water Vole Survey Report 2020;
 - Wintering Bird Survey Report 2019-2020; and
 - Additional Incidental Bird Sightings Report July to September 2020.
- Updated Bat Impact Assessment– **Volume 3, Appendix 2.9.B of this ES Addendum**;
- Protected species licence and method statement updates (**Volume 3, Appendix 2.9.C of this ES Addendum**), comprising:
 - Deptford Pink Draft Licence Update – Method Statement;
 - Natterjack Toad Draft Licence Update – Method Statement Part 1;
 - Natterjack Toad Draft Licence Update – Method Statement Part 2;
 - Water Vole Draft Licence Update – Method Statement;
 - Great Crested Newt – Updated Non-Licensable Method Statement; and

- Fen Meadow Strategy – **Volume 3, Appendix 2.9.D** of this **ES Addendum**.

10.4.128 Furthermore, a Freshwater Fish and Aquatic Invertebrates Mitigation Strategy is now provided within Appendix A of Part B of the **Code of Construction Practice (CoCP)** (Doc Ref. 8.11(A)A).

10.4.129 The following design changes have been considered within the revised assessment for terrestrial ecology and ornithology at the main development site:

- Potential to increase in the frequency of freight train movements to facilitate bulk material imports by rail (**Change 1**).
- An enhancement of the permanent beach landing facility and construction of a new, temporary beach landing facility (**Change 2**).
- Greater flexibility as to where certain Sizewell B facilities are relocated to potentially avoid the need for car parking on Pillbox Field (**Change 3**).
- Change to certain parameter heights and activities on the main development site (**Change 4**).
- Change to the location of the water resource storage area and the addition of flood mitigation measures to lower flood risk (**Change 5**).
- Change to the SSSI crossing design to a single span bridge with embankments (**Change 6**).
- Revisions to tree retention on the main development site (**Change 7**).
- Surface water removed early in the construction process to be discharged to the foreshore via a temporary outfall (**Change 8**).
- Change to the sea defence to make the scheme more efficient and resilient to climate change (**Change 9**).
- Extension of the Order Limits to provide for additional fen meadow habitat at Pakenham as mitigation for fen meadow loss (**Change 11**).
- Minor extensions and reductions of the Order Limits for works on the main development site and related sites (fen meadow mitigation sites and marsh harrier improvement sites) (**Change 13**).
- A new bridleway link between Aldhurst Farm and Kenton Hills (**Change 15**).

10.4.130 The proposed changes to the Sizewell C Project have been reviewed and whilst there are new or different effects described within **Chapter 2** of the **ES Addendum**, these are not considered to change the conclusions of the cumulative effects assessment and effects would remain as described in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)]. An updated assessment of the potential cumulative effects with the construction of the Scottish Power Renewable Developments (East Anglia ONE North, TWO and THREE) is presented as **Appendix 10.4.C** of the **ES Addendum**.

a) v) b) Northern park and ride site

10.4.131 Relevant Additional Information for the assessment of effects on terrestrial ecology and ornithology at the northern park and ride comprises:

- an updated extended Phase 1 habitat survey submitted in December 2020 (Doc Ref. 6.13) [[AS-036](#)].

10.4.132 There are no relevant proposed changes considered within the revised assessment for terrestrial ecology and ornithology for the northern park and ride.

10.4.133 The Additional Information for the northern park and ride site have been reviewed and there is no potential for new or different significant cumulative effects to occur with regards to the assessment of terrestrial ecology and ornithology effects with other plans, project and programmes.

a) v) c) Southern park and ride site

10.4.134 Relevant Additional Information for the assessment of effects on terrestrial ecology and ornithology at the southern park and ride site comprises:

- the updated Phase 1 habitat survey (Doc Ref. 6.13) [[AS-036](#)].

10.4.135 There are no relevant proposed changes considered within the revised assessment for terrestrial ecology and ornithology for the southern park and ride.

10.4.136 The Additional Information for the southern park and ride has been reviewed and there is no potential for new or different significant cumulative effects to occur with regards to the assessment of terrestrial ecology and ornithology effects with other plans, project and programmes.

a) v) d) Two village bypass

10.4.137 Relevant Additional Information for the assessment of effects on terrestrial ecology and ornithology at the two village bypass site includes the following:

- Changes by Natural England to the boundary of the ancient woodland at Foxburrow Wood.
- An **Outline Landscape and Ecological Management Plan (OLEMP)** for the two village bypass site has also been submitted and is provided in **Book 8** (refer to Doc Ref. 8.3A).

10.4.138 The relevant proposed changes considered within the revised assessment for terrestrial ecology and ornithology for the two village bypass include:

- The extension of the site boundary for works on the two village bypass (**Change 12**) for additional land required to facilitate the highway works and a change to the PRoW E-243/011/0 around Walk Barn Farm) as well as the associated vegetation clearance requirements.
- Additional habitat mitigation proposals (the creation of additional (and enhancement) of floodplain grassland measures.

10.4.139 The Additional Information and proposed changes for the two village bypass have been reviewed and there is no potential for new or different significant cumulative effects to occur with regards to the assessment of terrestrial ecology and ornithology effects with other plans, project and programmes.

a) v) e) Sizewell link road

10.4.140 Relevant Additional Information for the assessment of effects on terrestrial ecology and ornithology at the Sizewell link road site includes:

- The 2020 Ecology Surveys Report – Sizewell Link Road (submitted December 2020 [[AS-036](#)]). In 2020 an extended Phase 1 habitat and protected species survey was undertaken of land surrounding the B1122 at Theberton, that had not been surveyed during 2019 due to access restrictions.
- An **OLEMP** for the Sizewell link road site has also been submitted and is provided in **Book 8** (refer to Doc Ref. 8.3B).

10.4.141 The relevant proposed changes considered within the revised assessment for terrestrial ecology and ornithology for the Sizewell link road include:

- drainage changes;
- changes as a result of topographical survey information; and
- reductions in permanent land take.

10.4.142 The Additional Information and proposed changes for the Sizewell link road have been reviewed and there is no potential for new or different significant cumulative effects to occur with regards to the assessment of terrestrial ecology and ornithology effects with other plans, project and programmes.

a) v) f) Rail proposals

10.4.143 Relevant Additional Information for the assessment of effects on terrestrial ecology and ornithology for the rail proposals comprises:

- the updated extended Phase 1 habitat survey (refer to **Volume 3, Appendix 9.5.A** of this ES Addendum) undertaken in October 2020.

10.4.144 There are no relevant proposed changes considered within the revised assessment for terrestrial ecology and ornithology for the rail proposals.

10.4.145 The Additional Information for the rail proposals has been reviewed and there is no potential for new or different significant cumulative effects to occur with regards to the assessment of cumulative terrestrial ecology and ornithology effects with other plans, project and programmes.

a) vi) Amenity and recreation

10.4.146 Amenity and recreation assessments have been reviewed and revised where necessary to take account of Additional Information and proposed changes in relation to the main development site; the southern park and ride site; the two village bypass, and Sizewell link road.

a) vi) a) Main development site

10.4.147 The following Additional Information has been considered within the revised assessment for amenity and recreation receptors at the main development site:

- Corrections to **Access and Rights of Way plans** (refer to Doc Ref. 2.4(A), [AS-013]).
- Refinement to the strategic traffic flow model (refer to **Transport Assessment Addendum** (Doc Ref. 8.5 (A)Ad) for further information) and subsequent revisions to traffic, noise and air quality modelling.

- 10.4.148 The following proposed design changes have been considered within the revised assessment for amenity and recreation at the main development site:
- enhancement of the permanent BLF (**Change 2**).
 - Construction of a new, temporary BLF (**Change 2**).
 - Greater flexibility as to where certain Sizewell B facilities are relocated (**Change 3**).
 - Change to certain parameter heights and activities on the main development site (**Change 4**).
 - surface water removed early in the construction process to be discharged to the foreshore via a temporary outfall structure (**Change 8**).
 - Change to the sea defence to make the scheme more efficient and resilient to climate change (**Change 9**).
 - Extension of the Order Limits to provide for additional fen meadow habitat at Pakenham as mitigation for fen meadow loss (**Change 11**).
 - A new bridleway link between Aldhurst Farm and Kenton Hills (**Change 15**).
 - Reduction in HGV numbers, as described within **section 2.2** of this chapter, and **Transport Assessment Addendum** (Doc Ref. 8.5 (A)Ad), as a result of the potential increase in rail movements during construction of Sizewell C (as a result of **Change 1**) and the additional temporary BLF (**Change 2**).
- 10.4.149 All other proposed changes described in **Chapter 2** of this **ES Addendum** would not alter the assessment of cumulative effects on amenity and recreation and, therefore, have not been considered further.
- 10.4.150 The proposed changes to the main development site have been reviewed and whilst there are new or different effects described within **Chapter 2** of this **ES Addendum**, these are not considered to change the conclusions of the cumulative effects assessment and effects would remain as described in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)].
- a) vi) b) **Southern park and ride**
- 10.4.151 There is no relevant Additional Information considered within the revised assessment for amenity and recreation effects at the Sizewell link road.

10.4.152 The only relevant proposed changes for the assessment of amenity and recreation effects at the southern park and ride site is:

- The extension of landscape bund (forming part of **Change 10**).

10.4.153 The proposed changes for the southern park and ride have been reviewed and there is no potential for new or different significant effects to occur with regards to the assessment of cumulative amenity and recreation effects with other plans, project and programmes.

a) vi) c) **Two village bypass**

10.4.154 Relevant Additional Information for the assessment amenity and recreation effects at the two village bypass site include:

- minor corrections to **Access and Rights Of Way Plans** (Doc Ref. 2.4(A)) [[AS-013](#)];
- an additional temporary contractor compound at the western end of the two village bypass to facilitate construction of the River Alde overbridge.
- refinements to road traffic noise predictions, and subsequent updates to:
 - corrections to the road traffic noise calculations presented in **Volume 6, Chapter 4** of the ES (Doc Ref 6.7) [[APP-451](#)]; and
 - refinements to the strategic traffic model (refer to **Transport Assessment Addendum** (Doc Ref. 8.5(A)Ad) for further information) and associated air quality and noise modelling.

10.4.155 Relevant proposed changes for the assessment of effects on amenity and recreation, for the two village bypass site include:

- Changes to site boundary (**Change 12**) as a result of additional land requirements to accommodate changes to highway works and a change to the alignment of PRoW E-243/011/0 as well as an enhancement of floodplain grasslands.
- Changes to HGV numbers as described within **Chapter 2** of this **ES Addendum**, and **Transport Assessment Addendum** (Doc Ref. 8.5 Ad) as a result of the potential changes to increase rail movements (**Change 1**) and the proposed additional temporary BLF (**Change 2**).

10.4.156 The Additional Information and proposed changes for the two village bypass have been reviewed and there is no potential for new or different

significant cumulative effects to occur with regards to the assessment of amenity and recreation effects with other plans, project and programmes.

a) vi) d) Sizewell link road

10.4.157 Relevant Additional Information for the assessment of amenity and recreation effects at the Sizewell link road site include:

- Additional Information on the location of two temporary contractor compound areas;
- minor corrections to access and rights of way plans submitted in November 2020 [[AS-013](#)]; changes to road traffic noise predictions which were updated to include:
 - corrections to the road traffic noise calculations presented in **Volume 6, Chapter 4** of the ES (Doc Ref 6.7) [[APP-451](#)]; and
 - refinements to the strategic traffic model (refer to **Transport Assessment Addendum** (Doc Ref. 8.5 Ad) for further information) and associated air quality and noise modelling.

10.4.158 Relevant proposed changes for the assessment of effects on amenity and recreation, for the Sizewell link road include:

- changes to the site boundary as a result of:
 - highway changes (including amendments to PRoW);
 - drainage changes;
 - changes as a result of topographical survey information; and
 - reductions in permanent land take.
- changes to HGV numbers as described within **Chapter 2** of this **ES Addendum**, and **Transport Assessment Addendum** (Doc Ref. 8.5 Ad) as a result of the potential changes to increase rail movements (**Change 1**) and the proposed additional temporary BLF (**Change 2**).

10.4.159 The Additional Information and proposed changes for the Sizewell link road have been reviewed and there is no potential for new or different significant effects to occur with regards to the assessment of cumulative amenity and recreation effects with other plans, project and programmes.

a) vii) Soils and agriculture

10.4.160 Soils and agriculture assessments have been reviewed and revised where necessary to take account of Additional Information and proposed

changes in relation to the main development site; the two village bypass and Sizewell link road.

a) vii) a) Main development site

10.4.161 Relevant Additional Information considered within the revised assessment for soils and agriculture at the main development site includes:

- **Volume 2, Chapter 17** of the **ES** (Doc Ref. 6.3) [\[APP-277\]](#) stated an incorrect area for the land associated with Old Abbey Farm and incorrect information on its use. The area of land affected should be recorded as 13.04ha. The land is under irrigated arable production and is part of a Countryside Stewardship scheme. The sensitivity to change for this landholding is, therefore, high, resulting in a major adverse (significant) effect during construction.

10.4.162 The following proposed design changes have been considered within the revised assessment for soils and agriculture at the main development site:

- extension of the Order Limits to provide for additional fen meadow habitat at Pakenham (**Change 11**); and
- a new bridleway link between Aldhurst Farm and Kenton Hills (**Change 15**).

10.4.163 All other proposed changes described within **Chapter 2** of this **ES Addendum** do not change the cumulative assessment of effects for soils and agriculture and, therefore, have not been considered further.

10.4.164 The Additional Information and the proposed changes to the main development site have been reviewed and whilst there are new or different effects described within **Chapter 2** of this **ES Addendum**, these are not considered to change the conclusions of the cumulative effects assessment and effects would remain as described in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [\[APP-578\]](#).

a) vii) b) Two village bypass

10.4.165 There is no relevant Additional Information considered within the revised assessment for soils and agriculture at the two village bypass.

10.4.166 The relevant proposed design change considered within the revised assessment for soils and agriculture at the two village bypass is:

- the extension of the site boundary for highway works and amendment to the PRow adjacent to Walk Barn Farm (**Change 12**).

10.4.167 The proposed changes for the two village bypass have been reviewed and there is no potential for new or different significant cumulative effects to occur with regards to the assessment of effects on soils and agriculture with other plans, project and programmes.

a) vii) c) Sizewell link road

10.4.168 Relevant Additional Information considered within the revised assessment for soils and agriculture at the Sizewell link Road:

- In **Volume 6, Chapter 10** of the **ES** (Doc Ref. 6.7) [APP-470] there is an error in Table 10.9 where the total area of the Church Farm landholding (26.05ha) has been transposed as the percentage of the landholding required during construction. The actual percentage should be 19.08%.
- **Volume 6, Chapter 10** of the **ES** (Doc Ref. 6.7) [APP-470] incorrectly states that the land at Old Abbey Farm is not under an agri-environment scheme. It has subsequently been confirmed that this land is under Countryside Stewardship.

10.4.169 There are no relevant design change considered within the revised assessment for soils and agriculture at the Sizewell link road.

10.4.170 The relevant Additional Information for the Sizewell link road has been reviewed and there is no potential for new or different significant effects to occur with regards to the assessment of cumulative effects on soils and agriculture with other plans, project and programmes.

a) viii) Geology and land quality

10.4.171 Geology and land quality assessments have been reviewed and revised where necessary to take account of proposed changes and Additional Information in relation to the main development site only.

10.4.172 Relevant Additional Information for the assessment of effects on geology and land quality at the main development site includes the following updated baseline survey report:

- Main Development Site: Phase 2 Geo-Environmental Report, 2020 (refer to **Volume 3, Appendix 2.13.A** of this **ES Addendum**).

10.4.173 The following proposed changes have been considered within the revised assessment for geology and land quality at the main development site, as these were considered to have a potential to change the assessment:

- greater flexibility as to where certain Sizewell B facilities are relocated to potentially avoid the need for car parking on Pillbox Field (**Change 3**);

- change to the location of the water resource storage area and the addition of flood mitigation measures to lower flood risk (**Change 5**); and
- extension of the Order Limits to provide for additional fen meadow habitat at Pakenham as mitigation for fen meadow loss (**Change 11**).

10.4.174 All other proposed changes described within **Chapter 2** of this **ES Addendum** do not change the cumulative assessment of effects for geology and land quality and, therefore, have not been considered further.

10.4.175 The Additional Information and proposed changes to the Sizewell C Project have been reviewed and whilst there are new or different effects described within **Chapter 2** of this **ES Addendum**, these are not considered to change the conclusions of the cumulative effects assessment and effects would remain as described in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)].

a) ix) Groundwater and surface water

10.4.176 Groundwater and surface water assessments have been reviewed and revised where necessary to take account of proposed changes and Additional Information in relation to the main development site; the two village bypass and Sizewell link road.

10.4.177 In addition, further assessment as presented in the **Water Framework Directive (WFD) Compliance Assessment Addendum** (Doc Ref. 8.14 Ad) is of relevance to the groundwater and surface water assessment.

a) ix) a) Main development site

10.4.178 Relevant Additional Information for the assessment of effects on groundwater and surface water for the main development site includes:

- updates to the Flood Risk Assessment (refer to the **Main Development Site Flood Risk Assessment Addendum** (Doc Ref. 5.2 (A)Ad)); and
- an updated version of **Volume 2, Appendix 19F** of the **ES** (refer to **Volume 3, Appendix 2.14.A** of this **ES Addendum**).

10.4.179 The proposed changes of relevance to the assessment of effects on groundwater and surface water for the main development site include:

- greater flexibility as to where certain Sizewell B facilities are relocated (**Change 3**);
- change to the location of the water resources storage area and the addition of flood mitigation measures (**Change 5**);

- change to the SSSI crossing design to a single span bridge with embankments (**Change 6**);
- surface water removed early in the construction process to be discharged to the foreshore via a temporary outfall (**Change 8**);
- change to the sea defence to make the scheme more efficient and resilient to climate change (**Change 9**);
- extension of the Order Limits for additional fen meadow habitat at Pakenham (**Change 11**).

10.4.180 All other proposed changes described in **Chapter 2** of the **ES Addendum** would not alter the cumulative assessment of groundwater and surface water effects and, therefore, have not been considered further.

10.4.181 The Additional Information and proposed changes to the main development site have been reviewed and these are not considered to change the conclusions of the cumulative effects assessment and effects would remain as described in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [[APP-578](#)].

a) ix) b) Two village bypass

10.4.182 Relevant Additional Information available for groundwater and surface water on the two village bypass includes:

- Updates to the **Flood Risk Assessment** (Doc Ref. 5.5Ad).

10.4.183 The proposed change that has been considered within the revised assessment for groundwater and surface water along the two village bypass is:

- the extension of the site boundary for works on the two village bypass (**Change 12**) for additional land required to facilitate the highway works and a change to the PRoW E-243/011/0 around Walk Barn Farm).
- There are also additional habitat mitigation proposals (the creation of additional (and enhancement) of floodplain grassland measures).

10.4.184 The relevant Additional Information and proposed changes for the two village bypass have been reviewed and there is no potential for new or different significant cumulative effects to occur with regards to the assessment of effects on groundwater and surface water with other plans, project and programmes.

a) ix) c) Sizewell link road

10.4.185 Relevant Additional Information for the assessment of effects on groundwater and surface water at the Sizewell link road includes:

- The production of a Technical Note 9 – ‘*Sizewell Link Road - DCO Design Validation – Drainage*’ (provided in **Volume 3, Appendix 6.2.B** of this **ES Addendum**). The technical note was prepared to validate the drainage design proposed in **Volume 2, Appendix 2A** of the **ES** (Doc Ref. 6.3) [[APP-181](#)].

10.4.186 Relevant proposed changes for the assessment of groundwater and surface water at the Sizewell link road include changes to the site boundary (**Change 12**) as a result of:

- Drainage changes:
 - the enlargement of basins originally proposed as infiltration basins;
 - the repurposing of basins as attenuation basins for storage of highway surface water runoff, and removal by natural processes, including uptake by vegetation, evaporation and limited infiltration;
 - possible managed releases of surface water runoff to local watercourses.
- Highway changes including revised design of the Hawthorn Road realignment, and associated changes to the drainage arrangements at Hawthorn Road.

10.4.187 The relevant Additional Information and proposed changes for the Sizewell link road have been reviewed and there is no potential for new or different significant effects to occur with regards to the assessment of effects on groundwater and surface water with other plans, project and programmes.

a) x) Coastal geomorphology and hydrodynamics

10.4.188 The coastal geomorphology and hydrodynamics assessment has been reviewed and revised where necessary to take account of Additional Information and proposed changes in relation to the main development site only.

10.4.189 Relevant Additional Information for the assessment of effects on coastal geomorphology and hydrodynamics includes the:

- **Coastal Processes Monitoring and Mitigation Plan (CPMMP)** provided within **Volume 3, Appendix 2.15.A** of this **ES Addendum**.

10.4.190 The proposed changes of relevance to the assessment of coastal geomorphology and hydrodynamics include:

- enhancement of the permanent BLF and construction of a new, temporary BLF (**Change 2**);
- surface water removed early in the construction process to be discharged to the foreshore via a temporary outfall (**Change 8**); and
- change to the sea defence to make the scheme more efficient and resilient to climate change (**Change 9**).

10.4.191 All other proposed changes described in **Chapter 2** of this **ES Addendum** would not alter the assessment of effects on coastal geomorphology and hydrodynamics and, therefore, have not been considered further. **Change 9** has not been considered further within this section as there is no potential for new or different cumulative effects.

a) x) a) An enhancement of the permanent beach landing facility and construction of a new, temporary beach landing facility (**Change 2**)

10.4.192 As discussed within **Chapter 2** of the **ES Addendum**, the effects arising from the proposed changes to the BLFs on coastal geomorphology and hydrodynamics have been assessed as **minor (not significant)**, and therefore the cumulative effects described within **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [APP-578] would likely remain the same (assuming construction programmes would overlap).

10.4.193 The cable corridor of the National Grid Eurolink Interconnector (A112) is close enough to the Sizewell C Project that a small area of impact on the seabed may arise if the landfall of the cable occurs within the envelope of impacts from the two proposed BLFs. This combination of activities could possibly lead to a short-term and localised cumulative effect. Based on the results from the assessment presented in **Chapter 2** of the **ES Addendum**, and the consideration that these cumulative impacts would occur outside the area between the BLFs where the impacts are lower magnitude, as a result of the distance between activities, these cumulative effects are likely to be **negligible** and **not significant**.

a) x) b) Change to the sea defence to make the scheme more efficient and resilient to climate change (**Change 9**)

10.4.194 Release of soft coastal defence feature (SCDF) sediments onto the beach at Sizewell could increase the width (easterly position) of neighbouring

beaches and affect any nearby cable connector works from the East Anglia ONE North and TWO wind farm schemes. However, the changes to beach width at the cable connector locations are not expected to be detectable for years – decades into the Sizewell C operation phase and the impacts of any additional sediment would not affect cable laying. Therefore, it is considered that there will be no scope for cumulative impacts due to changes in the coastal defence design.

10.4.195 The activities associated with the HCDF and SCDF generate impacts which are localised on the Sizewell C frontage and therefore do not overlap directly the impact envelopes of any of the following short listed cumulative schemes;

- East Anglia ONE North (ID 13);
- East Anglia TWO (ID 14);
- Eurolink Interconnector (ID A112); and
- Nautilus Interconnector (ID A111).

10.4.196 **Chapter 20, Volume 2**, of the **ES** (Doc Ref. 6.3) [[APP-311](#)] identified no potential significant cumulative effects from the release of SDCF sediments to the active beach during storms, which could affect beach levels by a few centimetres during the construction of the cable corridor landfalls for the Eurolink interconnector (ID A112), and Scottish Power East Anglia ONE North (ID 13) and TWO (ID 14). The new design increases the expected impact of the SCDF (greater sediment input), intentionally to generate a specific new (positive) effect - the maintenance of the shoreline position on the Sizewell C and adjacent frontages further seaward than it would otherwise be. However, the sediment would be primarily shingle, which is effectively constrained to subaerial beach, and lesser volume of sand which would not interact in a detectable way with other projects.

10.4.197 Additional sediments released from the SCDF, or introduced from a beach recharge, are expected to increase in extent to the north and south of Sizewell C over time, but also will decrease in magnitude with distance. Due to the low rates of net longshore transport and the coarse particle size of shingle, impacts on the shoreline propagate alongshore at rates of a few hundred metres per decade, but are likely to be imperceptible against natural background processes beyond 500 - 1000m from Sizewell C.

10.4.198 The peak magnitude of future effects can be estimated from the present-day rate of shoreline retreat at each location alongshore. The shoreline retreat rates in the areas affected by other developments are low –

similarly, the effects of these other developments on the beach receptor, and particularly the rate of shoreline change, are negligible. As a result, the magnitude of the interaction between the HCDF and the works at cable landfalls for these other developments will, likewise, remain **negligible (not significant)**.

a) xi) Marine water quality and ecology

- 10.4.199 The marine water quality and ecology assessments have been reviewed and revised where necessary to take account of Additional Information and proposed changes in relation to the main development site only.
- 10.4.200 The proposed changes of relevance to the assessment of marine water quality and ecology effects include:
- enhancement of the permanent beach landing facility and construction of a new, temporary beach landing facility (**Change 2**); and
 - surface water removed early in the construction process to be discharged to the foreshore via a temporary outfall (**Change 8**) (marine water quality only).
- 10.4.201 All other proposed changes described in **Chapter 2** of this **ES Addendum** would not alter the assessment of cumulative effects on marine water quality and ecology and, therefore, have not been considered further.
- 10.4.202 **Volume 3, Appendix 10.4.D** of this **ES Addendum** presents the updated marine ecology and water quality cumulative effects assessment and considered the potential cumulative effects on the following receptors:
- marine water quality;
 - benthic ecology;
 - fish;
 - marine mammals; and
 - commercial and recreational fisheries.
- 10.4.203 Following a review of the proposed changes to the Sizewell C Project, a detailed assessment of cumulative effects has only been undertaken for marine mammals for effects associated with **Change 2** and is presented in full within **Volume 3, Appendix 10.4.D** of this **ES Addendum**. For the other receptors, whilst there are new or different effects described within **Chapter 2** of this **ES Addendum**, these are not considered to change the conclusions of the cumulative effects assessment and effects would

remain as described in **Volume 10, Chapter 4** of the **ES** (Doc Ref. 6.11) [APP-578]. This is because only underwater noise effects on marine mammals associated with the proposed changes could potentially have a spatial and temporal overlap with projects identified in **Volume 10 Chapter 4, Appendix 4C** of the **ES** (Doc Ref. 6.11) [APP-579].

a) xi) a) An enhancement of the permanent beach landing facility and construction of a new, temporary beach landing facility (**Change 2**)

10.4.204 Within **Volume 3, Appendix 10.4.D** of this **ES Addendum**, cumulative effects are considered in relation to the effects of underwater noise arising from installation of the BLFs on the three key marine mammal species of importance at Sizewell; harbour porpoise (*Phocoena phocoena*), grey seal (*Halichoerus grypus*) and, harbour seal (*Phoca vitulina*). The effects of piling activities are contextualised against the relevant Management Units (MUs) for each species to provide a population level assessment of the Sizewell C Project acting cumulatively with other third-party projects.

10.4.205 The cumulative effects assessment for marine mammals underwater noise from installation of the enhanced permanent BLF and the temporary BLF is considered in relation to the potential for spatial or temporal overlap with projects identified in **Volume 10, Appendix 4C** of the **ES** (Doc Ref. 6.11) [APP-579]. The assessment has been undertaken using the following projects piling concurrently to represent the worst-case scenario in terms of cumulative effects:

- Dogger Bank Creyke Beck A OWF;
- Dogger Bank Teesside A OWF;
- Thanet Extension OWF;
- Hornsea Project Three OWF; and
- East Anglia Three OWF.

10.4.206 A 15km radius effective deterrent range (EDR) from the terminus of the temporary BLF has been applied for underwater noise impacts from the Sizewell C Project, which results in a sea area of 359km².

a) xi) a) a) Harbour porpoise

10.4.207 The North Sea Management Unit (MU) (345,373 individuals) is considered the appropriate area for assessment of effects on harbour porpoise. The maximum number of harbour porpoise that could potentially be disturbed is 8,455 (2.45% of the reference population). The Sizewell C Project has the potential to expose 218 animals 0.06% of the reference population,

and 2.6% of the total number of animals disturbed in the cumulative effects assessment scenario.

- 10.4.208 The magnitude for the cumulative effects of piling for projects in combination with the Sizewell C Project is predicted to disturb between 1% and 5% of the reference population (2.45%) and therefore is assessed as *low*.
- 10.4.209 The spatial range for auditory damage from the proposed project is limited and recovery from the effects of Temporary Threshold Shift (TTS) are anticipated to be short-term. Hearing recovery for harbour porpoises following TTS as a result of piling activity may occur after 4 to 96 minutes depending on the exposure level, duration, and the TTS induced (Ref. 7). As such the spatial area for auditory damage is limited and the primary effects on harbour porpoise from the Sizewell C Project are behaviours effects. Displacement of harbour porpoise due to the Sizewell C Project and displacement behaviours from OWFs mean harbour porpoises have the potential to recover (Ref. 6) and sensitivity is judged as *medium*.
- 10.4.210 Minor adverse effects are predicted for harbour porpoise in the North Sea MU and therefore effects are **not significant** at the level of the reference population.
- a) xi) a) b) Phocid seals
- 10.4.211 The harbour seal reference population is based on the most recent count for the south-east England MU of 4,944 harbour seals in 2019 (Ref. 10.4).
- 10.4.212 The grey seal reference population is based on the most recent counts and telemetry data (Ref. 7). Due to the transient nature of grey seals (Ref. 8) the south-east England MU (8,199), north-east England MU (6,442) and east coast of Scotland MU (3,762) are included as the reference population, with a total of 18,403 grey seals used for the assessment.
- 10.4.213 The number of grey seals that could potentially be disturbed as a result of consecutive piling is 313 based on the relative mean weighted densities in each EDR. This equates to 1.70% of the reference population.
- 10.4.214 The number of harbour seals that could potentially be disturbed as a result of consecutive piling is 178 based on the relative mean weighted densities in each EDR, equating to 3.60% of the reference population.
- 10.4.215 The magnitude for the cumulative effects of consecutive piling for projects acting cumulatively with the Sizewell C Project is between 1% and 5% of the reference population for grey and harbour seals (1.70% and 3.60%, respectively). Therefore, the magnitude is assessed as *low* for both grey and harbour seals.

- 10.4.216 The spatial area for auditory damage is negligible in fleeing animals, and the primary effects on seals from the Sizewell C Project are behavioural effects. Following the same rationale as for the harbour porpoises, seals are assigned *medium* sensitivity to impacts from piling.
- 10.4.217 Minor adverse effects are predicted for both grey and harbour seal. effects are **not significant** at the level of the reference population.
- a) xii) **Marine Navigation**
- 10.4.218 The marine navigation assessment has been reviewed and revised where necessary to take account of Additional Information and proposed changes and in relation to the main development site only.
- 10.4.219 The following design changes have been considered within the revised assessment for marine navigation at the main development site:
- Enhancement of the permanent BLF (**Change 2**); and
 - Construction of a new, temporary BLF (**Change 2**).
- 10.4.220 All other proposed changes described in **Chapter 2** of this **ES Addendum** would not alter the assessment of cumulative effects on marine navigation and, therefore, have not been considered further.
- a) xii) a) **An enhancement of the permanent beach landing facility and construction of a new, temporary beach landing facility (**Change 2**)**
- 10.4.221 The addition of a temporary additional BLF has the potential to increase cumulative effects associated with marine navigation as the cumulative navigational risk would increase slightly due to increased number of deliveries and additional construction work. The overall effect is expected to remain **tolerable (not significant)** for each impact considered in the marine navigation assessment and there would be no change to the residual cumulative effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)].
- a) xiii) **Health and wellbeing**
- 10.4.222 The health and wellbeing assessment has been reviewed and revised where necessary to take account of Additional Information and proposed changes and in relation to the Sizewell C Project.
- 10.4.223 Inter-related technical assessments that informed the health and wellbeing assessment within **Volume 2, Chapter 28** of the **ES** (Doc Ref. 6.3) [[APP-346](#)] have been updated as part of this **ES Addendum** to include relevant Additional Information, namely:

- Noise and vibration;
- Air quality; and
- Transport.

10.4.224 The following proposed changes have been considered within the updated assessment for the health and wellbeing, as they change the inter-related technical assessments (detailed above) that influence health and wellbeing:

- Increase in the frequency of freight train movements to facilitate bulk material imports by rail (**Change 1**).
- Enhanced permanent BLF and a new, temporary BLF to import material by sea (**Change 2**).

10.4.225 However, due to the location of the BLFs away from populated areas, there is limited potential for changes in environmental determinants during construction and operation that influence health and wellbeing. As a result, these have been scoped out from further assessment.

10.4.226 Both the increase in freight train movements and proposed BLFs would contribute to changes in road traffic flows whereby, as a larger quantity of material would be transported by rail and sea, there would be a reduction in HGV movements on existing roads.

10.4.227 The proposed changes to the Sizewell C Project have been reviewed and whilst there are some changes to the impact distribution of environmental determinants with the potential to influence health and wellbeing reported in the relevant inter-related technical disciplines, there is no change to the overall residual effects reported in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)].

a) xiv) Summary of residual cumulative effects

10.4.228 Overall the Additional Information and proposed changes discussed above would result in no new or different significant effects than those reported in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)].

b) Water Supply Strategy - Essex & Suffolk Water Transfer from Northern/Central Water Resource Zone

10.4.229 The current preferred water supply proposal provides potable water through a direct link from Barsham to Sizewell. The proposals would require an upgrade to some existing water treatment plants and a new high capacity water main. The proposed route is displayed within **Plate**

1.1 of the **Water Supply Strategy Update (Volume 3, Appendix 2.2.D of this ES Addendum)**.

10.4.230 A number of other water supply measures are proposed to be retained in the water supply strategy, further detail of these measures is available within **Chapter 2** and **Volume 3, Appendix 2.2.D** of this **ES Addendum**.

10.4.231 The following topics have no potential to result in new or different cumulative effects when considered with the water supply strategy. Residual cumulative effects would remain as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)]:

- Coastal geomorphology and hydrodynamics;
- Marine water quality and sediments;
- Marine ecology and fisheries
- Marine historic environment;
- Marine navigation; and
- Radiological considerations.

b) i) **Conventional Waste and Material Resources**

10.4.232 The waste and material resource cumulative assessment presented within **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)] identifies that the combination of waste being produced and resources being used in relation to all schemes under construction in the vicinity of the Sizewell C Project have the potential to combine to create a significant effect on regional waste management capacity and resource availability. Whilst the preferred water supply strategy proposal would create construction waste and require material resources, it is not considered that it would change the conclusions of the waste and material resource cumulative assessment presented within **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11), based on expected waste arisings and material quantities required due to the scale and nature of the scheme.

b) ii) **Socio-economics**

10.4.233 The preferred water supply proposal is not likely to lead to any change in the cumulative socio-economic effect presented within **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)]. While the infrastructure works are local to the main development site, their cumulative effect on housing and labour markets is anticipated to be negligible (**not significant**).

b) iii) Transport

Works associated with the preferred water supply proposal are under development and currently are programmed to coincide with the Early Years construction of the Sizewell C Project. It is likely that the works will utilise the B1122 and surrounding network. All routing and logistics associated with the water supply will be managed to ensure existing and Sizewell C traffic is not disrupted as a result. Further work is required to understand the programme and scope of works, and thus determine the best measures to put in place. Whilst the preferred water supply strategy proposal would create some construction traffic it is not considered that it would change the conclusions of the transport cumulative assessment.

- 10.4.234 There would be no change to the residual construction or operational cumulative effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)] as a result of the preferred water supply proposal.

b) iv) Noise and vibration

- 10.4.235 It is anticipated that the earthworks for the cut and fill, and the pipelaying task for the preferred water supply proposal will progress quickly along the route and works would only impact upon a given receptor for a small number of days at most. However, if the works were to take place at a time when other construction works associated with the Sizewell C Project is occurring nearby, there is the potential for a cumulative effect. This could occur at receptors close to construction works for the Sizewell link road, the main development site and along the Saxmundham to Leiston branch line. Since working methods and potential overlaps are not yet known, it is not possible to evaluate the cumulative effect at this stage, although it is not anticipated that any cumulative effect would be significant due to the temporary nature of the construction works and the relatively limited works required for the installation of the water main. There would be no change to the residual construction or operational cumulative effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)] as a result of the proposed water supply proposal.

b) v) Air Quality

- 10.4.236 The preferred water supply proposal does not have the potential to generate cumulative air quality effects due to scale or duration at a single receptor location. It is anticipated that the earthworks for the cut and fill, and the pipelaying task will progress quickly along the route and works would only impact upon a single receptor for a small number of days at most. The magnitude of that impact on dust deposition rates (amenity impact) or on airborne concentrations of air pollutants (impacts on health) would also have an imperceptible effect relative to baseline conditions

both directly, or in combination with other construction phase activities. There would be no change to the residual construction or operational cumulative effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)] as a result of the preferred water supply proposal.

b) vi) Landscape and Visual

- 10.4.237 In relation to the preferred water supply proposal, for a worst case cumulative assessment, due to lack of available information at this stage, it has been assumed that construction of the water supply pipes would be through open cut trenching. It is anticipated that the route would cross a number of landscape character types and part of the Suffolk Coast and Heaths AONB, as well as be visible from parts of a number of visual receptor groups. The works would pass through each landscape character type, visual receptor group or the AONB and the land would be reinstated in a short time period, meaning that no long term or permanent significant impacts are likely. No cumulative impacts on landscape and visual receptors with Sizewell C main development site or associated development sites are likely. There would be no change to the residual construction or operational cumulative effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)] as a result of the proposed water supply proposal.

b) vii) Terrestrial ecology and ornithology

- 10.4.238 It is anticipated that a number of baseline surveys would be carried out by Essex and Suffolk Water for the route of the preferred water supply proposal in order to confirm the presence or absence of protected species and inform any potential mitigation measures. Given the footprint of the works and the proposed locations for working, ecological impacts would be minimal and avoidable or mitigable.
- 10.4.239 Potential mitigation measures to be implemented are anticipated to include, but are not limited to, adherence to seasonal working windows and method statements, micro-siting and habitat manipulation. It is assumed that appropriate reinstatement measures will also be implemented upon completion of the works. Consultation with Natural England would also assist in the preparation of appropriate mitigation measures for species such as great crested newts, where they have been identified in areas where the water supply pipeline may cross, for example in the vicinity of Darsham.
- 10.4.240 Based on the points above, no significant cumulative effects are anticipated in relation to the preferred water supply proposal and there would be no change to the residual cumulative effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)].

b) viii) Amenity and Recreation

- 10.4.241 For a worst case cumulative assessment, due to lack of available information at this stage, it has been assumed that construction preferred water supply proposal would be a pipeline installed through open cut trenching. It is anticipated that the route would cross a number of PRow and potentially other recreational resources such as cycle routes and accessible landscapes. Some local diversions of PRow may be necessary but no closures are anticipated due to the nature of the works. The works would pass through each local area and across each PRow, and the land be reinstated within a short time period, and therefore no significant impacts are likely. No cumulative impacts on recreational receptors with Sizewell C main development site or associated development sites are likely. There would be no change to the residual construction or operational cumulative effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [\[APP-578\]](#) as a result of the preferred water supply proposal.

b) ix) Terrestrial historic environment

- 10.4.242 The preferred water supply proposal would introduce new direct effects on archaeological heritage assets and potentially the historic landscape and settings of heritage assets. However, any effects on the historic landscape or arising through change to setting would be of limited magnitude and be rapidly reversed on completion of the works. Consequently, these would not give rise to adverse cumulative effects. A cumulative direct effect would arise only where a second development affected the same heritage asset as the Sizewell C Project. In this instance, there would be a potential for the water supply works to interact with the Sizewell C Project at the main development site, at the crossings of Sizewell link road and the rail route. At these points however, any heritage assets within the redline would be entirely removed by the Sizewell C Project and as a result no cumulative effect would arise. There would be no change to the residual Sizewell C Project effects and as a result, no cumulative effect would arise. There would be no change to the residual cumulative construction or operational effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [\[APP-578\]](#) as a result of the preferred water supply proposal.

b) x) Soils and agriculture

- 10.4.243 The preferred water supply proposal has the potential to cause disruption to agricultural activities during construction, and may pose limitations to agricultural operations during its operation. However, as it is proposed that the detailed route alignment of the pipeline will follow existing roads and boundaries where possible, the impacts during construction and

operation on agricultural activities will be minimised. Where the works are undertaken on agricultural land, it is likely that consultation with landowners would be undertaken to identify ongoing and planned agricultural activities to minimise potential disruption to these. Construction works to install the pipeline would result in a temporary impact on soils. It is expected that soil handling would follow best practice guidelines and, as such, no long-term effects on soils or land grade are considered likely. It is unlikely that the preferred water supply proposal would result in a cumulative effect in relation to soils and agriculture. There would be no change to the residual cumulative construction or operational effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)] as a result of the preferred water supply proposal.

b) xi) Geology and land quality

10.4.244 Cumulative effects generated by the Sizewell C Project in combination with the preferred water supply proposal may occur due to:

- an increase in the amount of soil erosion and the amount of dust and surface water runoff generated through a larger construction area affecting controlled waters (groundwater and surface water), human health, property (crops and livestock) and ecological receptors;
- destabilisation of ground, where the developments are located in close proximity, causing ground stability issues to geological and property (services and structures) receptors; and
- an increase in the mobilisation of contaminants in the air, ground and groundwater through the disturbance of a larger area of potentially contaminated ground mobilising contaminants causing the exposure of human health, controlled waters (groundwater and surface water), property (crops and livestock) and ecological receptors to potential contaminants.

10.4.245 It is considered that there is no potential for cumulative effects on land quality as a result of the operation of the Sizewell C Project in combination with the preferred water supply proposal.

10.4.246 It is considered that although there may be an increase in the amount of soil erosion, dust and surface water runoff generated from the larger cumulative construction area, the impacts would be mitigated by the implementation of industry-standard construction environmental management measures, set out within a Construction Environmental Management Plan (CEMP) or Code of Construction Plan (CoCP) by all parties (such as the **CoCP** for the Sizewell C Project, see Doc Ref. 8.11(A)). Moreover, any potential effects would be highly localised and

relatively small in scale, and the ground disturbance along the proposed route alignment would not be completed all at once. The detailed design for the preferred water supply proposal will also take into consideration any impacts associated with destabilising the ground due to construction activities close to the site.

- 10.4.247 It is therefore considered that there is no potential for significant adverse cumulative effects on land quality.
- 10.4.248 The assessment has identified that there is no potential for significant cumulative effects during construction and operation, therefore there would be no change to the residual cumulative effects during construction and operation as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)] as a result of the preferred water supply proposal.

b) xii) Groundwater and surface water

- 10.4.249 It is not anticipated that the preferred water supply proposal would have a cumulative effect in combination with the Sizewell C Project. This is due to the consideration that the abstraction that supplies Barsham is an existing consented activity, and not in close proximity to the main development site or associated developments. The impacts of constructing a small diameter pipeline, as are likely to be required for preferred water supply proposal, are unlikely to be significant providing they do not pass through water dependent habitats and employ appropriate construction techniques when crossing watercourses. There would be no change to the residual cumulative effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [[APP-578](#)].
- 10.4.250 The cumulative effect of the water supply connection scheme is also assessed within the **Water Framework Directive (WFD) Compliance Assessment: Addendum** (Doc Ref. 8.14Ad).

b) xiii) Major Accidents and Disasters

b) xiii) a) Construction

- 10.4.251 The construction of preferred water supply proposal could potentially be concurrent with the early years of the construction of Sizewell C, and, due to the proximity of some of the works to Sizewell C Project sites, may increase risk at surrounding receptors or provide new risks at Sizewell C Project sites.
- 10.4.252 The following risks could be increased as a result of the preferred water supply proposal:

- fire and/or explosion at a neighbouring site resulting in injury or death of construction personnel;
- explosion and structural collapse at neighbouring sites resulting in injury or death of construction personnel;
- contamination or release of hazardous substances by off-site sources resulting in increased risk to the safety of members of public and site workers;
- failure or loss of utilities (e.g. electricity, water or telecommunications) as a result of construction on neighbouring sites, limiting the ability of an emergency response plan and environmental and safety management systems to be implemented;
- local accident on motorways and major trunk roads due to increased construction traffic; and
- construction of the non-Sizewell C development limiting the ability of an emergency response plan to be implemented.

10.4.253 Mitigation measures described within **Volume 2, Chapter 27** [APP-344] of the **ES** (Doc Ref. 6.3) would be implemented as part of the construction of the Sizewell C Project to minimise the risk of a major accident hazard impacting the Sizewell C Project sites. For instance, the **CoCP** (Doc Ref. 8.11(A)) has been prepared setting out arrangements in case of an emergency, requirements for incident response, incident drills and auditing. An on-site 24/7 emergency response service would be provided at the main development site.

10.4.254 Therefore, it is expected that the preferred water supply proposal would not result in any new significant major accident risks that the Sizewell C Project sites would be susceptible to. Any combined risks with the Sizewell C Project would be tolerable if as low as reasonably practicable (ALARP) and **not significant**. Furthermore, as set out within **Volume 2, Chapter 27** of the **ES** (Doc Ref. 6.3) [APP-344], mitigation proposed by the Sizewell C Project during its construction would mitigate all risks to off-site receptors to tolerable or tolerable if ALARP (**not significant**). No additional mitigation is considered to be required due to the construction of the preferred water supply proposal listed above.

b) xiii) b) Operation

10.4.255 During the operation of Sizewell C nuclear power station, cumulative risks relating to major accidents and disasters may arise in-combination with

the operation of the water supply. Risks which could be increased by the operation of preferred water supply proposal are the same as listed in for construction, within the addition of failure or loss of utilities that could affect flood risk.

- 10.4.256 During the operation of the Sizewell C Project, major accident risks from off-site sources would be controlled by measures embedded within the design in compliance with the Nuclear Site Licence. Periodic safety reviews would be undertaken to confirm the need for any additional mitigation. In addition, the preferred water supply proposal would be operated in accordance with granted consents and relevant regulations. Therefore, any combined risks would be tolerable if ALARP and **not significant**. Furthermore, as set out within **Volume 2, Chapter 27** of the **ES** (Doc Ref. 6.3) [\[APP-344\]](#), mitigation proposed by the Sizewell C Project during its operation would mitigate all risks to off-site receptors to tolerable or tolerable if ALARP (**not significant**). Therefore, no additional mitigation is considered to be required due to the operation of the preferred water supply proposal.

b) xiv) Health and wellbeing

- 10.4.257 As previously stated, the route of the new water main will avoid sensitive areas where possible and employ best practice measures during construction to mitigate the release of environmental pollutants with the potential to adversely affect health and wellbeing. In addition, due to the linear nature of the proposals, construction works would be transient in nature and would only impact upon a given receptor for a short period of time, further limiting the potential for adverse health and wellbeing effects. Overall, there would be no change to the residual construction or operational cumulative effects as presented in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [\[APP-578\]](#) as a result of the proposed water supply proposal.

b) xv) Summary of residual cumulative effects

- 10.4.258 Overall the preferred water supply connection strategy would result in no new or different significant effects than those reported in **Volume 10, Chapter 4** of the **ES** (Doc Ref 6.11) [\[APP-578\]](#).

10.5 Transboundary effects

a) Relevant Additional Information and/ or proposed changes

- 10.5.1 All of the Additional Information and proposed changes to the Sizewell C Project described in **Chapter 1** of this **ES Addendum** have been reviewed to determine the potential for new or different significant effects to occur with regards to the assessment of transboundary effects,

presented within **Volume 10, Chapter 5** of the **ES** (Doc Ref 6.11) [[APP-580](#)].

10.5.2 Additional Information of relevance to the transboundary assessment includes the following reports included within **Volume 3, Appendix 2.17.A** of this **ES Addendum**:

- SPP100: Estimates of European populations of twaite shad and cucumber smelt of relevance to Sizewell;
- SPP103: Consideration of potential effects on selected fish stocks at Sizewell; and
- TR406: Impingement predictions based upon specific cooling water system design.

b) [Updated assessment](#)

10.5.3 The Additional Information and proposed changes would not change to the conclusions of the assessment presented within **Volume 10, Chapter 5** of the **ES** (Doc Ref 6.11) [[APP-580](#)] for the following topics.

- Conventional waste management and material resources;
- Socio-economics;
- Transport;
- Air quality;
- Landscape and visual;
- Terrestrial ecology;
- Amenity and recreation;
- Terrestrial historic environment;
- Soils and agriculture;
- Geology and land quality;
- Groundwater and surface water;
- Coastal geomorphology;
- Marine water quality and sediments;

- Marine historic environment;
- Radiological considerations;
- Climate change;
- Major accidents and disasters; and
- Health and wellbeing.

10.5.4 The following subsections provide the updated assessment for those topics where the Additional Information, or proposed changes, have resulted in new or different environmental effects.

b) ii) **Marine Ecology**

10.5.5 The Additional Information provided with the reports identified above has been considered as part of the **Shadow Habitats Regulation Assessment** (sHRA) (Doc Ref. 5.10) [APP-145 to APP-152] and updates have been made in relation to the following species:

- Allis shad;
- Twaite shad; and
- River lamprey.

b) ii) a) **Allis shad**

10.5.6 The operation of the cooling water system has the potential to impinge migratory fish species that are qualifying features of the European site. However, on the basis of the very low predicted impingement at Sizewell C (three individuals, based on a single individual being recorded in the monitoring data from Sizewell B in 2009), likely significant effects (LSE) can be excluded because this scale of effect would not make any material difference to the population of any European site, regardless of location. As no significant effects on Allis shad have been identified, it is unlikely that significant transboundary effects would exist.

b) ii) b) **Twaite shad and river lamprey**

10.5.7 Operation of the cooling water system could lead, via impingement and entrainment, to a localised loss in migratory fish species that are a qualifying interest feature of a European site. Without mitigation, it is predicted that 2,989 twaite shad and 2,929 river lamprey would be impinged at Sizewell C (**Volume 3, Appendix 2.17.A of this ES Addendum**).

b) ii) b) a) Twaite shad

10.5.8 LSE cannot be excluded for the following additional European sites scoped into the sHRA as part of the assessment for twaite shad:

- Marais du Cotentin et du Bessin - Baie des Veys SAC.
- Tregor Goëlo SAC.

10.5.9 Impingement losses of twaite shad, with mitigation, are predicted to be 1,067 individuals, representing 0.02% of the population. This is the same percentage as reported in the **Shadow HRA Report** (Doc Ref. 5.10) [APP-145 to APP-152] and, therefore, the conclusion is unchanged with respect to the mainland European SACs (i.e. adverse effect on the integrity of the mainland European SACs can be excluded).

10.5.10 The Marais du Cotentin et du Bessin - Baie des Veys SAC and Tregor Goëlo SAC are located approximately 400km and 530km from the location of the Sizewell C Project respectively. There are no quantified data of population levels of twaite shad linked to these SACs, but it is highly unlikely that these river systems support a greater population than the Elbe and Scheldt, with the Elbe known to be one of the most important spawning stocks of twaite shad in the North Sea region (**Volume 3, Appendix 2.17.A** of this **ES Addendum**). Furthermore, these SAC are located at a substantially greater distance from the location of the Sizewell C Project than the Elbe and Scheldt systems.

10.5.11 The theoretical predicted impingement of twaite shad derived from the spawning populations of either the Marais du Cotentin et du Bessin - Baie des Veys SAC and Tregor Goëlo SAC can be assumed to be significantly less significant than the predictions made in the context of the populations of the Scheldt and Elbe river systems.

10.5.12 On the basis of the very low predicted impingement and distance of these European sites from the Sizewell C Project, an adverse effect on the integrity of the Marais du Cotentin et du Bessin - Baie des Veys SAC and Tregor Goëlo SAC can be excluded due to impingement of twaite shad during the operation of Sizewell C.

10.5.13 No significant effects on twaite shad have been identified, thus it is unlikely that significant transboundary effects would exist.

b) ii) b) b) River Lamprey

10.5.14 LSE cannot be excluded for the following additional European sites scoped into the sHRA for river lamprey:

- Schelde- en Durmeëstuarium van de Nederlandse grens tot Gent SAC.
- Unterems und Außenems SCI.
- Ems SCI.
- Weser bei Bremerhaven SAC.
- Weser zwischen Ochtummündung und Rekum SAC.
- Unterweser SCI.
- Nebenarme der Weser mit Strohauser Plate und Juliusplate SCI.
- Lesum SAC.
- Bremische Ochtum SAC.
- Mühlenberger Loch/Neßsand SAC.
- Rapfenschutzgebiet Hamburger Stromelbe SCI.
- Schleswig-Holsteinisches Elbästuar und angrenzende Flächen SAC.
- Untereibe SCI.
- Treene Winderatter See bis Friedrichstadt und Bollingstedter Au SAC.
- Untereider SAC.
- Havre de Saint-Germain-sur-Ay et Landes de Lessay SAC.
- Marais Vernier, Risle Maritime SAC.

10.5.15 The predicted impingement of river lamprey is very low and, while there is a theoretical pathway for effect on the European sites listed in this section, the risk of impingement of fish that may derive from these SACs and SCIs is significantly lower than that predicted for the Humber Estuary SAC.

10.5.16 On the basis of the very low predicted impingement and distance of these European sites from the Sizewell C Project (which results in a weaker pathway for effect compared with that assessed for the Humber Estuary SAC), an adverse effect on the integrity of the mainland European sites can be excluded due to impingement of river and sea lamprey during the operation of Sizewell C.

10.5.17 No significant effects on river lamprey have been identified, thus it is unlikely that significant transboundary effects would exist.

b) ii) c) Conclusion

10.5.18 Overall, there would be no change to the residual effects identified within **Volume 10, Chapter 5** of the **ES** (Doc Ref 6.3) [[APP-580](#)].

b) iii) Marine Navigation

10.5.19 As set out within **Chapter 2** of this **ES Addendum**, the proposed change to the freight management strategy would result in an increase in vessel movements associated with the new temporary beach landing facility. These additional movements have the potential to result in increased in:

- Risk of collision with passing vessels, vessels actively fishing, delivery vessels;
- Risk of vessel grounding; and
- Increase disruption to fishing and recreational activity close to the shore.

10.5.20 Following the implementation of necessary mitigation, no changes to the residual effects identified **Volume 10, Chapter 5** of the **ES** (Doc Ref 6.3) [[APP-580](#)] would be introduced as a result of this change.

c) Conclusions

10.5.21 Overall, there would be no change to the conclusions of the assessment presented within **Volume 10, Chapter 5** of the **ES** (Doc Ref 6.3) [[APP-580](#)] and all residual transboundary effects would remain **not significant**.

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