The Sizewell C Project

6.11 Volume 10 Project-wide, Cumulative and Transboundary Effects

Chapter 2 Inter-relationship effects

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Contents

Tables

Plates

None Provided.

Figures

None Provided.

Appendices

2. Inter-relationship effects

2.1 Introduction

2.1.1 This chapter provides a summary of the inter-relationship effects detailed within each technical assessment chapters in **Volumes 2** to **9 of the Environmental Statement (ES)** and assesses the potential for residential properties, commercial facilities and schools to experience effect interactions as a result of the Sizewell C Project (hereafter referred to as the 'proposed development').

2.1.2 As set out in **Chapter 1** of this volume, there is no established methodology for assessing the effects on sensitive resources and/or receptors resulting from the interaction or inter-relationship of different effects. The assessment of potential inter-relationship effects for the proposed development is based on a screening exercise to identify the potential inter-relationship effects, and where they are considered within the **ES**. Where potential inter-relationship effects are not assessed within **Volumes 2** to **9 of the ES** they have been considered within this chapter and supporting appendix.

2.2 Screening exercise

a) Stage 1

2.2.1 This stage of the screening exercise was undertaken to identify where resources and/or receptors could be affected by more than one type of effect (usually where they were considered in more than one technical chapter). Resources and/or receptors were categorised into two groups: those with potential to experience inter-relationship effects; and those with no potential to experience inter-relationship effects:

- Potential - where it was identified that either there were two or more types of effect for a particular resource or receptor, or two or more topics had identified effects on that resource or receptor.
- No potential - Where it was identified that either there was only one type of effect for a particular resource or receptor, or only one topic had identified effects on that resource or receptor.

2.2.2 **Table 2.1** identifies the resources and receptors considered within the technical chapters of **Volumes 2** to **9** of the **ES**. The table identifies in grey where the assessment of environmental effects on resource or receptor forms part of the main assessment (where residual effects are described for that resource or receptor type). The table also identifies in blue, and where there is a potential inter-relationship effect on a resource or receptor from different environmental impacts.

2.2.3 **Appendix 2A** identifies where the potential inter-relationship effects on a resource or receptor are considered within the technical chapters of **Volumes 2** to **9** of the **ES**.

Table 2.1: Inter-relationship Effects Screening Matrix

Receptor	Conventional Waste	Socio-economics	Transport	Noise and Vibration	Air Quality	Landscape and Visual	Terrestrial ecology	Amenity and recreation	Terrestrial historic	Soils and agriculture	Geology and land quality	Groundwater surface water	Coastal geomorphology	Marine water quality	Marine Ecology	Marine historic environment	Navigation	Radiological	Climate change	Major accidents disasters	Health and wellbeing
Waste Management facilities	✓																			✓	
Quarries/ finite sources of virgin materials	✓		✓	✓	✓		✓			✓	✓	✓								✓	
Labour Market		✓																		✓	
Local / regional economy		✓																		✓	
Tourist accommodation sector.		✓																			
Private rented accommodation sector.		✓																			
Owner occupied accommodation sector.		✓																			
Human receptors (Population)		✓	✓	✓	✓	✓		✓			✓							✓		✓	✓

Receptor	Conventional Waste	Socio-economics	Transport	Noise and Vibration	Air Quality	Landscape and Visual	Terrestrial ecology	Amenity and recreation	Terrestrial historic	Soils and agriculture	Geology and land quality	Groundwater surface water	Coastal geomorphology	Marine water quality	Marine Ecology	Marine historic environment	Navigation	Radiological	Climate change	Major accidents disasters	Health and wellbeing
Pre-school provision and childcare services.		✓																			
Primary school capacity.		✓																			
Secondary school capacity.		✓																			
Social Services provision / capacity.		✓																			
County Council-run services.		✓																			
Provision and capacity of formal sports facilities.		✓																			
District Council services (waste, cleaning, environmental and public health).		✓																			
Policing services and community safety.		✓																			

Receptor	Conventional Waste	Socio-economics	Transport	Noise and Vibration	Air Quality	Landscape and Visual	Terrestrial ecology	Amenity and recreation	Terrestrial historic	Soils and agriculture	Geology and land quality	Groundwater surface water	Coastal geomorphology	Marine water quality	Marine Ecology	Marine historic environment	Navigation	Radiological	Climate change	Major accidents disasters	Health and wellbeing
Fire and rescue services.		✓																			
Community cohesion / integration.		✓																			
Transport network			✓			✓														✓	
Residential receptors				✓	✓	✓		✓			✓									✓	✓
Commercial facilities				✓	✓	✓														✓	✓
Community facilities (Sports and Social Club / Campsite)				✓	✓			✓												✓	✓
Schools				✓	✓	✓														✓	✓
Areas of Outstanding Natural Beauty						✓														✓	
Special Landscape Area						✓														✓	
National Character Area						✓														✓	
Landscape Character Types						✓														✓	

Receptor	Conventional Waste	Socio-economics	Transport	Noise and Vibration	Air Quality	Landscape and Visual	Terrestrial ecology	Amenity and recreation	Terrestrial historic	Soils and agriculture	Geology and land quality	Groundwater surface water	Coastal geomorphology	Marine water quality	Marine Ecology	Marine historic environment	Navigation	Radiological	Climate change	Major accidents disasters	Health and wellbeing
Seascape Character						✓														✓	
Visual Receptor Areas						✓		✓	✓											✓	
Designated Landscapes						✓														✓	
Important Ecological Features				✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓					✓	
Statutory designated site				✓	✓	✓	✓	✓			✓	✓	✓	✓	✓					✓	✓
Non-statutory designated sites				✓	✓	✓	✓	✓			✓	✓	✓	✓	✓					✓	✓
Public Rights of Way			✓	✓	✓	✓		✓												✓	
Dark Sky Discovery Sites						✓		✓													
Amenity and Recreation Receptor Groups			✓	✓	✓	✓		✓												✓	
Long Distance Linear Recreational Routes			✓	✓	✓	✓		✓													

Receptor	Conventional Waste	Socio-economics	Transport	Noise and Vibration	Air Quality	Landscape and Visual	Terrestrial ecology	Amenity and recreation	Terrestrial historic	Soils and agriculture	Geology and land quality	Groundwater surface water	Coastal geomorphology	Marine water quality	Marine Ecology	Marine historic environment	Navigation	Radiological	Climate change	Major accidents disasters	Health and wellbeing
Designated heritage assets				✓		✓			✓		✓	✓								✓	
Non-designated heritage assets				✓		✓			✓		✓	✓								✓	
Historic Landscape character									✓												
Archaeology									✓		✓	✓				✓				✓	
Soil resources (Best and Most Versatile Land)										✓	✓									✓	
Agricultural Operations / Land holdings				✓	✓	✓				✓	✓	✓								✓	
Geology											✓	✓								✓	
Livestock											✓	✓								✓	
Groundwater							✓				✓	✓	✓							✓	
Surface Water							✓				✓	✓	✓							✓	
Flood Risk												✓							✓	✓	

Receptor	Conventional Waste	Socio-economics	Transport	Noise and Vibration	Air Quality	Landscape and Visual	Terrestrial ecology	Amenity and recreation	Terrestrial historic	Soils and agriculture	Geology and land quality	Groundwater surface water	Coastal geomorphology	Marine water quality	Marine Ecology	Marine historic environment	Navigation	Radiological	Climate change	Major accidents disasters	Health and wellbeing
Existing Buildings (property)											✓	✓									
Drainage systems												✓									
Shoreline features													✓							✓	
Marine water quality and sediment													✓	✓	✓					✓	
Fisheries				✓									✓	✓	✓		✓			✓	
Passing vessels						✓	✓	✓			✓	✓					✓			✓	
AIL delivery vessels																	✓				
Fishing & recreational vessels								✓									✓				
Galloper cables																	✓				
Non-human biota							✓								✓			✓			
Carbon Budget Period																			✓		
Climate Change Resilience																			✓		

2.2.4 As shown in **Table 2.1** the following resources and/or receptors have been identified to have no potential to experience inter-relationship effects and are therefore not considered further within this assessment:

- Tourist accommodation sector.
- Private rented accommodation sector.
- Owner occupied accommodation sector.
- Pre-school provision and childcare services.
- Primary school capacity.
- Secondary school capacity.
- Social Services provision / capacity.
- County Council-run services.
- Provision and capacity of formal sports facilities.
- District Council services (waste, cleaning, environmental and public health).
- Policing services and community safety.
- Fire and rescue services.
- Community cohesion / integration.
- Deposits of paleoenvironmental and Geoarchaeological interest.
- Drainage systems.
- AIL delivery vessels.
- Galloper cables.
- Carbon Budget Period.
- Climate Change Resilience.

2.2.5 In addition, where a resource or receptor is shown to only have a potential inter-relationship with the Major Accidents and Disasters assessment it has been considered in the **Volume 2, Chapter 28** of the **ES** and has not been considered further in this assessment. The resources and /or receptors removed on this basis include:

- Labour Market.
- Local / regional economy.
- Areas of Outstanding Natural Beauty.
- Special Landscape Area.
- National Character Area.
- Seascape Character.
- Designated Landscapes.
- Shoreline features.
- Landscape Character Types.
- Historic Landscape character.

b) Stage 2

2.2.6 As set out in **Chapter 1** of this volume, inter-relationship effects are considered, where appropriate, within the technical assessments in Volumes **2** to **9** of the **ES**. In order to avoid duplication of this, **Table 2.2** provides a summary of the types of inter-relationship effect that are considered within each of the topic assessment chapters. This process identifies that the majority of the potential inter-relationship effects are already considered within the technical assessments presented in **Volumes 2** to **9** of the **ES**.

2.2.7 There are however, potential inter-relationship effects from noise, air quality, and visual effects on the following receptors, which are not considered, or assessed in the topic assessment chapters presented in **Volumes 2** to **9** of the **ES**:

- residential properties;
- commercial facilities;
- community facilities (Sports and Social Club / Campsite); and
- schools.

2.2.8 The assessment of the potential inter-relationship effects on residential properties, community facilities, commercial facilities and schools is therefore presented in **section 2.3** and **Appendix 2B** of this volume.

Table 2.2: Summary of potential inter-relationship effects considered within technical assessments at Volumes 2 to 9 of the ES

Topic	Construction (and removal and reinstatement)	Operation
Conventional Waste Management	Potential for management and transport of waste during construction to impact geology and soils, groundwater and surface water, air quality, noise and vibration and transport. Potential impacts on availability of material resource and depletion of non-renewable resources from construction activities. Potential effects on controlled waters and sensitive receptors from leaching of materials and waste associated with construction activities. Potential effects from the generation and management of waste, including the temporary occupation of waste management facilities and the permanent reduction in landfill capacity	Potential for management and transport of waste during operation to impact geology and soils, groundwater and surface water, air quality, noise and vibration and transport. Potential impacts on availability of material resource and depletion of non-renewable resources from operation. Potential effects on controlled waters and sensitive receptors from leaching of materials and waste associated with operation.
Socio-economics	The socio-economic assessment inherently includes inter-relationship effects on receptors related to other environmental aspects, including transport. As such, where relevant, mitigation strategies developed through the socio-economic assessment include measures that cross-cut environmental aspects, for example the Community Fund, the Community Safety Management Plan (Doc Ref 8.16) and the Tourism Fund. Where appropriate, these will be secured through the Section 106 agreement.	The socio-economic assessment inherently includes inter-relationship effects on receptors related to other environmental aspects. However, all significant impacts during the operational phase are predicted to be beneficial.
Transport	Potential for traffic during construction to impact pedestrians. Potential effects on transport from traffic congestion impacts associated with construction activities.	Potential for traffic during construction to impact pedestrians. Potential effects on transport from traffic congestion impacts associated with operation.
Noise and vibration	Potential noise and vibration impacts from construction works, machinery and traffic on amenity and recreation receptors, ecological receptors, heritage receptors and human health receptors.	Potential impacts from noise during operation on amenity and recreation, ecological receptors, heritage receptors and human health receptors.
Air quality	Potential dust impacts on ecological receptors, human health, heritage receptors and amenity and recreation receptors, particularly from earthworks.	Potential for combustion activities and transport emissions to impact human health, ecological receptors, amenity and recreation receptors and heritage receptors during operation.

Topic	Construction (and removal and reinstatement)	Operation
	Potential transport emissions and combined heat and power engine emissions impacts on human health and ecological receptors.	
Landscape and visual	Potential impacts on ecological receptors from removal of landscape features. Potential visual impacts from construction plant, machinery and activity on heritage assets, amenity and recreation and landscape character.	Potential impacts on ecological receptors from removal of landscape features. Potential visual impacts from views of the proposed development on heritage assets, amenity and recreation and landscape character.
Terrestrial ecology	Potential for noise and lighting effects, habitat fragmentation and habitat loss to impact important ecological features associated with construction activities.	Potential effects on important ecological features from lighting and habitat fragmentation associated with operation.
Amenity and recreation	Potential effects on amenity and recreation receptors from physical changes to resources (e.g. temporary or permanent diversions of Public Rights of Way, cycle routes and long distance walking routes), and changes in views, noise, lighting, air quality, traffic and people associated with construction activities.	Potential effects on amenity and recreation receptors from physical changes to resources (e.g. permanent diversions of Public Rights of Way, cycle routes and long distance walking routes), and changes in views, noise, lighting, air quality and traffic associated with operation.
Terrestrial historic environment	Potential effects on the historic environment as a result of noise and visual impacts represent a subset of the changes considered within the assessments of effects, arising as a result of change to setting, and historic landscape character. Therefore, the consideration of inter-relationship effects forms an inherent part of the assessment presented within the chapter.	
Soils and agriculture	Potential for impacts on geology and land quality, landscape, noise, air quality, and groundwater and surface water from soils handling and noise or dust. Potential effects on soils and agriculture from contamination, soil erosion and silt-laden runoff.	Potential for impacts on noise, air quality and groundwater and surface water from soils, dust or pollution incidents associated with operation. Potential effects on soils and agriculture from contamination of soils, disturbance (noise) and dust.
Geology and land quality	Potential for new or existing contamination sources introduced or disturbed during construction to impact on soils and agriculture (good quality or Best and Most Versatile (BMV) agricultural land), ecology (SSSIs), heritage (listed buildings) and groundwater and surface water (aquifers, SPZs and rivers) receptors.	Potential for new contamination sources introduced during operation to impact on soils and agriculture (good quality or BMV agricultural land), ecology (SSSIs), heritage (listed buildings) and groundwater and surface water (aquifers, SPZs and rivers) receptors.

Topic	Construction (and removal and reinstatement)	Operation
Ground and surface water	Potential effects on ground and surface water, geologies and groundwater dependent ecosystems from contamination and alteration to flow regimes associated with construction.	Potential effects on ground and surface water, geologies and groundwater dependent ecosystems from contamination and alteration to flow regimes associated with operation.
Coastal Geomorphology and Hydrodynamics	Potential construction effects to coastal geomorphology and hydrodynamics to impact on sedimentation, water quality, marine ecology, and structures.	Potential operational effects to coastal geomorphology and hydrodynamics to impact on sedimentation, water quality, marine ecology, and structures.
Marine Water Quality and Sediments	Potential effects on marine ecology from impacts to water quality and sediments during construction.	Potential effects on marine ecology from impacts to water quality and sediments during operation.
Marine Ecology	Potential for effects from marine water quality and sediments, and coastal geomorphology and hydrodynamics and noise and vibration to impact upon plankton, benthic fish, mammals etc.	Potential for effects from marine water quality and sediments, and coastal geomorphology and hydrodynamics and noise and vibration to impact upon plankton, benthic fish, mammals etc.
Marine Historic Environment	The archaeological remains at the site are not sensitive to other impacts beside the direct disturbance considered within the chapter and consequently no inter-relationship effects are anticipated.	
Navigation	Potential for access restrictions to impact fisheries and fishing activities and recreational activities during construction. Potential effects on navigation and collision risk from construction machinery associated with construction (installation, dredging and AIL vessels).	Potential for access restrictions to impact fisheries and recreational activities during operation. Potential effects on navigation and collision risk from machinery associated with operation (installation, dredging and AIL vessels).
Radiological Effects	Potential radiological effects on humans and non human biota. Effects on habitats due to radiological discharges in-combination with other effects identified in **Volume 2, Chapter 14 Terrestrial Ecology and Ornithology** and **Volume 2 Chapter 23 Marine Ecology and Fisheries** of the **ES.**	
Climate Change	The assessment of the inter-relationship effects during the operation of the proposed development is an inherent part of the in-combination climate change impact assessment (**Volume 2, Chapter 26** of the **ES**) which considers geology and land quality, soils and agriculture, landscape and visual, amenity and recreation, terrestrial ecology and ornithology and groundwater and surface water.	
Major Accidents and Disasters	The assessment considers the reasonably foreseeable worst-case environmental consequence of identified major accident hazards and/or threats. Including potential effects on:	

Topic	Construction (and removal and reinstatement)	Operation
	• conventional waste management; • socio-economics; • transport; • terrestrial ecology and ornithology; • historic environment; • soils and agriculture; • geology and land quality; • groundwater and surface water; • marine ecology; • marine navigation; • radiological assessment; and • climate change.	
Health and Wellbeing	Potential effects on health and wellbeing from transport, noise and vibration, air quality, which constitute environmental determinants associated with construction. Potential effects on health and wellbeing from employment and income socio-economic factors, which constitute wider socio-cultural and lifestyle determinants associated with construction.	Potential effects on health and wellbeing from transport, noise and vibration, air quality and radiological exposure, which constitute environmental determinants associated with operation. Potential effects on health and wellbeing from employment and income socio-economic factors, which constitute wider socio-cultural and lifestyle determinants associated with operation.

2.3 Assessment of inter-relationship effects on residential properties, community facilities, commercial facilities and schools

2.3.1 The following sections provide a summary of the effect of interactions that have the potential to impact upon receptors at residential properties, commercial facilities and schools in close proximity to the proposed development. These are discussed on an individual receptor basis, or as grouped receptors, and include descriptions of the likely effect combinations during construction, operation and removal and reinstatement phases where relevant. Where receptors have been grouped, reference is made to receptor names presented within each individual technical assessment of **Volumes 2** to **9** of the **ES**.

2.3.2 Receptors considered within the inter-relationship effects assessment include those which are located within more than one of the following topic study areas (and are assessed receptors); air quality, noise and vibration and landscape and visual.

2.3.3 As identified in **Chapter 1** of this volume, this assessment considers where residential receptors, commercial facilities and schools have been identified (in **Volumes 2** to **9** of the **ES**) to experience a combination of adverse or beneficial effects as a result of the proposed development through changes in air quality, the noise environment and visual amenity. Further details of the assessment, and effects on the identified receptors and receptor groups are included in **Appendix 2A** of this volume.

2.3.4 The potential for new, or different significant environmental effects to occur as a result of inter-relationships has been assessed using the criteria provided within **Table 2.3**.

Table 2.3: Criteria for assessing the potential for new or different significant environmental effects as a result of inter-relationships

Potential	Description
High	Where a receptor or receptor group is likely to experience one or more significant environmental effect.
Low	Where a receptor or receptor group is likely to experience one or more not significant, but no significant, environmental effects.
No	Where a receptor or receptor group is likely to experience environmental effects have only been identified for one topic area and there is no identified inter-relationship.

a) Main Development Site

2.3.5 A description of the construction, operation and decommissioning phases of the main development site is provided within **Volume 2**, **Chapters 3** to **5** of the **ES**. In summary, the construction is anticipated to take approximately nine to twelve years. The Sizewell C nuclear power station has been designed to have an operational life of 60 years from completion. Following the end of operation, decommissioning of the reactor and other facilities will take place for a period of approximately 25 years, followed by 30 years of decommissioning for the Interim Spent Fuel Store.

2.3.6 Residential properties, commercial facilities and schools in close vicinity to the main development site are shown in **Figure 1.7** within **Volume 2** of the **ES** and are referenced within **Appendix 2B Table 2B.1.** These include receptors at:

- Abbey Cottage located to the west of the site;
- 2 Upper Abbey Farmhouse located in the north west of the site;
- The Cottage, Upper Abbey Farm located in the north west of the site;
- 1 Upper Abbey Farmhouse located in the north west of the site;
- Lower Abbey Farm located to the north of the site;
- Abbey Road, Leiston located to the west of the site;
- Ash Wood Cottages located in the north of the site;
- Barley Rise located to the south of the site;
- Common Cottages located in the south west of the site;
- 1, 2 and 3 The Common located in the south west of the site;
- Crown Lodge located in the south of the site;
- Eastbridge located to the north west of the site;
- Crown Land Cottage, Grimseys Lane located to the south of the site;
- 158 King George's Avenue located to the south west of the site;
- King George's Avenue located to the south west of the site;
- Heath View located to the south west of the site;

- Keepers Cottage located to the mid-south of the site;
- Pro Corda, Leiston Abbey located to the west of the site;
- Leiston Primary School, located to the west of the site;
- Common Farm, Lovers Lane/Sandy Lane located in the south west of the site;
- 1 Common Farm Cottage, Lovers Lane/Sandy Land located in the south west of the site;
- 2 Common Farm Cottage, Lovers Lane/Sandy Lane located in the south west of the site;
- Old Abbey Farm/care Home located in the west of the site;
- Plantation Cottages located to the north west of the site;
- Potters Farm located to the north west of the site;
- Theberton House, Potter's Street located to the north west of the site;
- Rosery Cottages located to the south east of the site;
- The Round House located to the north west of the site;
- Sizwewell Sports and Social Club located to the south east of the site;
- Sizewell Village located to the south east of the site;
- The Studio located in the mid-south west of the site;
- Valley Road North located to the south west of the site;
- Valley Road South located to the south west of the site;
- The Mill, 22 Carr Avenue located to the south west of the site;
- Land at Colonial House, Station Road located to the south west of the site;
- Abbey View Lodges, Orchard House 105 Abbey Road located to the west of the site;
- Part Side Garden, 2 Abbey Road located to the south west of the site;
- 15 High Street, Leiston located to the south west of the site;

- Land east of Abbey Road located to the south west of the site;
- Land west of Mill Cottage, Valley Road located to the south west of the site;
- Gas Works, Carr Avenue located to the south west of the site; and
- 27A Heath View located to the south west of the site.

2.3.7 The assessment also considers visual receptor groups 1 to 23 as defined within the landscape and visual assessment presented in **Volume 2**, **Chapter 13** (Landscape and Visual) of the **ES**, which includes consideration of visual effects on local residents within proximity to the main development site.

2.3.8 For further information on the technical assessments that have been used to inform this assessment, please refer to **Volume 2, Chapters 11** (Noise and Vibration)**, 12** (Air Quality) and **13** (Landscape and Visual) of the **ES**.

2.3.9 **Appendix 2A Table 2A.1** presents a summary of the residual environmental effects reported within each of the technical chapters of **Volume 2** of the **ES** and describes how the individual effects could be experienced in combination. As such, this assessment considered the primary and tertiary mitigation detailed within the chapter and set out with the **CoCP** (Doc Ref. 8.11) and any required secondary mitigation.

i. Summary of potential inter-relationships - main development site

2.3.10 A number of receptors within close proximity to the main development site have a high potential for combined effects arising from noise and vibration, air quality and views during construction.

2.3.11 These could include receptors at the following locations: Abbey Cottage; Lower Abbey Farm; Abbey Road; Leiston; Ash Wood Cottages, Common Cottages; Eastbridge; 158 King George's Avenue; Keeper's Cottage; Lover's Lane; 1 and 2 Common Farm Cottage; Old Abbey Farm/Care home; Plantation Cottages; Potters Farm; Potters Street; Rosery Cottages; Round House; Abbey Lodges; Sizewell Sports and Social Club; and The Studio.

2.3.12 Receptors at 1 Upper Abbey Farmhouse, 2 Upper Abbey Farmhouse and Upper Abbey Farmhouse have a high potential to be impacted by combined effects from air quality and views of construction.

2.3.13 A number of receptors are also likely to have high potential for combined effects arising from impacts during operation, these include receptors at 2 Upper Abbey Farmhouse, Ash Wood Cottages, Common Cottages;

Eastbridge; Keeper's Cottage; Lovers Lane, 1 and 2 Common Farm Cottage, Plantation Cottages; Potters Farm, Potters Street, Rosery Cottages, and The Studio.

2.3.14 An additional significant adverse inter-relationship effect is likely on these receptors as a result of impacts from the main development site during construction and operation.

2.3.15 A number of receptors are likely to experience low or no potential interaction and therefore no additional significant adverse effect is likely. These receptors can be found detailed within **Appendix 2B Table 2B.1**.

2.3.16 Noise sensitive receptors within 50 metres of the B1122 between Yoxford and the B1125 junction and Lovers Lane, Leiston have the potential to experience moderate adverse (significant) effects as a result of road traffic from the proposed development (**Volume 2, Chapter 11** (Noise and Vibration)).These effects have the potential to interact with air quality effects from road traffic and could result new and or different environmental effect within a number of areas. The areas where new and/or different environmental effects may be experienced include properties between Yoxford and Leiston, close to the B1122, however in these areas the air quality effects from road traffic and rail emissions have been assessed and either are negligible or beneficial. This means that there is a potential for effect interaction to occur and result in a further significant effect at those receptors where noise effects from road traffic would be significant (within 50 metres of the the B1122 between Yoxford and Lovers Lane). The road traffic noise impacts would be subject to noise mitigation schemes as appropriate.

Northern Park and Ride

2.3.17 A description of the construction, operation and removal and reinstatement of the northern park and ride at Darsham is provided within **Volume 3**, **Chapter 2** of the **ES**. In summary, the construction is anticipated to take 12 to 18 months, and the site will remain operational for 9 to 12 years until the completion of construction at the Sizewell C main development site when the facility will be removed and the site reinstated, over a period of approximately 12 months, to agricultural use.

2.3.18 Receptors with the potential to experience effects from activity at the northern park and ride site are shown in **Figure 1.2** within **Volume 3** of the **ES** and are referenced within **Appendix 2B Table 2B.2**. These include receptors at:

- Willow Marsh Cottage located to the north-west of the site;

- residential properties located along London Road to the north of the site; and
- residential properties located along The Street to the east of the site;
- residential properties on the western side of Main road adjacent to the eastern boundary of the site; and
- residential properties to the south-west of the East Suffolk Line to the south of the site.

2.3.19 The assessment also considers the receptor groups 1, 2 and 3 as defined within the landscape and visual assessment presented in **Volume 3**, **Chapter 6** (Landscape and Visual) of the **ES**, which considers visual effects on local residents.

2.3.20 For further information on the technical assessments that have been used to inform this assessment, please refer to **Volume 3, Chapters 4** Noise nd Vibration), **5** (Air Quality) and **6** (Landscape and Visual) of the **ES**.

2.3.21 **Appendix 2B Table 2B.2** presents a summary of the residual environmental effects reported within each of the technical chapters of **Volume 3** of the **ES** and describes how the individual effects could be experienced in combination. This inter-relationship assessment considered the primary and tertiary mitigation detailed within the chapter and set out with the **CoCP** (Doc Ref. 8.11) and any required secondary mitigation.

2.3.22 Receptors at residential properties on the western side of Main road adjacent to the eastern boundary of the site have a high potential for combined effects arising from noise and vibration, air quality and landscape and visual impacts, during construction, operation and removal and reinstatement. An additional significant adverse inter-relationship effect is likely on these receptors as a result of impacts from the northern park and ride site during construction and operation.

2.3.23 A number of receptors are likely to experience low or no potential interaction and therefore no additional significant adverse effect is likely, these receptors can be found detailed within **Appendix 2B Table 2B.2**.

Southern Park and Ride

2.3.24 A description of the construction, operation and removal and reinstatement phases of the southern park and ride at Wickham Market is provided within **Volume 4**, **Chapter 2** of the **ES**. In summary, the construction is anticipated to take 12 to 18 months. The site will remain operational for 9 to 12 years until the completion of construction at the Sizewell C main development site.

Upon completion the park and ride facility will be removed, and the site reinstated, over a period of approximately 12 months, to agricultural use.

2.3.25 Receptors with the potential to experience effects from activity at the southern park and ride site are shown in **Figure 1.2** within **Volume 4** of the **ES** and are referenced within **Appendix 2B Table 2B.3.** These include receptors at:

- Rookery Farm, Hacheston located to the north-west of the site;
- residential properties located along Main Road to the north-east of the site; and
- Ash View, Lower Hacheston located to the east of the site;
- Long Acre, Ash Road located to the south of the site; and
- Bottle and Glass cottages located to the south-east of the site.

2.3.26 The assessment also considers the receptor groups 1, 2, 3, 4, 5, 6, 7 and 8 as defined within the landscape and visual assessment presented in **Volume 4**, **Chapter 6** (Landscape and Visual) of the **ES**, which include consideration of visual effects on local residents.

2.3.27 For further information on the technical assessments that have been used to inform this assessment, please refer to **Volume 4, Chapters 4** (Noise and Vibrationl), **5** (Air Quality) and **6** (Landscape and Visual) of the **ES**.

2.3.28 **Appendix 2B Table 2B.3** presents a summary of the residual environmental effects reported within each of the technical chapters of **Volume 4** of the **ES** and describes how the individual effects could be experience in combination. As such, this assessment considered the primary and tertiary mitigation detailed within the chapter and set out with the **CoCP** (Doc Ref. 8.11) and any required secondary mitigation.

2.3.29 None of the receptors around the southern park and ride have a high potential for effect interactions, and therefore no additional significant effect is likely. Details of the effects likely at each of the sensitive receptors can be identified within **Appendix 2B, Table 2B.3**.

ii. Two Village Bypass

2.3.30 A description of the construction and operation phases of the two village bypass is provided within **Volume 5**, **Chapter 2** of the **ES**. In summary, the construction is anticipated to take up to 24 months. The bypass will remain

operational after the completion of the construction of the Sizewell C main development site and become part of the local highway network.

2.3.31 Receptors with the potential to experience effects from activity at the two village bypass site are shown in **Figure 1.2** within **Volume 5** of the **ES** and are referenced within **Appendix 2B Table 2B.4**. These include receptors at:

- Tinker Brook, Stratford St Andrew located to the west of the site;
- Park Gate Farm located to the west of the site;
- The Red House, Main Road located to the north-west of the site;
- Timbers, Main Road located to the north-west of the site;
- Residential properties located along The Street, Farnham located to the north-east of the site;
- Hall Cottages, Farnham located to the east of the site;
- Farnham Hall located to the east of the site;
- Pond Barn Cottages, Farnham located to the south-east of the site;
- Mollett's Farm located to the east of the site;
- Farnham Hall Farmhouse located to the east of the site;
- Benhallstock Cottages located to the north-east of the site;
- Farnham Street Farm located to the east of the site; and
- Rosehill Cottages located to the east of the site.

2.3.32 The assessment also considers the receptor groups 1, 2, 3, 4, 5, 6, 7 and 8 as defined within the landscape and visual assessment presented in **Volume 5**, **Chapter 6** (Landscape and Visual) of the **ES**, which includes consideration of visual effects on local residents.

2.3.33 For further information on the technical assessments that have been used to inform this assessment, please refer to **Volume 5, Chapters 4** (Noise and Vibration), **5** (Air Quality) and **6** (Landscape and Visual) of the **ES**.

2.3.34 **Appendix 2B Table 2B.4** presents a summary of the residual environmental effects reported within each of the technical chapters of **Volume 5** of the **ES** and describes how the individual effects could be experience in combination. As such, this assessment considered the primary and tertiary mitigation

detailed within the chapter and set out with the **CoCP** (Doc Ref. 8.11) and any required secondary mitigation.

2.3.35 Receptors at The Red House and Timbers, Main Road; Hall Cottages, Farnham Hall, Farnham Street Farm; Farnham Hall Farmhouse; and Rosehill Cottages have a high potential for combined effects arising from noise and vibration, air quality and landscape and visual impacts, during construction. An additional significant adverse inter-relationship effect is likely on these receptors as a result of impacts from the southern park and ride during construction.

2.3.36 A number of receptors are also likely to have high potential for combined effects arising from impacts during operation, these include receptors at; The Red House; Hall Cottages and Farnham Hall; Pond Barn Cottages; Farnham Hall Farmhouse; Farnham Street Farm; and Rosehill Cottages.

2.3.37 A number of receptors are likely to experience low or no potential interaction and therefore no additional significant adverse effect is likely, these receptors can be found detailed within **Appendix 2B Table 2B.4.**

iii. Sizewell Link Road

2.3.38 A description of the construction, operation and removal and reinstatement phases of the Sizewell link road is provided within **Volume 6**, **Chapter 2** of the **ES**. In summary, the construction is anticipated to take up to 24 months. The link road will remain operational after the completion of the construction of the Sizewell C main development site and become part of the local highway network.

2.3.39 Receptors with the potential to experience effects from activity at Sizewell link road site are shown in **Figure 1.2** within **Volume 6** of the **ES** and are referenced within **Appendix 2B Table 2B.5**. These include receptors at:

- The Red House Farm located to the west of the site;
- Kelsale Lodge Cottages located to the west of the site;
- Fir Tree Farm located to the west of the site;
- Rosetta located to the west of the site;
- Vale Cottage located to the south of the site;
- Oakfield House located to the south of the site;
- Crossroads Cottage located to the north of the site;

- Garden House located to the north of the site;
- Roseate Cottage located to the north of the site;
- Trust Farm located to the south of the site;
- Valley Farm House located to the north of the site;
- Annesons Cottage and Coronation Cottages located to the north of the site;
- Hawthorn Cottages located to the south of the site;
- Forge Cottage located to the east of the site;
- Walnut Cottage located to the east of the site;
- Moat Cottage located to the south-east of the site; and
- The Granary and Theberton Grange located to the south-east of the site.

2.3.40 The assessment also considers the receptor groups 1, 2, 3, 4, 5, 6, 7 and 8 as defined within the landscape and visual assessment presented in **Volume 6**, **Chapter 6** (Landscape and Visual) of the **ES**, which includes consideration of visual effects on local residents.

2.3.41 For further information on the technical assessments that have been used to inform this assessment, please refer to **Volume 6, Chapters 4** (Noise and Vibration), **5** (Air Quality) and **6** (Landscape and Visual) of the **ES**.

2.3.42 **Appendix 2B Table 2B.5** presents a summary of the residual environmental effects reported within each of the technical chapters of **Volume 6** of the **ES** and describes how the individual effects could be experienced in combination. As such this assessment considered the primary and tertiary mitigation detailed within the chapter and set out with the **CoCP** (Doc Ref. 8.11) and any required secondary mitigation.

2.3.43 Receptors at Kelsale Lodge Cottages; Fir Tree Farm; The Red House Farm and Rosetta; Vale Cottage and Oakfield house; Valley Farm House; Annesons Cottage; Coronation Cottages; Forge Cottage and Walnut Cottage have a high potential for combined effects arising from noise and vibration, air quality and landscape and visual impacts, during construction. An additional significant adverse inter-relationship effect is likely on these receptors as a result of impacts from Sizewell link road during construction.

2.3.44 A number of receptors are also likely to have high potential for combined effects arising from impacts during operation, these include receptors at; Fir Tree Farm; the Red House Farm and Rosetta; Vale Cottage and Oakfield House; Valley Farm House; Annesons Cottage; Coronation Cottages; Forge Cottage; Walnut Cottage; the Granary and Theberton Grange.

2.3.45 A number of receptors are likely to experience low or no potential interaction and therefore no additional significant adverse effect is likely, these receptors can be found detailed within **Appendix 2B Table 2B.5.**

iv. Yoxford Roundabout and Other Highway Improvements

2.3.46 A description of the construction and operation phases of Yoxford roundabout and other highway improvements is provided within **Volume 7**, **Chapter 2** of the **ES**. The roundabout is anticipated to take up to nine months to construct. The improvement works would take between one and six months. Further details can be found in **Section 2.4** of **Chapter 2** of the **ES**. The roundabout and highway improvements would remain in use after the construction of the Sizewell C main development site.

2.3.47 Receptors with the potential to experience effects from activity at the Yoxford Roundabout and Other Highway Improvements are shown in **Figure 1.2** within **Volume 7** of the **ES**, and are referenced within **Appendix 2B Table 2B.6**. These include receptors at:

- Residential properties located on the High Street located to the west of the site;
- Residential properties located on Brook Street located to the west of the site;
- Rookery Lodge located to the south-west of the site;
- Sunnypatch, Middleton Road located to the east of the site;
- Residential properties located on Middleton Road located to the east of the site;
- Cockfield Hall Lodge located to the north of the site;
- Cavan Cottage, High Street located to the west of the site; and
- Beaubelle, Westleton Road located to the north west of the site.

2.3.48 The assessment also considers the receptor groups 1, 2, 3, and 4 as defined within the landscape and visual assessment presented in **Volume 7**,

Chapter 6 (Landscape and Visual) of the **ES**, which includes consideration of visual effects on local residents.

2.3.49 For further information on the technical assessments that have been used to inform this assessment, please refer to **Volume 7, Chapters 4** (Noise and Vibration), **5** (Air Quality) and **6** (Landscape and Visual) of the **ES**.

2.3.50 **Appendix 2B Table 2B.6** presents a summary of the residual environmental effects reported within each of the technical chapters of **Volume 7** of the **ES** and describes how the individual effects could be experienced in combination. As such, this assessment considered the primary and tertiary mitigation detailed within the chapter and set out with the **CoCP** (Doc Ref. 8.11) and any required secondary mitigation.

2.3.51 None of the receptors around Yoxford roundabout have a high potential for effect interactions, and therefore no additional significant effect is likely. Details of the effects likely at each of the sensitive receptors can be identified within **Appendix 2B, Table 2B.6**.

v. Freight Management Facility

2.3.52 A description of the construction and operation phases of the fright management facility at Seven Hills is provided within **Volume 8**, **Chapter 2** of the **ES**. Once the need for the freight management facility has ceased, the site will be removed and reinstated to its former agricultural use unless stated otherwise.

2.3.53 Receptors with the potential to experience effects from activity at the freight management facility site are shown in **Figure 1.2** within **Volume 8** of the **ES** and are referenced within **Appendix 2B Table 2B.7**. These include:

- Woodland View located to the north-west of the site;
- Property adjacent to Walk Barn located to the north-west of the site; and
- 1 & 2 Keepers Cottages located to the south-east of the site.

2.3.54 The assessment also considers the receptor groups 1, 2, 3, and 4 as defined within the landscape and visual assessment presented in **Volume 8**, **Chapter 6** (Landscape and Visual) of the **ES**, which includes consideration of visual effects on local residents.

2.3.55 For further information on the technical assessments that have been used to inform this assessment, please refer to **Volume 8, Chapters 4** (Noise and Vibration), **5** (Air Quality) and **6** (Landscape and Visual) of the **ES**.

2.3.56 **Appendix 2BA Table 2B.7** presents a summary of the residual environmental effects reported within each of the technical chapters of **Volume 8** of the **ES** and describes how the individual effects could be experienced in combination. As such this assessment considered the primary and tertiary mitigation detailed within the chapter and set out with the **CoCP** (Doc Ref. 8.11) and any required secondary mitigation.

2.3.57 Residential properties at 1 and 2 Keepers Cottage have a high potential for combined effects arising from noise and vibration, air quality and landscape and visual impacts, during construction and removal and reinstatement.

2.3.58 A number of receptors are likely to experience low or no potential interaction and therefore no additional significant adverse effect is likely, these receptors can be found detailed within **Appendix 2B Table 2B.7**.

vi. Green Rail Route

2.3.59 A description of the construction and operation phases of the green rail route is provided within **Volume 9**, **Chapter 2** of the **ES**. The green rail route is anticipated to take up to 18 months to be constructed and is split into two work portions: the rail extension route and the Saxmundham to Leiston branch line upgrades. Once the rail extension is no longer required, the development will be removed, and the land reinstated to its former use as agricultural land. The branch line upgrades would remain permanent after the construction of the Sizewell C main development site.

2.3.60 Receptors with the potential to experience effects from activity at the rail works are shown in **Figure 1.2** within **Volume 9** of the **ES** and are referenced within **Appendix 2B Table 2B.8**. These include:

- Abbey Lodge Farm located to the north-east of the site;
- Old Abbey Farm located to the north-east of the site;
- Leiston Abbey located to the north-east of the site;
- Pro Corda, Leiston Abbey located to the north-east of the site;
- 105 Abbey Road located to the east of the site;
- Residential properties located on Valley Road located to the south-east of the site;
- 2 Station Road located to the south-east of the site;
- 2-8 Old School Close located to the south-east of the site;

- White House Hotel located to the south-east of the site;
- 57 High Street Leiston located to the south-east of the site;
- Westward House located to the south of the site;
- Phoenix Cottage located to the south of the site;
- Residential properties located on Harling Way located to the south of the site;
- Highbury Cottages located to the south of the site;
- Wood Farm Cottages located to the south-west of the site;
- Leiston Farm House located to the south-west of the site;
- Fisher's Farm located to the north-west of the site;
- Abbey Lane (Gypsy Lodge) located to the north of the site; and
- Aldhurst Farm Cottage located to the north of the site.

2.3.61 The assessment also considers the receptor groups 1, 2, 3, 4, 5, 6 and 7 as defined within the landscape and visual assessment presented in **Volume 9**, **Chapter 6** (Landscape and Visual) of the **ES**, which includes consideration of visual effects on local residents.

2.3.62 For further information on the technical assessments that have been used to inform this assessment, please refer to **Volume 9, Chapters 4** (Noise and Vibration), **5** (Air Quality) and **6** (Landscape and Visual) of the **ES**.

2.3.63 **Appendix 2B Table 2B.8** presents a summary of the residual environmental effects reported within each of the technical chapters of **Volume 9** of the **ES** and describes how the individual effects could be experience in combination. As such this assessment considered the primary and tertiary mitigation detailed within the chapter and set out with the **CoCP** (Doc Ref. 8.11) and any required secondary mitigation.

2.3.64 None of the receptors around the rail improvement works have a high potential for effect interactions, and therefore no additional significant effect is likely. Details of the effects likely at each of the sensitive receptors can be identified within **Appendix 2B, Table 2B.8.**

2.3.65 During construction, noise generated from rail movements on the East Suffolk line have the potential to interact with air quality effects from road traffic and rail emissions and could result new and or different environmental

effect within a number of areas. The areas where new and/or different environmental effects may be experienced include Campsea Ash, Woodbridge and Saxmundam, however in these areas the air quality effects from road traffic and rail emissions have been assessed and either are negligible or beneficial[1]. This means that there is a potential for effect interaction to occur and result in a further significant effect at those receptors where noise effects from the rail movements would be significant (within 20 metres of the East Suffolk Line) The rail noise effects would be mitigated where possible through the implementation of speed restrictions along the East Suffolk Line as shown in the **Figures 4.2** to **4.4** in **Volume 9** of the **ES** (Doc Ref. 6.10).

[1] Where there is a decrease in pollutant concentration, the effect is beneficial.