



The Sizewell C Project

6.3 Volume 2 Main Development Site Chapter 28 Health and Wellbeing

Revision: 1.0
Applicable Regulation: Regulation 5(2)(a)
PINS Reference Number: EN010012

May 2020

Planning Act 2008
Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009





Volume 2 Chapter 28 Health and Wellbeing

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Appendix 28B: Health Technical Note 2: Residual Health Care Forecast

Appendix 28C: Health Baseline

28. Health and Wellbeing

28.1 Introduction

28.1.1 This chapter of **Volume 2** of the **Environmental Statement (ES)** presents an assessment of construction, operational and removal and reinstatement (where relevant) activities which have the potential to impact on health and wellbeing. The assessment is project-wide in nature – it considers the overall health and wellbeing effect of the Sizewell C Project on sensitive receptors.

28.1.2 Descriptions of the existing site and proposals for the main development site are provided in **Chapters 1 to 4** of this volume of the **ES**. Descriptions of the existing sites and proposals for associated developments are provided in **Chapters 1 to 2** of **Volumes 3 to 9** of the **ES**. A description of the anticipated activities for the decommissioning phase, including a summary of the types of environmental effects likely to occur is provided in **Chapter 5** of this volume of the **ES**. A glossary of terms and list of abbreviations used in this chapter is provided in **Appendix 1A** of **Volume 1** of the **ES**.

28.1.3 Due to the multidisciplinary factors that could affect health, and the overlap with other technical disciplines, the assessment of health and wellbeing draws from and builds upon data and outputs from a wide range of supporting assessments contained in **Volumes 2 to 9** of the **ES**, most notably:

- Socio-economics.
- Transport.
- Noise and Vibration.
- Air Quality.
- Radiological Assessment.

28.1.4 The health and wellbeing assessment does not seek to repeat the assumptions, baselines or outputs of the above assessments, but instead signposts to the relevant chapters and builds upon their assessment outputs to establish the potential magnitude, distribution and significance of impacts upon health and wellbeing.

28.1.5 The health and wellbeing assessment includes an assessment of potential impacts, the significance of effects, the requirements for mitigation and the residual effects. The assessment has been informed by data presented in the following technical appendices:

- **Appendix 28A** of this volume: Health Technical Note 1: Sizewell Occupational Health Care Service Description.
- **Appendix 28B** of this volume: Health Technical Note 2: Residual Health Care Forecast.
- **Appendix 28C** of this volume: Health Baseline.

28.1.6 A standalone **ES** was prepared for the Sizewell B relocated facilities works for submission with the hybrid planning application under the Town and Country Planning Act 1990 (East Suffolk Council application ref. DC/19/1637/FUL). The Sizewell B relocated facilities **ES**, as included in **Appendix 2A** of **Volume 1** of the **ES**, did not include a health and wellbeing chapter, as the **ES** was prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2011, which did not require for a standalone health and wellbeing assessment to be prepared as part of the Environmental Impact Assessment (EIA). The assessment presented within this chapter also accounts for the effects of the Sizewell B relocated facilities works as they form part of the Sizewell C Project.

28.2 Legislation, policy and guidance

28.2.1 **Appendix 6Y** of **Volume 1** of the **ES** identifies and describes legislation, policy and guidance of relevance to the health and wellbeing assessment of the Sizewell C Project.

28.2.2 This section provides a summary of the specific legislation, policy and guidance of relevance to health and wellbeing assessment, which is further described in **Appendix 6Y** of **Volume 1** of the **ES**.

a) International

28.2.3 As detailed in **Appendix 6Y** of **Volume 1** of the **ES**, there is a reinforced requirement for the consideration of population and health within Directive 2014/52/EU amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment ('EIA Directive') (Ref 28.1), that has been transposed into the UK legislation by the EIA Regulations (defined below).

b) National

i. Legislation

28.2.4 The assessment has been prepared pursuant to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref 28.2) and the Marine Works (Environmental Impact Assessment) Regulations 2007 (Ref

28.3) (collectively referred to as the ‘EIA Regulations’), which require that the EIA must describe and assess the direct and indirect effects of the Sizewell C Project on population and human health.

ii. Policy

28.2.5 Human health is an embedded theme within the overarching National Policy Statement (NPS) for Energy (EN-1) (Ref 28.4) and the National Policy Statement for Nuclear Power Generation (EN-6) (Ref 28.5). A summary of the relevant planning policy, together with consideration of how the requirements have been taken into account in this assessment is provided in **Appendix 6Y of Volume 1 of the ES**.

28.2.6 The Marine Policy Statement (MPS) (Ref 28.6) sets the framework for preparing Marine Plans and taking decisions affecting the marine environment. A summary of MPS considerations relevant to the health and wellbeing assessment, and how these have been addressed is provided in **Appendix 6Y of Volume 1 of the ES**.

28.2.7 **Appendix 6Y of Volume 1 of the ES** also describes relevant requirements and considerations from several other national policies and supporting guidance, namely:

- National Planning Policy Framework (NPPF) (Ref 28.7).
- Planning Practice Guidance (Ref 28.8).
- Government’s 25 Year Environmental Plan (Ref 28.9).

c) Regional

28.2.8 No regional policy is deemed relevant to the health and wellbeing assessment for the Sizewell C Project.

d) Local

28.2.9 Local policies relevant to the health and wellbeing assessment for the Sizewell C Project are described in **Appendix 6Y of Volume 1 of the ES**, and include:

- Suffolk Coastal District Council Local Plan Core Strategy and Development Management Policies (Ref 28.10).
- Suffolk Coastal Final Draft Local Plan 2019 (Ref 28.11).
- Suffolk Joint Health and Wellbeing Board Strategy Refresh 2019–2022 (Ref 28.12).

e) Guidance

28.2.10 The health and wellbeing assessment has been undertaken in accordance with the following Health Impact Assessment (HIA) guidance documents:

- West Midlands Public Health Observatory: A Critical Guide to HIA (Ref 28.13).
- Health Impact Assessment: A practical guide (Ref 28.14).
- Fair Society, Healthy Lives: The Marmot Review. Strategic review of health inequalities in England post-2010 (Ref 28.15).
- Healthy Lives, Healthy People: Our strategy for public health in England (Ref 28.16).
- Planning Policy Guidance: Healthy and safe communities (Ref 28.17).
- Reuniting Health with Planning - Healthier Homes, Healthier Communities (Ref 28.18).

28.3 Methodology

28.3.1 The generic EIA methodology is detailed in **Volume 1, Chapter 6** of the **ES**. The full method of assessment for health and wellbeing is included in **Appendix 6Y** of **Volume 1** of the **ES**.

28.3.2 This section provides a summary of the scope and approach to provide context to the health and wellbeing assessment that follows.

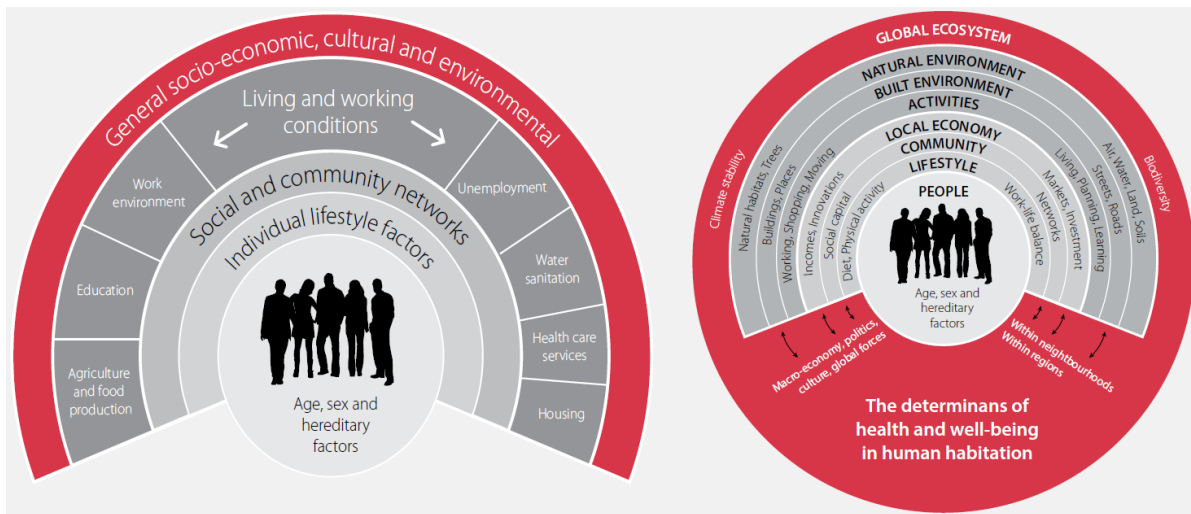
a) Scope of the assessment

28.3.3 The scope of the health and wellbeing assessment considers the impacts (both adverse and beneficial) of the construction, operation and removal and reinstatement (where relevant) of the main development site and associated development sites (collectively referred to as the “proposed development”).

28.3.4 The scope of this assessment has been established through a formal EIA scoping process undertaken with the Planning Inspectorate. A request for an EIA scoping opinion was initially issued to the Planning Inspectorate in 2014, with an updated request issued in 2019, provided in **Appendix 6A** of **Volume 1** of the **ES**. Comments raised in the EIA scoping opinion received in 2014 and 2019 have been taken into account in the development of the assessment methodology. These are detailed in **Appendices 6A** and **6C** of **Volume 1** of the **ES**.

28.3.5 The approach to this assessment applies a broad socio-economic model of health that encompasses conventional health impacts such as disease, accidents and risk, along with wider health determinants vital to achieving good health and wellbeing such as employment and local amenity. It considers both physical and mental health, and interfaces with the **Equality Statement** (Doc Ref. 5.14) to consider both population level effects and any disproportionate risk to sensitive community groups. The assessment is therefore based on both social and environmental determinants of health, as illustrated in **Plate 28.1**.

Plate 28.1: Social and environmental determinants of health



Source: Reproduced from Ref 28.19, citing Ref 28.20 and Ref 28.21

28.3.6 The assessment follows a source-pathway-receptor approach to identify and assess health impacts that are plausible and attributable to the proposed development. As shown in **Table 28.1**, a hazard source in itself does not constitute a health risk: it is only when there is a hazard source, a receptor and a pathway of exposure between the two that there is any potential for risk to health. Where a source-pathway-receptor linkage exists, it is then the nature of the specific hazard source, the magnitude of impact via the pathway and the sensitivity of the receptor that will determine what level of health risk is predicted.

Table 28.1: Example of source pathway-receptor model for health effects

Hazard Source.	Pathway	Receptor	Plausible Health Impact.	Explanation
×	✓	✓	No	There is not a clear source from where a potential health impact could originate.

Hazard Source.	Pathway	Receptor	Plausible Health Impact.	Explanation
✓	×	✓	No	The source of a potential health impact lacks a means of transmission to a population.
✓	✓	×	No	Receptors that would be sensitive or vulnerable to the health impact are not present.
✓	✓	✓	Yes	Identifying a source, pathway and receptor does not mean a health impact is a likely significant effect; health impacts should be assessed (describing what effect will occur and its likelihood) and likely health effects are then evaluated for significance.

b) Consultation

28.3.7 The scope of the assessment has also been informed by ongoing consultation and engagement with statutory consultees throughout the design and assessment process.

28.3.8 As detailed in the EIA scoping opinion received in 2014, the methodology for assessing health and wellbeing “should be agreed with the relevant statutory consultees”. To facilitate this, and further address potential public health concerns, the Sizewell C Health Working Group (SHWG) was established. Membership currently includes Suffolk County Council (SCC), East Suffolk Council (ESC), Public Health Suffolk; Suffolk National Health Service (NHS); Suffolk, Ipswich, East Suffolk, and Great Yarmouth and Waveney Clinical Commissioning Groups (CCGs)). This has provided a collaborative platform to explore, discuss, and iteratively inform the health and wellbeing assessment undertaken, while informing the development of features and initiatives relevant to supporting local health needs, objectives and priorities.

28.3.9 While engagement with health stakeholders has run since the outset of the Sizewell C Project, **Appendix 6Y of Volume 1 of the ES** sets out a summary of the most recent comments raised during consultation with the SHWG. These have informed the scope and methodology of the health and wellbeing assessment and design features and mitigation to address any change in local public healthcare demand; and enabled the assessment to better align with the delivery of healthcare and promotion objectives and priorities.

28.3.10 The key findings of the engagement with health stakeholders have been that the scope and focus of the health and wellbeing assessment for changes in socio-economic and environmental circumstance during construction and operation remain appropriate. The core focus of ongoing engagement has thereby centred on managing the public health needs

from the introduction of the non-home-based workforce and their families / dependants to the area.

c) Study area

28.3.11 The study area for health and wellbeing baseline data collection comprises the local authority district of East Suffolk (previously Suffolk Coastal and Waveney) which immediately surrounds the proposed development. This geographic scope is considered appropriate on the basis that local authority districts are the smallest geographic level for which up-to-date publicly available baseline health statistics are available.

28.3.12 The study areas for the assessment of health determinants (i.e. aspects with the potential to influence health, both adversely and beneficially) vary, as their distribution can equally vary. As an example, changes in noise and air quality are localised, while transport and socio-economic outcomes can be further reaching. As such, the receptors considered in the health and wellbeing assessment remain consistent with the inter-related topic chapters from which it draws (e.g. air quality, noise).

d) Assessment scenarios

28.3.13 Assessment scenarios for health and wellbeing are consistent with the inter-related technical disciplines which inform the health and wellbeing assessment, including the construction, operation and removal and reinstatement phases (where relevant) of the proposed development.

e) Assessment criteria

28.3.14 As described in **Volume 1, Chapter 6** of the **ES**, the EIA methodology considers whether impacts of the proposed development would have an effect on any resources or receptors. Assessments broadly consider the magnitude of impacts and value/sensitivity of resources/receptors that could be affected in order to classify effects.

28.3.15 The criteria used in this assessment are presented in the following sub-sections.

i. Value and sensitivity

28.3.16 Within a defined population, individuals will range in level of sensitivity and this can further vary by individual health pathway. As such, it is not possible to allocate a fair or accurate sensitivity classification to a population uniformly for every health determinant. On this basis, while the health baseline provides context to inform the refinement of the Sizewell C Project and further inform mitigation and bespoke community and health support initiatives, a precautionary approach has been applied to the final

assessment of significance by assuming that the population within the study area are of uniformly high sensitivity to the particular health pathway being assessed. Equally, given the importance of healthcare services, coupled with existing capacity and revenue challenges they face, all healthcare services are considered high value and uniformly sensitive to change.

28.3.17 This precautionary approach thereby provides a means to account for pockets of inequality that exist within all communities, and further considers the sensitivity of healthcare systems within the study area.

ii. Magnitude

28.3.18 The criteria for defining magnitude in this assessment are outlined in **Table 28.2**, and are justified by the supporting assessment for each health pathway.

Table 28.2: Assessment of magnitude of impact on health and wellbeing

Magnitude	Criteria
High	Change in an environmental or socio-economic factor sufficient to result in a major change in baseline population health or socio-economic circumstance (adverse or beneficial).
Medium	Change in an environmental or socio-economic factor sufficient to result in a moderate change in baseline population health or socio-economic circumstance (adverse or beneficial).
Low	Change in an environmental or socio-economic factor sufficient to result in a minor change in baseline population health or socio-economic circumstance (adverse or beneficial).
Very Low.	Change in an environmental or socio-economic factor below that for which it is possible to result in any manifest health outcome at a population level but may impact at an individual level (adverse or beneficial).

iii. Effect definitions

28.3.19 The definitions of effect for health and wellbeing are shown in **Table 28.3**.

Table 28.3: Classification of effects

		Value / Sensitivity of receptors and resources.
		High
Magnitude	Very Low.	Negligible
	Low	Minor
	Medium	Moderate
	High	Major

28.3.20 Following the classification of an effect as presented in **Table 28.3**, a clear statement is made as to whether the effect is 'significant' or 'not significant'. As a general rule, major and moderate effects are considered to be significant and minor and negligible effects are considered to be not significant. However, professional judgement is also applied where appropriate.

f) **Assessment methodology**

28.3.21 The methodology for the health and wellbeing assessment is set out in detail within **Volume 1, Appendix 6Y**. The general approach is described below.

28.3.22 Details on establishing the baseline conditions are set out in **section 28.4** and **Appendix 28C**.

28.3.23 The assessment of the construction phase of the proposed development, considers:

- The main development site, including:
 - Construction of the main development site (including the introduction of the non-home-based workforce).
 - Road and rail traffic associated with the main development site construction.
 - Removal and reinstatement of the temporary construction area and Land East of Eastlands Industrial Estate (LEEIE).
- Construction, operation and removal/reinstatement of the temporary associated developments, including:
 - Northern park and ride at Darsham.
 - Southern park and ride at Wickham Market.
 - Green rail route.
 - Freight management facility.
- Construction of the permanent associated developments and their operation during the construction phase for the power station, including:
 - Two village bypass.

- Sizewell link road.
- Yoxford roundabout and other highway improvements.
- Rail improvement works.

28.3.24 Health determinants associated with the construction of the proposed development which are considered in this assessment include:

- potential health and wellbeing effects from changes in emissions to air;
- potential health and wellbeing effects from additional transport movements;
- potential health and wellbeing effects from changes in noise exposure;
- potential health and wellbeing effects associated with the introduction of a temporary non-home-based construction workforce (including social impacts and on healthcare capacity) including net additional dependants;
- potential health and wellbeing benefits associated with socio-economic factors (such as direct, indirect and induced employment); and
- general stress and anxiety impacting upon quality of life and wellbeing.

28.3.25 The assessment of the operational phase comprises:

- Commissioning and operation of the main development site (the power station). The operational life of the Sizewell C Project is assumed to be 60 years.
- Operation of the following permanent associated developments during the commissioning and operational phase of the power station:
 - Two village bypass.
 - Sizewell link road.
 - Yoxford roundabout and other highway improvements.

28.3.26 Health determinants associated with the operation phase considered in this assessment include:

- potential health and wellbeing effects from changes in radiological exposure;

- potential health and wellbeing effects from changes in electromagnetic field exposure;
- potential health and wellbeing effects from changes in emissions to air;
- potential health and wellbeing effects from additional transport movements;
- potential health and wellbeing effects from changes in noise exposure;
- potential health and wellbeing benefits associated with socio-economic factors (such as direct, indirect and induced employment); and
- general stress and anxiety impacting upon quality of life and wellbeing.

g) **Assumptions and limitations**

28.3.27 The health and wellbeing chapter draws from and builds upon the outputs of the supporting technical disciplines, and is therefore subject to the same limitations and assumptions affecting those assessments.

28.4 **Baseline environment**

28.4.1 Evidence suggests that different communities express varying sensitivities to health outcomes (both adverse and beneficial) as a result of relative socio-economic circumstance and existing burden of poor health.

28.4.2 While all residential receptors and health facilities have been classed as highly sensitive for the purposes of the assessment of significance, the health and wellbeing baseline sets into context local health and socio-economic circumstances, priorities and needs that can be applied to inform more health conscious planning and development, including bespoke mitigation and support initiatives.

28.4.3 Due to the multidisciplinary nature of health, and the necessity to set a baseline that covers the remit of all of the wider technical disciplines relevant to health, a broad geographic scope for the health and wellbeing baseline study area has been set (East Suffolk), using available county (Suffolk), regional (East of England) and national (England) statistics as comparators.

28.4.4 Where the evidence base permits, health and healthcare data can be further applied to predict changes in baseline population health, informing and supporting the assessment of significance. In addition, local healthcare

service provision has been profiled, setting into context the existing supply of services and demand.

28.4.5 The baseline also aids in exploring bespoke mitigation and community support initiatives tailored to local circumstance and need. The remainder of this section presents a brief summary of the detailed health baseline provided in **Appendix 28C** of this volume. Further information on demographics, socio-economic circumstance, and community facilities may be found in **Chapter 9** of this volume of the **ES**.

a) Current baseline

i. Local healthcare services

28.4.6 As shown in **Table 28.4**, there are 61 GP practices within the 60-minute area. This is the area non-home-based workers are expected to seek accommodation in, as set out in **Chapter 9** of this volume of the **ES**.

28.4.7 The total number of practicing GPs across all practices within the 60-minute area is 323, and these practices have an average patient list size of 2,000 patients per GP. This is a high ratio, and would indicate limited spare capacity. The average however, masks some substantial variations and associated spatial sensitivity to changes in demand between the practices where list sizes range from 953 patients per GP at The Peninsula Practice in Woodbridge, to 5,144 patients per GP at Alexandra & Crestview Surgeries in Lowestoft.

Table 28.4: List sizes and practitioner numbers in local GP practices (within the 60-minute area)

Local Authority.	Total List Size (within the 60-minute area).	Number of GP Surgeries.	GPs	Patients per GP.
Babergh	33,509	3	19	1,764
Great Yarmouth.	50,481	3	15	3,365
Ipswich	178,478	13	75	2,380
Mid Suffolk.	82,684	9	49	1,687
South Norfolk.	56,993	7	34	1,676
East Suffolk.	243,975	26	131	1,862
Total	646,120	61	323	n/a
Average	n/a	n/a	n/a	2,000

Source: Ref 28.23

28.4.8 The closest accident and emergency facilities to the main development site are Ipswich Hospital and James Paget University Hospital which are approximately 26 and 32 miles by road from the site, respectively. In addition, there are 11 Community Hospitals within the 60-minute area which provide a range of wider services. These comprise:

- Aldeburgh Community Hospital: inpatient unit for management of long-term conditions, and specialist clinics, nurses, physiotherapists and occupational therapists.
- East Coast Community Healthcare: Beccles Hospital, community-based healthcare provision.
- Carlton Court: Dementia and Intensive Support Team.
- All Hallows Hospital: 30 inpatient beds, and physiotherapy services.
- Felixstowe Hospital: providing rehabilitation services.
- Airey Close, Lowestoft: inpatient services for young people with learning difficulties and mental health conditions.
- Walker Close, Ipswich: inpatient services for adults with learning difficulties and mental health services.
- St Clements Hospital, Ipswich: support for vulnerable people who are actively involved in the criminal justice system.
- Foxhall House, Ipswich: inpatient support in a low security setting for adults.
- Hartismere Hospital: Community Hospital providing geriatric and orthopaedic care.
- Bluebird Lodge Community Hospital: inpatient unit and a range of clinics for outpatients.

ii. [Average household size](#)

28.4.9 As shown in **Table 28.5**, average household size is projected to decrease between 2016 and 2036 in all local authority districts in proximity to the main development site. On the basis that construction is anticipated to commence in 2022 and be completed nine to twelve years later (2031-34), projections for average household size have been provided up to 2036.

Table 28.5: Average household size

Local Authority	Average Household Size				
	2016	2021	2026	2031	2036
Babergh	2.28	2.26	2.25	2.23	2.21
Great Yarmouth	2.31	2.29	2.28	2.26	2.24
Ipswich	2.26	2.22	2.19	2.17	2.15
Mid Suffolk	2.30	2.29	2.27	2.25	2.23
South Norfolk	2.32	2.27	2.23	2.20	2.18
East Suffolk	2.24	2.22	2.20	2.19	2.17
Average	2.28	2.26	2.24	2.22	2.20

Source: Ref 28.24

iii. Life expectancy and physical health

28.4.10 Male life expectancy within the study area is consistently higher than the national average and has been increasing for five years up to 2017, showing a similar trend to the regional average (Ref 28.25). Female life expectancy in the study area has been consistently higher than both the regional and national averages during the same period, however, recent figures (2015-17) show a decrease from the previous year to a level more in line to the regional average (Ref 28.25).

28.4.11 When considering healthy life expectancy (HLE), that is, the proportion of life spent in "good" health, male HLE has fluctuated over the years but has remained consistently above regional and national levels. In contrast, female HLE has been decreasing over the years, with most recent figures (2012-14) lower than the regional average, albeit above the national average (Ref 28.26; Ref 28.27).

28.4.12 All-age all-cause mortality is lower in the study area compared to both the regional and national averages (Ref 28.28). Within the study area, mortality rates from cardiovascular disease (Ref 28.25), respiratory disease (Ref 28.29), and cancer (Ref 28.25) have all been following regional and national trends over the years up to 2017, whereby cardiovascular disease and cancer mortality rates have been decreasing, and respiratory disease mortality has been increasing. Emergency hospital admission rates for cardiovascular and respiratory disease within the study area are lower than the national average in most recent figures (2018-19) (Ref 28.30; Ref 28.31).

iv. Mental health and lifestyle

- 28.4.13** Depression recorded incidence within the study area remains lower than the national trend with most recent figures (2017-18) higher than the regional average (Ref 28.32). Hospital stays for self-harm in the study area are currently (2017-18) slightly lower than the national average and higher than the regional average (Ref 28.25). Suicide rate within the study area was increasing until 2014–2016, after which it decreased but remains higher than the regional and national average (Ref 28.25). Dementia recorded prevalence (age 65+) within the study area was equal to the regional average and lower than the national average in 2018 (Ref 28.33).
- 28.4.14** As detailed in **Appendix 28C** of this volume, childhood obesity within the study area has been relatively static over the last five years up to 2018, consistently below the national average but similar to the regional average (Ref 28.25). Excess weight in adults within the study area has shown a marked decrease since 2015, closing the gap between the national and regional average, yet remains higher than both regional and national averages in 2018 (Ref 28.25). The percentage of adults in the study area who engage in 150+ minutes of physical activity per week is also consistently below the regional and national averages in most recent figures (2017-18) (Ref 28.34).
- 28.4.15** Smoking prevalence within the study area has shown a general decrease over the years, however, most recent statistics (2018) show a higher smoking prevalence than the regional and national averages (Ref 28.25). Hospital stays for alcohol related harm have remained relatively static over the last five years up to 2018 and have remained consistently below the regional and national averages (Ref 28.25).

v. Conclusion

- 28.4.16** In most circumstances, health status is better than the national average and more comparable to the regional average. However, it should be noted that while this description applies to the whole population within the study area; this does not exclude the possibility that there will be some individuals or groups of people who do not conform to the overall profile, with pockets of inequality. On this basis, and as previously stated, for the purpose of the assessment of significance, a precautionary approach has been applied to each assessment protocol, where all residential receptors are considered highly sensitive to environmental and socio-economic change, and all healthcare facilities are considered high value and sensitive to any change in demand.

b) Future baseline

28.4.17 There are no committed development(s) or forecasted changes that would materially alter the health-specific baseline conditions during the construction, operation and removal and reinstatement (where relevant) phases of the proposed development.

28.4.18 In addition, where the inter-related technical disciplines that inform the health and wellbeing assessment identify committed development(s) or forecasted changes that influence future baseline conditions, the health and wellbeing topic has applied these outputs in any quantitative assessments undertaken, where appropriate.

28.5 Environmental design and mitigation

28.5.1 As detailed in **Volume 1, Chapter 6** of the **ES**, a number of primary mitigation measures have been identified through the iterative EIA process, and have been incorporated into the design and construction planning of the proposed development. Tertiary mitigation measures are legal requirements or are standard practices that would be implemented as part of the proposed development.

28.5.2 The assessment of likely significant effects of the proposed development assumes that primary and tertiary mitigation measures are in place. For health and wellbeing, these measures are identified below, with a summary provided on how the measures contribute to the mitigation and management of potentially significant environmental effects.

28.5.3 For health and wellbeing, the following primary and tertiary mitigation measures are embedded into the design and construction management of the proposed development.

a) Primary mitigation

i. Public Health

28.5.4 The embedded mitigation measures detailed within the socio-economics, transport, air quality, noise and vibration, and radiological considerations chapters are inherently in place to manage potential environmental and socio-economic hazards at a point that precludes and manages public health impacts. As an example, as detailed in **Volume 2, Chapter 11** of the **ES**, primary noise mitigation measures include site layout and landscape form, embedding acoustic barriers to prevent and reduce noise exposure to sensitive receptors, thereby managing potential health risk.

28.5.5 Additionally, once operational, any changes to site transmissions infrastructure will comply with the Department of Energy and Climate

Change (DECC) Code of Practice (Ref 28.35) to ensure compliance with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidance set to protect health. Further detail on this is provided in **Section 28.6** of this chapter.

ii. **Occupational health provision**

28.5.6 SZC Co. will provide a comprehensive on-site occupational health service to the construction workforce. The provision of this service will form a planning commitment secured under the Section 106 agreement, as set out in the **draft Section 106 Heads of Terms** provided as **Appendix J** to the **Planning Statement** (Doc Ref. 8.4), and constitutes embedded mitigation relevant to health and wellbeing. The service would manage and reduce the impact of the Sizewell C Project on local healthcare capacity.

28.5.7 As detailed in **Appendix 28A** of this volume, the occupational health service will be structured around managing the health of the construction workforce by addressing three main aspects: the workplace; the worker; and wellbeing. The remainder of this section summarises the provision.

The workplace

28.5.8 In terms of the workplace, the focus will be on preventing ill health. The construction sector presents a number of occupational hazards that vary by activity, setting and can further vary by weather condition, season and even time of day. Risk prevention will therefore be central to the occupational health provision in order to design out and reduce exposure to workplace health risks, while further providing interventions and/or advice on control measures, and providing education/training initiatives to improve awareness and consequently prevent incidence of accidents or ill health.

28.5.9 As a minimum, a health and safety plan, project risk registers, and task risk assessments will be completed to improve workplace safety and ensure that there is a collective understanding of how each worker can protect and enhance their own health and wellbeing.

The worker

28.5.10 Each worker will go through a pre-employment health screening process to determine whether they are fit to work – the process of which would be dependent on the type of work to be undertaken. In addition, certain groups of workers will be periodically assessed to ensure that they meet legal standards to undertake their job. The occupational health service will undertake periodic ongoing assessments regarding fitness for work, in keeping with legislative guidelines and policies.

- 28.5.11 In addition, there will be a health surveillance programme which will cover three core areas: hand-arm-vibration syndrome; noise; and Control Of Substances Hazardous to Health (COSHH) – routinely this includes respiratory health and skin health surveillance. The occupational health service will maintain health records enabling them to supply statistical information from the health surveillance process. This data will be reported and discussed with the SHWG including Key Performance Indicators (KPIs) to measure the effectiveness of the provision (e.g. GP, Hospital referrals and ambulance call out).
- 28.5.12 A drugs and alcohol policy will be enforced which will include testing pre-placement on-site, for cause / reasonable suspicion and random testing.
- 28.5.13 Furthermore, the occupational health service will treat and advise any workers who have accidents or are taken ill at work. The provision of on-site treatment will enable earlier intervention which, in addition to reducing potential for health deterioration, will also reduce demand on local NHS healthcare and emergency response services.
- 28.5.14 As the workforce grows, there may be an opportunity to add additional services which will be determined by the relative need on the site as the project progresses. In addition, the occupational health service will have an emergency response vehicle to facilitate rapid response, stabilising and conveying workers to safe pick up areas. The occupational health service will also develop first response capabilities of workers on-site to reduce the number of unnecessary emergency ambulance call outs.

Wellbeing

- 28.5.15 The occupational health service will conduct and align health promotion campaigns with wider NHS initiatives which aim to maintain and improve the health and wellbeing of the workforce by: raising awareness of both work and non-work related health issues; and encouraging healthy behaviours within and outside of the workplace.
- 28.5.16 A range of health and wellbeing promotional activities will be undertaken by SZC Co. to ensure full coverage of the workforce, including both home-based and non-home-based workers. The promotional activities will fall under the following categories: occupational health promotion; general health campaigns; lifestyle screening and targeted health education. These activities will link with local services where appropriate, and will be offered to the entire workforce, thereby minimising the impact from non-home-based staff, and forming complimentary health promotion and care for home based staff.

b) Tertiary mitigation

- 28.5.17 Where appropriate, tertiary mitigation is detailed in socio-economics, transport, air quality, noise and vibration, and radiological considerations chapters, in line with legislative requirements and topic specific practice. This tertiary mitigation is set to further manage potential environmental and socio-economic hazards at a point that precludes and prevents public health impacts. As an example, **Volume 2, Chapter 11** of the **ES**, includes the management of construction plant and equipment to prevent unnecessary noise generation, alongside training of workers to minimise off-site noise generation and community exposure, thereby further reducing hazard source and exposure to manage potential health risk. Further information may be found within the **Code of Construction Practice (CoCP)** (Doc Ref. 8.11).
- 28.5.18 Tertiary mitigation also includes employment and training activities and local business engagement to secure local recruitment set out in the **Employment, Skills and Education Strategy** (Doc Ref. 8.9, Appendix A) and the **Supply Chain Strategy** (Doc Ref. 8.9, Appendix B). These mitigation measures further support the uptake of socio-economic health benefits.
- 28.5.19 The implementation of the **Employment, Skills and Education Strategy** and the **Supply Chain Strategy** by SZC Co. will be secured by obligations in the Section 106 Agreement (see **draft Section 106 Heads of Terms**).

28.6 Assessment

a) Introduction

- 28.6.1 This section presents the findings of the health and wellbeing assessment for the construction, operation, and removal/reinstatement (where relevant) phases of the main development site and associated developments. This chapter of the **ES** draws from and concludes on the residual effects post-mitigation reported by inter-related technical disciplines.

b) Construction of Proposed Development

i. Potential health and wellbeing effects from changes in emissions to air

Construction dust and PM₁₀

Main Development Site

- 28.6.2 As stated in **Volume 2, Chapter 12** of the **ES**, prior to mitigation, there is potential for dust emissions to be generated within the main development

site from general construction activities, earthworks, and on the internal site road network through dust-raising on haul roads or trackout of materials.

- 28.6.3 Following the application of effective primary and tertiary mitigation, dust emissions are anticipated to be controlled to a level which is not considered significant by air quality standards.
- 28.6.4 It is recognised within **Chapter 12** of this volume of the **ES** that due to the long construction activity period within the main development site and likelihood of concurrent dust generating activities, there is the potential for in-combination effects (in Zones A and C). In these circumstances, activity-specific secondary mitigation, as detailed in the ‘activity-specific measures’ of the outline Dust Management Plan (oDMP) in **Appendix 12A** of this volume, may be required to reduce residual impacts on receptors.
- 28.6.5 Assuming all air quality primary, secondary and tertiary mitigation measures are effectively implemented and monitored through an effective **CoCP** (Doc Ref. 8.11), at the level recommended by the dust risk assessment, any effects, including in-combination, would likely be negligible and would therefore not be significant for any of the proposed construction activities at the main development site.
- 28.6.6 As a result, the magnitude of impact on health and wellbeing from dust would be very low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

Associated Development Sites

- 28.6.7 As detailed in **Chapter 5** of **Volumes 3-9** of the **ES**, prior to mitigation, there is potential for dust emissions to be generated at all of the associated development sites from general construction activities, earthworks, and on the internal site road network through dust-raising on haul roads or trackout of materials. However, any construction dust risk would not be significant for any of the proposed construction activities at the site.
- 28.6.8 For the associated development sites which are temporary and will therefore require removal and reinstatement, the scale and nature of activities expected to be undertaken are similar to the scale and nature of these activities in the construction phase. As a result, dust effects associated with the removal and reinstatement phase are not expected to be worse than during the construction phase and would be **not significant**.
- 28.6.9 Assuming all air quality primary and tertiary mitigation measures are effectively implemented and monitored through an effective **CoCP** (Doc Ref. 8.11), at the level recommended by the dust risk assessment, any effects would likely be negligible and would therefore not be significant during any of the proposed construction (or removal and reinstatement,

where relevant) activities at any of the sites. As a result, the magnitude of impact on health and wellbeing from dust would be very low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

Transport emissions

Main Development Site

28.6.10 Transport emissions represent a more transient source, extending beyond the main development site and associated development sites, with the potential for wider community exposure. The absolute changes in NO₂, PM₁₀, and PM_{2.5} concentrations at any receptor in all assessment scenarios explored by **Volume 2, Chapter 12** and **Appendix 12B** of the **ES** are considered ‘negligible’ and resultant effects are **not significant** (including the two exceptions with ‘medium’ and ‘high’ magnitudes of change resulting in beneficial effects), as the predicted background concentrations at all these receptors would remain well below air quality objectives set to protect the environment and health.

28.6.11 Overall, given that the predicted background concentrations for any pollutant in any scenario would remain well below air quality objectives, with a concentration exposure orders of magnitude lower than is required to quantify any measurable health outcome, the magnitude of impact on health and wellbeing would be very low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

Associated Development Sites

28.6.12 As detailed in **Chapter 5** of **Volumes 3-9** of the **ES**, changes in air quality from traffic-related pollutants (road and rail) (NO₂, PM₁₀, and PM_{2.5}) at nearby sensitive receptors associated with the construction and operation of all associated development sites are not considered significant by air quality standards. In addition, background air quality concentrations would remain within objective thresholds set to be protective of health.

28.6.13 For the associated development sites which are temporary and will therefore require removal and reinstatement, the scale and nature of works would generate a similar level of traffic to the construction phase. As a result, traffic emission effects associated with the removal and reinstatement phase are not expected to be worse than during the construction phase.

28.6.14 Overall, given that the predicted background concentrations for any pollutant during any of the proposed construction (or removal and reinstatement, where relevant) would remain well below air quality

objectives, with a concentration exposure orders of magnitude lower than is required to quantify any measurable health outcome, the magnitude of impact on health and wellbeing would be very low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

Combined heat and power (CHP) emissions

28.6.15 As detailed in **Volume 2, Chapter 12** of the **ES**, there would be an ‘imperceptible’ magnitude of change in annual mean NO₂ concentrations associated with the proposed CHP on the main development site at all receptors except LE48 (Recreational Kenton Hills Path, car park (Lover’s Lane)) and LE48p, where a ‘very low’ and ‘low’ magnitude of change is predicted, respectively. Concentrations at all receptors are predicted to be well below air quality objectives set to protect the environment and health, as provided in **Section 12.2** within **Volume 2, Chapter 12** of the **ES**.

28.6.16 Overall, given that the predicted background concentrations for NO₂ at all receptors are well below air quality objectives set to be protective of the environment and health, with a concentration exposure orders of magnitude lower than is required to quantify any measurable health outcome, the magnitude of impact on health and wellbeing would be very low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

ii. Potential health and wellbeing effects from additional transport movements

28.6.17 Relevant health determinants associated with changes in road traffic movements during construction comprise: accidents and road safety; access and accessibility; community severance; and pedestrian fear and intimidation. Health and wellbeing effects associated with changes in exposure to emissions to air and noise are set out in **Section 28.6b(i)** and **Section 28.6b(iii)** of this chapter respectively.

28.6.18 The assessment of health and wellbeing effects associated with severance, access and accessibility, and pedestrian fear and intimidation are all addressed within **Chapter 10** of this volume of the **ES**. The only relevant health and wellbeing determinant associated with changes in road traffic movements considered further in this chapter of the **ES** is accidents and road safety.

Accidents and road safety

28.6.19 The most direct health and wellbeing hazard resulting from changes in transport nature and flow rate is human injury resulting from road traffic accidents.

- 28.6.20 As detailed in **Chapter 10** of this volume of the **ES**, several off-site highway improvements are proposed to mitigate the impact of Sizewell C traffic at various junctions through design.
- 28.6.21 In addition, a number of non-design construction traffic management measures would be in place to mitigate adverse effects on accidents and road safety. These include best practice measures set out in the **Construction Traffic Management Plan** (Doc Ref. 8.7), the **Construction Worker Travel Plan** (Doc Ref. 8.8) and a Worker Code of Conduct to help manage worker behaviour. The implementation of the **Construction Traffic Management Plan** and the **Construction Worker Travel Plan** by SZC Co. will be secured through an obligation in the Section 106 Agreement (see **draft Section 106 Heads of Terms**).

Main Development Site and Associated Developments

- 28.6.22 The assessment of health and wellbeing effects associated with changes in transport nature and flow rate considers the combined impacts of the traffic generated by the construction of the main development site and associated developments. As a result, the two have been considered together.
- 28.6.23 During early construction of the main development site, the permanent associated developments which constitute off-site highway improvements, two village bypass, Sizewell link road, and Yoxford roundabout and other highway improvements would not yet be operational. As a result, an initial negligible to minor adverse road safety effect associated with change in transport nature and flow rate from construction of the main development site is anticipated.
- 28.6.24 During peak construction, the necessary highway infrastructure improvements would be in place, which would manage any potential adverse impacts on road safety. While some negligible to minor adverse road safety effects would remain on some road links, there would also be some beneficial effects on road safety associated with the operation of permanent associated developments.
- 28.6.25 As a result, the magnitude of impact on road traffic accidents and injury would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

iii. Potential health and wellbeing effects from changes in noise exposure

- 28.6.26 Noise has the potential to affect health in a variety of ways and can be grouped into auditory and non-auditory effects. Auditory effects are associated with damage to the hearing organelles of the ear as a result of intense and prolonged exposure. This is typically associated with occupational exposures.

- 28.6.27 Community level impacts are more typically non-auditory health effects and, depending on the nature of the sound, magnitude of change, timing, and duration, can result in health and wellbeing effects such as annoyance, sleep disturbance, reductions in academic performance, and hypertension.
- 28.6.28 The main emphasis of noise standards, regulations, and guidance is placed on annoyance and sleep disturbance, as these are the most immediate consequences of noise effects and applicable to everyone. The Noise Policy Statement for England (Ref 28.36) applies two concepts, drawn from impacts associated with noise exposure:
- the Lowest Observed Adverse Effect Level (LOAEL) – the level above which adverse effects on health and quality of life start to be detected; and
 - and the Significant Observed Adverse Effect Level (SOAEL) – the level above which significant adverse effects on health and quality of life occur.
- 28.6.29 These levels will differ depending on different noise sources, receptors, and timings, therefore specific LOAEL and SOAEL have been defined for each source. Further information on the methodology for the assessment of noise is available in **Appendix 6G** of **Volume 1** of the **ES**.
- 28.6.30 Depending upon the classifications of effect adopted for the **ES**, it is possible that likely significant negative or adverse effects may be declared, whilst noise levels remain below the SOAEL. This separation of SOAEL and EIA significance reflects the difference between the requirement set out in paragraph 7 of Schedule 4 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref 28.2), where a description is required of measures to “*avoid, prevent, reduce or, if possible, offset any identified significant adverse effects*”, and the requirement in policy to “*avoid significant adverse impacts on health and quality of life from noise*” and “*mitigate and minimise other adverse impacts on health and quality of life from noise*”. Since the SOAEL is generally above all but the highest level of EIA significance, the effects referred to here are based on EIA significance, as that is a more precautionary approach.
- 28.6.31 Where predicted construction noise levels are significant and above the SOAEL, mitigation as detailed in the **CoCP** (Doc Ref. 8.11) would be implemented to reduce noise levels, and this would be further addressed, where necessary, through the **Noise Mitigation Scheme**¹ (see **Appendix**

¹ The Noise Mitigation Scheme is proposed as secondary mitigation by **Volume 2, Chapter 11**. The Noise Mitigation Scheme is relevant to the health and wellbeing assessment as it would prevent/manage noise exposure to below the SOAEL. Significance conclusions for health and wellbeing effects are based on the residual effects reported by **Volume 2, Chapter 11**, thereby factoring in the results of the Noise Mitigation Scheme.

11H of this volume for details and the **draft Section 106 Heads of Terms** provided as **Appendix J** to the **Planning Statement** (Doc Ref. 8.4)). The **Noise Mitigation Scheme** provides for improving the sound insulation of properties, and where very high noise levels are reached, for the temporary rehousing of occupants, thereby managing noise, or exposure to prevent significant health outcomes.

Main Development Site

Daytime construction noise

- 28.6.32 As summarised in **Table 11.32** of **Chapter 11** of this volume of the **ES**, during the daytime period (07:00–23:00hrs) where noise is dictated by the main development site (including activities on LEEIE), no significant residual noise effects are predicted during Phase 3 and 4 and on an average day in Phase 5.
- 28.6.33 However, significant residual noise effects during the daytime period are identified during Phase 1a (at receptor group locations 1, 2, 3, 4, 11, 14, 15, 20, and 23); Phase 1b/2 (at receptor group location 4) and during the busiest period in Phase 5 (at receptor group locations 1, 2, 3, 4, 11, 14, 15, 20, and 23) (see **Figure 11.1** of **Chapter 11** of this volume for the list of receptors to which these numbers relate and their locations).
- 28.6.34 As stated in **Chapter 11** of this volume of the **ES**, Phase 1a represents a typical day in a busy month of activity early during Phase 1, when noise levels are predicted to be at their highest. On the basis that Phase 1a would be of relatively short duration compared to the overall construction programme, any significant residual noise effects with the potential to cause health and wellbeing effects from temporary and intermittent annoyance would be limited.
- 28.6.35 As construction continues, the phases would become longer but the noise effects are expected to reduce. Phase 1b/2 may span more than three years, where noise levels following additional mitigation are predicted to result in significant residual noise effects at one receptor group location (compared to nine in the previous phase).
- 28.6.36 During the busiest period in Phase 5 (approximately one month), noise levels are expected to be similar to those predicted during Phase 1a. However, as with Phase 1a, these noise levels would only be experienced for a relatively short duration compared to the overall construction programme and therefore, any potential adverse health and wellbeing effects from temporary and intermittent annoyance would be limited.
- 28.6.37 As summarised in **Table 11.32** of **Chapter 11**, during the daytime period (07:00–23:00hrs) where noise is dictated by the LEEIE, significant residual

noise effects are predicted at two receptor locations, 12 and 21, during a typical day in the busiest period of the initial stripping/levelling of the LEEIE, during its preparation phase. On the basis that these effects would persist for a relatively short duration, any significant residual noise effects with the potential to cause health and wellbeing effects from temporary and intermittent annoyance would be limited.

- 28.6.38** No significant residual noise effects are predicted during early years operations on the LEEIE; during later years operations on the LEEIE; and during an average day in the restoration and reinstatement phase.
- 28.6.39** During the busiest period in the restoration and reinstatement phase (approximately one month), significant residual noise effects are predicted at three receptor group locations. However, on the basis that these effects would persist for a relatively short duration, any significant residual noise effects with the potential to cause health and wellbeing effects from temporary and intermittent annoyance would be limited.
- 28.6.40** **Table 11.32** of **Chapter 11** also sets out that no significant effects are predicted as a result of Sizewell B relocated facilities, including in terms of construction and demolition noise, construction and demolition vibration, and traffic noise during construction.
- 28.6.41** Overall, significant residual noise effects would only occur for a limited period of time. While significant residual noise effects occurring during Phase 1b/2 may span more than three years, this would only occur at one receptor group location, thereby limiting the potential for associated health and wellbeing effects at the population level. As a result, the magnitude of impact on health and wellbeing would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

Night-time construction noise

- 28.6.42** As detailed in **Chapter 11** of this volume of the **ES**, there are two scenarios for night-time noise (23:00–07:00hrs) modelled in the noise assessment. These comprise: green rail route and associated activities only; and green rail route, excavation, and all associated activities.
- 28.6.43** As summarised in **Table 11.32** of **Chapter 11** of this volume, in both scenarios, the majority of receptor group locations would experience no significant residual average noise levels. However, significant residual average noise levels during the night-time period are currently identified at three receptor group locations in both scenarios (4, 15 and 20) (see **Figure 11.1** of **Chapter 11** of this volume for the list of receptors to which these numbers relate and their location).

28.6.44 Maximum night-time construction noise levels are associated with sleep disturbance. As summarised in **Table 11.32** of **Chapter 11**, significant residual maximum noise levels are only identified at one receptor group location (20). On this basis, the potential for sleep disturbance and associated health and wellbeing effects at the population level is limited.

28.6.45 Overall, the magnitude of impact on health and wellbeing would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

Construction traffic noise

28.6.46 As summarised in **Table 11.32** of **Chapter 11**, no significant residual noise effects associated with construction related traffic are predicted at the majority of receptors.

28.6.47 Where specified noise criteria are exceeded, the **Noise Mitigation Scheme** would be applied (refer to **Appendix 11H** of this volume and the **draft Section 106 Heads of Terms**).

28.6.48 As a result, the magnitude of impact on health and wellbeing would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

Other sound sources

28.6.49 Other sound sources assessed in **Chapter 11** of this volume of the **ES** comprise the proposed Combined Heat and Power unit (CHP) or air source heat pump network selected to serve the accommodation campus.

28.6.50 In the context of low background noise, it is considered appropriate to ensure that noise associated with these mechanical services does not exceed the LOAEL. As the final system selection and design is to be determined, system specific noise mitigation measures would ensure that sound levels from the final proposal would not exceed 35 dB $L_{Ar,15\text{minute},\text{free-field}}$ outside the nearest residential receptor.

28.6.51 As a result, the magnitude of impact on health and wellbeing would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

Associated development sites

Northern and southern park and ride facilities

28.6.52 As stated in **Chapter 4** of **Volume 3** and **Volume 4** of the **ES**, construction of the northern and southern park and ride facilities would be during the day

time period only (Monday to Saturday 07:00-19:00 hours). Therefore, there is no potential for adverse health and wellbeing effects to occur during the night-time period, such as sleep disturbance and associated hypertension. Overall, no significant residual noise effects are identified at any receptor group location during construction of the northern and southern park and ride facilities.

- 28.6.53 During operation of both the northern and southern park and ride facilities (while the main development site is under construction), no significant residual noise effects are identified at any receptor group location.
- 28.6.54 Changes in noise exposure during the removal and reinstatement phase would remain similar to the construction phase for both the northern and southern park and ride facilities where no significant residual noise effects are identified at any receptor group location.
- 28.6.55 As a result, the magnitude of impact on health and wellbeing from daytime annoyance would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

Rail proposals

- 28.6.56 As stated in **Chapter 4 of Volume 9** of the **ES**, rail construction works would take place during the day time period only (Monday to Saturday 07:00-19:00 hours). Therefore, there is no potential for adverse health and wellbeing effects to occur during the night-time period, such as sleep disturbance and associated hypertension.
- 28.6.57 Overall, no significant residual noise effects are identified at any receptor group location during construction of the Abbey Road level crossing, Buckleswood Road level crossing, branch line level crossings, and branch line upgrade works.
- 28.6.58 During construction of the rail extension route, modelling indicates that there is the potential for significant residual noise effects at Pro Corda Music School at Leiston Abbey. However, bespoke assessment and further mitigation will be explored with the music school and should ultimately reduce this to a level which is not significant. This will be secured in the Section 106 Agreement (see **draft Section 106 Heads of Terms** provided as **Appendix J** to the **Planning Statement** (Doc Ref. 8.4)).
- 28.6.59 During operation of the rail extension route and branch line between Saxmundham and Leiston (while the main development site is under construction), no significant residual noise effects are predicted during the daytime.

- 28.6.60 However, currently, significant residual noise effects are identified at a number of receptor group locations during the night-time period (Kelsale Covert, Westhouse Crossing Cottage, and Crossing East).
- 28.6.61 In addition, during operation of the rail, significant residual noise effects are predicted during the night-time period at between five and ten properties within the 77dB, L_{Amax} contour, and between 100 and 110 properties between the 70 and 77dB, L_{Amax} contours in proximity to the East Suffolk line. However, a Rail Noise Mitigation Strategy (including change arrangements at Saxmundham junction, to be developed in consultation with Network Rail), would be implemented. Any properties that remain affected by noise above the SOAEL would fall under the provisions of the **Noise Mitigation Scheme** (refer to **Appendix 11H** of this volume of the **ES**). No significant residual noise effects are predicted during the day.
- 28.6.62 Regarding groundborne noise, significant residual noise effects are predicted at receptors within 14 metres of the East Suffolk line where trains travel at 10mph, and within 20 metres of the East Suffolk line where trains travel at 20mph. Of these, only properties within 5 metres of the East Suffolk line where trains travel at 10mph, and within 10 metres of the East Suffolk line where trains travel at 20mph, are expected to be above the SOAEL.
- 28.6.63 Speed limits of 10mph are proposed in Woodbridge and Melton, Campsea Ashe, and Saxmundham, as shown in **Figures 4.2, 4.3 and 4.4** of **Chapter 4** of **Volume 9** of the **ES**.
- 28.6.64 SZC Co. would develop a Rail Noise Mitigation Strategy in consultation with Network Rail and the rail freight operator, informed by the further detailed assessments, to establish the package of measures to be implemented to mitigate noise impacts on the Saxmundham to Leiston branch line and the East Suffolk line.
- 28.6.65 During the removal and reinstatement of the rail extension route, no significant residual noise effects are identified at any receptor group location.
- 28.6.66 On the basis that the receptor groups currently identified to experience significant adverse noise effects and exceedances in specified noise criteria will fall under the provisions of the **Noise Mitigation Scheme** (see **Appendix 11H** of this volume) and further assessments would be undertaken to identify where additional mitigation is required to avoid and manage any receptor group exposure to noise exceeding the SOAEL, the magnitude of impact on health and wellbeing would be medium. In the context of a uniformly high sensitivity receptor, the resultant effect is considered moderate adverse, which is **significant**.

Freight Management Facility

- 28.6.67 As stated in **Chapter 4** of **Volume 8** of the **ES**, construction of the freight management facility would be during the day time period only (Monday to Saturday 07:00-19:00 hours). Therefore, there is no potential for adverse health and wellbeing effects to occur during the night-time period, such as sleep disturbance and associated hypertension. Overall, no significant residual noise effects are identified at any receptor group location during construction of the freight management facility.
- 28.6.68 The freight management facility would be operational for a minimum of 7.5 hours a day for five days a week, to a maximum of 24 hours a day seven days a week during peak construction of the main development site. Activities associated with the operation of the freight management facility are limited to HGV movements. As stated in **Chapter 4** of **Volume 8** of the **ES**, no significant residual noise effects are identified at any receptor group location.
- 28.6.69 During the removal and reinstatement phase of the freight management facility, no significant residual noise effects are identified at any receptor group location.
- 28.6.70 As a result, the magnitude of impact on health and wellbeing would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

Two Village Bypass

- 28.6.71 As stated in **Chapter 4** of **Volume 5** of the **ES**, construction of the two village bypass would take approximately 24 months and would be during the day time period only (Monday to Saturday 07:00-19:00 hours). Therefore, there is no potential for adverse health and wellbeing effects to occur during the night-time period, such as sleep disturbance and associated hypertension. Overall, no significant residual noise effects are identified at any receptor group location during construction of the two village bypass.
- 28.6.72 The two village bypass would be operational during construction of the main development site. Significant beneficial effects are anticipated during all relevant operational scenarios (2028 typical and 2028 busiest) at the majority of receptors along the A12 where it passes through the villages of Stratford St Andrew and Farnham. This is due to the reduction of traffic travelling through the villages along the existing section of the A12, with the majority of vehicles using the new bypass instead.
- 28.6.73 During a typical day of the peak construction year (2028) specifically, there would be significant beneficial noise effects at 15 receptor group locations.

However, significant residual adverse noise effects are also reported at 11 receptor group locations. All remaining receptors would not experience significant residual noise effects. (See **Table 4.23** of **Chapter 4** of **Volume 5** of the **ES**, along with **Figure 4.1** of **Volume 5** for the list of receptors to which the numbers in **Table 4.23** relate and their locations).

- 28.6.74 During the busiest day of the peak construction year (2028) specifically, there would be significant beneficial noise effects at 14 receptor group locations. However, significant residual adverse noise effects are also reported at a further 14 receptor group locations. All remaining receptors would not experience significant residual noise effects.
- 28.6.75 Further assessments would be undertaken under the **Noise Mitigation Scheme** (see **Appendix 11H** of this volume) and where receptors are confirmed to be exposed to noise exceeding the SOAEL, the provisions of that scheme will apply. Overall, the adverse and positive magnitude of impact on health and wellbeing would be medium. In the context of a uniformly high sensitivity receptor, the resultant effect is considered moderate adverse/beneficial, which is considered **significant** in EIA terms.

Sizewell Link Road

- 28.6.76 As stated in **Chapter 4** of **Volume 6** of the **ES**, construction of the Sizewell link road would take approximately 24 months and would be during the day time period only (Monday to Saturday 07:00-19:00 hours). Therefore, there is no potential for adverse health and wellbeing effects to occur during the night-time period, such as sleep disturbance and associated hypertension. Overall, no significant residual noise effects are identified at any receptor group location during construction of the Sizewell link road.
- 28.6.77 Significant beneficial effects are also anticipated at the majority of receptors or receptor groups along the section of the B1122 from Middleton Moor to Theberton during all relevant operational scenarios (2028 typical and 2028 busiest). This is due to the reduction of traffic within the villages, with the majority of vehicles using the new link road instead.
- 28.6.78 The Sizewell link road will be operational during construction of the main development site. During a typical day and on the busiest day of the peak construction year (2028) specifically, there would be significant beneficial noise effects at 8 receptor group locations. However, significant residual adverse noise effects are also reported at 19 receptor group locations. All remaining receptors would not experience significant residual noise effects. (See **Table 4.23** of **Chapter 4** of **Volume 6** of the **ES**, along with **Figure 4.1** of **Volume 6** for the list of receptors to which the numbers in **Table 4.23** relate and their locations).

28.6.79 Further assessments would be undertaken under the **Noise Mitigation Scheme** (see **Appendix 11H** of this volume) and where receptors are confirmed to be exposed to noise exceeding the SOAEL, the provisions of that scheme will apply. Overall, the adverse and positive magnitude of impact on health and wellbeing would be medium. In the context of a uniformly high sensitivity receptor, the resultant effect is considered moderate adverse/beneficial, which is considered **significant** in EIA terms.

Yoxford roundabout and other highway improvements

28.6.80 As stated in **Chapter 4** of **Volume 7** of the **ES**, construction of the Yoxford roundabout would take approximately six to nine months and would be during the day time period only (Monday to Saturday 07:00-19:00 hours). Therefore, there is no potential for adverse health and wellbeing effects to occur during the night-time period, such as sleep disturbance and associated hypertension. Overall, no significant residual noise effects are identified at any receptor group location during construction of the Yoxford roundabout and other highway improvements.

28.6.81 Yoxford roundabout and the other highway improvements will be operational during construction of the main development site. During a typical day and on the busiest day of the peak construction year (2028), no significant residual noise effects are identified at any receptor group location.

28.6.82 Although the small change in noise exposure would be imperceptible and not significant, the operation of the Yoxford roundabout and the other highway improvements results in four individual properties being identified as likely to exceed the SOAEL. Therefore, this change will be subject to further assessments under the **Noise Mitigation Scheme** (see **Appendix 11H** of this volume). Where receptors are confirmed to be exposed to noise exceeding the SOAEL, the provisions of that scheme will apply.

28.6.83 As a result, the magnitude of impact on health and wellbeing would be very low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

iv. *Potential health and wellbeing effects associated with the introduction of a temporary non-home-based construction workforce*

28.6.84 Prior to mitigation, the introduction of a large non-home-based construction workforce to a new area has the potential to impact upon critical community services, including public healthcare. The following section investigates the potential demand on public healthcare from non-home-based workers and their dependants that may choose to relocate to the area.

- 28.6.85 As detailed in **Appendix 28B** of this volume, a 24/7 comprehensive on-site occupational health service would be provided. The scope of this and the calculation of subsequent residual demand stems from experience on other major infrastructure projects, most notably, the construction of Hinkley Point C.
- 28.6.86 Hinkley Point C is uniquely comparable in this instance, not only by type and scale of project; or being a timely example with representative workforce profile and relative occupational and public health requirements; but also by proponent, and demonstrates the extent and effectiveness of the mitigation that would be brought to bear.
- 28.6.87 The provision of the occupational health service by SZC Co. would be secured through an obligation in the Section 106 Agreement (see **draft Section 106 Heads of Terms**).

Non-home-based workforce

- 28.6.88 **Volume 2, Chapter 9** of the **ES** uses a workforce profile peaking at 7,900 workers and presents the anticipated level of home-based and non-home-based recruitment, provided in **Appendix 9A** of this volume. At peak there are predicted to be 2,016 home-based workers and 5,884 non-home-based workers.
- 28.6.89 As shown in **Table 28.6**, once factoring in the occupational healthcare provision (including on-site pharmacy, nursing and GP services including health, drug and alcohol screening, treatment and physiotherapy), the demand for healthcare as a result of the Sizewell C Project is internalised and the residual impact on local services is anticipated to be minimal, with an annual average GP referral of four, peaking during year seven to eight residual GP referrals, and totalling to 47 GP referrals per non-home based worker over the entire construction phase. Such a low residual referral is only possible through the extensive occupational healthcare service provision, proven on Hinkley Point C. A proactive approach to sexual and mental health will form part of the occupational provision to address and further minimise potential impacts on local healthcare, and will remain aligned to and support local initiatives. The on-site pharmacy open to the entire workforce, internalises potential demand, and further manages any impact to local healthcare capacity and cost.
- 28.6.90 Ambulance call outs are anticipated to be minimal, with the potential for approximately 79 ambulance call outs during the peak construction year for the entire workforce (7,900 x 0.01), representing less than 1% of the East of England Ambulance Service Hazardous Area Response Teams call out from April 2018 to April 2019 (Ref 28.37). However, it is noted that this may increase pressure on local ambulance response centres in the region

disproportionately, as a result of the relative remoteness of the site and its access requirements for a nuclear construction site. As such, under certain conditions a minor adverse effect may arise before mitigation, and therefore SZC Co. will seek to develop a responsive mitigation strategy in this regard.

28.6.91 When applying experience from Hinkley Point C, referral to minor injury units (MIU) for minor injuries is predicted to average out as ten a year, again peaking in year seven at 20 referrals, and totalling 124 over the entire construction phase. However, in the absence of any minor injury units locally, a worst case has been considered, where these referrals (largely for X-rays) would be added to non-ambulance hospital referrals.

28.6.92 Non ambulance hospital referrals (for significant yet non-emergency medical issues) represent the largest change in local healthcare demand, with an annual average referral of 91 (7.5 a month), peaking in year seven at 177, and totalling at 1093 over the entire 12-year construction phase. This increases marginally when adding the minor injury referrals to an annual average referral of 101 (8 a month), peaking in year seven at 197, and totalling at 1,217 over the entire 12-year construction phase.

Table 28.6: Non-home-based worker residual healthcare forecast

Year	Month	Non-home-based workers.	Forecasted referral.		
			GP Referral (0.0013 per non-home-based worker).	Hospital Referrals.	
				Minor Injury Referral (0.003 per non-home-based worker).	Non-ambulance Hospital Referral (0.03 per non-home-based worker).
1	12	816	1	3	24
2	24	1,504	2	5	45
3	36	2,538	3	9	76
4	48	3,519	5	12	106
5	60	4,551	6	15	137
6	72	5,598	7	19	168
7	81	5,884	8	20	177
8	85	5,470	7	19	164
9	97	3,920	5	13	118
10	109	1,582	2	5	47
11	121	491	1	2	15

Year	Month	Non-home-based workers.	Forecasted referral.		
			GP Referral (0.0013 per non-home-based worker).	Hospital Referrals.	
				Minor Injury Referral (0.003 per non-home-based worker).	Non-ambulance Hospital Referral (0.03 per non-home-based worker).
12	133	560	1	2	17
Sub Total.			47	124	1,093
Total			-	1,217	
Annual Peak.			8	197	
Annual Average.			4	101	

28.6.93 There may also be a degree of offsetting the demand of home-based workers’ healthcare needs should they choose to use the occupational health service rather than their own GP (e.g. due to convenience of not having to take time off work) and through health promotion and screening services provided on site. However, a conservative approach has been taken and this offsetting has not been factored into the assessment.

28.6.94 As a result, the magnitude of impact on healthcare would be low. In the context of a highly valued and sensitive asset, the resultant effect is considered minor adverse, which is **not significant**.

Non-home-based workers’ dependants

28.6.95 As detailed in **Appendix 9B** of this volume, survey evidence from Hinkley Point C indicates that 13% of workers surveyed had brought dependants to live with them during the construction period.

28.6.96 When applied to Sizewell C (not discounting for those occupying accommodation where families are not allowed i.e. campus and caravan park), this would equate to around 765 ‘families’ (13% of 5,884 workers). This assessment assumes one non-dependant adult per family in addition to the worker (e.g. partners, friends and parents), while in reality some will have more than one additional non-dependant adult, and others will have none. When further discounting staff that will be taking up accommodation that precludes the possibility of bringing any dependants, the limitations outlined above are addressed through the precautionary approach.

28.6.97 Survey data from Hinkley Point C further identifies a likelihood for around 403 children within these family households at peak construction, including:

- 180 pre-school-aged children;
- 190 primary school-aged children; and
- 33 secondary school-aged children.

28.6.98 This is likely to be an over-estimate due to the substantial amount of project accommodation where workers' families would not be allowed to live (campus and caravan park). As such, it is predicted that of the few non-home-based staff that do bring dependants, this would equate to approximately 1,168 individuals (765 partners and 403 children) directly attributed to Sizewell C during the peak construction year, which would constitute an additional demand for approximately 1 GP spread over the entire study area.

28.6.99 Importantly, the non-home-based workers that choose to bring families, are likely to choose existing housing either in the owner-occupied or private rented sector, offsetting the previous occupants, and with them, their associated healthcare demand. This is because dependants would not be permitted to stay in the project accommodation campus and caravan park and tourist accommodation is unlikely to be utilised for long-term stays. On this basis, and for the purpose of the assessment, the potential effect of dependants occupying existing properties is not considered significant.

28.6.100 As a result, the magnitude of impact on healthcare would be low. In the context of a highly valued and sensitive asset, the resultant effect is considered minor adverse, which is **not significant**.

Conclusion

28.6.101 Following the implementation of the occupational health service, the change in healthcare demand directly attributable to the non-home-based workers would be negligible.

28.6.102 The potential change in healthcare demand attributable to any dependants or family members of non-home-based workers would be minor. It is anticipated that workers who bring families are most likely to be on long-term contracts and would buy properties or take private rented sector accommodation during this time. As such, they would not represent a net addition to the existing number of council tax paying households/population, and there would be little to no material change in net healthcare demand.

28.6.103 Overall, the magnitude of impact on health and wellbeing would be low. In the context of a uniformly high sensitivity receptor and highly valued asset, the resultant effect is considered minor adverse, which is **not significant**.

v. Potential health and wellbeing benefits associated with socio-economic factors

Employment

- 28.6.104 Employment and income are potentially the most significant determinants of long-term health, influencing a range of factors including the quality of housing, education, diet, lifestyle, coping skills, access to services, and social networks.
- 28.6.105 Poor economic circumstances can influence health throughout life, where communities subject to socio-economic deprivation are more likely to suffer from morbidity, injury, anxiety, and depression and tend to suffer from higher rates of premature death.
- 28.6.106 As set out in **Chapter 9** of this volume of the **ES**, the construction phase would take 9-12 years to complete. It is anticipated that around 40,000 roles (calculated as person years of construction) would be created over the entire construction phase, although workers would be redeployed within the Sizewell C Project where possible and therefore may take on a number of different roles.
- 28.6.107 Redeploying workers during the construction phase would increase job retention rates. On the basis that lifestyle changes need to be consistent to have a material impact on health and wellbeing, longer-term employment to a lower number of people is preferable to shorter-term employment to a higher number of people. Overall, whilst employment associated with construction of the Sizewell C Project is considered temporary, Sizewell C's construction phase is relatively long-term and notably longer than the average construction job tenure in the UK.
- 28.6.108 During construction, the activities and work packages being undertaken would affect the number and types of roles that the Sizewell C Project would need. In addition, the types of jobs required would influence the profile of home-based workers (i.e. individuals primarily recruited from within a 90-minute construction daily commuting zone - CDCZ) and non-home-based workers (i.e. individuals recruited from outside the CDCZ).
- 28.6.109 The Sizewell C Project represents a significant increase in opportunities for employment, skills and sustainable careers in a range of construction and non-construction sectors with different transferrable skills. A proportion of the workforce would be drawn from existing residents, including those currently unemployed or economically inactive. This would be enhanced by the Sizewell C Project's **Employment, Skills and Education Strategy** (Doc Ref. 8.9, Appendix A), the implementation of which will be secured through a Section 106 Agreement (see **draft Section 106 Heads of Terms**).

- 28.6.110 As set out in **Appendix 9A** of this volume, the percentage of the total construction workforce which would be home-based would vary over the period of the development, with a higher percentage at the beginning, which then reduces as the Sizewell C Project moves towards its peak, and then increases again towards completion.
- 28.6.111 It is predicted that across all job types, there would be an average of 959 home-based workers over the 9-12-year construction phase, peaking at 1,810 in year six.
- 28.6.112 In total, the number of home-based workers equates to approximately 7% of total construction jobs in the 90-minute area and is considered to be a moderate beneficial effect in socio-economic terms.
- 28.6.113 **Chapter 9** of this volume of the **ES** also sets out that the construction of Sizewell C would also generate indirect and induced economic benefits as a result of spending on the supply chain (by the Sizewell C Project) and on goods and services in the local economy (by the workforce).
- 28.6.114 It is anticipated that – if similar activities and local supply chain recruitment are achieved at Sizewell C as Hinkley Point C - there could be a “local” retention of in excess of £1.5bn over the construction period, equivalent to an average of £125m per year. This is a moderate beneficial effect and **significant** at the regional scale.
- 28.6.115 As set out in **Volume 2, Chapter 9** of the **ES**, wages and spending could contribute over £320 million during the construction phase. This is a moderate beneficial effect at the local and regional scale and would be **significant**.
- 28.6.116 **Chapter 9** of this volume of the **ES** provides evidence that depending on the point in the economic cycle, between 40% and 52% of new jobs are filled by people who were not previously working (i.e. unemployed or economically inactive). As a result, up to 60% of vacancies would be filled by people who change job (the normal operation of the labour market).

GVA

- 28.6.117 Gross value added (GVA) measures the contribution to an economy of an individual producer, industry, sector or region. As stated in **Chapter 9** of this volume of the **ES**, the construction industry accounts for over £1bn of output in Suffolk which equates to approximately 7% of total output in the county. On the basis that GVA per construction worker in Suffolk FTE is approximately £60,000, Sizewell C would contribute approximately £2.5bn GVA over the course of the construction phase, which is again considered to present a moderate beneficial socio-economic health effect which is **significant** at the regional level.

Conclusion

28.6.118 Employment and income are key determinants of health, influencing a range of wider health determinants that influence social, mental and physical health. Overall, the construction phase represents significant direct, indirect and induced employment and income opportunities distributed locally, regionally and nationally. The magnitude of impact on health and wellbeing would be medium. In the context of a uniformly high sensitivity receptor, the resultant effect is considered moderate beneficial, which is **significant**.

vi. General stress and anxiety impacting upon quality of life and wellbeing

28.6.119 Quality of Life (QoL) is defined by the WHO as *“an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”*.

28.6.120 There are a number of factors which influence an individual’s quality of life, which include emotions such as stress and anxiety. The tangible aspects associated with the proposed development which underlie local community risk perception have been investigated and addressed within this chapter which provides a robust assessment supported by an appropriate scientific evidence base for a range of health pathways. The assessment is therefore intended to help address local community concerns and perceived risk in addition to informing decision making.

28.6.121 The intangible and more subjective aspects which are often not possible to quantify, have been explored and addressed through meaningful consultation during the planning application process, to inform and refine the proposed development. In this instance, engagement with local communities will be maintained during construction and operation to investigate, address, and respond to concerns. Details of the Sizewell C Project’s approach to communication, community and stakeholder engagement are set out in the **Code of Construction Practice** (Doc Ref. 8.11).

28.6.122 On this basis, the magnitude of impact on quality of life and wellbeing would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

c) Operation of Proposed Development

i. Potential health and wellbeing effects from changes in radiological exposure

Overview

28.6.123 The legislation, policy, guidance and methodology relevant to the assessment of likely significant radiological effects of the Sizewell C Project and any potential cumulative impacts are contained within **Volume 2, Chapter 25** of the **ES**. This section provides a summary of the assessment undertaken and builds upon its conclusions to prescribe significance and further set potential health risk into context.

28.6.124 Radiation describes any process in which energy travels through a medium or through space. There are two broad classes of radiation: ionising and non-ionising. Ionising radiation has enough energy to charge or ‘ionise’ an atom and non-ionising radiation (which includes electric and magnetic fields as well as infrared and microwaves) has insufficient energy to cause ionisation. This section concentrates on ionising radiation and the term ‘radiation’ is used to mean ionising radiation.

Guideline Limits

28.6.125 The principles of radiological protection are set by the International Commission on Radiation Protection and described in ICRP 103 (Ref 28.38). This includes the principle of dose limitation; that is, the limit is applied over and above any radiation dose which may arise naturally. In the UK an average naturally occurring radiation dose to an individual is around 2.7 mSv per year (Ref 28.39) although there is considerable variability around this average depending on the part of the country, the type of building material, and other factors such as ventilation.

28.6.126 The dose limit for any additional radiation dose applied is the same irrespective of the actual natural background dose of type of activity.

28.6.127 Prior to being allowed to operate a facility involving the discharge or disposal of radioactive waste, the operator must obtain an Environmental Permit issued by the relevant regulatory body. When applying for an Environmental Permit the future operator must conduct an assessment of the radiological impacts.

28.6.128 The radiological impacts on the most exposed members of the public are assessed against UK dose limits and constraints derived from International and European regulations and guidance, as provided in **Volume 2, Chapter 25** of the **ES**. These are summarised below:

- a) the sum of doses arising from such exposures does not exceed the individual public dose limit of 1 mSv per year;
- b) the individual dose from any single site relative to the combined impact from Sizewell B and Sizewell C (referred to as the site constraint) does not exceed 0.5 mSv per year; and
- c) the individual dose received from any new discharge source relative to Sizewell C only, includes direct radiation (referred to as the source constraint) since 13 May 2000 does not exceed 0.3 mSv per year.

Determining radiological doses to members of the public

28.6.129 The potential routes by which people could be exposed to radiation, and hence receive a radiation dose, are:

- external radiation from certain types of radioactive materials, which could affect people in close proximity; and
- internal radiation from radioactive materials that, once released, are in a form that means they could be inhaled or could enter the food chain and be ingested.

28.6.130 For existing power stations or other nuclear licensed sites, the determination of potential doses to members of the public can either be modelled or based on a measurement of concentrations of radioactive materials in the environment; observation of habits such as time spent in specified areas or amounts and types of foods consumed; and internationally recognised dose coefficients. These doses are reported annually in the Radioactivity in Food and the Environment reports (Ref 28.40), to provide reassurance that the public's exposure to authorised discharges and direct radiation near nuclear and non-nuclear sites are low and within dose limits.

28.6.131 For assessments, such as that required for the Sizewell C Project, it is necessary to model potential discharges and environmental concentrations and to consider a hypothetical group of people whose habits would result in their being the most exposed to any radioactive discharges from the site. This is described further in **Volume 2, Chapter 25** of the **ES**.

Results

28.6.132 The radiological impact assessment for human and non-human species has been prepared to support the environmental permit application for radioactive substance regulations (RSR) and is summarised in **Volume 2, Chapter 25** of the **ES**.

28.6.133 The assessment shows that the individual doses calculated were significantly less than the corresponding source and site constraints and the public dose limit, and the collective dose has also been shown to be trivial.

Conclusion

28.6.134 The magnitude of impact on health and wellbeing would therefore be negligible, which in an area of high sensitivity would result in a negligible adverse effect, which is **not significant**.

ii. Potential health and wellbeing effects from changes in electromagnetic field exposure

Overview

28.6.135 Electromagnetic Fields (EMF) and the electromagnetic forces they represent are a fundamental part of the physical world. Electromagnetic forces are partly responsible for the cohesion of material substances and they mediate all the processes of chemistry, including those of life itself. EMF occur naturally within the human body (through nerve and muscle activity) and also arise from the magnetic field created by Earth and electric fields in the atmosphere.

28.6.136 The sources of EMF with which this chapter is concerned are power frequency EMF in the frequency range below 300 kilohertz (kHz), i.e. the electric and magnetic fields produced wherever electricity is generated, distributed, or used.

28.6.137 Unlike ionizing radiation found in the upper part of the electromagnetic spectrum, power-frequency electric and magnetic fields are much too weak to break the bonds that hold molecules in cells together and therefore, cannot directly produce ionization. This is why EMF are categorised as ‘non-ionizing radiation’.

Public Exposure Guidelines

28.6.138 The former Department of Energy and Climate Change published a voluntary Code of Practice document detailing the recommended approach for demonstrating compliance with EMF exposure limits (Ref 28.41). It implements the 1998 International Commission on Non-Ionizing Radiation Protection Guidelines under the terms of the 1999 EU Recommendation in the UK context.

28.6.139 **Table 28.7** shows the International Commission on Non-Ionizing Radiation Protection guideline limits for public exposure. The Basic Restriction level is for induced current in the central nervous system to protect health. The reference level for external fields indicates a threshold beyond which the

potential for induced current to exceed the Basic Restriction should be investigated. The external field strengths sufficient to induce current density at the Basic Restriction level are specified by the former Health Protection Agency, now Public Health England and form the basis of the Code of Practice assessment levels.

Table 28.7: International Commission on Non-Ionizing Radiation Protection guidelines

Description		AC fields – 1998 International Commission on Non-Ionizing Radiation Protection Guidelines, as Adopted in the UK in 2004 in the terms of the 1999 EC Recommendation and in the Department of Energy and Climate Change Code of Practice.
		Public exposure guideline
Basic Restriction (the quantity which must not be exceeded).	Induced current density in the central nervous system.	2 mA m ⁻²
Reference Level (not a limit in itself but a guideline for when Basic Restriction investigation may be required).	Magnetic field.	100 µT
	Electric field.	5 kV m ⁻¹
Basic Restriction equivalent external field.	Magnetic field.	360 µT
	Electric field.	9 kV m ⁻¹

Source: (Ref 28.35; Ref 28.41; Ref 28.42)

28.6.140 The Sizewell C Project grid connection would align with the existing infrastructure. Once operational, changes to site transmission infrastructure would comply with the Department of Energy and Climate Change Code of Practice, and as a consequence the exposure guidelines would be set to preclude any manifest health outcome for public exposure scenarios, regardless of any minor on-site change.

Conclusion

28.6.141 In light of the current evidence base of EMF health effects, the fact that existing power distribution lines would be utilised and that the effect from the proposed development would fall well within the relevant EMF exposure guidelines protective of public health (as specified in the Department of Energy and Climate Change Code of Practice), it is concluded that the magnitude of impact on health and wellbeing will be very low, which in an area of high sensitivity would result in a negligible adverse effect, which is **not significant**.

iii. Potential health and wellbeing effects from changes in emissions to air

Transport emissions

Main Development Site

28.6.142 As detailed in **Volume 2, Chapter 12** of the **ES**, operational transport air quality dispersion modelling results for the operational phase of the Sizewell C main development site indicate a ‘negligible’ effect at most of the receptor group locations (with a limited number of receptors experiencing ‘minor’ or ‘moderate’ beneficial effects). The air quality effects for all sensitive receptors within the study area are considered to be not significant as a whole. Absolute concentrations will remain well below air quality standards set to be protective of the environment and health, and changes are not of a concentration or exposure sufficient to quantify any change in local health.

28.6.143 Based on these predictions, the magnitude of impact on health and wellbeing will be very low, and in the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

Associated Developments

28.6.144 As detailed in **Chapter 5** of **Volume 5, Volume 6** and **Volume 7** of the **ES**, operational transport air quality dispersion modelling results for the operational phase of the permanent associated development sites indicate that all modelled scenarios will have a ‘negligible’ effect at all receptor group locations, with the exception of some receptors relevant to the two village bypass, as detailed in **Volume 5, Chapter 5** of the **ES**, which would experience ‘minor’ or ‘moderate’ beneficial effects associated with a decrease in pollutant concentration.

28.6.145 Overall effects are not predicted to be significant by air quality standards, absolute concentrations will remain well below air quality standards set to be protective of the environment and health. As a result, the magnitude of impact on health and wellbeing will be very low, and in the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

Combustion activities

28.6.146 Once the Sizewell C main development site is operational, the primary on-site emission to air would arise from the engines of the backup diesel generators during routine testing and in the event of a loss of on-site power (LOOP).

28.6.147 The commissioning and routine testing scenarios have the potential to cause both long-term and short-term impacts on emissions to air, while the LOOP scenario only has the potential to cause short-term impacts (likely to be less than 48 hours if it ever took place).

Long-term impacts

28.6.148 As detailed in **Chapter 12** of this volume of the **ES**, the commissioning scenario modelling outputs indicate that annual average (long-term) NO₂, PM₁₀ and PM_{2.5} concentrations will remain well within air quality objectives set to protect the environment and health. The worst-case change in annual average concentrations at any receptor are predicted to be:

- 0.6 µg/m³ for NO₂;
- 0.02 µg/m³ for PM₁₀; and
- 0.02 µg/m³ for PM_{2.5}.

28.6.149 The results from the air quality assessment and baseline health data from all-cause mortality and emergency hospital admissions collected for East Suffolk, were applied using the relevant risk ratios to quantitatively assess the potential health effects associated with the operation of Sizewell C.

28.6.150 To set potential risk into context, the health and wellbeing assessment applies a worst-case hypothetical scenario where a quarter of the population within East Suffolk would reside at the location with the maximum change in emission concentration for an entire year.

28.6.151 As shown in **Table 28.8**, even in this worst-case hypothetical scenario which grossly overestimates population exposure, the worst-case change in concentration and exposure during the commissioning scenario are orders of a magnitude lower than is required to quantify any change in local population health outcomes per annum.

Table 28.8: Health outcome effects associated with changes in air quality

Health outcome	Worst-case scenario attributable fraction	hypothetical population (PAF)	Proportion of baseline rate
All-cause mortality	0.9		<0.01
Hospital admissions (respiratory and cardiovascular disease)	0.6		<0.01

28.6.152 For the routine testing scenario, changes in air quality for all emissions are expected to be a third of the predicted impact from the commissioning

scenario at any receptor. As a result, they remain well within the relevant air quality objectives set to protect the environment and health.

Short-term impacts

- 28.6.153 As detailed in **Volume 2, Chapter 12** of the **ES**, the commissioning scenario modelling outputs indicate that the predicted worst-case change (short-term) in NO₂ (hourly) and PM₁₀ (24-hour) concentrations at any receptor would all remain within the relevant short-term air quality objectives set to be protective of the environment and health, and are not considered significant in air quality terms.
- 28.6.154 For the routine testing scenario, changes in air quality for all pollutants are expected to be lower than the respective predicted impact from the commissioning scenario at any receptor. As a result, they remain well within the relevant air quality objectives set to protect the environment and health, and are not considered significant in air quality terms.
- 28.6.155 As detailed in **Chapter 12** of this volume of the **ES**, in the instance of a LOOP event (i.e. emergency shut down of the EPR's and use of backup generators), modelling outputs indicate that the predicted worst-case change (short-term) in PM₁₀ concentrations (24-hour) at any receptor would remain within the relevant short-term air quality objectives set to be protective of the environment and health, and are not considered significant in air quality terms.
- 28.6.156 There is the potential to breach the NO₂ short-term (hourly) air quality objective in the instance of a LOOP event. This however, is an extremely unlikely emergency scenario which is likely to last less than 48 hours. As a result, it is unlikely that NO₂ emissions associated with a LOOP event would be of a duration, concentration or exposure sufficient to quantify a measurable change in local health outcomes.

CHP emissions

- 28.6.157 The CHP is to be retained during the operational phase, however, concentrations associated with the CHP on the main development site would remain consistent with those during the construction phase detailed in this chapter. As such, all receptors would have an 'imperceptible' magnitude of change (with two exceptions that would have a 'low' and 'very low' magnitude of change), with concentrations predicted to be well below air quality objectives set to protect the environment and health.

Conclusion

- 28.6.158 Overall, given that even the worst-case predicted scenarios are still well below air quality objectives for standard operations and the quantitative

assessment concludes that there would be no measurable change in local population health outcomes per annum, the magnitude of impact on health and wellbeing will be very low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

iv. [Potential health and wellbeing effects from additional transport movements](#)

[Accidents and road safety](#)

28.6.159 During operation, the benefits associated with highway infrastructure improvements, detailed in **Section 28.6** of this chapter, completed during construction will remain. In addition, traffic volumes would be much lower than during construction.

28.6.160 As stated in **Chapter 10** of this volume of the **ES**, there is expected to be a minor adverse effect on accidents and road safety at the main site access, a minor beneficial effect at the two village bypass, Sizewell link road, Yoxford roundabout, the A1094/B1069 and A140/B1078 junctions and a negligible effect on road safety elsewhere on the road network during the operational phase.

28.6.161 On the basis that the only adverse effect would be at the main site access (not readily used by the public), permanent associated developments would all provide beneficial effects on the local road network, and all effects elsewhere on the road network would be negligible, the magnitude of impact on health and wellbeing from road safety would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor beneficial, which is **not significant**.

v. [Potential health and wellbeing effects from changes in noise exposure](#)

[Operation of Main Development Site](#)

[Operational noise from power station](#)

28.6.162 As summarised in **Table 11.32** of **Volume 2, Chapter 11**, no significant residual noise effects are predicted during the day and night-time periods at any receptor group location from the operation of the power station. This includes both internal (with windows partially open) and external noise levels during the day time period, and internal (with windows partially open) noise levels during the night time period.

28.6.163 As a result, the magnitude of impact on health and wellbeing would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

Operational traffic noise

- 28.6.164 As stated in **Chapter 11** of this volume of the **ES**, the assessment of noise from road traffic during the operation of the power station (in 2034) was carried out for 134 road links. During both the day and night-time periods, no significant residual noise effects associated with operational related traffic are identified.
- 28.6.165 As a result, the magnitude of impact on health and wellbeing would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

Other sound sources

- 28.6.166 If selected to serve the accommodation campus, the proposed CHP would be retained for back-up heat and power during the operational phase. The CHP, along with the proposed back-up generators and proposed electrical sub-station, constitutes a collection of mechanical services which are assessed as other sound sources in **Chapter 11** of this volume of the **ES**.
- 28.6.167 As per the construction phase, in the context of low background noise, it is considered appropriate to ensure that noise associated with these mechanical services do not exceed the LOAEL. As the final system selection and design is to be determined, system specific noise mitigation measures would ensure that sound levels from the final proposal would not exceed of 35 dB $L_{Ar,15\text{minute,free-field}}$ outside the nearest residential receptor.
- 28.6.168 As a result, the magnitude of impact on health and wellbeing would be low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered minor adverse, which is **not significant**.

Operation of Permanent Associated Developments

Two Village Bypass

- 28.6.169 As a permanent aspect of the proposed development, the two village bypass would remain operational during the operation of the main development site.
- 28.6.170 As stated in **Chapter 4** of **Volume 5** of the **ES**, during this period, there would be significant beneficial noise effects at 14 receptor locations. However, significant residual adverse noise effects are also predicted at 5 receptor group locations. All remaining receptors would not experience significant residual noise effects.
- 28.6.171 As for the construction phase, further assessments would be undertaken under the **Noise Mitigation Scheme** (see **Appendix 11H** of this volume)

and where receptors are confirmed to be exposed to noise exceeding the SOAEL, the provisions of that scheme will apply.

- 28.6.172 Overall, the adverse and positive magnitude of impact on health and wellbeing would be medium. In the context of a uniformly high sensitivity receptor, the resultant effect is considered moderate adverse/beneficial, which is considered **significant** in EIA terms.

Sizewell Link Road

- 28.6.173 As a permanent aspect of the proposed development, Sizewell link road will remain operational during operation of the main development site. As stated in **Chapter 4 of Volume 6** of the **ES**, during the operational phase, there would be significant beneficial noise effects at 12 receptor group locations. However, significant residual adverse noise effects are also reported at 8 receptor group locations. All remaining receptors would not experience significant residual noise effects.

- 28.6.174 As for the construction phase, further assessments would be undertaken under the **Noise Mitigation Scheme** (see **Appendix 11H** of this volume) and where receptors are confirmed to be exposed to noise exceeding the SOAEL, the provisions of that scheme will apply.

- 28.6.175 Overall, the adverse and positive magnitude of impact on health and wellbeing would be medium. In the context of a uniformly high sensitivity receptor, the resultant effect is considered moderate adverse/beneficial, which is considered **significant** in EIA terms.

Yoxford Roundabout and other highway improvements

- 28.6.176 As a permanent aspect of the proposed development, Yoxford roundabout and other highway improvements will remain operational during operation of the main development site. As stated in **Chapter 4 of Volume 7** of the **ES**, during this period, no significant residual noise effects are identified at any receptor group location.

- 28.6.177 As a result, the magnitude of impact on health and wellbeing would be very low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

- vi. **Potential health and wellbeing benefits associated with socio-economic factors**

Employment

- 28.6.178 As stated in **Volume 2, Chapter 9** of the **ES**, the operational workforce would start to build up gradually from year five of the construction phase.

Full operation is estimated to begin following completion of all construction activity when there would be approximately 700 permanent staff working at Sizewell C. It is anticipated that around half of the permanent roles during operation at Sizewell C would be recruited locally, with the remainder moving to the area to work on the Sizewell C Project.

- 28.6.179 In addition to permanent roles, it is estimated that there would be up to 200 contract workers working on the operational station at any one time. These workers are more likely to be from outside the local area, and many may be non-home-based.
- 28.6.180 During the operational phase, there would be a number of planned maintenance and refuelling outages. These would occur every 18 months or so for each reactor (Sizewell C is a twin reactor) and last up to two months. Outages would require a short-term, temporary additional workforce of around 1,000 people at the Sizewell C site per outage. It is estimated that approximately 80% (equating to approximately 800 people) of the temporary outage workforce would be non-home-based.
- 28.6.181 Overall, the operational employment opportunities provided by the Sizewell C Project should provide a long-term continuation of a substantial number of skilled and secure jobs for local people. On this basis, the magnitude of impact on health and wellbeing would be medium. In the context of a uniformly high sensitivity receptor, the resultant effect is considered moderate beneficial, which is **significant**.

vii. **General stress and anxiety impacting upon quality of life and wellbeing**

- 28.6.182 Tangible and intangible aspects associated with the proposed development which underly local community risk perception and stress during construction have been investigated and addressed within this chapter and through consultation during the planning application process.
- 28.6.183 Once operational, tangible environmental and social changes diminish, and local communities are familiar with operational activities, and the comprehensive systems in place to protect the environment and health. On this basis, potential impacts from stress and anxiety during operation are likely to be negligible.
- 28.6.184 On this basis, the magnitude of impact on quality of life and wellbeing would be very low. In the context of a uniformly high sensitivity receptor, the resultant effect is considered negligible adverse, which is **not significant**.

d) **Inter-relationship effects**

- 28.6.185 This Health and Wellbeing chapter has reviewed, drawn from and built upon the inter relating technical disciplines within **Volume 2** of the **ES**

covering the main development site and **Volumes 3 to 9** of the **ES** covering the associated development sites, most notably, air quality, noise, transport, socio-economic, and radiological effects chapters. The health and wellbeing assessment of effects has therefore inherently considered these impacts. No further inter-relationship effects have been identified.

28.7 Mitigation and monitoring

a) Introduction

28.7.1 Where possible, mitigation measures have been proposed where a significant effect is predicted to occur. Primary and tertiary mitigation measures which have already been incorporated within the design of the proposed development are detailed in **Section 28.5** of this chapter.

28.7.2 Where other mitigation is required to reduce or avoid a significant effect, this is referred to as secondary mitigation. This section describes the proposed secondary mitigation measures for the health and wellbeing assessment as well as the recommendation for monitoring to test, report and where appropriate refine the mitigation measure.

b) Mitigation

i. Residual healthcare contribution

28.7.3 As set out above, following the implementation of the occupational health service, the change in healthcare demand directly attributable to the non-home-based workers would be minor. The potential change in healthcare demand attributable to any dependants or family members of non-home-based workers would be minor. In addition, it is anticipated that workers who bring families are most likely to be on long-term contracts and would buy properties or take private rented sector accommodation during this time. As such, they would not represent a net addition to the existing number of council tax paying households/population, and there would be little to no material change in net healthcare demand.

28.7.4 As detailed in **Appendix 28B** of this volume, occupational health provision has proven an effective means of maintaining a healthy workforce on comparable projects, and in managing the occupational health needs, such that there is a minor impact on local healthcare capacity.

28.7.5 The potential change in healthcare demand attributable to any dependants or family members of non-home-based workers would be minor, especially as this population would not represent a net addition to the existing number of council tax paying households/population, meaning there would be little to no material change in net healthcare demand.

28.7.6 While the potential residual effect is considered minor adverse, public health is considered a high value asset, and continues to work to significant austerity measures, while further addressing the challenges associated with a growing and ageing population. On this basis, SZC Co. will provide additional mitigation in the form of an appropriate healthcare planning contribution to address any minor residual effect from the non-home-based referrals forecasted. This would also include a planning contribution for forecasted net additional dependants, to address the delay in healthcare revenue allocation of 1 additional GP. The payment of this healthcare planning contribution would be secured through a Section 106 Agreement (see the **draft Section 106 Heads of Terms**).

28.7.7 Following secondary mitigation, and subject to ongoing engagement with the Sizewell C Health Working Group (SHWG) the magnitude of impact on health and wellbeing would be very low. In the context of a uniformly high sensitivity receptor and highly valued asset, the resultant effect is considered negligible, which is **not significant**.

ii. **Community Fund**

28.7.8 As set out in **Chapter 9** of this volume of the **ES**, SZC Co. would provide a Community Fund to ensure that residual in-combination effects of the Sizewell C Project may be addressed and to enable communities to maximise the opportunities offered by the Sizewell C Project.

28.7.9 The Community Fund would be administered on behalf of the community and would fund local schemes, measures, and projects which promote the economic, social, or environmental wellbeing of the communities affected by the Sizewell C Project, enhancing their quality of life.

28.7.10 The allocation of the Community Fund would recognise that some communities closer to the main development site are likely to experience more and greater effects across a wider range of social, economic and environmental areas. Such communities would be more likely to experience residual harm to local quality of life.

28.7.11 The provision of the Community Fund would be secured through an obligation in a Section 106 Agreement (see **draft Section 106 Heads of Terms**).

c) **Monitoring and Governance**

28.7.12 Where appropriate, and as detailed in the wider technical disciplines, monitoring of environmental health determinants (air quality, noise transport etc) will be provided and set at environmental thresholds that are protective of the environment and health, thereby facilitating intervention before these thresholds are exceeded.

28.7.13 The occupational healthcare provision will be monitored, as will referral rates to test effectiveness, and iteratively refine and enhance the service where required.

28.7.14 The Section 106 agreement will set the terms of reference for the Sizewell C Health Working Group through the construction phase. This will include maintaining engagement throughout the construction process; reviewing the effectiveness of and aiding in the refinement of the occupational health service provision where appropriate. Such engagement will also facilitate closer collaboration and coordination of aligning health campaigns during the construction phase.

28.8 Residual effects

28.8.1 The following tables (**Table 28.9** and **Table 28.10**) present a summary of the health and wellbeing assessment. They identify the receptor/s likely to be impacted, the level of effect, and, where the effect is deemed to be significant, the tables include the mitigation proposed and the resulting residual effect.

28.8.2 It should be reiterated that not all such effects will be adverse, and some will be beneficial.

Table 28.9: Summary of effects for the construction phase

Health Pathway.	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
Main development site.					
Health effects from changes in air quality (construction dust and PM ₁₀).	Very low.	Detailed in Volume 2 Chapter 12 of the ES and CoCP (Doc Ref. 8.11).	Negligible Adverse (not significant) .	No further health-based mitigation required.	Negligible Adverse (not significant) .
Health effects from changes in air quality (transport emissions).	Very low.	Detailed in Volume 2 Chapter 12 of the ES and CoCP (Doc Ref. 8.11).	Negligible Adverse (not significant) .	No further health-based mitigation required.	Negligible Adverse (not significant) .
Health effects from changes in air quality (CHP emissions).	Very low.	Detailed in Volume 2 Chapter 12 of the ES and CoCP (Doc Ref. 8.11).	Negligible Adverse (not significant) .	No further health-based mitigation required.	Negligible Adverse (not significant) .
Health effects	Low.	Detailed in	Minor Adverse	No further	Negligible

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Health Pathway.	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
from changes in transport nature and flow rate (accidents and injury).		Volume 2 Chapter 10 of the ES and CoCP (Doc Ref. 8.11).	(not significant).	health-based mitigation required.	Adverse (not significant).
Health effects from changes in noise exposure (daytime construction noise).	Low.	Detailed in Volume 2 Chapter 11 of the ES and CoCP (Doc Ref. 8.11).	Minor Adverse (not significant).	No further health-based mitigation required.	Minor Adverse (not significant).
Health effects from changes in noise exposure (night-time construction noise).	Low.	Detailed in Volume 2 Chapter 11 of the ES and CoCP (Doc Ref. 8.11).	Minor Adverse (not significant).	No further health-based mitigation required.	Minor Adverse (not significant).
Health effects from changes in noise exposure (construction traffic).	Low.	Detailed in Volume 2 Chapter 11 of the ES and CoCP (Doc Ref. 8.11).	Minor Adverse (not significant).	No further health-based mitigation required.	Minor Adverse (not significant).
Health effects from changes in noise exposure (other sound sources).	Low.	Detailed in Volume 2 Chapter 11 of the ES .	Minor Adverse (not significant).	No further health-based mitigation required.	Minor Adverse (not significant).
Health effects from changes in healthcare demand from non-home-based workforce.	Low.	On-site occupational healthcare provision (Section 106 Agreement). Employment, Skills and Education Strategy and the Supply Chain Strategy (Doc Ref. 8.9) (Section 106) intended to	Minor Adverse (not significant).	Healthcare Planning Contribution (Section 106 Agreement) for residual referrals and net additional dependants; SHWG.	Negligible Adverse (not significant).

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Health Pathway.	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
		remove barriers to local employment, and increase home-based employment with no change in healthcare demand.			
Health effects from changes in healthcare demand from dependants of non-home-based workforce.	Low.	N/A	Minor Adverse (not significant) .	Healthcare Planning Contribution (Section 106) for residual referrals and net additional dependants; SHWG.	Negligible Adverse (not significant) .
Health effects from changes in socio-economic factors (employment and associated income generation).	Medium.	Employment, Skills and Education Strategy (Doc Ref. 8.9) and the Supply Chain Strategy (Doc Ref. 8.9) (Section 106) to address barriers and increase the uptake of socio-economic health benefits.	Moderate Beneficial (significant) .	N/A	Moderate Beneficial (significant) .
Quality of life and wellbeing	Low.	Addressed proactively through consultation and the planning process.	Minor Adverse (not significant) .	Community Fund (Section 106). No further health-based mitigation required.	Minor Adverse (not significant) .
Associated development sites.					
Health effects	Very low.	Detailed in	Negligible	No further	Negligible

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Health Pathway.	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
from changes in air quality (construction dust and PM ₁₀).		Chapter 5 of Volume 3-10 of the ES and CoCP (Doc Ref. 8.11).	Adverse (not significant).	health-based mitigation required.	Adverse (not significant).
Health effects from changes in air quality (transport emissions).	Very low.	Detailed in Chapter 5 of Volume 3-10 of the ES and CoCP (Doc Ref. 8.11).	Negligible Adverse (not significant).	No further health-based mitigation required.	Negligible Adverse (not significant).
Health effects from changes in transport nature and flow rate (accidents and injury).	Low.	Detailed in Volume 2 Chapter 10 of the ES and CoCP (Doc Ref. 8.11).	Minor Adverse (not significant).	No further health-based mitigation required.	Negligible Adverse (not significant).
Health effects from changes in noise exposure (construction of northern and southern park and ride).	Low.	Detailed in Volume 2 Chapter 11 of the ES and CoCP (Doc Ref. 8.11).	Minor Adverse (not significant).	No further health-based mitigation required.	Minor Adverse (not significant).
Health effects from changes in noise exposure (construction of rail proposals).	Medium.	Detailed in Volume 2 Chapter 11 of the ES and CoCP (Doc Ref. 8.11).	Moderate Adverse (significant).	No further health-based mitigation.	Moderate Adverse (significant).
Health effects from changes in noise exposure (construction of the Freight Management Facility).	Low.	Detailed in Volume 2 Chapter 11 of the ES and CoCP (Doc Ref. 8.11).	Minor Adverse (not significant).	No further health-based mitigation required.	Minor Adverse (not significant).
Health effects from changes in noise exposure (construction of the two village	Medium.	Detailed in Volume 2 Chapter 11 of the ES and CoCP (Doc Ref. 8.11).	Moderate Beneficial/ Adverse (significant).	No further health-based mitigation.	Moderate Beneficial/ Adverse (significant).

Health Pathway.	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
bypass).					
Health effects from changes in noise exposure (construction of the Sizewell link road).	Medium.	Detailed in Volume 2 Chapter 11 of the ES and CoCP (Doc Ref. 8.11).	Moderate Beneficial/ Adverse (significant) .	No further health-based mitigation.	Moderate Beneficial/ Adverse (significant) .
Health effects from changes in noise exposure (construction of the Yoxford roundabout).	Low.	Detailed in Volume 2 Chapter 11 of the ES and CoCP (Doc Ref. 8.11).	Minor Adverse (not significant) .	No further health-based mitigation required.	Minor Adverse (not significant) .

Table 28.10: Summary of effects for the operational phase

Health Pathway.	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
Main development site					
Health effects from changes in radiation exposure.	Very low.	Addressed through regulation and design. Detailed in Volume 2 Chapter 25 of the ES .	Negligible Adverse (not significant) .	No further health-based mitigation required.	Negligible Adverse (not significant) .
Health effects from changes in EMF exposure.	Very low.	Compliant with Department of Energy and Climate Change Code of Practice.	Negligible Adverse (not significant) .	No further health-based mitigation required.	Negligible Adverse (not significant) .
Health effects from changes in exposure to in air quality (transport emissions).	Very low.	Detailed in Volume 2 Chapter 12 of the ES .	Negligible Adverse (not significant) .	No further health-based mitigation required.	Negligible Adverse (not significant) .

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Health Pathway.	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
Health effects from changes in air quality (combustion activities).	Very low.	Detailed in Volume 2 Chapter 12 of the ES .	Negligible Adverse (not significant) .	No further health-based mitigation required.	Negligible Adverse (not significant) .
Health effects from changes in transport nature and flow rate (accidents and injury).	Low.	Detailed in Volume 2 Chapter 10 of the ES .	Minor Beneficial (not significant) .	No further health-based mitigation required.	Minor Beneficial (not significant) .
Health effects from changes in noise exposure (power station).	Low.	Detailed in Volume 2 Chapter 11 of the ES .	Minor Adverse (not significant) .	No further health-based mitigation required.	Minor Adverse (not significant) .
Health effects from changes in noise exposure (operational traffic).	Low.	Detailed in Volume 2 Chapter 11 of the ES .	Minor Adverse (not significant) .	No further health-based mitigation required.	Minor Adverse (not significant) .
Health effects from changes in noise exposure (other sound sources).	Low.	Detailed in Volume 2 Chapter 11 of the ES .	Minor Adverse (not significant) .	No further health-based mitigation required.	Minor Adverse (not significant) .
Health effects from changes in socio-economic factors (employment and associated income generation).	Medium.	Detailed in Volume 2 Chapter 9 of the ES .	Moderate Beneficial (significant) .	No further health-based mitigation.	Moderate Beneficial (significant) .
Quality of life and	Very low.	Addressed proactively	Negligible Adverse (not significant) .	No further health-based mitigation	Negligible Adverse

NOT PROTECTIVELY MARKED

Health Pathway.	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
wellbeing.		through consultation and the planning process.	significant).	required.	(not significant).
Associated development sites					
Health effects from changes in air quality (transport emissions).	Very low.	Detailed in Chapter 5 of Volume 3-10 of the ES.	Negligible Adverse (not significant).	No further health-based mitigation required.	Negligible Adverse (not significant).
Health effects from changes in transport nature and flow rate (accidents and injury).	Low	Detailed in Volume 2 Chapter 10 of the ES.	Minor Beneficial (not significant).	No further health-based mitigation required.	Minor Beneficial (not significant).
Health effects from changes in noise exposure (operation of the two village bypass).	Medium.	Detailed in Volume 2 Chapter 11 of the ES.	Moderate Beneficial/ Adverse (significant).	No further health-based mitigation.	Moderate Beneficial/ Adverse (significant).
Health effects from changes in noise exposure (operation of the Sizewell link road).	Medium.	Detailed in Volume 2 Chapter 11 of the ES.	Moderate Beneficial/ Adverse (significant).	No further health-based mitigation.	Moderate Beneficial/ Adverse (significant).
Health effects from changes in noise exposure (operation of the Yoxford roundabout).	Low.	Detailed in Volume 2 Chapter 11 of the ES.	Minor Adverse (not significant).	No further health-based mitigation required.	Minor Adverse (not significant).

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