The Great Grid Upgrade

Sea Link

Preliminary Environmental Information Report

Volume: 1

Part 3 Kent Onshore Scheme

Chapter 12 Health and Wellbeing

Version A

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3.12 Health and Wellbeing

3.12.1 Introduction

3.12.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents information about the preliminary environmental assessment of the likely significant health and wellbeing effects identified to date, that could result from Sea Link (hereafter referred to as the Proposed Project) (as described in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**).

3.12.1.2 This chapter describes the methodology used, the datasets that have informed the preliminary assessment, baseline conditions, mitigation measures and the preliminary health and wellbeing residual significant effects that could result from the Proposed Project.

3.12.1.3 The draft Order Limits, which illustrate the boundary of the Proposed Project, are illustrated on **Volume 3, Part 1, Figure 1.1.1 Draft Order Limits** and the Kent Onshore Scheme Boundary is illustrated on **Volume 3, Part 1, Figure 1.1.3 Kent Onshore Scheme Boundary**.

3.12.1.4 This chapter should be read in conjunction with:

- **Volume 1, Part 1, Chapter 4, Description of the Proposed Project;**
- **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology;**
- **Volume 1, Part 1, Chapter 6, Scoping Opinion and EIA Consultation;**
- **Volume 1, Part 3, Chapter 1, Evolution of the Kent Onshore Scheme;**
- **Volume 1, Part 3, Chapter 2, Landscape and Visual;**
- **Volume 1, Part 3, Chapter 8, Traffic and Transport;**
- **Volume 1, Part 3, Chapter 9, Air Quality;**
- **Volume 1, Part 3, Chapter 10, Noise and Vibration;** and
- **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism.**

3.12.1.5 This chapter is supported by the following appendices:

- **Volume 2, Part 1, Appendix 1.4.A, Outline Code of Construction Practice;** and
- **Volume 2, Part 1, Appendix 1.4.F, Outline Schedule of Environmental Commitment and Mitigation Measures.**

3.12.2 Regulatory and Planning Context

3.12.2.1 This section sets out the legislation and planning policy that is relevant to the preliminary health and wellbeing assessment. A full review of compliance with relevant national and local planning policy will be provided within the Planning Statement that will be submitted as part of the application for Development Consent.

Legislation

The Health and Care Act (2022)

3.12.2.2 The Health and Care Act (Ref 3.12.1) was passed in April 2022. This Act sets out health reforms in England and formalises Integrated Care Systems (ISCs) as the means of provision of healthcare services. Each ICS has an Integrated Care Board (ICB); there are 42 ICBs which cover England, NHS Kent and Medway ICB is the board which covers the study area relevant to the Proposed Project.

3.12.2.3 Each ICB has been established with four strategic purposes:

a. Improve population health and healthcare;

b. Tackling unequal outcomes and access;

c. Enhance productivity and value for money; and

d. Helping the NHS to support broader social and economic development.

National Policy

National Policy Statements

3.12.2.4 National Policy Statements (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Proposed Project would be considered. A review of the NPS was announced in the 2020 Energy white paper: Powering our net zero future. This review was to ensure the NPSs were brought up to date to reflect the policies set out in the white paper. The below information reflects these updates currently under consultation.

3.12.2.5 Table 3.12.1 and Table 3.12.2 below provides details of the elements of NPS for Energy (EN-1) (Ref 3.12.2) and NPS for Electricity Networks Infrastructure (EN-5) (Ref 3.12.4) that are relevant to this chapter, and how and where they are covered in the PEIR or will be covered within the Environmental Statement (ES).

Table 3.12.1: NPS EN-1 requirements relevant to health and wellbeing

NPS EN-1 section	Where this is covered in the PEIR
4.13.1 Energy production has the potential to impact on the health and well-being ("health") of the population. Access to energy is clearly beneficial to society and to our health as a whole. However, the production, distribution and use of energy may have negative impacts on some people's health	The potential effects of the Proposed Project on health and wellbeing across all phases (construction, operation, maintenance and decommissioning) is considered in Section 3.12.9.
4.13.2 As described in the relevant sections of this NPS and in the technology specific NPSs, where the proposed project has an effect on human beings, the ES should assess these effects for each element of the project, identifying any adverse health impacts, and	The preliminary health and wellbeing assessment assesses the likely significant effects from the construction, operation, maintenance and decommissioning of the

NPS EN-1 section	Where this is covered in the PEIR
identifying measures to avoid, reduce or compensate for these impacts as appropriate. The impacts of more than one development may affect people simultaneously, so the applicant and the IPC should consider the cumulative impact on health.	Proposed Project. A cumulative effects assessment will be undertaken and presented within the ES in **Volume 1, Part 3, Chapter 14, Kent Onshore Scheme Inter-Project cumulative effects**.
4.13.3 The direct impacts on health may include increased traffic, air or water pollution, dust, odour, hazardous waste and substances, noise, exposure to radiation, and increases in pests.	Generally, those aspects of energy infrastructure which are most likely to have a significant and detrimental impact on health are subject to separate regulation (for example for air pollution) which will constitute effective mitigation of them. The preliminary health and wellbeing assessment, in Section 3.12.9, considers the outcomes of other technical chapters relevant to health and wellbeing. The ES will include more detailed findings from relevant technical assessments once further data is available.
4.13.4 New energy infrastructure may also affect the composition, size and proximity of the local population, and in doing so have indirect health impacts, for example if it in some way affects access to key public services, transport or the use of open space for recreation and physical activity	The preliminary health and wellbeing assessment, set out in Section 3.12.9, considers the impacts of any potential changes to access to key public services, transport or the use of open space for recreation and physical activity.
4.13.5 Generally, those aspects of energy infrastructure which are most likely to have a significantly detrimental impact on health are subject to separate regulation (for example for air pollution) which will constitute effective mitigation of them, so that it is unlikely that health concerns will either constitute a reason to refuse consents or require specific mitigation under the Planning Act 2008. However, the IPC will want to take account of health concerns when setting requirements relating to a range of impacts such as noise.	The impact of noise and air quality on health and wellbeing is considered in Section 3.12.9.
5.11.9 (part) The IPC should not grant development consent unless it is satisfied that the proposals will meet the following aims:	A preliminary assessment of noise and vibration is set out in **Volume 1, Part 3, Chapter 10, Noise and Vibration**; this

NPS EN-1 section	Where this is covered in the PEIR
avoid significant adverse impacts on health and quality of life from noise; *mitigate and minimise other adverse impacts on health and quality of life from noise; and* *where possible, contribute to improvements to health and quality of life through the effective management and control of noise.*	considers any significant and not significant effects and discusses mitigation measures to control noise. The preliminary assessment of effects for health and wellbeing draws on the noise and vibration chapter and considers all of the points laid out in paragraph 5.11.9 of EN-1.

3.12.2.6 The draft version of the Overarching National Policy Statement for Energy (EN-1), published in March 2023 (Ref 3.12.3) also includes factors that should be considered when completing a health and wellbeing assessment. However, these remain similar to the adopted version and refers to the Secretary of State as the decision maker, rather than the IPC.

3.12.2.7 The draft document includes the following section which includes additional elements to the adopted version:

Draft EN-1, 4.3.5: Generally, those aspects of energy infrastructure which are most likely to have a significantly detrimental impact on health are subject to separate regulation (for example for air pollution) which will constitute effective mitigation of them, so that it is unlikely that health concerns will either by themselves constitute a reason to refuse consent or require specific mitigation under the Planning Act 2008. However, not all potential sources of health impacts will be mitigated in this way and the Secretary of State will want to take account of health concerns when setting requirements relating to a range of impacts such as noise. Opportunities should also be taken to mitigate indirect impacts, by promoting local improvements to encourage health and wellbeing, this includes potential impacts on vulnerable groups within society i.e. those groups within society which may be differentially impacted by a development compared to wider society as a whole.

3.12.2.8 The addition of considering vulnerable groups within society is covered in this chapter as this health and wellbeing assessment utilises new Institute of Environmental Management and Assessment (IEMA) guidance (Ref 3.12.7 and Ref 3.12.8), as detailed in Section 3.12.4 of this chapter. This guidance details the need to consider whether there are any vulnerable sub-populations which would materially change the outcome of an assessment and is covered in Section 3.12.9.

Table 3.12.2: NPS EN-5 requirements relevant to health and wellbeing

NPS EN-5 section	Where this is covered in the PEIR
2.13.9 (part) The Applicant should have considered the following factors: *that optimal phasing of high voltage overhead power lines is introduced wherever possible and practicable in accordance with the Code of Practice to minimise effects of EMFs*	As set out in the Scoping Report (Ref 3.12.22) and agreed in the Scoping Opinion (Ref 3.12.23), this matter is scoped out on the basis that the ES will

NPS EN-5 section	Where this is covered in the PEIR
any new advice emerging from the Department of Health and Social Care relating to government policy for EMF exposure guidelines.	demonstrate the design is compliant with the International Commission on Non-Ionizing Radiation Protection guidelines (1998) in ensuring that the threshold for impacts to humans is not met/exceeded. The Applicant will ensure that policies and procedures are in place at the design phase to ensure that all equipment complies with public electric and magnetic fields (EMF) exposure limits.

National Planning Policy Framework

3.12.2.9 The National Planning Policy Framework (NPPF) (Ref 3.12.5 has the potential to be considered important and relevant to the SoS' consideration of the Proposed Project. Table 3.12.3 below provides details of the elements of the NPPF that are relevant to this chapter, and how and where they are covered in the PEIR or will be covered within the ES.

Table 3.12.3: NPPF requirements relevant to health and wellbeing

NPPF section	Where this is covered in the PEIR
Paragraph 7 …a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being	The impact of the Kent Onshore Scheme on access to social infrastructure, open space, leisure and play and social cohesion and community identity is considered in Section 3.12.9.
Paragraph 92 …enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling.	The impact of the Kent Onshore Scheme on enabling and supporting healthy lifestyles is considered in Section 3.12.9.
Paragraph 93 …take into account and support the delivery of local strategies to improve health, social	Local strategies and policies regarding social and cultural wellbeing are included in

NPPF section	Where this is covered in the PEIR
and cultural well-being for all sections of the community;	Local Planning Policy within this section and provide context for the preliminary assessment of health and wellbeing effects set out in Section 3.12.9.
Paragraph 98 …access to a network of high quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities, and can deliver wider benefits for nature and support efforts to address climate change.	Access to open space and active travel networks are considered in Section 3.12.9.
Paragraph 130 …create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience.	The impact of the Kent Onshore Scheme on creating safe, inclusive, and accessible communities, as well as impacts on quality of life and community cohesion are considered in Section 3.12.9.
Paragraph 185 …Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: *(a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life*	A preliminary assessment for health and wellbeing is set out in Section 3.12.9 of this chapter. A cumulative effects assessment will be undertaken and presented within the ES in **Volume 1, Part 3, Chapter 14, Kent Onshore Scheme Inter-Project cumulative effects**. An assessment of noise and vibration, including proposed mitigation, is set out in **Volume 1, Part 3, Chapter 10, Noise and Vibration.**
210 …set out criteria or requirements to ensure that permitted and proposed operations do not have unacceptable adverse impacts on the natural and historic environment or human health, taking into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality.	A preliminary assessment for health and wellbeing is set out in Section 3.12.9 of this chapter. Proposed mitigation is also set out in Section 3.12.8. A cumulative effects assessment will be undertaken and presented within the ES in **Volume 1, Part 3, Chapter 14, Kent Onshore Scheme Inter-Project cumulative effects**.

NPPF section	Where this is covered in the PEIR
211 …ensure that there are no unacceptable adverse impacts on the natural and historic environment, human health or aviation safety, and take into account the cumulative effect of multiple impacts from individual sites and/or from a number of sites in a locality;	A preliminary assessment for health and wellbeing is set out in section 9 of this chapter. A cumulative effects assessment will be undertaken and presented within the ES in **Volume 1, Part 3, Chapter 14, Kent Onshore Scheme Inter-Project cumulative effects**.

National Planning Practice Guidance

National Planning Practice Guidance

3.12.2.10 Accompanying the NPPF, the National Planning Practice Guidance ('PPG') (Ref 3.12.6) provides guidance on planning and provides a web-based resource in support of the NPPF. The PPG offers guidance on health and wellbeing in planning and planning obligations, and covers:

- The role of health and wellbeing in planning; and
- The links between health and wellbeing and planning.

3.12.2.11 The PPG suggests that local authority planners should consult with the Director of Public Health on mitigation measures for any planning applications that are likely to have an impact on the health and wellbeing of the local population or particular groups.

3.12.2.12 The PPG states that: *"strategic-policy-making authorities can work with public health leads and health organisations to understand and take account of the current and projected health status and needs of the local population, including the quality and quantity of, and accessibility to, healthcare and the effect any planned growth may have on this. Authorities will also need to assess the quality and quantity of, and accessibility to, green infrastructure, education, sports, recreation and places of worship including expected future changes, and any information about relevant barriers to improving health and well-being outcomes"* (See 'Plan-Making' Guidance, Paragraph 46).

3.12.2.13 The PPG for health and safe communities covers the role of positive planning on healthier communities and how the design and use of the built and natural environments, including green infrastructure, are major determinants of health and wellbeing. The guidance states that *"planning and health need to be considered together in two ways: in terms of creating environments that support and encourage healthy lifestyles, and in terms of identifying and securing the facilities needed for primary, secondary and tertiary care, and the wider health and care system".*

3.12.2.14 The PPG for open space, sports and recreation facilities, Public Rights of Way (PRoW) and local green space provides additional guidance on those designation and how they should be taken into consideration in planning. The guidance mentions that planning should consider proposals that may affect existing open space as they provide health and recreational benefits to people living and working nearby.

Local Planning Policy

3.12.2.15 The Kent Onshore Scheme lies within the jurisdiction of Kent County Council (KCC). County planning guidance which is relevant to a study of health and wellbeing, and provides context for and informs the assessment of preliminary effects in this chapter are as follows:

Kent County Council (KCC) A 2050 Picture of Kent and Medway [Ref 3.12.16];

3.12.2.16 Kent County Councils A 2050 Picture of Kent and Medway is closely linked to the 2018 Kent and Medway Growth and Infrastructure Framework (GIF), which provides a picture of emerging development and infrastructure requirements across the area and provides a strategic framework for identifying and prioritising infrastructure investment. The work sets out four plausible scenarios of how the future may develop in Kent and Medway. There is particular reference to the impact of an ageing population and increased demand for health and social care services.

Kent County Council Rights of Way Improvement Plan 2018-2028 [Ref 3.12.17];

3.12.2.17 The plan sets out objectives for Kent's PROW network and wider public access for the next 10 years. There are a number of relevant actions in the plan related to health and wellbeing, some of those include:

- Target priority areas and deliver improvements to the network addressing health inequalities through increasing active travel and recreational activity;
- Improve and upgrade the PROW network where it links with amenities, public transport nodes, work and education to increase the attractiveness of walking, cycling and riding as an alternative to driving;
- Work with planners and developers to create a planned strategic green infrastructure which incorporates the PROW network to promote and encourage sustainable, active travel and provide opportunities for leisure and recreation; and
- Use data available on air quality, to prioritise projects and schemes to help towards improving the local environment.

Ash Neighbourhood Development Plan 2021 [Ref 3.12.21]

3.12.2.18 The Ash Neighbourhood Development Plan covers the period from 2018-2037 and sits alongside the district and national policies when determining planning applications in the Parish of Ash. It contains a vision for the future of Ash and sets out clear objectives and planning policies to realise and deliver this vision. The plan has five overarching objectives the two relevant to health and wellbeing are:

- **Objective 1: Environmental (landscape, open spaces, biodiversity and climate change)** aims to protect the parish's historic landscape and heritage, promote a healthy and safe environment, secure existing and promote new green and open spaces; and
- **Objective 3: Leisure, Well-being, Education and Healthcare** aims to ensure leisure, well-being, education and healthcare provision will be protected an enhanced through new developments.

3.12.2.19 The policies of note to health and wellbeing include:

- Policy ANP1 – Development in the countryside;

- Policy ANP2 – Designated local green spaces;
- Policy ANP3 – Green and open spaces in new developments;
- Policy ANP8 – Retention of Community Facilities;
- Policy ANP9 – Health and social care; and
- Policy ANP15 – Transport.

Local Plans

3.12.2.20 The Kent Onshore Scheme Boundary (refer to **Figure 1.1.3 Kent Onshore Scheme Boundary**) lies within the jurisdiction of KCC.

3.12.2.21 The Kent Onshore Scheme Boundary lies within the boundary of Thanet Local Plan (Ref 3.12.20) and Dover District Local Plan (Ref 3.12.18). Local Plan policies which are relevant to health and wellbeing matters and will inform the assessment in the ES include are detailed in Table 3.12.4, Table 3.12.5 and Table 3.12.6.

Table 3.12.4: Local Planning Policies relevant to health and wellbeing – Thanet District Council Local Plan (Ref 3.12.20)

Thanet District Council Local Plan – Policy	Where this is covered in the PEIR
SP27 – Green Infrastructure *This policy sets out how developments should make a positive contribution to Thanet's Green Infrastructure network wherever possible and appropriate.*	The impacts of the Kent Onshore Scheme on access to open space and active travel networks, which constitute green infrastructure, is considered in Section 3.12.9.
SP32 - Protection of Open Space and Allotments *This policy sets out the criteria required for proposals which would result in a loss of open space or allotments.*	The impacts of the Kent Onshore Scheme on open space is considered in Section 3.12.9. There are no allotments within the study area, as set out in Section 0.
SP33 – Local Green Space *This policy identifies 19 Local Green Spaces which are protected under policy SP30 (Biodiversity and Geodiversity Assets).*	The impacts of the Kent Onshore Scheme on local green space is considered in Section 3.12.9.
SP38 – Healthy and Inclusive Communities *This policy sets out that Council will work with relevant organisations, communities and developers to promote, protect and improve the health of Thanet's residents, and reduce health inequalities, supporting proposals that fulfil numerous criteria.*	The impacts of the Kent Onshore Scheme on healthy and inclusive communities is considered in Section 3.12.9, across the preliminary assessments for each health determinant.
SP41 – Community Infrastructure	The impacts of the Kent Onshore Scheme on access

Thanet District Council Local Plan – Policy	Where this is covered in the PEIR
This policy sets out how Development will only be permitted when provision is made to ensure delivery of relevant and sufficient community and utility infrastructure by developer.	to healthcare services and social infrastructure is considered in Section 3.12.9.

Table 3.12.5: Local Planning Policies relevant to health and wellbeing – Draft Dover New District Local Plan (Ref 3.12.19)

Draft Dover New District Local Plan– Policy	Where this is covered in the PEIR
SP2 – Planning for Healthy and Inclusive Communities *This policy lays out how the Council will support the creation of healthy, inclusive and safe communities in the district.*	The impacts of the Kent Onshore Scheme on healthy and inclusive communities is considered in Section 3.12.9, across the preliminary assessments for each health determinant.
PM5 – Protection of Open Space, Sports Facilities and Local Green Space *This policy discusses the criteria for development proposals that involve loss of open space. The policy aims to ensure that valued open spaces within the District are retained and protected for all to access.*	The impacts of the Kent Onshore Scheme on open space is considered in Section 3.12.9.

Table 3.12.6: Local Planning Policies relevant to health and wellbeing – Dover District Council Core Strategy 2010 (Ref 3.12.18)

Dover District Council Core Strategy 2010– Policy	Where this is covered in the PEIR
Policy CP 7 – Green Infrastructure Network *This policy states that the existing network of green infrastructure will be protected and enhanced. Planning permission for development that would harm the network will only be granted if it can incorporate measures that avoid the harm arising or sufficiently mitigate its effects.*	The impacts of the Kent Onshore Scheme on open space and the public right of way network are assessed in Section 3.12.9.
Policy DM 25 – Open Space *This policy sets out that Proposals for development that would result in the loss of open space will not be permitted unless replacement open space is provided or where the development is ancillary to the enjoyment of the open space.*	The impacts of the Kent Onshore Scheme on open space are assessed in Section 3.12.9.

3.12.3 Scoping Opinion and Consultation

Scoping

3.12.3.1 A Scoping Report (Ref 3.12.22) for the Proposed Project was issued to the Planning Inspectorate (PINS) on 24 October 2022 and a Scoping Opinion (Ref 3.12.23) was received from the Secretary of State (SoS) on 1 December 2022. Table 3.12.7 sets out the relevant comments raised in the Scoping Opinion and how these have been addressed in this PEIR or will be addressed within the ES. The Scoping Opinion takes account of responses from prescribed consultees as appropriate.

Table 3.12.7: Comments raised in the Scoping Opinion

ID	Inspectorate's comments	Response
4.11.1	All phases –EMF The Inspectorate agrees this matter can be scoped out on the basis that the ES demonstrates the design is compliant with the International Commission on Non-Ionizing Radiation Protection guidelines (1998) in ensuring that the threshold for impacts to humans is not met/exceeded.	The inspectorate's response has been noted.
4.11.2	Census data Where new census data from 2021 is available, this should be used to inform baseline data and the ES assessment.	New census data from 2021 is used throughout section 3.12.7, Baseline Conditions where relevant. Alternative forms of data are only used when census 2021 data is not available for a specific indicator or geography.
4.11.3	Study area The study area for impacts from severance vary between 1km and 500m however, the Inspectorate considers severance can be caused by changes in traffic movements and type. The assessment of potential severance impacts on receptors from changes in the road network from the Proposed Development should consider the entirety of the affected road network rather than an arbitrary buffer zone.	As detailed in **Volume 1, Part 3, Chapter 8, Traffic and Transport**, the study area has now been agreed with KCC Highways and based on the extent of the affected road network.
4.11.4	Judgement of significance Scoping Report paragraph 2.12.7.12 states that the proposed guidance does not provide a methodology for assessing the significance of effects. The ES should describe the methodology for determining the significance of effects and report the	The response from the UK Health Security Agency has been noted and the methodology for determining the significance of effects is set out in Section 3.12.4. The methodology follows a best

ID	Inspectorate's comments	Response
	significance of effects on human health. The Applicants attention is directed to the response of UK Health Security Agency at Appendix 2 to this Opinion with regards to this matter.	practice approach, including in utilising the new IEMA guidance for determining significance for human health in Environmental Impact Assessment (EIA) (Ref 3.12.8), which was published following the publication of the scoping report in October 2022.

3.12.3.2 The methodology presented in this PEIR chapter (and for the future ES) differs from that outlined within the Scoping Report. The Scoping Report (issued in October 2022) presented a proposed methodology for an assessment based upon NHS England's Healthy Urban Development Unit's (HUDU) Rapid Health Impact Assessment (HIA) Toolkit 2019 *(Ref 3.12.9)* which would identify positive, neutral, negative or uncertain effects without a judgement as to whether these effects were significant. The subsequently published "*Determining Significance for Human Health in Environmental Impact Assessment*", developed by IEMA and specialists in the human health field, provides a methodology for determining the significance of health effects. In respect of effect conclusions, this guidance therefore has been adopted in preference to the methodology proposed at Scoping to provide an assessment of significance as requested in the Scoping Opinion

3.12.3.3 The NHS/HUDU Toolkit 2019 *(Ref 3.12.9)* is still applied in the assessment of impacts on human health and wellbeing presented in this chapter, as it provides best practice principles for assessing impacts on human health and wellbeing.

Consultation and Project Engagement

3.12.3.4 Engagement with consultees has been primarily through the Scoping Opinion. Additional engagement with relevant public health officials to discuss methodology and help further inform the local health baseline will be undertaken and reported in the ES.

3.12.4 Approach and Methodology

3.12.4.1 **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology** sets out the overarching approach which has been used in developing the preliminary environmental information. This section describes the technical methods used to determine the baseline conditions, sensitivity of the receptors and magnitude of effects and sets out the significance criteria that have been used for the preliminary health and wellbeing assessment.

Guidance Specific to the Health and Wellbeing Assessment

3.12.4.2 The preliminary health and wellbeing assessment has been carried out in accordance with best practice guidance as described below:

- Institute of Environmental Management and Assessment Guide to Effective Scoping of Human Health in Environmental Impact Assessment;
- Institute of Environmental Management and Assessment Guide to Effective Scoping of Human Health in Environmental Impact Assessment;
- NHS Healthy Urban Development Unit (HUDU) Rapid Health Impact Assessment HIA Assessment Tool (2019);
- Public Health England (PHE) Spatial Planning for Health: An evidence resource for planning and designing healthier places (2017);
- Public Health England PHE Strategy 2020-2025;
- The Marmot Review: Fair Society, Healthy Lives (2010);
- Health Equity in England 10 Years On (2020);
- Build Back Fairer: The Covid-19 Marmot Review (2020); and
- NHS Long Term Plan (2019).

Institute of Environmental Management and Assessment Guide to Effective Scoping of Human Health in Environmental Impact Assessment

3.12.4.3 The IEMA Guide to Effective Scoping of Human Health in Environmental Impact Assessment (EIA)(Ref 3.12.7) was published in November 2022.

3.12.4.4 The guide provides information on determining the relevant health issues that should be included in EIAs by those responsible for the commissioning, conducting, or reviewing or EIAs. The guide emphasises the need to take a holistic approach to health, considering physical, mental and social dimensions of health, as well as health inequalities.

Institute of Environmental Management and Assessment Determining Significance for Human Health in EIA Guidance

3.12.4.5 The IMEA guidance on Determining Significance for Human Health in Environmental Impact Assessment (Ref 3.12.8) was published in November 2022.

3.12.4.6 The guide presents a framework that should be used by EIA practitioners to identify, describe, and assess the direct and indirect significant effects of a proposed development on human health. It defines significance as informed expert judgement of the importance, desirability, or acceptability of a change, which must be evidence-based and explained within context.

3.12.4.7 In particular, the guidance highlights the need to consider the significance of human health effects in relation to vulnerable groups.

NHS Healthy Urban Development Unit Rapid Health Impact Assessment Tool (2019)

3.12.4.8 NHS England developed the Healthy Urban Development Unit (HUDU) Rapid Health Impact Assessment (HIA) Toolkit (Ref 3.12.9) identifies eleven broad determinants of health that are likely to be influenced by specific development proposals and can be influenced through design and management measures. It provides an assessment checklist against which the likely impacts of new developments can be assessed.

Public Health England Spatial Planning for Health: An evidence resource for planning and designing healthier places (2017)

3.12.4.9 In 2017, Public Health England (PHE) published 'Spatial Planning for Health: An evidence resource for designing healthier places' (Ref 3.12.10).

3.12.4.10 The review provided public health planners and local communities with evidence informed principles for designing healthy places. The review addresses the relationship which exists between public health and the built environment. It identifies five aspects of the built and natural environment which can be influenced by local planning policy:

a. Neighbourhood design;

b. Housing;

c. Healthier food;

d. Natural and sustainable environment; and

e. Transport.

3.12.4.11 For each aspect identified above, the review provides the evidence base underpinning why they are important determinants of public health. It also sets out principles which public health professionals and planners should follow to ensure healthier places.

3.12.4.12 The two aspects deemed most relevant to the Proposed Project are 'neighbourhood design' and 'natural and sustainable environment'. For 'neighbourhood design', the review states that *"Neighbourhoods are places where people live, work, and play and have a sense of belonging. The design of a neighbourhood can contribute to the health and well-being of the people living there. Several aspects of neighbourhood design (walkability and mixed land use) can also maximise opportunities for social engagement and active travel. Neighbourhood design can impact on our day-to-day decisions and therefore have a significant role in shaping our health behaviours"* (PHE, Spatial Planning for Health 2017, pg. 11).

3.12.4.13 For the 'natural and sustainable environment', the review states *"there is a very significant and strong body of evidence linking contact and exposure to the natural environment with improved health and wellbeing. For the purpose of this review, the natural and sustainable environment is comprised of neighbourhood ecosystems and the resulting co-benefits between the environment and health. Protecting the natural environment is essential to sustaining human civilization"* (PHE, Spatial Planning for Health 2017, pg. 38).

Public Health England Strategy 2020-2025

3.12.4.14 The PHE Strategy 2020 to 2025 (Ref 3.12.11) was published in 2020 and states PHE's objectives over the five-year period. Note, in 2021 PHE was replaced by the UK Health Security Agency and Office for Health Improvement and Disparities.

3.12.4.15 Relevant priorities within the strategy include:

a. Healthier diets, healthier weights: help make the healthy choice the easy choice to improve diets and rates of childhood obesity;

b. Cleaner air: develop and share advice on how best to reduce air pollution levels and people's exposure to polluted air; and

c. Better mental health: promote good mental health and contribute to the prevention of mental illness.

The Marmot Review: Fair Society, Healthy Lives (2010)

3.12.4.16 The Marmot Review (Ref 3.12.12) argued that serious avoidable health inequalities exist across England and shows these inequalities to be determined by a wide range of socio-economic factors.

3.12.4.17 The Review identifies policy objectives including the following of relevance to the Proposed Project:

a. Create fair employment and good work for all;

b. Ensure a healthy standard of living for all;

c. Create and develop healthy and sustainable places and communities; and

d. Strengthen the role and impact of ill health prevention.

Health Equity in England 10 Years On (2020)

3.12.4.18 Ten years following the original review, the follow up Marmot Review, Health Equity 10 Years On (Ref 3.12.13) was published in February 2020.

3.12.4.19 The report highlighted the growth in health inequality over the preceding 10 years, especially for those living in more deprived districts and regions. The report calls upon the Government to make health and wellbeing a central policy goal which will in turn create a better society, with better health and health equity.

Build Back Fairer: The Covid-19 Marmot Review (2020)

3.12.4.20 An update to the Marmot Review 10 Years on report, Build Back Fairer: The Covid-19 Marmot Review (Ref 3.12.14) was published in December 2020 to investigate how the pandemic has affected health inequalities in England. The Covid-19 pandemic exposed and amplified some of the inequalities highlighted in the Marmot Review 10 Years On report.

NHS Long Term Plan (2019)

3.12.4.21 The NHS Long Term Plan 2019 (Ref 3.12.15) sets out a ten-year programme of phased improvements to the NHS. The plan outlines how the NHS will attempt to reduce health inequalities through wider preventative action in deprived areas and improved integrated community-based care systems. This includes funding support to programmes which help to reduce obesity and air pollution in vulnerable communities.

3.12.4.22 The IEMA guidance "*Determining Significance for Human Health In Environmental Impact Assessment*" forms the basis of the approach adopted to assess impacts on human health and wellbeing in this chapter. This guidance was published in November 2022, following the writing of the scoping report for Sea Link, but is being considered throughout the health and wellbeing assessment as this is deemed the most up to date, best practice approach.

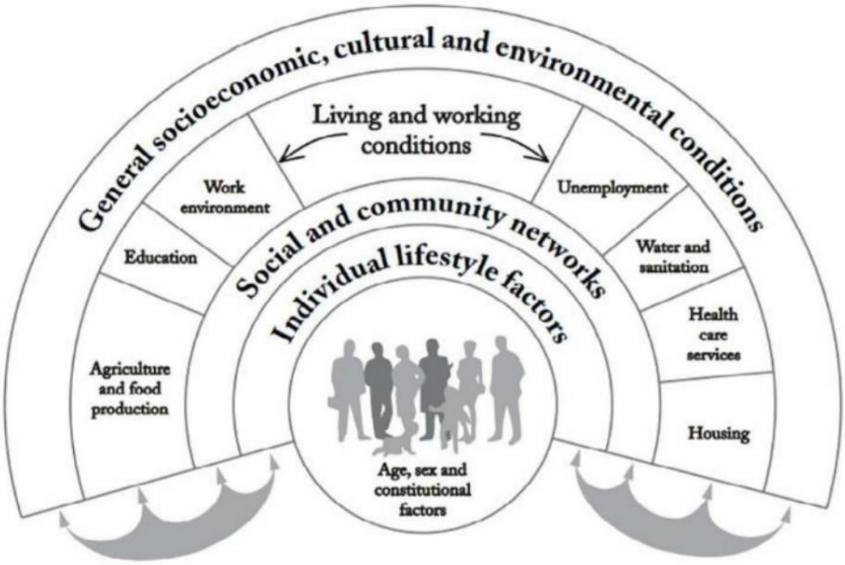
3.12.4.23 In addition, consideration has been given to NHS England's Healthy Urban Development Unit's (HUDU) Rapid Health Impact Assessment (HIA) Toolkit 2019 to help with the identification of relevant health determinants and mapping of health pathways (the route through which changes to health determinants would be expected to lead to changes in health outcomes).

3.12.4.24 The World Health Organisation (WHO) Europe defines health as a '*state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity*' (Ref 3.12.24). Public health therefore encompasses general wellbeing, not just the absence of illness.

3.12.4.25 The health and wellbeing of individuals is determined by a broad range of individual constitutional and behavioural factors (or "determinants"), as well as broader environmental, social, and economic factors. Some factors are direct and obvious, others are indirect.

3.12.4.26 Dahlgreen and Whitehead's model of the main determinants of health (Ref 3.12.25) illustrates the breadth of possible influences on health, as shown in Image 3.12.1. At the centre of the illustration are factors that are largely fixed, including individual age, sex, constitutional and genetic factors. Outside this are factors generally described as the wider or broader determinants of health. The model emphasises interactions between the layers. Moving outwards from the centre, individual lifestyle choices are embedded in social norms and community networks, and in living and working conditions, which in turn are shaped by and related to the wider socioeconomic and cultural environment.

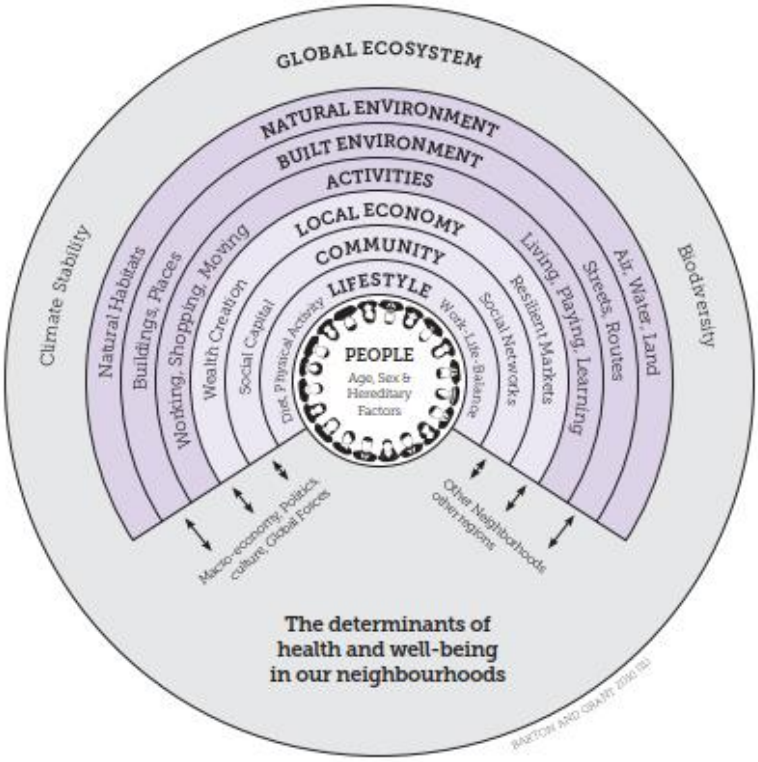
Image 3.12.1: Determinants of Health



Source: Dahlgreen and Whitehead, (1993)

3.12.4.27 This model has been developed to show elements of the built environment and communities that are the most significant determinants of health, as shown Image 3.12.2 (Ref 3.12.33).

Image 3.12.2: Determinants of Health in Neighbourhoods



Source: Barton and Grant (2006)

3.12.4.28 Within a population there can also be health inequalities, defined by the WHO as *"differences in health status or in the distribution of health determinants between different population groups. For example, differences in mobility between elderly people and younger populations or differences in mortality rates between people from different social classes".*

Baseline Data Gathering and Forecasting Methods

3.12.4.29 This chapter seeks to assess the potential health and wellbeing effects of the Kent Onshore Scheme against the current health and wellbeing baseline conditions within the study areas set out in Section 3.12.5.1 below.

Desktop Survey

3.12.4.30 In order to understand the existing health and wellbeing baseline, data illustrating the existing health and wellbeing conditions has been collected through a desk-based research exercise using publicly available sources, documents, and web-based applications.

3.12.4.31 Sources of information consulted include:

- Office for National Statistics (ONS), 2022; Census 2021 (Ref 3.12.26);
- Ministry of Housing, Communities and Local Government, (2019); English Indices of deprivation 2019 (Ref 3.12.27);

- Office for Health Improvement and Disparities (OHID); Health Profiles (Ref 3.12.29); and
- NHS Digital, (2023); General Practice Workforce (May 2023) (Ref 3.12.31).

Field Survey

3.12.4.32 The following field surveys have been carried out by related technical topics relevant to this assessment:

- **Volume 1, Part 3, Chapter 2, Landscape and Visual** sets out details of the field work undertaken within summer 2022, and winter 2023 to inform the scoping process, assess the existing character of the landscape and visit representative viewpoints. Viewpoint photography was also captured on the 15 March 2023;
- **Volume 1, Part 3, Chapter 8, Traffic and Transport** sets out details of the baseline traffic data obtained for the preliminary assessment of potential traffic and transport impacts of the Kent Onshore Scheme. Traffic surveys will be undertaken as part of the ES to obtain a more comprehensive set of baseline traffic flows within the agreed study area;
- **Volume 1, Part 3, Chapter 9, Air Quality** sets out that no air quality surveys have been undertaken as part of the PEIR. Data has been collected from the following sources: Defra UK Air website, local authority websites and annual Air Quality Status Reports, and the MAGIC website (as set out in Volume 1, Part 3, Chapter 9, Air Quality); and
- **Volume 1, Part 3, Chapter 10, Noise and Vibration** sets out details of noise surveys carried out to assess baseline conditions of relevance to the potential noise impacts of the Kent Onshore Scheme.

Assessment Criteria

3.12.4.33 The health and wellbeing assessment follows the general assessment methodology set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology.** However, the specific impact magnitude and impact sensitivity criteria for this assessment have been set out in this section.

In order to incorporate the recently released IEMA guidance, *Guide to Effective Scoping of Human Health (Ref 3.12.7),* the assessment in this chapter of the PEIR follows IEMA guidance to assign significance to health effects. The identified effects at the Scoping Report stage, utilised previous HUDU guidance as it was written prior to the release of the new IEMA guidance. The assessment determinants scoped into the assessment have therefore been reviewed against suggested wider determinants of health within the IEMA guidance to confirm which ones are considered relevant and to provide appropriate alignment with this guidance. This comparison is set out in

3.12.4.34 Table 3.12.8.

Table 3.12.8: Health determinants assessed

Assessment Determinants (HUDU guidance)	IEMA Determinants covered
Access to healthcare services and other social infrastructure	Health and social care services Diet and nutrition Water quality or availability
Access to open space and nature	Open space, leisure and play Physical activity
Air quality, noise and neighbourhood amenity	Air quality Noise and vibration
Accessibility and active travel	Transport modes, access and connections Open space, leisure and play Physical activity
Access to work and training	Education and training Employment and income
Social cohesion and inclusive design	Community identity, culture, resilience, and influence Community safety Social participation, interaction, and support

3.12.4.35 Given that the new IEMA guidance is considered the best practice approach for the assessment of health and wellbeing, it is deemed appropriate to use IEMA determinants and terminology where possible. All HUDU health determinants scoped into the study are covered under the following assessments presented in Section 3.12.9:

- Access to healthcare services and other social infrastructure;
- Access to open space, leisure and play;
- Air quality;
- Noise and vibration;
- Transport modes, access, connections and physical activity;
- Employment and income; and
- Social cohesion and community identity.

3.12.4.36 The impacts of the Proposed Project on these determinants of health and wellbeing have been assessed using professional judgement, best practice and drawing on other preliminary assessments within the PEIR. The preliminary assessment chapters and the IEMA determinants they relate to are:

- **Volume 1, Part 3, Chapter 2, Landscape and Visual – Community identity, culture, resilience, and influence;**
- **Volume 1, Part 3, Chapter 8, Traffic and Transport – Transport modes, access and connections;**
- **Volume 1, Part 3, Chapter 9, Air Quality – Air quality;**
- **Volume 1, Part 3, Chapter 10, Noise and Vibration – Noise and vibration; and**
- **Volume 1, Part 3, Chapter 11, Socio-economics Recreation and Tourism – Employment and income; Health and social care services; Open space, leisure and play.**

3.12.4.37 Assessments within other relevant technical chapters have been reviewed during the preparation of this chapter, and where potential health effects are identified these have been considered in the health and wellbeing assessment as relevant. These are:

- **Volume 1, Part 3, Chapter 5, Water Environment;** and
- **Volume 1, Part 3, Chapter 6, Geology and Hydrogeology.**

3.12.4.38 It is expected that measures relevant to these technical assessments will manage risks and ensure effects on health and wellbeing are unlikely. These will continue to be monitored during preparation of the ES and included if relevant.

3.12.4.39 Table 3.12.9 sets out a summary of the health determinants scoped into this assessment, and the source, pathway, and receptor links relevant to each determinant.

Table 3.12.9: Health determinants: Source-Pathway-Receptor links

Determinant	Source	Pathway	Receptor	Project Phase
Access to healthcare and other social infrastructure	Potential changes to access to healthcare arising from an influx of workers to the local area	Potential adverse impact on access to health services due to effects of levels of provision resulting from additional workforce in the local area	Human receptors who use local healthcare services	Construction and decommissioning
	Potential changes to access to healthcare arising from temporary or permanent	Potential adverse impact on access to health services which could impact human health	Human receptors living within local communities	Construction and decommissioning

Determinant	Source	Pathway	Receptor	Project Phase
	closures, diversions or amenity impacts on PRoW or impacts on the local road network			
	Potential changes to demand for social infrastructure arising from an influx of workers to the local area, and potential increased traffic reducing accessibility to social infrastructure	Potential adverse impact on access to social infrastructure which could impact human health	Human receptors who use local social infrastructure	Construction and decommissioning
Access to open space, leisure and play	Potential changes to community connectivity and wider community services including open space arising from temporary or permanent closures, diversions or amenity impacts on public rights of way PRoW or impacts on the local road network	Potential adverse impacts on access to open spaces, which could impact human health	Human receptors living within local communities	Construction, operation, maintenance and decommissioning
Air quality	Potential temporary changes in local air quality which could impact on health and wellbeing	Potential adverse human health impacts arising from increased exposure to dust and particulate matter emissions	Human receptors likely to be at risk of possible direct and indirect air quality	Construction, operation, maintenance and decommissioning

Determinant	Source	Pathway	Receptor	Project Phase
		arising from the Project	impacts from the Project	
Noise and vibration	Potential temporary or permanent changes in noise levels arising from the Proposed Project	Potential adverse health and wellbeing impacts arising from increased exposure to noise due to the Proposed Project	Human receptors likely to be at risk of possible direct and indirect noise impacts from the Proposed Project	Construction and operation
Transport modes, access, connections and physical activity	Potential changes to community connectivity and accessibility, including active travel networks, arising from temporary or permanent closures, diversions or amenity impacts on PRoW and other active travel networks	Potential adverse impacts on journeys made by active travel modes, which could impact health and wellbeing	Human receptors living within local communities	Construction, operation, maintenance and decommissioning
Employment and income	Potential temporary or permanent increase in employment opportunities, directly related to the Proposed Project	Potential beneficial economic impacts arising from employment, training and income opportunities for those working on the Proposed Project, which could impact human health	Human receptors who could potentially benefit from employment and training opportunities, directly related to the Proposed Project	Construction and decommissioning
Social cohesion and community identity	Potential temporary or permanent changes to social cohesion and	Potential adverse impacts on health and wellbeing resulting from	Human receptors in communities near to the	Construction, operation, maintenance and

Determinant	Source	Pathway	Receptor	Project Phase
	community identity (including potential changes to landscape and visual amenity)	disruption to community connectivity and potential changes to landscape and visual amenity, which could impact mental health	Proposed Project	decommissioning

3.12.4.40 The assessment aims to be objective and quantifies effects as far as possible. However, some effects can only be evaluated on a qualitative basis. Effects are defined as follows:

- Beneficial classifications of significance indicate an advantageous or beneficial effect on human health, which may be minor, moderate or major in effect;
- Adverse classifications of significance indicate a disadvantageous or adverse effect on human health, which may be minor, moderate or major in effect;
- Negligible classifications of significance indicate imperceptible effects on human health; and
- No effect classifications of significance indicate that there are no effects on human health.

3.12.4.41 'Significance' reflects the relationship between the scale of effect (magnitude) and the sensitivity of the affected receptor. As such, the significance criteria of health and wellbeing effects has been assessed based on the expert judgment and professional experience of the author, and relies on the following considerations:

- Sensitivity of human health receptors including general populations and potentially vulnerable sub-populations: the assessment takes account of the qualitative (rather than quantitative) sensitivity of relevant populations and sub-populations and their ability to respond to change as applicable to each determinant; and
- Magnitude of impact: this entails consideration of the scale of the exposure of the population to an impact; whether the impact is one-off or continuous; the likely nature of the human health impact; the permanence of the change; and the proportion of the relevant study area population that would be affected.

3.12.4.42 Criteria for receptor sensitivity and impact magnitude have been set out below. The significance of effect matrix has been provided following the receptor sensitivity and impact magnitude criteria.

Sensitivity

3.12.4.43 Sensitivity of population health and wellbeing is driven by a number of factors which are set out Table 3.12.10 below and are based on guidance set out by IEMA guidance. This good practice approach is based on existing national and international guidance, hence why the sensitivity levels differ slightly from that set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology.**

Table 3.12.10: Human Health Sensitivity Criteria – Population Health

Sensitivity Level	Sensitivity Criteria
High	High levels of deprivation (including pockets of deprivation); reliance on shared resources (between the population and the Proposed Project); existing wide inequalities between the most and least healthy; a community whose outlook is predominantly anxiety or concern; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and/or people with a very low capacity to adapt.
Medium	Moderate levels of deprivation; few alternatives to shared resources; existing widening inequalities between the most and least healthy; a community whose outlook is predominantly uncertainty with some concern; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt.
Low	Low levels of deprivation; many alternatives to shared resources; existing narrowing inequalities between the most and least healthy; a community whose outlook is predominantly ambivalence with some concern; people who are slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt.
Very Low	Very low levels of deprivation; no shared resources; existing narrow inequalities between the most and least healthy; a community whose outlook is predominantly support with some concern; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependent); people with good health status; and/or people with a very high capacity to adapt.

Source: Adapted from: IEMA Guide to Determining Significance for Health (2022) (Table 7.1).

Magnitude

3.12.4.44 Magnitude of impact is driven by a number of factors which are set out in Table 3.12.11 below and are based on guidance set out by IEMA guidance and the terminology set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology.**

Table 3.12.11: Human Health Magnitude of Impact Criteria

Magnitude level	Magnitude criteria
Large	High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) or very severe illness/injury outcomes; majority of population affected; permanent change; substantial service quality implications
Medium	Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or moderate change in quality of life; large minority of population affected; gradual reversal; small service quality implications
Low	Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity or moderate change in quality of life; small minority of population affected; rapid reversal; slight service quality implications
Negligible	Negligible exposure or small scale; very short-term duration; one off frequency; severity predominantly relates to minor change in quality of life; very few people affected; immediate reversal once activity complete; no service quality implications.

Source: Adapted from: IEMA Guide to Determining Significance for Health (2022) (Table 7.2).

Significance of effects

3.12.4.45 As set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology** the general approach taken to determining the significance of effect in this preliminary assessment is only to state whether effects are likely or unlikely to be significant, rather than assigning significance levels.

3.12.4.46 Health and wellbeing effects reflect the relationship between the sensitivity of the relevant population health, and the magnitude of the impact, as set out in Table 3.12.12. Where two options are shown for the assessment of significance (e.g. minor/negligible), professional judgement is used to determine which of the two options is most appropriate.

Table 3.12.12: Impact Assessment and Significance

Magnitude of Impact	Sensitivity of Receptor			
	High	**Medium**	**Low**	**Negligible**
Large	Major	Major/moderate	Moderate/minor	Minor/negligible
Medium	Major/moderate	Moderate	Minor	Minor/negligible
Small	Moderate/minor	Minor	Minor	Negligible
Negligible	Minor/negligible	Minor/negligible	Negligible	Negligible

Source: Adapted from Table 4.1: Generic indicative EIA significance matrix, in IEMA Guidance for Determining Significance for Human Health (2022) (Ref 3.12.8)..

3.12.4.47 The geographical scales considered to assess significance for each human health effect considered are described in Section 0 of this chapter.

3.12.4.48 Duration of effect is also considered, with more weight given to longer-term or permanent changes than to shorter-term or temporary ones.

3.12.4.49 In accordance with the methodology set out within **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**, the following criteria is applied:

- **'**Major' or 'moderate' effects are classed as 'significant';
- 'Minor' are classed as 'not significant', although they may be a matter of local concern; and
- 'Negligible' effects are classed as 'not significant'.

Assumptions and Limitations

3.12.4.50 This chapter forms a preliminary assessment of potential effects on health and wellbeing during the construction, operation, maintenance and decommissioning phases of the Proposed Project. The preliminary assessment is based on available information at the time of preparing the PEIR. A final assessment will be undertaken as part of the EIA and reported in the ES that will be submitted with the application for development consent.

3.12.4.51 The assessment of the significance of health and wellbeing effects has been carried out against a benchmark of current health and wellbeing baseline conditions prevailing around the Kent Onshore Scheme, as far as is possible within the limitations of such a dataset. Baseline data is subject to a time lag between collection and publication. As with any dataset, these conditions may be subject to change over time which may influence the findings of the assessment. Baseline conditions reported in Section 3.12.7 regarding health and wellbeing are based on the latest data available at the time of writing.

3.12.4.52 The assessment of likely health and wellbeing effects arising from the Kent Onshore Scheme is based on professional judgement, drawing on relevant legislation, policy and guidance as set out in Section 3.12.2 and Section 3.12.4. It considers both the potential beneficial and adverse impacts that the Proposed Project is likely to have on health and wellbeing.

3.12.4.53 The preliminary assessment of effects on health and wellbeing draws on preliminary assessments of relevance to health and wellbeing and its wider determinants. These studies comprise **Volume 1, Part 3, Chapter 2, Landscape and Visual; Volume 1, Part 3, Chapter 8, Traffic and Transport; Volume 1, Part 3, Chapter 9, Air Quality; Volume 1, Part 3, Chapter 10, Noise and Vibration;** and **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism**. These topic assessments will be further investigated and reported in the ES be submitted with the application for development consent. However, the information that is available at the time of writing (October 2023) is considered sufficient to enable a preliminary assessment of the likely effects on health and wellbeing.

3.12.4.54 Relevant assumptions and limitations set out in related preliminary assessments are set out in respective topic chapters. If the Proposed Project is required to be decommissioned, the activities and effects associated with the decommissioning phase are expected to be of a similar level to those during the construction phase works. Therefore, the likely significance of effects relating to the construction phase assessment would be applicable to the decommissioning phase, and hence decommissioning effects are not always discussed separately within Section 3.12.9.

3.12.5 Basis of Assessment

3.12.5.1 This section sets out the assumptions that have been made in respect of design flexibility maintained within the Proposed Project and the consideration that has been given to alternative scenarios and the sensitivity of the preliminary assessment to changes in the construction commencement year.

3.12.5.2 Details of the available flexibility and assessment scenarios are presented in **Volume 1, Part 1, Chapter 4, Proposed Project Description** and **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**.

Flexibility Assumptions

3.12.5.3 The main preliminary assessments have been undertaken based on the description of the Proposed Project provided in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**. To take account of the flexibility allowed in the Proposed Project, consideration has been given to the potential for preliminary effects to be of greater or different significance should any of the permanent or temporary infrastructure elements be moved within the Limits of Deviation (LoD) or draft order Limits.

3.12.5.4 The assumptions made regarding the use of flexibility for the main assessment, and any alternatives assumptions are set out in Table 3.12.13 below.

Table 3.12.13: Flexibility assumptions

Element of flexibility	Proposed Project assumption for initial preliminary assessment	Flexibility assumption considered
Lateral LoD HVDC cables	HVDC cables laid anywhere within the lateral LoD.	The maximum flexibility has already been assessed under the preliminary assessment. Any technical chapters that are drawn on in this chapter have already considered a worst-case scenario

		or deemed that the flexibility will not affect the assessment.
Lateral LoD Minster Converter Station and Minster Substation	Minster Converter Station and Minster Substation to be constructed within the lateral LoD footprint based on the indicative location of converter station and substation as shown in **Figure 1.4.12 Minster 400kV Substation and Minster Converter Station Indicative Location**.	The maximum flexibility has already been assessed under the preliminary assessment. Any technical chapters that are drawn on in this chapter have already considered a worst-case scenario or deemed that the flexibility will not affect the assessment.
Vertical LoD Minster Converter Station and Minster Substation	26 m maximum vertical LoD for the converter station and 18 m maximum vertical LoD for the substation as explained in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**	The maximum flexibility has already been assessed under the preliminary assessment. Any technical chapters that are drawn on in this chapter have already considered a worst-case scenario or deemed that the flexibility will not affect the assessment.
Lateral LoD overhead line	Overhead line options built within the lateral LoD as shown in **Figure 1.4.1 Lateral Limits of Deviation.**	The maximum flexibility has already been assessed under the preliminary assessment. Any technical chapters that are drawn on in this chapter have already considered a worst-case scenario or deemed that the flexibility will not affect the assessment.
Vertical LoD overhead line	Assessed at the height shown in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project** for the three HVAC options.	The Landscape and Visual preliminary assessment has considered the possible effects of pylons being 6 m above the heights shown in **Volume 1, Part 1, Chapter 4 Description of the Proposed Project** for each of the three HVAC options; this is therefore considered in the health and wellbeing assessment which draws on this chapter. Regarding other aspects of the health and wellbeing assessment, vertical movement of overhead lines within the LoD will not affect the assessment.

Consideration of Scenarios and Options

3.12.5.5 Two alternative scenarios have been considered within each of the technical assessment chapters in Part 3. These are:

- The use of either low height or standard height pylons for the HVAC connection. Within this scenario there are three options as explained in **Volume 1, Part 1, Chapter 4 Description of the Proposed Project;** and
- Permanent access to Minster converter station and substation is either taken off A256 (through bellmouth BM02) or off Jutes Lane through bellmouth BM03 but with bellmouth BM02 being retained for any abnormal indivisible load (AIL) movements during maintenance and operation as explained in **Volume 1, Part 1, Chapter 4 Description of the Proposed Project.**

3.12.5.6 Table 3.12.14 details where these scenarios are relevant to the preliminary health and wellbeing assessment and how they have been assessed and reported in section 9, preliminary assessment of effects.

Table 3.12.14: Consideration of scenarios

Assessment scenario	How it has been considered within the preliminary assessment
Pylon types	In the relevant technical chapters that the Health and Wellbeing assessment draws upon, either the assessment is based on the worst-case option, the type of pylon does not alter the assessment (for Traffic and Transport) or all three pylon options have been considered in the preliminary assessment. Where the potential health and wellbeing effect associated with a specific pylon option is considered to result in a different magnitude of effect or significance for a specific receptor, this is identified in the assessment.
Permanent access to Minster Converter Station and Minster Substation	Both permanent access options have been considered in the preliminary assessment. Where the potential health and wellbeing effect associated with a specific access option is considered to result in a different magnitude of effect or significance for a specific receptor, this is identified in the assessment.

Sensitivity Test

3.12.5.7 It is likely that under the terms of the draft DCO, construction could commence in any year up to five years from the granting of the DCO which is assumed to be 2026, subject to discharge to all of the relevant requirements. Consideration has been given to whether the preliminary effects reported would be any different if the works were to commence in any year up to year five. Where there is a difference, this is reported in section 9, Preliminary Assessment of Effects.

3.12.6 Study Area

3.12.6.1 The study areas for the assessment of potential health and wellbeing effects have been defined to include human populations likely to be at risk from the possible direct and indirect health impacts that might arise from the Kent Onshore Scheme. The study areas for health and wellbeing are therefore based both on the extent and characteristics of the Kent Onshore Scheme, and the populations assessed to be likely to be directly and indirectly affected by it. Therefore, the study areas for the health assessment vary by the type of impact being assessed.

3.12.6.2 The population health baseline comprises the three wards in which the Kent Onshore Scheme Boundary is located. These include: Cliffsend & Pegwell and Thanet Villages, both located in Thanet District, and Little Stour & Ashtone, located in Dover District. A best fit Lower Super Output Area (LSOA)[1] study area is used for deprivation. Where data is not available at the local ward level, district level data is provided for Thanet and Dover. Comparator data is provided for the South East and England as a whole, where relevant.

3.12.6.3 For sensitive receptors, the study area is defined based on the geographic extent of other topics for each environmental aspect of relevance to health and wellbeing, namely landscape and visual, traffic and transport, air quality, noise and vibration, and socio-economics, recreation and tourism. These study areas are set out in the relevant chapters of this PEIR and are summarised in the table below.

3.12.6.4 Table 3.12.15 presents the different components of the health and wellbeing effects assessment for this PEIR, the geographical scale at which each component is assessed, and the rationale behind these geographical scales.

Table 3.12.15: Health and wellbeing impacts by geographical scale

Potential Impact	Study Area	Rationale for Impact Area
Potential adverse impacts on access to healthcare services and other social infrastructure	1 km radius from the Kent Onshore Scheme draft Order Limits.	Study area includes communities and road users that could be affected by severance or access impacts, or journey delay, as set out in **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism** and **Volume 1, Part 3, Chapter 8, Traffic and Transport.**
Potential adverse impacts related to accessibility of	Users of PRoW, recreational routes and	The study area includes human receptors that

[1] Lower Super Output Areas (LSOAs) are ONS defined small geographic areas across England designed to allow data reporting across small areas. Each LSOA in England is of a similar population size, with an average of approximately 1,500 residents of 650 households. The best fit LSOA area across the local ward study area comprises the following LSOAs: Thanet 017C, Thanet 014A, Thanet 014B and Dover 001C.

Potential Impact	Study Area	Rationale for Impact Area
PRoW, recreational routes and open space, which could impact health and wellbeing	open space within and up to 500 m radius from the Kent Onshore Scheme draft Order Limits. Human receptors in the vicinity of the road network related to the Proposed Project.	could be affected by impacts on PRoW or the local road network as a result of the Proposed Project, as set out in **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism** and **Volume 1, Part 3, Chapter 8, Traffic and Transport.**
Potential adverse impacts on air quality from the Proposed Project, which could impact health and wellbeing	The study area for construction dust emissions is 350 m from the draft Order Limits (up to 50 m for ecological receptors) and 50 m of the route(s) used by construction vehicles on the public highway, 500 m from the site entrances. The study area for construction vehicle emissions comprises an area within 200 m of the affected road network.	Study area includes human receptors which could be impacted by construction phase dust or emissions generated by construction vehicle emissions. These study areas are in accordance with the relevant guidance (IAQM construction dust guidance and DMRB LA105 guidance respectively), as set out in **Volume 1, Part 3, Chapter 9, Air Quality.**
Potential adverse impacts arising from increased noise and vibration due to the Proposed Project, which could impact health and wellbeing	The study area for construction noise effects includes noise sensitive receptors (NSR) within 300 m of the draft order limits. The study area for construction vibration comprises 100m from the closest construction activity with the potential to generate vibration impacts at NSR. For construction traffic noise, the existing road network would be assessed for each applicable road. The operational noise study area includes NSR within 1 km of the converter station and substation.	Study area includes human receptors that could be impacted by increased exposure to noise and vibration. These study areas have been set in accordance with the relevant guidance, as set out in **Volume 1, Part 3, Chapter 10, Noise and Vibration.**

Potential Impact	Study Area	Rationale for Impact Area
Potential beneficial impacts on access to employment, training and income opportunities, which could impact health and wellbeing	60-minute travel area (drive time estimate using GIS data, based on the Kent Onshore Scheme Boundary and indicative site access points).	Study area includes human receptors that could benefit from local economic and employment impacts. Research by the Chartered Institute of Personnel and Development (CIPD) found that 90% of UK employees commuted for 60 minutes or less each way. This was reported by CIPD in the 2017 Employee outlook 'Employee views on working life' (Ref 3.12.28), as set out in **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism.**
Potential adverse impacts on social cohesion and community identity	The study area for the landscape and visual assessment of the Kent Onshore Scheme comprises an area of 3 kilometres (km) from the draft Order Limits.	Study area includes human receptors that could be impacted by landscape and visual impacts. The study area has been informed by a review of the design of the Kent Onshore Scheme, desk-based research, field-based appraisal, ZTV mapping and professional judgement, as well as being agreed with statutory consultees, as set out in **Volume 1, Part 3, Chapter 2, Landscape and Visual.** The 3 km study area is larger than and therefore encompasses the study areas of other relevant technical chapters.

3.12.7 Baseline Conditions

3.12.7.1 This section describes the baseline conditions of relevance to Health and Wellbeing. First, a population health baseline of the local population is set out. Secondly, an infrastructure baseline is laid out, which considers the existing local infrastructure relevant to the health and wellbeing assessment, this draws largely on **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism** and includes residential properties, community facilities and recreational routes such as PRoW. This is followed by a summary of baseline conditions from other chapters of the PEIR which are relevant to the assessment of health and wellbeing, and then discussion of the future baseline.

Existing Baseline

Population Health Baseline

Population

3.12.7.2 According to the latest data from the 2021 Census (Ref 3.12.26), Cliffsend & Pegwell has a population of 4,886, Thanet Villages has a population of 8,060 and Little Stour & Ashtone has a population of 7,245. Therefore, the total population for the three wards in which the Proposed Project is located (local wards) is approximately 20,191.

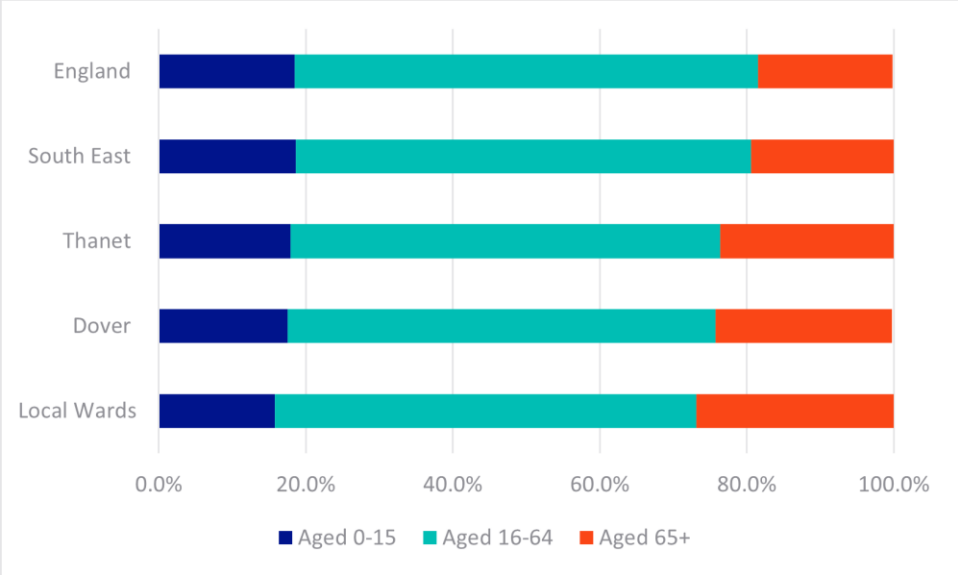
3.12.7.3 Image 3.12.3 shows the breakdown of total population by age groups for the local ward study area, Dover, Thanet, the South East and England, using 2021 Census data for age by single year.

3.12.7.4 The proportion of residents aged 0-15 in the local ward study area is 15.8%. This is lower than the proportions in Dover (17.5%), Thanet (17.9%), the South East (18.6%) and England (18.5%).

3.12.7.5 The proportion of residents of working aged (16- to 64-year-olds) in the study area is 57.3%. This is lower than the proportions in Dover (58.2%), Thanet (58.5%), the South East (62%) and England (63%).

3.12.7.6 The proportion of residents aged 65 and over in the local wards is 26.9%. This is higher than the proportions in Dover (24%), Thanet (23.6%), the South East (19.4%) and England (18.3%). The health and wellbeing of this large population of over-65-year-olds is likely to be more sensitive than other sub-groups of the population and may have a higher reliance on health services and social infrastructure.

Image 3.12.3: Age breakdown by geography



Source: ONS, (2022); Census 2021. (Ref 3.12.25).

Ethnicity

3.12.7.7 The 2021 Census (Ref 3.12.26) provides the latest data showing residents self-identified ethnicity. As shown in Table 3.12.16, at the time of the Census, the proportion of White residents living in the local wards (95.7%) was higher than the proportion for Dover (94.9%), Thanet (93%), the South East (86.3%) and England (81%). The proportions of residents of each ethnic minority group recorded by the 2021 Census living in the local wards was lower than the proportions across the four comparator geographies, with the exception of Mixed/multiple ethnic groups, where Dover has a lower proportion.

Table 3.12.16: Ethnicity (Census 2021)

Ethnic Group	Local Wards	Dover	Thanet	South East	England
White (%)	95.7	94.9	93.0	86.3	81.0
Mixed/multiple ethnic groups (%)	1.8	1.5	2.4	2.8	3.0
Asian/Asian British (%)	1.4	2.1	2.3	7.0	9.6
Black/African/Caribbean/Black British (%)	0.4	0.7	1.1	2.4	4.2
Other ethnic group (%)	0.7	0.9	1.2	1.5	2.2

Source: ONS, (2022); Census 2021. (Ref 3.12.26). Figures may not sum due to rounding.

Deprivations

3.12.7.8 The Government's English Index of Multiple Deprivation (IMD) (Ref 3.12.27) provides an overall deprivation score for each lower super output area (LSOA) and Local Authority in England; with the most recent data being from 2019. The overall score is based on a number of domains and sub-domains which together provide a measure of deprivation. Each area is ranked according to its score, and the index provides a measure of relative deprivation across all areas.

3.12.7.9 Based on the 2019 Indices of Multiple Deprivation (IMD) (Ref 3.12.27), Dover is ranked as the 107th most deprived local authority of 317 districts in England (where 1 is the most deprived). Within Dover, 5 of the LSOAs are within the top 10% most deprived LSOAs in England (7.5% of LSOAs in Dover). The 2019 IMD ranks Thanet as being comparatively more deprived than Dover. Thanet is ranked as the 34th most deprived local authority of 317 districts in England (where 1 is the most deprived). Within Thanet, 18 of the LSOAs are within the top 10% most deprived LSOAs in England (21.4% of LSOAs in Thanet). Across both Dover and Thanet, only 1 LSOA ranks in the top 10% least deprived LSOAs in England.

3.12.7.10 More granular deprivation data is available at the LSOA level. A best fit LSOA study area has been used to assess deprivation around the Project. The best fit study area across the local wards comprises the following LSOAs: Thanet 017C, Thanet 014A, Thanet 014B and Dover 001C.

3.12.7.11 Table 3.12.17 shows a summary of relevant IMD data across the LSOA study area, as well as Thanet and Dover districts.

Table 3.12.17: IMD (2019 and 2015)

	Thanet 017C	**Thanet 014A**	**Thanet 014B**	**Dover 001C**	**Thanet**	**Dover**
	Decile				*Rank*	
Overall deprivation	8th	4th	4th	4th	34th	107th
Health deprivation	7th	6th	4th	5th	73rd	138th
Barriers to housing and services (2019)	4th	1st	8th	1st	147th	127th
Living environment deprivation (2019)	9th	2nd	5th	4th	156th	199th

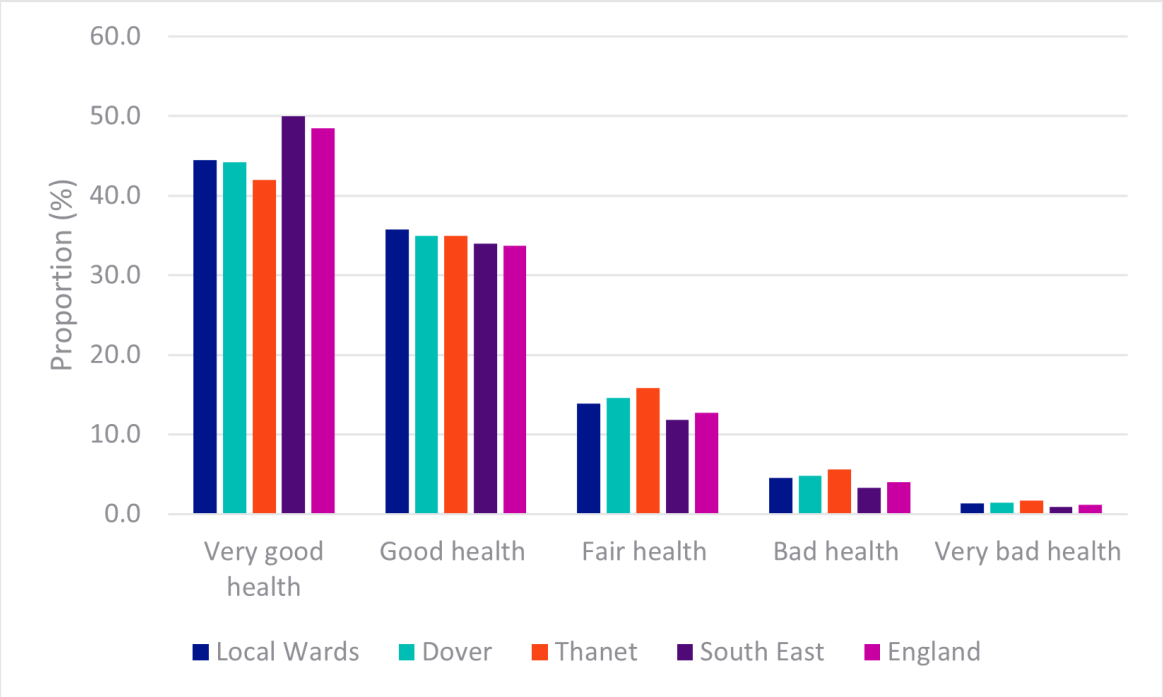
Source: IMD (2019)(Ref 3.12.27).

Health profile and outcomes

3.12.7.12 Data from the 2021 Census (Ref 3.12.26) provides the most recent data showing residents' self-assessment of health with individuals identifying their overall health ranging from 'Very Good' to 'Very Bad'.

3.12.7.13 Across the local wards, most residents identified that they are in 'very good' or 'good' health. At the time of the 2021 Census, 5.8% of local residents identified themselves in 'bad' or 'very bad' health. This proportion is lower than for Dover (6.2%) and Thanet (7.3%), but higher than the rate across the South East (4.2%) and England overall (5.2%). The full breakdown of self-assessed health across the local wards, Dover, Thanet, the South East and England is shown in Image 3.12.4.

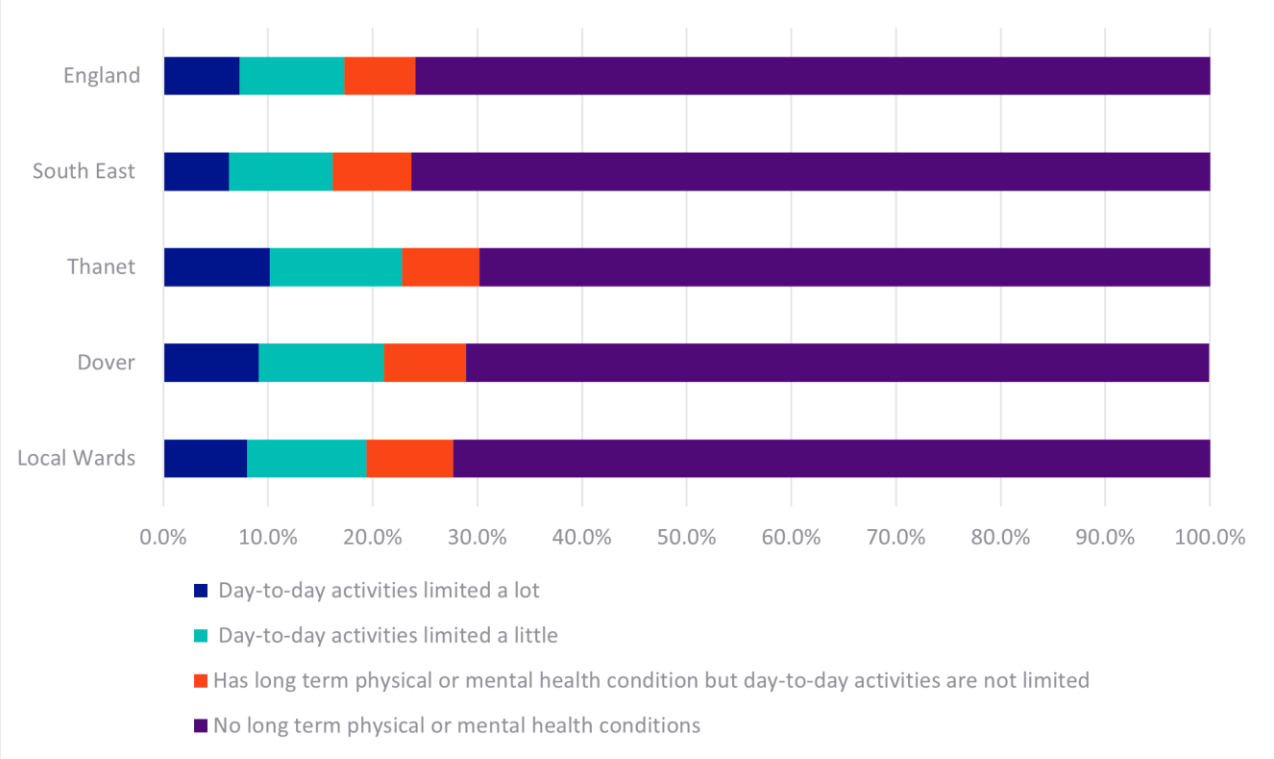
Image 3.12.4: Self-Assessment of Health



Source: ONS, (2022); Census 2021.). (Ref 3.12.25).

3.12.7.14 Image 3.12.5: illustrates self-assessment of the extent to which residents' day to day activities are impacts by long-term health problems or disability, according to data from the 2021 Census. The proportion of residents in the local wards that experience limitations to their daily activities a little or a lot as a result of a health problem or disability is 19.4%. This is lower than the proportion across Dover (21.2%) and Thanet (22.8%), but higher than the proportion across the South East (16.2%) and England (17.3%).

Image 3.12.5: Self-Assessment of Long-Term Health or Disability



Source: ONS, (2022); Census 2021.). (Ref 3.12.25).

3.12.7.15 The Office for Health Improvement & Disparities (OHID) (Ref 3.12.29) publishes data on a range of health indicators at ward and local authority level. A summary of relevant indicators is shown in Table 3.12.18.

3.12.7.16 Generally, across the local wards and for the South East, life expectancy at birth for both females and males is higher than the England average. However, life expectancy at birth for females and males in Dover and Thanet is lower than the England average.

3.12.7.17 Data showing inequality between populations with respect to life expectancy at birth is not available at local ward level. Inequality in life expectancy at birth[2] for males in Dover (7.3 years), Thanet (8.5 years) and the South East (7.9 years) is lower (less unequal) than the national average across England (9.7 years). Inequality in life expectancy at birth for females is higher (more unequal) in Thanet (9.7 years), but lower in Dover (6.1 years) and the South East (6 years) compared to the England average (7.9 years).

3.12.7.18 In terms of the number of deaths among the local population aged 75 and under, generally fewer deaths than the nationally averaged rate took place over the years 2016-2020 across the local ward study area. Across Dover and Thanet there were a higher than national average proportion of deaths among under 75s (Standardised Mortality Ratio (SMR)[3] of 102 and 118.8 respectively).

[2] Inequality reported based on ONS reporting on the Slope Index of Inequality (SII) between populations.

[3] The standardized mortality rate (SMR) is the ratio of the number of deaths observed in a population over a given period to the number that would be expected over the same period if the study population had the same age-specific rates as the standard (England national) population.

3.12.7.19 With respect to deaths from respiratory diseases all geographies included in Table 3.12.18, except Cliffsend & Pegwell, performed worse than the national average over the years 2016-2020. Rates of deaths from all causes considered preventable (2016-2020) are better than the national average across the local wards, but worse across Dover and Thanet.

3.12.7.20 The proportion of Year 6 children who are obese (3-years data combined 2019 to 2020, to 2021 to 2022), when compared to the national average (21.6%), is higher in Cliffsend & Pegwell, Thanet Villages and Thanet; lower in Little Stour & Ashtone and the South East; and the same as the England average in Dover.

Table 3.12.18: Community Health Profile

	Cliffsend & Pegwell	Thanet Villages	Little Stour & Ashtone	Dover	Thanet	South East	England
Life Expectancy at Birth (males) (2018-2020) (years)	80	80.6	81.7	79.4	77.4	80.6	79.5
Life Expectancy at Birth (females) (2018-2020) (years)	85.5	85.9	84.5	82.6	82.1	84.1	83.2
Inequality in Life Expectancy at Birth (males 2018-2020) (SII)	*Data not available at ward level*			7.3	8.5	7.9	9.7
Inequality in Life Expectancy at Birth (females 2018-2020) (SII)	*Data not available at ward level*			6.1	9.7	6	7.9
Deaths from all causes, under 75 years, Indirectly standardised ratio 2016 to 2020 (Standardis	88.9	83.9	82.4	102	118.8	n/a	100

	Cliffsend & Pegwell	Thanet Villages	Little Stour & Ashtone	Dover	Thanet	South East	England
ed mortality ratio (SMR))							
Deaths from respiratory diseases, all ages, Indirectly standardised ratio, 2016 to 2020 (SMR)	97.9	110.1	123.2	115.1	124.8	n/a	100
Deaths from causes considered preventable, under 75 years, Indirectly standardised ratio, 2016 to 2020 (SMR)	78.9	99.4	76.4	103.6	123.3	n/a	100
Smoking prevalence (%) (at age 15) (2014)	11.5%	8.0%	8.5%	7.3%	7.3%	5.8%	5.4%
Prevalence of Obesity in Children (%) (Year 6) 3-years data combined 2019 to 2020, to 2021 to 2022	23.1%	26.1%	17.5%	21.6%	22.5%	18.2%	21.6%

Source: OHID, Public Health Profiles (Ref 3.12.29).

Local health priorities

3.12.7.21 Relevant local health priorities are set out at county level within the Kent Joint Health and Wellbeing Strategy (Ref 3.12.34). Relevant priorities within the strategy include:

- Tackling health issues where Kent is performing worse than the England average;
- Tackle health inequalities; and
- Tackle the gaps in provision.

Infrastructure Baseline

Settlements

3.12.7.22 The nearest settlements to the Kent Onshore Scheme are Cliffsend, which borders the Kent Onshore Scheme draft Order Limits to the north along Sandwich Road, and Minster which is located approximately 1 km to the north west. The settlement of Richborough also lies in close proximity to the Kent Onshore Scheme Boundary, along Whitehouse Drove to the south of the Kent Onshore Scheme.

3.12.7.23 There are no residential properties within the Kent Onshore Scheme draft Order Limits, as set out in **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism**.

3.12.7.24 A number of isolated residential properties lie within 500 m of the Kent Onshore Scheme draft Order Limits, these are discussed further in **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism.**

Healthcare Facilities

3.12.7.25 The nearest hospital (with an accident and emergency department) to the Proposed Project is Queen Elizabeth, The Queen Mother Hospital, Margate, which is approximately 6 km north-east of the Kent Onshore Scheme draft Order Limits.

3.12.7.26 The closest general practice (GP) to the Proposed Project is Minster Surgery, which is approximately 1.2 km north-west of the Kent Onshore Scheme draft Order Limits in Minster. There are also a number of GPs to the north-east in Ramsgate and in Sandwich to the south.

3.12.7.27 The latest General Practice (May 2023) data published by NHS Digital (Ref 3.12.31) indicates that Minster Surgery has 5 GPs that provide care to 9,083 registered patients. This corresponds to 1,817 patients per GP, which is broadly in line with the Royal College of General Practitioners target of 1,800 patients per GP. The next closest GP to the Kent Onshore Scheme draft Order Limits is Sandwich Medical Practice, approximately 2.5 km away, data indicates that there are 9 GPs that 12,908 registered patients. This corresponds to 1,434 patients per GP, which is below and therefore meeting the Royal College of General Practitioners target of 1,800 patients per GP.

Education facilities

3.12.7.28 The closest primary school to the Kent Onshore Scheme draft Order Limits is Minster Church of England Primary School, situated in Minster, which is approximately 1.1 km to the north-west.

3.12.7.29 The closest secondary schools to the Kent Onshore Scheme draft Order Limits are in Ramsgate to the North and Sandwich to the south. The Royal Harbour Academy is approximately 3.5 km to the north-east of the Proposed Project.

3.12.7.30 Great Oaks Small School (E_35) is an independent special school, located just off Jutes Lane in Minster, and is approximately 30m from the Kent Onshore Scheme draft Order Limits.

Community and recreational facilities, and open space

3.12.7.31 There are three community facilities within 500 m of the Kent Onshore Scheme draft Order Limits, as set out in **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism.** These include Cliffsend Village Hall, Cliffsend Post Office and Ebbsfleet House (care home). There are no other community facilities within 500m of the Proposed Project.

3.12.7.32 There are three areas of open space within 500 m of the Kent Onshore Scheme draft Order Limits:

- Pegwell Bay Country Park borders the landfall section of the Kent Onshore Scheme draft Order Limits to the south, which also falls south of Cliffsend;
- Cliffsend Recreation Ground lies approximately 450 m to the north east of the Kent Onshore Scheme draft Order Limits within the settlement of Cliffsend; and
- The Hugin Viking Ship green space lies approximately 480 m respectively to the north east of the Kent Onshore Scheme draft Order Limits, also within the settlement of Cliffsend.

Employment

3.12.7.33 There are 15 businesses within 500 m of the Kent Onshore Scheme draft Order Limits, as detailed in **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism.** These businesses include petrol stations, golf clubs, restaurants, shops, a farm, and holiday accommodation.

3.12.7.34 There are also two visitor attractions within 500 m of the draft Order Limits, as detailed in **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism.** St Augustine's Cross is located approximately 120 m to the east of the Cottingham Road access route section of the Kent Onshore Scheme Boundary. Richborough Roman Fort is located approximately 480 m to the east of the Whitehouse Drove access route section of the Kent Onshore Scheme Boundary.

3.12.7.35 Larger employment centres are located in the larger towns of Ramsgate to the north and Sandwich to the south.

Public Rights of Way (PRoW)

3.12.7.36 **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism** sets out the seven PRoW and recreational routes which pass through the Kent Onshore Scheme Boundary and the eight which are located within a 500m radius of the draft Order Limits. These are discussed further in **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism.**

Employment and income baseline

3.12.7.37 **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism** sets out the existing baseline with respect to employment and income:

- In 2021, there were 933,582 (61.0%) residents of working age within the Economic Study Area. This is higher than in Dover and Thanet) but below the proportions for the South East and England as a whole;

- The proportion of working-aged residents with a degree-level qualification or higher is lower in Dover (34.6%) and Thanet (35.6%) than the averages across the South East (45.2%) and England as a whole (43.2%);
- With respect to the sub-domains of deprivation, Dover is the 66th most deprived local authority with respect to employment deprivation and Thanet is the 13th most deprived (of 317 districts in England, where 1 is the most deprived). With respect to income deprivation, Dover is the 91st most deprived and Thanet is the 26th most deprived district in England;
- In 2021, the economic activity rate (amongst 16- to 64-year-olds) was 74.0% in Dover which was lower than the rates across the South East (80.7%) and England (78.7%). The economic activity rate in Thanet of 82.8% was higher than both the South East and England;
- The April 2023 claimant count for residents as a proportion of residents aged 16 to 64 was 4.7% in Dover and 6.6% in Thanet, compared to a rate of 3.5% in the South East and 4.8% across England; and
- The average GVA per head in East Kent (which includes both Dover and Thanet) in 2021 was £19,791. This is appreciably lower than the average for the South East (£32,443) and England as a whole (£31,138). Data is not available at the local authority level.

Traffic and transport baseline

3.12.7.38 **Volume 1, Part 3, Chapter 8, Traffic and Transport** details the baseline highway network across the chapter's study area. The study area includes a number of roads, namely: the A256 Richborough Way, A299 Hengist Way, Sandwich Road, Jutes Lane, Ebbsfleet Lane, Ebbsfleet Lane North and Brook Lane.

3.12.7.39 There are several locations where more than five Personal Injury Accidents (PIAs) were recorded within the five year period, which may suggest that these locations are more sensitive to an increase in traffic from a highway safety perspective. There are also several locations which appear to have a good safety record with two or fewer PIAs within the five year period, which suggest that these locations may be less sensitive to an increase in traffic from a highway safety perspective. In terms of PIAs involving goods vehicles, there is only one location (Monkton Roundabout) where more than five PIAs were recorded within the five year period.

3.12.7.40 The chapter details the baseline traffic data for the surrounding highway network within the study area based on available DfT traffic counts. As part of the ES, a series of traffic surveys will be undertaken to obtain a more comprehensive set of baseline traffic flows for the existing highway network within the agreed study area.

3.12.7.41 The chapter details the active travel network baseline. National Cycle Network (NCN) Route 15 runs along the coastline between Sandwich and Whitstable. There are 10 PRoWs detailed which could be impacted by the Kent Onshore Scheme. There are no formal equestrian facilities (i.e. bridleways) within, or in the vicinity of the study area.

Air quality baseline

3.12.7.42 **Volume 1, Part 3, Chapter 9, Air Quality** sets out the existing baseline with respect to air quality, a summary of the aspects relevant to this health and wellbeing chapter is below:

- There are two Air Quality Management Areas (AQMAs) declared in Dover and one AQMA declared in Thanet;
- There is a total of 60 non-automatic monitoring sites for Nitrogen Dioxide ($NO_{2)}$ across both Dover District Council and Thanet District Council. The results did not record any exceedances of the annual mean NO2 objective in 2021. There are 11 exceedances of the NO2 annual mean AQS Objective since 2017, across eight sites;
- There are three automatic monitoring sites across both Dover District Council and Thanet District Council. The automatic monitoring results show that there has not been an exceedance in the annual mean NO2 AQS Objective in the last 5 years;
- Across both local authorities there are two monitoring sites within 1km of the Kent Onshore Scheme. The annual average NO_2 concentrations at all four sites are well below the AQS objective for all monitored years; and
- Background pollutants concentrations data for the relevant 1 km x 1 km grid squares related to the Study Area has been sourced from Defra Background Maps for 2023. Background NO_2 and particulate matter concentrations for 2023 in the vicinity of the Proposed Project are well below the relevant annual mean air quality objective values.

Noise and vibration baseline

3.12.7.43 **Volume 1, Part 3, Chapter 10, Noise and Vibration** sets out the existing baseline with respect to noise, a summary of the aspects relevant to this health and wellbeing chapter is below:

- The noise climate is expected to vary throughout the study area due to a mix of residential, rural, industrial, and commercial environments;
- The main sources of noise include road traffic from the A256 which runs between Ramsgate to the north and Dover to the south. There are potential railway noise sources from train services on the Ashford to Ramsgate Line and the Kent Coast Line. There are also potential industrial sources of noise, particularly in the vicinity of the A256. Away from these sources of noise into more rural areas, ambient sound levels are lower;
- Defra strategic noise mapping indicates that ambient noise levels are moderate to high in the vicinity of the A256 but reduce to relatively low levels beyond approximately 300m from the road;
- There are a number of Noise Important Areas (NIA) on the existing public highway along routes which may be used for construction traffic associated with the Kent Onshore Scheme;
- A baseline noise survey was conducted as one location to inform the assessment of operational noise, representative background sound levels during the daytime has been agreed at 35 dB LA90,15min and 29 dB LA90,15min at night-time;
- Vibration impacts are assessed against fixed thresholds. It is assumed that existing vibration levels are negligible in the study area; and
- Regarding the future noise and vibration baseline, no significant changes to the future noise and vibration baseline are anticipated. Should there be any changes, these would be assessed within the ES.

Landscape and visual baseline

3.12.7.44 The study area for the landscape and visual assessment of the Kent Onshore Scheme comprises an area of 3 km from the draft Order Limits.

3.12.7.45 The study area defines the area within which significant landscape and/or visual effects could occur, rather than the total extent of visibility of the Kent Onshore Scheme.

3.12.7.46 **Volume 1, Part 2, Chapter 2, Landscape and Visual** sets out the existing baseline with respect to landscape and visual amenity. The landscape varies considerably across the landscape and visual study area, it includes low-lying landform within the Ash Levels and Minster Marshes in the southern and central part. This landscape comprises a series of drainage ditches separating small to medium sized field enclosures, within the former Wantsum Channel. The landscape rises towards the settlement of Minster, comprising some comparatively larger scale field enclosures. The landscape also includes the low-lying coastal areas extending around Pegwell Bay which are characterised by larger intertidal areas of marsh and mudflat along the coastline.

Future Baseline

3.12.7.47 ONS population projections (Ref 3.12.32) show that by 2040, when compared to data from the 2021 Census, the population across Dover is expected to grow by approximately 19.5% to around 139,000 and the population across Thanet is expected to grow by approximately 10.9% to around 156,000. The increase in both local authorities is greater than the projected rate of increase in the South East (6.2%) and across England as a whole (8.3%) over the same period. Data is not available at ward level.

3.12.7.48 Due to the broad range of individual and environmental determinants that can influence physical and mental health outcomes, the future community health baseline over the medium-term is highly uncertain. Due to this uncertainty, for the purposes of this assessment, it is assumed the future baseline for the Kent Onshore Scheme study area would be unchanged from the current baseline to the completion of the Kent Onshore Scheme.

3.12.7.49 The future health and wellbeing baseline reflects, where applicable, that set out within other technical assessments.

3.12.8 Mitigation

3.12.8.1 As set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**, mitigation measures typically fall into one of the three categories: embedded measures; control and management measures; and mitigation measures.

Embedded Measures

3.12.8.2 Embedded measures have been integral in reducing the health and wellbeing effects of the Proposed Project. Measures that that have been incorporated are:

- Sensitive routeing and siting of infrastructure and temporary works; and
- Commitments made within **Volume 2, Part 1, Appendix 1.4.F, Outline Schedule of Environmental Commitments and Mitigation Measures.**

Control and Management Measures

3.12.8.3 The following measures have been included within **Volume 2, Part 1, Appendix 1.4.A, Outline Code of Construction Practice** relevant to the control and management of impacts that could affect health and wellbeing receptors:

- GG03: A Construction Environmental Management Plan (CEMP), a Landscape and Ecological Management Plan (LEMP) and a Construction Traffic Management Plan (CTMP) will be produced prior to construction;
- GG04: The CEMP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake daily site inspections to check conformance to the Management Plans. The name and contact details of person(s) accountable for issues relating to dust, waste, water, noise, vibration and soil will be displayed at site boundary;
- GG05: A suitably experienced Environmental Manager will be appointed for the duration of the construction phase. In addition, a qualified and experienced Environmental Clerk of Works (ECoW) will be available during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CEMP. The ECoW will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures. The ECoW will be supported as necessary by appropriate specialists, including ecologists and arboriculturists;
- GG06: Construction workers will undergo training to increase their awareness of environmental issues as applicable to their role on the project. Topics will include but not be limited to:
  - pollution prevention and pollution incident response;
  - dust management and control measures;
  - location and protection of sensitive environmental sites and features;
  - adherence to protected environmental areas around sensitive features;
  - working hours and noise and vibration reduction measures;
  - working with potentially contaminated materials;
  - waste management and storage;
  - flood risk response actions; and
  - agreed traffic routes, access points, etc.;
- GG11: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable;
- GG13: Plant and vehicles will conform to relevant applicable standards for the vehicle type as follows:
  - Euro 4 (NOx) for petrol cars, vans and minibuses;
  - Euro 6 (NOx and PM) for diesel cars, vans and minibuses; and

  - Euro VI (NOx and PM) for lorries, buses, coaches and Heavy Goods Vehicles (excluding specialist abnormal indivisible loads).
  - Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. All plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so;
- GG21: Bonfires and the burning of waste material on-site will be prohibited;
- GG22: Construction lighting will be of the lowest levels necessary to safely perform each task. It will be designed, positioned and directed to reduce the intrusion into adjacent properties, protected species and habitats;
- GG25: An Emergency Action Plan will be developed for the construction phase which will outline procedures to be implemented in case of unplanned emergency events including but not limited to site flooding and pollution incidents;
- GG28: Members of the community and local businesses will be kept informed regularly of the works through active community liaison. This will include notification of noisy activities, heavy traffic periods and start and end dates of key phasing. A contact number will be provided which members of the public can use to raise any concerns or complaints about the project. All construction-related complaints will be logged by the contractor(s) in a complaints register, together with a record of the responses given and actions taken; and
- TT03: All designated PRoWs will be identified, and any potential temporary and/or permanent diversions applied for/detailed in the DCO. All designated PRoWs crossing the working area will be managed with access only closed for short periods while construction activities occur. Any required diversions will be clearly marked at both ends with signage explaining the diversion, the duration of the diversion (for temporary diversions) and a contact number for any concerns.

Mitigation Measures

3.12.8.4 Mitigation measures are additional topic and site-specific measures that have been applied to mitigate or offset any likely significant effects. Mitigation measures relevant to technical chapters that are drawn upon for the health and wellbeing assessment are detailed in the relevant chapters. To date, no additional measures for health and wellbeing have been identified. If, following stakeholder consultation feedback, further design refinement, and further assessment, it is identified that additional measures are required, these will be detailed as part of the ES.

3.12.9 Preliminary Assessment of Effects

3.12.9.1 The preliminary assessment of the effects of the Kent Onshore Scheme described in this section considers the embedded, control and management and mitigation measures described in Section 3.12.7.

3.12.9.2 The Kent Onshore Scheme has the potential to impact health and wellbeing during construction, operation, maintenance and decommissioning phases, due to impacts on the following health determinants:

- Access to healthcare services and other social infrastructure;
- Access to open space, leisure and play;
- Air quality;
- Noise and vibration;
- Transport modes, access, connections and physical activity;
- Employment and income; and
- Social cohesion and community identity (including landscape and visual).

3.12.9.3 The preliminary health and wellbeing assessment of the effects of the Kent Onshore Scheme is presented in the following tables.

Access to healthcare services

3.12.9.4 Construction activities from the Proposed Project may restrict, or create severance to, the accessibility of hospitals, GPs, and other social infrastructure for residents in the Study Area.

3.12.9.5 Table 3.12.19 provides the preliminary assessment of access to healthcare services – increased demand for healthcare services.

Table 3.12.19: Preliminary assessment of access to healthcare services - increased demand for healthcare services

	Preliminary assessment
Receptor	**Human receptors who use local healthcare services**
Potential Impact	During the construction phase of the Kent Onshore Scheme, it is estimated that on average 77 net additional jobs will be supported. Of these, 23 jobs per annum will be expected to be taken-up by residents within the Economic Study Area, and 54 by residents outside this area (i.e., those that live outside of a 60-minute drive time of the Site). The construction workers required to build the Kent Onshore Scheme may place extra demand on healthcare services if they move to the area, or if emergency treatment is required.
Proposed Project phase	Construction and decommissioning
Duration	Medium-term, temporary
Mitigation	N/A
Preliminary sensitivity	General population – **Medium** Baseline analysis shows that the two GP practices local to the Site are operating, on average, below benchmark patient to GP ratios and are accepting registrations from

	Preliminary assessment
	new patients. Across the local ward study area the level of deaths from all causes, under 75 years, and deaths from causes considered preventable, under 75 years, are lower than the national average. The proportion of local residents identifying themselves in 'bad' or 'very bad' health is higher than regional and national averages, however this may be attributed to the relatively older local population. The LSOA study area experiences a range of levels of deprivation with respect to the IMD (2019) barriers to housing and services domain, with some areas being in the most deprived decile, and others being in the least 20% deprived LSOAs. Deprivation with respect to the IMD (2019) health and overall deprivation is adequate across the LSOAs, ranging from the 4th to the 8th decile. The sensitivity of the general population is therefore assessed to be medium. Over 65s sub-population – **High** The average proportion of the population aged over 65 within the Study Area is higher than in Dover, Thanet, the South East and England, and is projected to increase as a proportion of the population much faster than in England. This sub-population is likely to have higher reliance on health services and has therefore been assessed as having a high sensitivity to effects on healthcare services.
Preliminary magnitude	**Negligible** If workers reside locally already, they will be registered at a local practice and will not therefore place additional demand for services on local GPs. It is unlikely that many workers would move to live in the immediate area and access the two GPs within approximately 2.5 km of the Kent Onshore Scheme draft Order Limits, namely Minster Surgery and Sandwich Medical Practice. However, assuming a worst-case, whereby all of the approximately 54 construction workers who are not likely to live locally require places at local GPs, this would increase the average patients per GP provision across the two surgeries from 1,626 to 1,672 patients per GP, which would remain better than the national target (1,800 patients per GP). Due to the limited scale of impacts upon healthcare services, the magnitude of these adverse impacts is assessed to be **negligible**.

	Preliminary assessment
Sensitivity Test	There would be no difference in the preliminary effects assessed if the construction were to commence in any year up to year five.
Preliminary likely significance of effect	**Not Significant** (for both the general population and the sub-population of over-65s)
Confidence in prediction	**High** A preliminary assessment of the construction workers required for the Proposed Project has been undertaken. The scale of impact is clear due to the size and scale of the workforce required.

3.12.9.6 Table 3.12.20 provides the preliminary assessment of access to healthcare services - Increased traffic and severance, reducing access to healthcare facilities.

Table 3.12.20: Preliminary assessment of access to healthcare services - Increased traffic and severance, reducing access to healthcare facilities

	Preliminary assessment
Receptor	**Human receptors living within local communities**
Potential Impact	Residents of properties in the villages surrounding the Proposed Project attempting to access healthcare facilities are likely to use the same strategic roads as construction traffic associated with the Kent Onshore Scheme and workers attempting to access the Site. Increased traffic flows and severance effects may inhibit local residents' ability to access healthcare facilities.
Proposed Project phase	Construction and decommissioning
Duration	Medium-term, temporary
Mitigation	GG03, GG12, GG13, TT01, TT02
Preliminary sensitivity	General population – **Medium** Rationale as above in Table 3.12.19. Over 65s sub-population – **High** Rationale as above in Table 3.12.19.
Preliminary magnitude	**Low** **Volume 1, Part 3, Chapter 8, Traffic and Transport** sets out a reasonable worst-case assessment of the traffic and transport effects of the Kent Onshore Scheme during the construction phase. It is forecast that there would be up to 122 HGVs travelling to and from the site per day, representing 244 movements per day. In addition, during the peak construction period, there are

	Preliminary assessment
	expected to be a maximum of 195 vehicle trips (associated with construction workers travelling to and from Site), representing 390 daily movements. Despite the decommissioning phase being considered to be too far in the future to be able to accurately predict traffic flows at that time, the Proposed Project's impact on local residents' ability to access healthcare facilities in the decommissioning phase is expected to be the same or less impacted than during construction. This is based on the reasonable assumption in **Volume 1, Part 3, Chapter 8, Traffic and Transport** that there will be fewer vehicle movements and thus impacts of the decommissioning phase will be the same as, or no greater than, the construction phase. With the proposed mitigation in place, there is likely to be no significant effects on transport and access during the construction and decommissioning phases. The operational and maintenance phases have been scoped out of the EIA, as detailed in **Volume 1, Part 3, Chapter 8, Traffic and Transport**, due to the limited number of operatives manning the site and only infrequent additional trips to site. Given this, and the fact that any minor adverse or negligible effects across the construction and decommissioning phases would not be long term, the overall magnitude of impact is assessed to be low.
Sensitivity Test	There would be no difference in the preliminary effects assessed if the construction were to commence in any year up to year five.
Preliminary likely significance of effect	**Not Significant** (for both the general population and the sub-population of over-65s)
Confidence in prediction	**Moderate** Traffic and transport assessments will be reviewed further as part of the ES based on updated baseline traffic flows (which will increase the confidence of findings).

Access to other social infrastructure

3.12.9.7 Table 3.12.21 provides the preliminary assessment of access to other social infrastructure.

Table 3.12.21: Preliminary assessment of access to other social infrastructure

	Preliminary assessment
Receptor	**Human receptors who use local social infrastructure**
Potential Impact	Extra demand on social infrastructure due to the presence of construction workers. Increased traffic reducing accessibility to social infrastructure other than healthcare for the local population.
Proposed Project phase	Construction and decommissioning
Duration	Medium-term, temporary
Mitigation	GG03, GG12, GG13, TT01, TT02
Preliminary sensitivity	General Population - **Medium** Given the mixed levels of deprivation with respect to the IMD (2019) barriers to housing and services domain across the study area and the variable levels of health across the ward study area and Dover and Thanet, existing social infrastructure services and their users have been assessed as having a medium sensitivity.
Preliminary magnitude	**Low** As set out in Section 3.12.7, Baseline Conditions, other social infrastructure in the local area includes a Village Hall, a Post Office and schools. There is also an independent special school, Great Oaks Small School (E_35), approximately 30 m from the Kent Onshore Scheme draft Order Limits. **Volume 1, Part 3, Chapter 8, Traffic and Transport** sets out a reasonable worst-case assessment of the traffic and transport effects of the Kent Onshore Scheme during the construction phase. With embedded mitigation in place, there are no road links that would experience significant traffic and severance effects. It is possible that local residents could experience adverse impacts related to their access to social infrastructure due to increased demand for services and increased traffic flows associated with the Proposed Project. However, the duration of impact would not be long-term and rapidly reversed once the construction phase is completed. The Proposed Project at Jutes Lane (K-BM03) is approximately 30 m from Great Oaks Small School (E_35). The school is currently accessed via Jutes Lane (K-BM03). Whilst this would be an access route, as detailed in **Volume 1, Part 3, Chapter 8, Traffic and Transport**, this access would be retained and there

	Preliminary assessment
	would be no disruption to journeys with regard to accessing the school. There will also be no abnormal loads on Jute Lane (K-BM03). Given this, and the fact that no significant effects are expected in relation to severance, as detailed in **Volume 1, Part 3, Chapter 8, Traffic and Transport**, the overall magnitude of change anticipated on other social infrastructure is assessed to be low.
Sensitivity Test	There would be no difference in the preliminary effects assessed if the construction were to commence in any year up to year five.
Preliminary likely significance of effect	**Not Significant**
Confidence in prediction	**Moderate** Traffic and transport assessments will be reviewed further as part of the ES based on updated baseline traffic flows (which will increase the confidence of findings).

Access to open space, leisure and play

3.12.9.8 Table 3.12.22 provides the preliminary assessment of access to open space, leisure and play.

Table 3.12.22: Preliminary assessment of access to open space

	Preliminary assessment
Receptor	**Users of open space in the study area**
Potential Impact	Construction, operational, maintenance and decommissioning activities from the Kent Onshore Scheme may intersect, or otherwise impact upon, the accessibility of open space in the study area, which could impact local resident's health and wellbeing.
Proposed Project phase	Construction, operation, maintenance and decommissioning
Duration	Construction, maintenance, decommissioning – short term Operation – long term
Mitigation	GG03, GG26 and TT03
Preliminary sensitivity	General Population - **Medium**

	Preliminary assessment
	Baseline data highlights that the overall health of the general population varies. The proportion of local residents identifying themselves in 'bad' or 'very bad' health is higher than regional and national averages, however this may be attributed to the relatively older local population. Deprivation with respect to the IMD (2019) health and overall deprivation is adequate across the LSOA study area, ranging from the 4th to the 8th decile. The sensitivity of the general population is therefore assessed to be medium.
Preliminary magnitude	**Negligible** There are three areas of open space within 500 m of the Kent Onshore Scheme Boundary: Pegwell Bay Country Park, Cliffsend Recreation Ground, and The Hugin Viking Ship green space. **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism**, sets out that there will be no effects on open space due to the Kent Onshore Scheme including in respect of access to these open spaces. Furthermore, the preliminary assessment of severance in **Volume 1, Part 3, Chapter 8, Traffic and Transport,** states that there are likely to be no significant severance impacts to any receptors during all phases. This will be reviewed further as part of the ES. Given the limited impacts expected regarding access to open space, the magnitude of effect is assessed to be negligible during all phases.
Sensitivity Test	There would be no difference in the preliminary effects assessed if the construction were to commence in any year up to year five.
Preliminary likely significance of effect	**Not Significant**
Confidence in prediction	**Moderate** Regarding severance, traffic and transport assessments will be reviewed further as part of the ES based on updated baseline traffic flows (which will increase the confidence of findings).

Air quality

3.12.9.9 Table 3.12.23 provides the preliminary assessment of air quality.

Table 3.12.23: Preliminary assessment of air quality

	Preliminary assessment
Receptor	**Human receptors likely to be at risk of possible direct and indirect air quality impacts from the Proposed Project**
Potential Impact	The activities of the Proposed Project have the potential to reduce air quality, due to construction dust or increased NO_2 and particulate matter concentrations, which could lead to adverse health effects on residents.
Proposed Project phase	Construction, maintenance, operation and decommissioning
Duration	Construction related – peak construction years Operation – through operation phase
Mitigation	As described in **Volume 1, Part 3, Chapter 9, Air Quality:** AQ1-34
Preliminary sensitivity	**General Population - Medium** Baseline data with respect to air quality indicates above average air quality, however rates of deaths from respiratory diseases are higher than the national average across the ward study area and in Dover and Thanet. The average proportion of the population aged over 65 within the Study Area is higher than in Dover, Thanet, the South East and England, and is projected to increase as a proportion of the population much faster than in England, this sub-population is likely to be more sensitive to changes in air quality. The sensitivity of the local population with respect to air quality is therefore assessed to be medium.
Preliminary magnitude	Construction and decommissioning – **Low** Operation and maintenance – **Negligible** A preliminary assessment of potential air quality effects during the phases of the Suffolk Onshore Scheme is set out in **Volume 1, Part 3, Chapter 9, Air Quality**. The chapter presents preliminary assessments of construction dust (construction and decommissioning phase), construction vehicle emissions (construction phase), Non-Road Mobile Machinery (NRMM) emissions (construction phase), Substation Back-Up Generator Emissions (operation phase). For construction, the preliminary assessment of NRMM emissions concludes there are likely to be no significant effects. The construction dust risk assessment undertaken for the construction and decommissioning phases determined that the worst-case risk of dust effects would

	Preliminary assessment
	be medium for earthworks and large for construction and trackout activities, however, with the implementation of mitigation measures, effects are considered to be not significant. The effects findings of the construction vehicle emissions will be determined in the ES following detailed modelling (this will also assess any potential impact on Great Oaks Small School (E_35)). For effects during operation, the preliminary assessment of Substation Back-Up Generator Emissions also concludes that there are likely to be no significant effects. There would be no other effects on air quality arising during operation or maintenance due to the Proposed Project being manned by a limited number of operatives and infrequent vehicle trips. There is also the potential for fugitive dust emissions to arise during the decommissioning phase. The potential effect arising is considered to be similar to that identified during construction and with the implementation of these measures, to the effect would be not significant. Given the available data, taking into account that residents across the study area would experience no significant effects on air quality after implementation of appropriate mitigation, the magnitude of impact is expected to be low across the construction and decommissioning phases and negligible across operation and maintenance.
Sensitivity Test	There would be no difference in the preliminary effects assessed if the construction were to commence in any year up to year five.
Preliminary likely significance of effect	**Not Significant**
Confidence in prediction	**Moderate** Based on the Preliminary Assessment in **Volume 1, Part 3, Chapter 9, Air Quality,** further assessment will be undertaken at ES stage when more detailed information is available.

Noise and vibration

3.12.9.10 Table 3.12.24 provides the preliminary assessment of noise and vibration.

Table 3.12.24: Preliminary assessment of noise and vibration

	Preliminary assessment
Receptor	**Human receptors likely to be at risk of possible direct and indirect noise impacts from the Proposed Project**
Potential Impact	The activities of the Proposed Project have the potential to lead to increases in noise and vibration, which could lead to adverse health and wellbeing effects in terms of annoyance and/or disrupt local amenities.
Proposed Project phase	Construction and Operation
Duration	Construction – short term Operation – long term
Mitigation	As described in **Volume 1, Part 3, Chapter 10, Noise and Vibration:** GG01, GG03, GG04, GG05, GG06, GG11, GG26, NV01, NV02, NV03, TT01, TT02
Preliminary sensitivity	General Population - **Medium** Baseline data with respect to noise indicates that the main sources of noise include road traffic from the A256 which runs between Ramsgate to the north and Dover to the south. There are also a number of Noise Important Areas (NIA) on the existing public highway along routes which may be used for construction traffic associated with the Kent Onshore Scheme. Existing proximity to the baseline noise conditions of the Proposed Project and local transport network suggests the local population may already have a degree of exposure to transport noise that may affect annoyance outcomes, as well as being at times that may disturb sleep or reduce amenity. The sensitivity of the general population is therefore considered to be medium.
Preliminary magnitude	**Low** For construction noise, with mitigation in place, it is assumed effects are likely to be not significant for all noise sensitive receptors (NSR), including Great Oaks Small School (E_35). The impact of construction vibration is likely to not be significant, the duration of this impact is expected to be less than one day (short-term). Construction traffic noise will be assessed in the ES. The impact of construction traffic vibration is assessed as not significant. The preliminary assessment of operational noise is also not likely to be significant. Based on the conclusions of the assessment set out in **Volume 1, Part 3, Chapter 10, Noise and Vibration,**

	Preliminary assessment
	local impacts are likely to be minimal. Overall, the magnitude of change anticipated with respect to noise and vibration impacts on health and wellbeing during both the construction and operation phases is therefore assessed to be low.
Sensitivity Test	There would be no difference in the preliminary effects assessed if the construction were to commence in any year up to year five.
Preliminary likely significance of effect	**Not Significant**
Confidence in prediction	**Moderate** Based on the preliminary assessment set out in **Volume 1, Part 3, Chapter 10, Noise and Vibration.**

Transport modes, access, connections and physical activity (active travel)

3.12.9.11 Table 3.12.25 provides the preliminary assessment of Transport modes, access, connections and physical activity (active travel).

Table 3.12.25: Preliminary assessment of Transport modes, access, connections and physical activity (active travel)

	Preliminary assessment
Receptor	**Users of PRoW and recreational routes (active travel networks)**
Potential Impact	Construction, operational, maintenance and decommissioning activities from the Kent Onshore Scheme may intersect, or otherwise impact upon, the accessibility of Public Rights of Way (PRoW) and active travel networks in the Study Area.
Proposed Project phase	Construction, operational, maintenance and decommissioning
Duration	Construction, maintenance, decommissioning – short term Operation – long term
Mitigation	GG03, TT01, TT02,TT03, TTAM01 and TTAM02
Preliminary sensitivity	General Population - **Medium** As set out in the baseline above, along with the baselines of both **Volume 1, Part 3, Chapter 8, Traffic and Transport** and **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism** there are

	Preliminary assessment
	a number of PRoW and recreational routes within the Kent Onshore Scheme draft Order Limits, as well as within the defined study areas. The impacted active travel networks will have mitigation measures in place to ensure diversions where possible and closures of a short-term nature. The duration of these closures will be defined further within a PRoW Management Plan, which will be produced at the ES stage. Given this, combined with the varied, but generally adequate level of health across the study area, the preliminary sensitivity of the general population is deemed to be medium.
Preliminary magnitude	**Low** It is possible that local residents could experience adverse impacts related to their access to open space and PRoW for active travel due to changes in traffic caused by the construction and decommissioning of the Proposed Project. However, **Volume 1, Part 3, Chapter 8, Traffic and Transport** sets out a preliminary assessment of severance in relation to the Proposed Project and PRoW receptors and national/regional walking and cycling route receptors. With the proposed mitigation in place, there is likely to be no significant effects regarding severance on PRoW and walking/cycling routes during the construction and decommissioning phases. This will be reviewed further as part of the ES. **Volume 1, Part 3, Chapter 8, Traffic and Transport** also sets out a preliminary assessment regarding PRoW Diversions and Closures during construction and decommissioning, and after accounting for additional mitigation identified for PRoW TE26 and PRoW EE42, the likely impact of the Proposed Project on PRoW diversions and closures is considered to be not significant. Whilst PRoW diversion requirements vary across options 1, 2 and 3, this would not materially impact the magnitude of change between the options, as the mitigation identified in **Volume 1, Part 3, Chapter 8, Traffic and Transport** (TTAM01 and TTAM02), will avoid any significant effects on PRoW as a result of closures or diversions. Additionally, for all options, measures will be implemented that enable journeys to continue during temporary closure under all three pylon options. This will be further reviewed at the ES stage when the preferred option has been selected for overhead lines and pylons to the north and south of the River Stour. As mentioned earlier, **Volume 1, Part 3, Chapter 8, Traffic and Transport** notes that the decommissioning

	Preliminary assessment
	phase is considered to be too far in the future to be able to accurately predict traffic flows at that time. However, the effects in the decommissioning phase are expected to be the same or less than during construction. This is based on the reasonable assumption that there will be fewer vehicle movements and thus impacts of the decommissioning phase will be the same as, or no greater than, the construction phase. Additionally, the operational and maintenance phases have been scoped out of the EIA, as detailed in **Volume 1, Part 3, Chapter 8, Traffic and Transport**, due to the limited number of operatives manning the site and only infrequent additional trips to site. Furthermore, **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism** sets out preliminary assessments for the seven PRoW and recreational routes which pass within the Kent Onshore Scheme draft Order Limits. At this stage, it is assessed that there will be no significant effects to the PRoW or recreational routes, but these impacts will be defined further at the ES stage when further design information is available. Based on these considerations, any impacts arising on users of open space and PRoWs will be experienced by a very small proportion of the population and for a limited time. Therefore, the magnitude of the effect is expected to be low.
Sensitivity Test	There would be no difference in the preliminary effects assessed if the construction were to commence in any year up to year five.
Preliminary likely significance of effect	**Not Significant**
Confidence in prediction	**Moderate** The duration of any active travel network closures, diversions and the outline PRoW Management Plan will be defined further during the ES stage.

Employment and income

3.12.9.12 Table 3.12.26 presents the preliminary assessment of employment and income.

Table 3.12.26: Preliminary assessment of employment and income

	Preliminary assessment
Receptor	**Human receptors who could potentially benefit from employment and training opportunities, directly related to the Project**
Potential Impact	Increased temporary employment opportunities for local residents.
Proposed Project phase	Construction and decommissioning
Duration	Short term
Mitigation	Not applicable
Preliminary sensitivity	General Population - **Medium** Baseline data with respect to employment indicates relatively high level of employment deprivation in Dover and Thanet districts, displayed by the IMD (Ref 3.12.27), and higher Claimant Count within the districts compared to the South East average. Therefore, the local labour force in Dover and Thanet is assessed to be of medium sensitivity due to its capacity to benefit from additional employment and income opportunities.
Preliminary magnitude	**Low** There is evidence that employment matters to health, not only from an economic standpoint but also in terms of quality of life (Ref 3.12.30). Good quality employment protects against social exclusion through the provision of income, social interaction, a core role and identity and purpose. Therefore, the generation of jobs is assessed to be a positive outcome for health. As set out in **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism,** the construction period is expected to take approximately four years. The Applicant estimates that the Kent Onshore Scheme will require a peak of 292 full-time equivalent (FTE) jobs, and an average of 118 gross direct FTE jobs on-site over the construction period. The jobs arising over the four year construction period would be temporary. **Volume 1, Part 3, Chapter 11, Socio-economics, Recreation and Tourism,** estimates that, after accounting for displacement, leakage and multiplier effects, the Kent Onshore Scheme will support, on average, 77 net additional jobs during the construction period. Of these, 23 jobs per annum will be expected to be taken-up by residents

	Preliminary assessment
	within the Economic Study Area, and 54 by residents outside this area. The additional jobs within the study area would represent local job growth, although the overall change would be very small in the context of the overall number of jobs locally. Therefore the magnitude of change anticipated with respect to employment and income during the construction phase is assessed to be low. As explained in section 3.12.4, Assumptions and Limitations the effects of the decommissioning phase are expected to be the same or less than during the construction phase. Therefore, the likely significance of effects relating to the construction phase assessment would be applicable to the decommissioning phase,
Sensitivity Test	There would be no difference in the preliminary effects assessed if the construction were to commence in any year up to year five.
Preliminary likely significance of effect	**Not Significant**
Confidence in prediction	**High** Based on comprehensive baseline data and understanding of the employment required for the Proposed Project.

Social cohesion and community identity

3.12.9.13 Table 3.12.27 provides the preliminary assessment of social cohesion and community identity.

Table 3.12.27: Preliminary assessment of social cohesion and community identity

	Preliminary assessment
Receptor	**Human receptors in communities near to the Proposed Project**
Potential Impact	Roads bordering the Kent Onshore Scheme may be used by construction or decommissioning traffic which could increase traffic and community severance between neighbourhoods. This could reduce access to neighbourhood community facilities and in turn, reduce social cohesion, affecting mental health. Additionally, impacts on landscape and visual amenity arising from the Proposed Project, during construction and operation, could have an impact on resident's mental health. This could be linked to pride around their local area and uncertainty surrounding the Kent Onshore Scheme and the impacts it will have visually.

	Preliminary assessment
Proposed Project phase	Construction, maintenance, operation and decommissioning
Duration	Construction, maintenance, decommissioning – short term, temporary Operation – long term
Mitigation	As set out in **Volume 1, Part 3, Chapter 2, Landscape and Visual** and **Volume 1, Part 3, Chapter 8, Traffic and Transport**
Preliminary sensitivity	General Population - **Medium** Baseline data with respect to health and wellbeing varies, with some indicators in line or better than national averages, but other outcomes falling below average. The local population is also older than regional and national averages. With respect to landscape and visual amenity, given the relatively rural setting, the local area could be sensitive to changes in visual effects potentially impacting quality of life for residents, should local tranquillity be impacted. Therefore, the sensitivity of the population is assessed to be medium.
Preliminary magnitude	**Low** **Volume 1, Part 3, Chapter 8, Traffic and Transport** sets out a reasonable worst-case assessment of the traffic and transport effects of the Kent Onshore Scheme during the construction phase, as discussed above. The predicted increase in traffic per hour/minute during peak movements is relatively low and the duration of impact is short-term. With the proposed mitigation in place, there is likely to be no significant effects on transport and access during the construction and decommissioning phases. The operational and maintenance phases have been scoped out of the EIA, as detailed in **Volume 1, Part 3, Chapter 8, Traffic and Transport**, due to the limited number of operatives manning the site and only infrequent additional trips to site. Additionally, the preliminary assessment of severance in **Volume 1, Part 3, Chapter 8, Traffic and Transport,** states that there are likely to be no significant severance impacts to any receptors. This will be reviewed further as part of the ES. **Volume 1, Part 3, Chapter 2, Landscape and Visual** provides an assessment of the potential disruption to landscape and visual receptors as a result of the Proposed Project. There are only likely to be a small number of significant effects, according to the

	Preliminary assessment
	preliminary assessment within **Volume 1, Part 3, Chapter 2, Landscape and Visual**, and there will be a Landscape and Ecological Management Plan (LEMP), along with many other mitigation measures. The landscape and visual chapter will go into further depth in the ES. Increased traffic flows and severance effects may inhibit local residents' ability to access neighbouring communities and social contacts, however the extent of this will be limited given the duration of this effect is temporary and there are likely to be no significant effects arising in terms of traffic and transport. Given the above and the limited impact of significant effects regarding landscape and visual amenity which are expected to be isolated and impact a relatively small proportion of the population, the magnitude of effect is assessed as low across all phases.
Sensitivity Test	There would be no difference in the preliminary effects assessed if the construction were to commence in any year up to year five.
Preliminary likely significance of effect	**Not Significant**
Confidence in prediction	**Moderate** Based on **Volume 1, Part 3, Chapter 8, Traffic and Transport** and **Volume 1, Part 3, Chapter 2, Landscape and Visual.**

3.12.10 Summary

3.12.10.1 Table 3.12.28 presents a summary of the preliminary assessment of health and wellbeing effects of the Proposed Project.

Table 3.12.28: Summary of the preliminary assessment of health and wellbeing

Receptor	Sensitivity	Magnitude	Significance of Effect
Access to healthcare services - increased demand for healthcare services	General - Medium Over 65s sub-population – High	Negligible (construction and decommissioning)	Not Significant
Access to healthcare services - Increased traffic and severance, reducing access to healthcare facilities	General - Medium Over 65s sub-population – High	Low (construction and decommissioning)	Not Significant
Access to other social infrastructure	Medium	Low (construction and decommissioning)	Not Significant
Access to open space, leisure and play	Medium	Negligible (construction, operation, maintenance and decommissioning)	Not Significant
Air quality	Medium	Low (construction and decommissioning) / Negligible (operation and maintenance)	Not Significant
Noise and Vibration	Medium	Low (construction and operation)	Not Significant
Transport modes, access, connections and physical activity	Medium	Low (construction, operation, maintenance and decommissioning)	Not Significant
Employment and income	Medium	Low (construction and decommissioning)	Not Significant
Social cohesion and community identity	Medium	Low (construction, operation, maintenance and decommissioning)	Not Significant

3.12.11 References

Ref 3.12.1. HM Government (2022); Health and Care Act 2022.

Ref 3.12.2. Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1).

Ref 3.12.3. Department for Energy Security and Net Zero (2023). Overarching National Policy Statement for Energy (EN-1).

Ref 3.12.4. DESNZ. (2023). National Policy Statement for Electricity Networks Infrastructure (EN-5).

Ref 3.12.5. Department for Levelling Up, Housing and Communities (DLHC). (2021). National Planning Policy Framework.

Ref 3.12.6. Ministry of Housing, Communities & Local Government (MHCLG) (2021) National Planning Practice Guidance (NPPG).

Ref 3.12.7. Institute of Environmental Management and Assessment (IEMA) (2022) Effective Scoping of Human Health in Impact Assessment.

Ref 3.12.8. IEMA (2022) Determining Significance for Human Health in Environmental Impact Assessment.

Ref 3.12.9. NHS Healthy Urban Development Unit (HUDU), (2019), Rapid Health Impact Assessment (HIA) Tool.

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