The Great Grid Upgrade

Sea Link

Preliminary Environmental Information Report

Volume: 1

Part 3 Kent Onshore Scheme

Chapter 9 Air Quality

Version A

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3.9 Air Quality

3.9.1 Introduction

3.9.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents information about the preliminary environmental assessment of the likely significant air quality 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**).

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

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

3.9.1.4 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 3, Ecology and Biodiversity;**
- **Volume 1, Part 3, Chapter 8, Traffic and Transport;**
- **Volume 1, Part 3, Chapter 12, Health and Wellbeing;** and
- **Volume 1, Part 3, Chapter 13, Kent Onshore Scheme Intra-Project Cumulative Effects.**

3.9.1.5 This chapter is supported by the following figures:

- **Volume 3, Part 1, Figure 1.1.3, Kent Onshore Scheme Boundary;**
- **Volume 3, Part 1, Figure 1.4.20, Kent Onshore Scheme Traffic Routes During Construction and Operation;**
- **Volume 3, Part 3, Figure 3.9.1, Non-Road Mobile Machinery (NRMM) and Diesel Generator Emissions Study Area;**
- **Volume 3, Part 3, Figure 3.9.2, Air Quality Baseline;**
- **Volume 3, Part 3, Figure 3.9.3, Construction Vehicle Emissions Study Area;**
- **Volume 3, Part 3, Figure 3.9.A.1, Kent Construction Dust Assessment Study Area;**
- **Volume 3, Part 3, Figure 3.9.A.2, Construction Dust Receptor Distance Bands for Earthworks and Construction Activities;** and

- **Volume 3, Part 3, Figure 3.9.A.3, Construction Dust Receptor Distance Bands for Trackout Activities.**

3.9.1.6 This chapter is supported by the following appendices:

- **Volume 2, Part 1, Appendix 1.4.A, Outline Code of Construction Practice**;
- **Volume 2, Part 1, Appendix 1.4.F, Outline Schedule of Environmental Commitments and Mitigation Measures;**
- **Volume 2, Part 3, Appendix 3.9.A, Construction Dust Assessment and Methodology;** and
- **Volume 2, Part 3, Appendix 3.9.B, Air Quality Monitoring Data.**

3.9.2 Regulatory and Planning Context

3.9.2.1 This section sets out the legislation and planning policy that is relevant to the preliminary air quality 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.

3.9.2.2 Policy generally seeks to minimise air quality effects from development and to avoid significant adverse effects. This applies particularly to traffic emissions associated with the construction of the Proposed Project and the impact of this on human health and ecology. This also applies to the dust emissions during the construction of the Proposed Project.

Legislation

3.9.2.3 A summary of the international, national and local legislation, planning policy and guidance relevant to the air quality assessment for the Proposed Project is set out below.

Directive 2008/50/EC on ambient air quality and cleaner air for Europe

3.9.2.4 The 2008 Air Quality Directive (2008/50/EC) (Ref. 3.9.1) sets legally binding limits for concentrations of specific air pollutants. It merges, consolidates and replaces the majority of previous EU legislation, and incorporates the Fourth Daughter Directive. Whilst the UK has now left the EU, the Air Quality Standards Regulations 2010 (as amended) (Ref. 3.9.2) which implement the Directive still apply in UK legislation as 'retained EU law'.

Part IV of the Environment Act (1995, amended 2021)

3.9.2.5 The Environment Act 1995 (Ref. 3.9.3) contains provisions for protecting air quality in the UK and for local air quality management. It requires the UK Government to produce a national Air Quality Strategy, which contains standards, objectives and measures for improving ambient air quality, and defines Local Air Quality Management. It introduced an obligation on local authorities to issue, where the air quality standards are not being met, an order designating an Air Quality Management Area.

3.9.2.6 The Environment Act 2021 (Ref. 3.9.4) has two main functions:

1. To give a legal framework for environmental governance in the UK.

2. To bring in measures for the improvement of the environment in relation to waste, resource efficiency, air quality, water, nature and biodiversity, and conservation.

3.9.2.7 The majority of the Act does not make any immediate changes for organisations other than regulators. Legislative requirements relevant to air quality include the requirement for the Secretary of State to set targets for particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). The Environmental Targets (Fine Particulate Matter) England Regulations 2023 (Ref. 3.9.5) sets out the following targets for $PM_{2.5}$:

- Annual Mean Concentration Target ('concentration target') – a target of 10 micrograms per cubic metre (µg/m³) to be met across England by 2040.
- Population Exposure Reduction Target ('exposure reduction target') – a 35% reduction in population exposure by 2040 (compared to a base year of 2018).

3.9.2.8 There is currently no advice from Defra on how these targets will be assessed in the planning system, however given the nature of the Proposed Project, it is unlikely to affect these targets.

Air Quality Standards Regulations

3.9.2.9 The Air Quality Standard Regulations 2010 (Ref. 3.9.2) implement EU Directive (2008/50/EC) on ambient air quality and cleaner air for Europe and remain in force in domestic law following EU exit as 'retained EU law'.

3.9.2.10 Pursuant to the European Union (Withdrawal) Act 2018 (Ref. 3.9.6), law derived from the EU has been converted into domestic law following the UK's withdrawal from the EU. The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (Ref. 3.9.7) made amendments to the Air Quality Standards Regulations 2010 (Ref. 3.9.2) to transpose provisions of the EU Ambient Air Quality Directive (2008/50/EC) (Ref. 3.9.1).

Air Quality (England) Regulations

3.9.2.11 The Air Quality (England) Regulations 2000 (Ref. 3.9.8) and the Air Quality (England) (Amendment) Regulations 2002 (Ref. 3.9.9) set national air quality objective levels for local authorities to meet in England. The Air Quality Strategy (AQS) objectives for pollutants considered within this assessment are in Table 3.9.1.

Table 3.9.1: Air Quality Objectives

Pollutant	Air Quality Objective	
	Concentration (µg/m³)	Averaging Period
Nitrogen Dioxide (NO_2)	40	Annual mean
	200	1-hour mean; not to be exceeded more than 18 times a year
	40	Annual mean

Pollutant	Air Quality Objective	
	Concentration (µg/m^3)	Averaging Period
Particulate Matter less than 10 microns in diameter (PM_{10})	50	24-hour mean; not to be exceeded more than 35 times a year
$PM_{2.5}$	20*	Annual mean

** It should be noted that the $PM_{2.5}$ objective is a target value and is not in the 2010 regulations as a legal requirement to be achieved by local authorities.*

Environmental Protection Act 1990

3.9.2.12 Part III of the Environmental Protection Act 1990 provides legislation around statutory nuisance, which applies to dust.

The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018

3.9.2.13 This regulation sets out gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for Non-Road Mobile Machinery (NRMM).

National Policy

National Policy Statements

3.9.2.14 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.

3.9.2.15 Table 3.9.2 and Table 3.9.3 below provides details of the elements of NPS for Energy (EN-1) (Ref. 3.9.10) and NPS for Electricity Networks Infrastructure (EN-5) (Ref. 3.9.11) 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).

3.9.2.16 Sections of the current consultation draft of National Policy Statements for Energy (EN-1) (Ref. 3.9.12) and Electricity Networks Infrastructure (EN-5) (Ref. 3.9.13) relevant to air quality have also been considered in Table 3.9.2 and Table 3.9.3.

Table 3.9.2: NPS EN-1 requirements relevant to air quality

NPS EN-1 section	Where this is covered in the PEIR
5.2.1 (part) Infrastructure development can have adverse effects on air quality. The construction, operation and decommissioning phases can involve emissions to air which could lead to adverse impacts on health, on protected species and habitats, or on the wider countryside.	The preliminary air quality assessment has considered all phases of the Proposed Project (construction, operation/maintenance, and decommissioning) in terms of emissions to air, as detailed in Section 3.9.4 of this chapter.
5.2.3 A particular effect of air emissions from some energy infrastructure may be eutrophication, which is the excessive enrichment of nutrients in the environment. Eutrophication from air pollution results mainly from emissions of NOx and ammonia.	The preliminary assessment of air quality has considered air emissions from the Proposed Project, as detailed in Section 3.9.9 of this chapter. A more detailed assessment of air emissions from the Proposed Project on sensitive ecological receptors as a result of nutrient nitrogen deposition will be covered in the ES, where required.
5.2.4 Emissions from combustion plants are generally released through exhaust stacks. Design of exhaust stacks, particularly height, is the primary driver for the delivery of optimal dispersion of emissions and is often determined by statutory requirements. The optimal stack height is dependent upon the local terrain and meteorological conditions, in combination with the emission characteristics of the plant.	A preliminary assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and presented in Section 3.9.9. A more detailed assessment of air emissions from the Proposed Project will be covered in the ES once further data is available, where required.
5.2.6 Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the Environmental Statement (ES).	A preliminary assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 3.9.9.
5.2.7 The ES should describe: *any significant air emissions, their mitigation and any residual effects distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project;* *the predicted absolute emission levels of the proposed project, after mitigation methods have been applied;* *existing air quality levels and the relative change in air quality from existing levels; and*	A preliminary assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 3.9.9. Mitigation measures are summarised in Section 3.9.8. A more detailed assessment of air emissions will be undertaken in the ES, once more data is available.

NPS EN-1 section	Where this is covered in the PEIR
any potential eutrophication impacts.	
5.2.8 Many activities involving air emissions are subject to pollution control.	A construction dust assessment has been undertaken to identify mitigation to limit dust pollution and is presented in **Volume 2, Part 3, Appendix 3.9.A, Construction Dust Assessment and Methodology**. Mitigation measures are summarised in Section 3.9.8.
5.2.9 The Infrastructure Planning Commission (IPC) should generally give air quality considerations substantial weight where a project would lead to a deterioration in air quality in an area, or leads to a new area where air quality breaches any national air quality limits. However air quality considerations will also be important where substantial changes in air quality levels are expected, even if this does not lead to any breaches of national air quality limits.	A preliminary assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 3.9.9. The assessment is based on criteria set out in Section 3.9.4 which includes consideration of changes in air quality concentrations based on the Institute of Air Quality Management (IAQM) guidance on planning and development control (Ref. 3.9.14).
5.2.11 The IPC should consider whether mitigation measures are needed both for operational and construction emissions over and above any which may form part of the project application. A construction management plan may help codify mitigation at this stage.	Construction dust mitigation measures have been incorporated into **Volume 2, Part 1, Appendix 1.4.A, Outline Code of Construction Practice** and presented in **Volume 2, Part 3, Appendix 3.9.A, Construction Dust Assessment and Methodology**. Consideration of mitigation measures needed during operation will be provided in the ES following a detailed air quality assessment.
Consultation Draft EN-1	
Consultation Draft 5.2.9 Defra publishes future national projections of air quality based on estimates of future levels of emissions, traffic, and vehicle fleet. Projections are updated as the evidence base changes and the applicant should ensure these are current at the point of an application. The applicant's assessment should be consistent with this but may	Current and future Defra air quality background concentrations as well as local air quality monitoring has been used in the preliminary assessment of air quality effects to determine where the Proposed Project is likely to have adverse impacts on air quality. The background concentrations are reported in Section 3.9.7.

NPS EN-1 section	Where this is covered in the PEIR
include more detailed modelling to demonstrate local impacts.	
Consultation Draft 5.2.10 Where a proposed development is likely to lead to a breach of the air quality thresholds or affect the ability of a non-compliant area to achieve compliance within the timescales set out in the most recent relevant air quality plan at the time of the decision, the applicant should work with the relevant authorities to secure appropriate mitigation measures to ensure that those thresholds are not breached.	A detailed air quality assessment will be carried out at the ES stage once further data is available. This will determine whether the Proposed Project is likely to lead to a breach of the air quality thresholds or affect the ability of a non-compliant area to achieve compliance.
Consultation Draft 5.2.11 The Secretary of State should consider whether mitigation measures are needed both for operational and construction emissions over and above any which may form part of the project application. A construction management plan may help codify mitigation at this stage. In doing so the Secretary of State should have regard to the Air Quality Strategy or any successor to it and should consider relevant advice within Local Air Quality Management guidance.	Preliminary mitigation measures are reported in Section 3.9.8. Further detail will be presented in the ES, and will confirm whether mitigation measures are required in addition to those which form part of the final design.

Table 3.9.3: NPS EN-5 requirements relevant to air quality

NPS EN-5 section	Where this is covered in the PEIR
2.10.2 (part) The Applicant will need to consider whether the proposed line will cause such problems at any point along its length and take this into consideration in the preparation of the ES (see Section 4.2 of EN-1).	Emissions from the Proposed Project and their significance in terms of air quality based on the data available to date is presented in Section 3.9.9 for construction dust, NRMM emissions and substation back-up generator emissions. Significance of emissions from construction vehicle emissions will be determined in the ES.

3.9.2.17 The draft version of the Overarching National Policy Statement for Electricity Networks Infrastructure (EN-5) published in March 2023 (Ref. 3.9.13) does not include any further requirements relevant to air quality.

National Planning Policy Framework

3.9.2.18 The National Planning Policy Framework (NPPF) (Ref. 3.9.15) has the potential to be considered important and relevant to the SoS' consideration of the Proposed Project. Table 3.9.4 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 3.9.4: NPPF requirements relevant to air quality

NPPF section	Where this is covered in the PEIR
174 'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.'	A preliminary assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have significant adverse impacts on air quality and is presented in Section 3.9.9. A more detailed assessment of air emissions will be undertaken in the ES, once more data is available.

National Planning Practice Guidance

3.9.2.19 The National Planning Practice Guidance (NPPG) (Ref. 3.9.16) includes guidance relating to: planning and air quality; the role of Local Plans with regard to air quality; when air quality is likely to be relevant to a planning decision; what should be included within an air quality assessment and how impacts on air quality can be mitigated. The assessment follows the guidance which contains recommendations when undertaking an air quality assessment for the purpose of applying NPPF policy.

Local Planning Policy

3.9.2.20 The Kent Onshore Scheme is illustrated on **Figure 1.1.3 Kent Onshore Scheme Boundary** and is located within the administrative boundary of Kent County Council (KCC) and the Thanet District Council (TDC) and Dover District Council (DDC) local planning authority areas. Planning guidance which is relevant to a study of air quality and has informed the assessment of preliminary effects in this chapter are as follows:

- Kent and Medway Energy and Low Emissions Strategy (Ref. 3.9.17);
- Dover District Council Core Strategy (Ref. 3.9.18);
- Draft Dover District Local Plan to 2040 (Ref. 3.9.19); and
- Thanet District Council Local Plan (Ref. 3.9.20).

3.9.2.21 Local planning policies which are relevant to air quality and have informed the assessment of preliminary effects in this chapter are detailed in Table 3.9.5, Table 3.9.6 and Table 3.9.7.

Table 3.9.5: Local Planning Policies relevant to Air Quality - Dover District Council Core Strategy

Dover District Council Core Strategy	Where this is covered in the PEIR
2.23 Air Quality – *'Dover suffers from air quality issues. The main sources of pollution that contribute to poor air quality are road traffic associated with the trunk roads leading to the Port…'*	A preliminary assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 3.9.9. A more detailed assessment of air emissions will be undertaken in the ES, once more data is available.

Table 3.9.6: Local Planning Policies relevant to Air Quality - Dover District draft Local Plan to 2040

Draft Dover District Local Plan to 2040 (Ref 9.19)	Where this is covered in the PEIR
NE4 Air Quality – *'Development proposals that might lead to a significant deterioration in air quality or national air quality objectives being exceeded, either alone, or in combination with other committed development, will be required to submit an Air Quality Assessment, carried out in accordance with the relevant guidance and utilising the DEFRA Emissions Factor Toolkit, to be agreed with the Local Planning Authority as part of planning applications. Such an Assessment should address:* *A - The cumulative effect of further emissions arising from the proposals; and,* *B - The proposed mitigation measures, including appropriate design and offsetting measures, which would prevent National Air Quality Objectives being exceeded or would reduce the extent of any air quality deterioration.* *Major development proposals will be required to demonstrate a shift to the use of sustainable low emission transport, in accordance*	A preliminary assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 3.9.9. Significant air emissions are identified together with mitigation and residual effects. A more detailed assessment of air emissions will be undertaken in the ES, once more data is available. Proposed mitigation is set out in Section 3.9.8. **Volume 1, Part 3, Chapter 8, Traffic and Transport** and **Volume 2, Part 1, Appendix 1.4.C, Construction Transport Management Plan** assesses the impact of the Proposed Project on the traffic network, and how any impacts will be managed and mitigated. Intra-project cumulative effects are assessed in **Volume 1, Part 3, Chapter 13, Kent Onshore Scheme Intra-Project Cumulative Effects**.

Draft Dover District Local Plan to 2040 (Ref 9.19)	Where this is covered in the PEIR
with Policy TI 1, in order to minimise the impact of vehicle emissions on air quality and how such a modal shift will be achieved. Proposals which will result in National Air Quality Objectives being exceeded will not be permitted.'	

Table 3.9.7: Local Planning Policies relevant to Air Quality - Thanet District Council Local Plan

Thanet District Council Local Plan	Where this is covered in the PEIR
Policy SE05 – Air Quality – *'… New development must ensure that users are not significantly adversely affected by the air quality and include mitigation measures where appropriate…'*	A preliminary assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 3.9.9. A more detailed assessment of air emissions will be undertaken in the ES, once more data is available. Proposed mitigation is set out in Section 3.9.8.
Policy SE05 – Air Quality – *'…All developments which either individually or cumulatively are likely to have a detrimental impact on air quality will be required to submit an Air Quality and/or Emissions Mitigation Assessment in line with the Air Quality Technical Planning Guidance 2016'*	A preliminary assessment of air quality effects has been undertaken to determine where the Proposed Project is likely to have adverse impacts on air quality and is presented in Section 3.9.9. A more detailed assessment of air emissions will be undertaken in the ES, once more data is available. Proposed mitigation is set out in Section 3.9.8. **Volume 1, Part 3, Chapter 8, Traffic and Transport** and **Volume 2, Part 1, Appendix 1.4.C, Construction Transport Management Plan** assesses the impact of the Proposed Project on the traffic network, and how any impacts will be managed and mitigated. Intra-project cumulative effects are assessed in **Volume 1, Part 3, Chapter 13, Kent Onshore Scheme Intra-Project Cumulative Effects**.
Policy SE05 – Air Quality – *'The Emission Mitigation Assessment should address any proposed*	Preliminary measures to mitigate the impact of the Proposed Project on air quality are presented in Section 3.9.8. Further detail will

Thanet District Council Local Plan	Where this is covered in the PEIR
mitigation measures through good design and offsetting… These will be of particular importance within the urban Air Quality Management Area (AQMA)…'	be presented in the ES, and will confirm whether mitigation measures are required in addition to those which form part of the final design. This may be particularly relevant to the Thanet Urban AQMA.

3.9.3 Scoping Opinion and Consultation

Scoping

3.9.3.1 A Scoping Report (Ref 9.20) for the Proposed Project was issued to the Planning Inspectorate (PINS) on 24 October 2022 and a Scoping Opinion (Ref. 3.9.21) was received from the Secretary of State (SoS) on 1 December 2022. Table 3.9.8 sets out the 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 3.9.8: Comments raised in the Scoping Opinion

ID	Inspectorate's comments	Response
4.8.1	**Air quality impacts from an increase in vehicle emissions -construction, operation maintenance, and decommissioning** The Scoping Report proposes to scope out these matters on the basis that it is not considered that construction, operational, maintenance and decommissioning traffic flows associated with the Proposed Development would exceed the Institute of Air Quality Management (IAQM) criteria for a detailed air quality assessment. The Inspectorate would expect the ES to provide a detailed explanation of the likely traffic flows during all phases of the Proposed Development to justify not undertaking further assessment. Cross reference should be made to the assessments of effects on Ecology and Biodiversity and on Human Health.	Preliminary traffic flows have been compared with the IAQM criteria (Ref. 3.9.14) and are summarised in **Volume 2, Part 3, Appendix 3.8.F, Preliminary Highway Impact Assessment.** Further details of traffic data are located in **Volume 1, Part 3, Chapter 8, Traffic and Transport**. A more detailed assessment will be undertaken at ES stage, once detailed traffic data is available. See **Volume 1, Part 3, Chapter 3, Ecology and Biodiversity** for ecology and biodiversity assessment and **Volume 1, Part 3, Chapter 12, Health and Wellbeing** for the health and wellbeing assessment.
4.8.2	**Emissions from NRMM - construction and decommissioning**	The preliminary assessment of air quality effects includes

ID	Inspectorate's comments	Response
	The Scoping Report proposes to scope out this matter on the basis that emissions would not be significant due to the temporary and transient nature of construction activity and incorporation of best practice measures included within the Code of Construction Practice (CoCP). Whilst the Inspectorate considers that emissions from NRMM are unlikely to be significant in most cases, in the absence of detail regarding the location of construction works with respect to receptors and the type and duration of NRMM to be deployed, the Inspectorate does not consider that this matter may be scoped out based on current evidence. The ES should include an assessment of emissions from NRMM on sensitive receptors where significant effects are likely.	consideration of emissions from NRMM and is presented in Section 3.9.9. Emissions from NRMM will be considered further in the ES in accordance with the Scoping Opinion.

3.9.3.2 On receipt of preliminary traffic data, a detailed air quality assessment has been screened-in. In the Scoping report a detailed assessment was screened-out. This change is due to the preliminary traffic data cumulatively exceeding the IAQM (Ref. 3.9.14) screening criteria. See Section 3.9.9 for further information.

Consultation and Project Engagement

3.9.3.3 Engagement with consultees has been primarily through the Scoping Opinion and through the data requests made to consultees to inform the baseline conditions.

3.9.3.4 Additional engagement with DDC and TDC to agree the scope of the assessment will be undertaken and reported in the ES following receipt of the detailed traffic data.

3.9.4 Approach and Methodology

3.9.4.1 **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 air quality assessment.

Guidance Specific To The Air Quality Assessment

3.9.4.2 The preliminary air quality assessment has been carried out in accordance with the following good practice guidance documents:

- Institute of Air Quality Management Guidance on the Assessment of Dust from Demolition and Construction Version 1.1 (2016) (Ref. 3.9.23);
- Institute of Air Quality Management and Environmental Protection UK: Land-use Planning & Development Control: Planning for Air Quality (2017) (Ref. 3.9.14);
- Local Air Quality Management Technical Guidance (2022) (Ref. 3.9.24); and
- Highways England (now National Highways) Design Manual for Roads and Bridges (DMRB) LA 105 Air Quality Guidance (2019) (Ref. 3.9.25).

Baseline Data Gathering And Forecasting Methods

3.9.4.3 Thanet District Council (TDC) has carried out passive diffusion tube NO_2 monitoring at 39 sites across the district and automatic monitoring at two sites as shown in the TDC Annual Status Report (Ref. 3.9.27). TDC air quality monitoring is summarised in Section 3.9.7 and presented in **Figure 3.9.2 Air Quality Baseline**.

3.9.4.4 The air quality baseline described in this section has been informed by the following data sources:

- Defra UK Air website (Ref. 3.9.28) – to establish predicted background concentrations for NO_2, PM_{10} and $PM_{2.5}$ and to determine existing AQMAs.
- Local authority websites and annual Air Quality Status Reports – to determine existing AQMAs and local air quality monitoring results:
  - Dover District Council Annual Status Report 2022 (Ref. 3.9.26);
  - Thanet District Council Annual Status Report 2022 (Ref. 3.9.27);
  - Thanet District Council Air Quality Planning Guidance (Ref. 3.9.29);
  - KentAir website (Ref. 3.9.30);
  - LondonAir website (Ref. 3.9.31); and
  - Kent and Medway Air Quality Monitoring Network Annual Report 2021 (Ref. 3.9.32).
- MAGIC website (Ref. 3.9.33) – to identify ecological sites within the air quality study areas.
- Air Pollution Information Service (APIS) (Ref. 3.9.34) – to identify any habitats or features of designated sites that are sensitive to nutrient nitrogen and acid deposition.
- Details regarding the ecological sites within the air quality study area, as outlined in **Volume 1, Part 3, Chapter 3, Ecology and Biodiversity.**

3.9.4.5 There is sufficient existing monitoring collected by DDC and TDC, therefore no project specific air quality monitoring has been undertaken.

3.9.4.6 Defra background concentrations (Ref. 3.9.28), as detailed further in Section 3.9.7, and traffic data (reported in **Volume 2, Part 3, Appendix 3.8.F, Preliminary Highway Impact Assessment** and **Volume 1, Part 3, Chapter 8, Traffic and Transport**) will be used to help forecast the future air quality baseline scenarios of 2026 and 2031 in the ES.

Assessment Criteria

3.9.4.7 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.

Construction Dust Emissions

3.9.4.8 During the construction phase, there is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been assessed in accordance with the methodology outlined in the IAQM construction dust guidance (Ref. 3.9.23). The methodology is summarised in the following paragraphs and detailed assessment steps are presented in **Volume 1, Part 3, Appendix 3.9.A, Construction Dust Assessment and Methodology**.

3.9.4.9 There is also the potential for fugitive dust emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction dust is considered applicable in relation to decommissioning.

Sensitivity

3.9.4.10 The sensitivity of the area to dust impacts, can be defined as low, medium or high sensitivity, in accordance with IAQM construction dust guidance (Ref. 3.9.23). This terminology is consistent with that in the IAQM construction dust guidance (Ref. 3.9.23) and has therefore been used in the assessment, rather than that set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**.

3.9.4.11 The influencing factors to define receptor sensitivity to dust impacts are as follows:

- High – where human receptors expected to be present continuously for extended periods of time e.g. residential properties, hospitals, schools and care homes. Internationally or nationally designated ecological sites;
- Medium – where users would expect to enjoy a reasonable level of amenity and value could be diminished by dust soiling e.g. parks and places of work. Nationally designated ecological sites; and
- Low – where enjoyment of amenity would not reasonably be expected and exposure would be for limited periods e.g. footpaths, shopping streets and car parks. Locally designated ecological sites.

3.9.4.12 The IAQM construction dust guidance (Ref. 3.9.23) defines a human receptor as *"any location where a person or property may experience the adverse effects of airborne dust or dust soiling, or exposure to PM over a time period relevant to the air quality objectives, as defined in the Government's technical guidance for Local Air Quality Management. In terms of annoyance effects, this will most commonly relate to dwellings, but may also refer to other premises such as buildings housing cultural heritage collections (e.g. museums and galleries), vehicle showrooms, food manufacturers, electronics manufacturers, amenity areas and horticultural operations (e.g. salad or soft-fruit production)."*

3.9.4.13 An ecological receptor is defined as *"any sensitive habitat affected by dust soiling. This includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats)".*

Magnitude

3.9.4.14 The scale and nature of the works determines the magnitude of dust arising as small, medium or large. This terminology is consistent with that in the IAQM construction dust guidance (Ref. 3.9.23) and has therefore been used in the assessment, rather than that set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**.

3.9.4.15 The relevant criteria to define the potential magnitude of dust emission includes the following factors:

- Small – demolition volume under 12,000m^3 less than 6m above ground level, total site area less than 18,000m^2, soil type with large grain size, construction material with low potential for dust release, less than 20 Heavy Duty Vehicle (HDV) trips per day, unpaved road length less than 50m etc;
- Medium – demolition volume 12,000m^3 – 75,000m^3 6m – 12m above ground level, total site area 18,000m^2 – 110,000m^2, moderately dusty soil type, potentially dusty construction material, 20 to 50 HDV trips per day, unpaved road length 50 – 100m etc.; and
- Large – demolition volume greater than 75,000m^3, on-site crushing and screening demolition, demolition activities greater than 12m above ground level, total site area greater than 110,000m^2, more than 10 heavy earth moving vehicles active at any one time, on site concrete batching, sandblasting, more than 50 HDV trips per day, unpaved road length greater than 100m etc.

Significance of effects

3.9.4.16 The IAQM construction dust guidance (Ref. 3.9.23) categorises the unmitigated risk of dust impacts on human health and amenity (rather than ascribe a significance of effect) as a means of identifying the level of dust emissions mitigation required to ensure that residual effects are 'not significant'. The risk of dust impact categories are presented in Tables 3.9.A.6 to 3.9.A.8 **Volume 2, Part 3, Appendix 3.9.A, Construction Dust Assessment and Methodology**. A higher dust risk rating requires more stringent mitigation measures (Section 3.9.8) in order to limit residual effects.

Vehicle Emissions

3.9.4.17 The assessment of the impacts of vehicle emissions from traffic related to the construction phase of the Proposed Project is based on the IAQM development control guidance (Ref. 3.9.14). This provides screening criteria indicating the thresholds above which an assessment may be necessary. There are thresholds for the daily flows of light duty vehicles and heavy-duty vehicles (3.5t), which vary depending on whether an AQMA is present or not. Where the criteria are met, an assessment is generally considered necessary to determine the concentrations of pollutants in ambient air at human or ecological receptors adjacent to the roads that meet the criteria. The IAQM screening criteria are as follows:

- A change in Light Duty Vehicle (LDV) flows of >100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA, or >500 AADT elsewhere;
- A change in HDV flows of >25 AADT within or adjacent to an AQMA, or >100 AADT elsewhere;
- Where a road is realigned by 5m or more and is within an AQMA; and
- Where a junction is added or removed close to existing receptors.

3.9.4.18 There is also the potential for vehicle emissions during the decommissioning phase. Vehicle trip rates associated with the decommissioning phase are not available. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction vehicle emissions is considered applicable for decommissioning.

3.9.4.19 During the operational and maintenance phase, the Proposed Project will be manned by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. Staff vehicles and those used for maintenance are primarily expected to be pickup trucks and vans, with HGVs rarely accessing the site. Therefore, due to the low level of trips likely to be generated, which would be well below the IAQM screening criteria, air quality impacts associated with operational phase vehicle emissions will be negligible and have been scoped out of further assessment.

Sensitivity

3.9.4.20 Should screening of the relevant data indicate that any of the IAQM criteria for the daily flows of light duty vehicles and heavy-duty vehicles are met, then potential impacts of vehicle emissions at sensitive receptor locations will be assessed at ES stage (once detailed traffic information is available) by calculating the change in NO_2 and particulate matter concentrations as a result of the Proposed Project.

3.9.4.21 LAQM.TG(22) (Ref. 3.9.24) defines a sensitive receptor as a location representative of human (or ecological) exposure to a pollutant, over a time period relevant to the objective that is being assessed against, where the Air Quality Strategy objectives are considered to apply, as detailed in Table 3.9.9.

Table 3.9.9: Examples of Where the AQS Objectives Apply

Averaging Period	Objectives Should Apply At	Objectives Should Not Apply At
Annual Mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
24-Hour Mean	All locations where the annual mean objective would apply, together with hotels and gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term.
1-Hour Mean	All locations where the annual mean and 24-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.

Magnitude

3.9.4.22 If required, detailed dispersion modelling will be undertaken using Atmospheric Dispersion Modelling Software (ADMS) to predict pollutant concentrations at worst case receptor locations within 200m of affected vehicle routes. The magnitude of change will be calculated and total concentrations compared against relevant AQS objectives.

Significance of effects

3.9.4.23 The significance of effects will be assessed in the ES, in accordance with the IAQM development control guidance (Ref. 3.9.14) dependent upon the percentage change in concentration between the 'without and with Proposed Project' scenarios, relative to the relevant air quality objectives, as presented in Table 3.9.10.

Table 3.9.10: IAQM Impact Descriptors for Individual Receptors

Long Term Average Concentration at Receptor in Assessment Year	% Change in Concentration Relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 – 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 – 102% of AQAL	Slight	Moderate	Moderate	Substantial
103 – 109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

3.9.4.24 The IAQM guidance (Ref. 3.9.14) notes that the impact descriptors in Table 3.9.10 are for individual receptors only and the overall significance of effect should be determined using professional judgement, taking into the degree of impact and factors such as:

- The existing and future air quality in the absence of the development;
- The extent of current and future populations exposure to the impact; and
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

Non-Road Mobile Machinery Emissions

3.9.4.25 The assessment of construction phase Non-Road Mobile Machinery (NRMM) emissions is based on the IAQM development control guidance (Ref. 3.9.14) and professional judgement. The IAQM development control guidance (Ref. 3.9.14) includes an indicative threshold for oxides of nitrogen (NO_x) emissions from construction plant. Should the single or combined emissions be below the threshold of 5mg/second, the impact on air quality is unlikely to give rise to significant effects.

3.9.4.26 There is also the potential for NRMM emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction phase NRMM emissions is considered applicable in relation to decommissioning.

Sensitivity

3.9.4.27 Should screening of the relevant data indicate that any of the single or combined emissions from any of the construction plant exceed the IAQM threshold criteria, potential impacts at sensitive receptor locations will be assessed at ES stage (once further details about the proposed plant is available) by calculating the change in NO_2 and particulate matter concentrations as a result of the Proposed Project.

3.9.4.28 As stated previously, LAQM.TG(22) (Ref. 3.9.24) defines a sensitive receptor as a location representative of human (or ecological) exposure to a pollutant, over a time period relevant to the objective that is being assessed against, where the Air Quality Strategy objectives are considered to apply, as detailed in Table 3.9.9.

Magnitude

3.9.4.29 If required, detailed dispersion modelling will be undertaken using ADMS to predict pollutant concentrations at worst case receptor locations. The magnitude of change will be calculated and total concentrations compared against relevant AQS objectives in Table 3.9.1.

Significance of effects

3.9.4.30 The significance of effects will be assessed in accordance with the IAQM development control guidance (Ref. 3.9.14) where the overall significance of the project in terms of NRMM emissions would then be determined using professional judgement, taking into account factors such as the baseline and future air quality in the absence of the Proposed Project, the number of receptors affected (this will be determined using the IAQM Impact Descriptors shown in Table 3.9.10) and the influence and validity of any assumptions adopted when undertaking the assessment.

Substation Back-Up Generator Emissions

3.9.4.31 As described in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**, a back-up diesel generator is proposed at Minster Substation during the operational phase. This has been assessed following the methodology outlined for the assessment of NRMM emissions.

Switchgear Emissions

3.9.4.32 Whilst the proposed Minster substation is anticipated to include Gas Insulated Switchgear (GIS), which use sulphur hexafluoride gas as an electrical insulator, this is a greenhouse gas rather than a local air quality pollutant and manufacturers now produce GIS switchgear which have no or minimal leakage. As such, this has not been considered further in the assessment.

Assumptions and Limitations

3.9.4.33 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:

- It is assumed that all construction activities other than construction traffic will take place within the draft Order Limits;

- There is limited detail available for the proposed NRMM and back-up generators, therefore detailed assessment has not been possible at this stage and will be assessed in the ES;
- The traffic data used is provisional at this stage. Traffic data assumptions are detailed in **Volume 1, Part 3, Chapter 8, Traffic and Transport**;
- There is limited detail regarding decommissioning activities. Potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction phase air quality effects are considered applicable in relation to decommissioning; and
- It is assumed that all data provided by third parties is accurate.

3.9.5 Basis of Assessment

3.9.5.1 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.

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

Flexibility assumptions

3.9.5.3 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.

3.9.5.4 The assumptions made regarding the use of flexibility for the main assessment, and any alternatives assumptions are set out in Table 3.9.11 below.

Table 3.9.11: Flexibility Assumptions

Element of flexibility	Proposed Project assumption for initial preliminary assessment	Flexibility assumption considered
Lateral LoD HVDC cables	For the construction dust assessment, it has been assumed that construction activities would be undertaken at the draft Order Limits, as a worst case, thereby accounting for spatial flexibility in the location for the HVDC cables/converter station/overhead line.	The preliminary assessment has already considered a worst-case and therefore no flexibility in assumptions has been considered.
Lateral LoD Minster Converter Station and Minster Substation		

Element of flexibility	Proposed Project assumption for initial preliminary assessment	Flexibility assumption considered
Lateral LoD overhead line	For the assessment of the back-up diesel generator emissions, it has been assumed that the back-up diesel generators will operate on the boundary of the LoD for the Minster Converter station and substation as a worst-case assumption. The assessment of vehicle emissions is informed by traffic information outlined in **Volume 1, Part 3, Chapter 8, Traffic and Transport**. The data used are therefore subject to all flexibility assumptions detailed in **Volume 1, Part 3, Chapter 8, Traffic and Transport**.	
Vertical LoD Minster Converter Station and Minster Substation	For the preliminary construction dust assessment the maximum extent of the LoD for height and depth has been assumed. For the preliminary construction vehicle assessment it has been assumed that a change in height and depth will not affect construction vehicle numbers.	The preliminary assessment has already considered a worst-case and therefore no flexibility in assumptions has been considered in terms of construction dust. No flexibility in assumptions has been considered for construction vehicles, as vertical movement of Minster Converter Station within the LoD will not affect construction vehicle numbers.
Vertical LoD overhead line	For the preliminary construction dust assessment the maximum extent of the LoD for height and depth has been assumed. For the preliminary construction vehicle assessment it has been assumed that a change in height and depth will not affect construction vehicle numbers.	The preliminary assessment has already considered a worst-case and therefore no flexibility in assumptions has been considered in terms of construction dust. No flexibility in assumptions has been considered for construction vehicles, as vertical movement of overhead lines within the LoD will not affect construction vehicle numbers.

Consideration of Scenarios and Options

3.9.5.5 Two alternative scenarios have been considered in the preliminary assessment. 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**.

3.9.5.6 Table 3.9.12 details where these scenarios are relevant to the preliminary air quality assessment and how they have been assessed and reported in Section 3.9.9.

Table 3.9.12: Consideration of Scenarios

Assessment scenario	How it has been considered within the preliminary assessment
Pylon types	The construction dust assessment has been based on option 1 which is considered to be the worst case option (as option 1 has the most proposed pylons). However, it is considered that the outcome of the construction dust assessment would not be materially different between the options.
Permanent access to Minster converter station and substation	The construction of both the proposed access road options and construction traffic have been considered in the construction dust assessment; **Volume 1, Part 3, Appendix 3.9.A, Construction Dust Assessment and Methodology**. Construction traffic data relating to the converter station and substation has been considered when screening the need for detailed air quality assessment in Section 3.9.9.

Sensitivity Test

Programme duration sensitivity test

3.9.5.7 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. Consideration has been given as to whether the preliminary effects reported would be any different if the works were to commence in any year up to year five. The air quality assessment assumes that construction will commence in the earliest year which is considered worst-case as air quality is expected to improve with time as technology improves, therefore further sensitivity testing to deemed not necessary.

3.9.6 Study Area

Construction Dust Emissions

3.9.6.1 In accordance with the IAQM construction dust guidance (Ref 9.23), the study area for construction phase dust is:

- 350m from the draft Order Limits (based on the worst-case assumption that construction activities would occur at the site boundary) and up to 50m for ecological receptors; and
- 50m of the route(s) used by construction vehicles on the public highway, 500m from the site entrances (based on the site being classified as large in terms of trackout, as detailed in **Volume 2, Part 3, Appendix 3.9.A, Construction Dust Assessment and Methodology**).

3.9.6.2 The construction dust study area is presented in **Figure 3.9.A.1, Kent Construction Dust Assessment Study Area.**

Construction Vehicle Emissions

3.9.6.3 In accordance with the DMRB LA105 guidance (Ref. 3.9.25), the study area for vehicle emissions comprises an area within 200m of the affected road network. For this assessment, the affected road network is defined as any roads which exceed the IAQM criteria as outlined in Section 3.9.4.

3.9.6.4 Preliminary construction traffic data provided in **Volume 2, Part 3, Appendix 3.8.F Preliminary Highway Impact Assessment**, indicates that there may be exceedances of the IAQM screening criteria on several roads, including the A256 (K-BM02). Whilst this is based on 12-hour data (rather than AADT), it is considered likely that the criteria for HDVs would be exceeded. Therefore, a detailed air quality assessment of construction vehicle emissions will be undertaken in the ES as per the methodology in Section 3.9.4. The study area is an area within 200m of the Affected Road Network (ARN), as beyond this distance emitted pollutants are generally accepted to have dispersed to match background concentrations. The preliminary study area is displayed in **Figure 3.9.3 Construction Vehicle Emissions Study Area**.

Non-Road Mobile Machinery Emissions

3.9.6.5 No specific guidance exists on the definition for a study area for point sources due to the large variation in the area of potential impact from different types of sources. For the purposes of this assessment a study area of up to 200 m radius from NRMM is considered appropriate given the size and temporary nature of the operations. Beyond this distance it is judged that the effect of any emissions on local air quality would not be significant. Given the uncertainty of the locations of NRMM within the draft Order Limits at this stage, the study area has been defined as 200 m of the proposed construction compounds.

3.9.6.6 The NRMM emissions study area is presented in **Figure 3.9.1 NRMM and Diesel Generator Emissions Study Area**.

Substation Back-up Generator Emissions

3.9.6.7 As with NRMM, no specific guidance exists on the definition for a study area for generators. For the purposes of this assessment a study area of up to 200 m radius from the Minster Converter Station and Substation boundary is considered appropriate. Beyond this distance it is judged that the effect of any emissions on local air quality would not be significant. Given the uncertainty of the location of the back-up generators at this stage, the study area has been defined as 200 m of the Minster Substation compound.

3.9.6.8 The substation back-up generator emissions study area is presented in **Figure 3.9.1 NRMM and Diesel Generator Emissions Study Area**.

3.9.7 Baseline Conditions

3.9.7.1 This section of the chapter comprises an overview of the baseline conditions for air quality, in order to establish the likely type and nature of potential effects.

Baseline Environment

3.9.7.2 A review of the existing baseline has been undertaken to establish an understanding of the baseline air quality environment and to identify areas that are likely to be sensitive to changes in emissions as a result of the Proposed Project.

3.9.7.3 As required by Part VI of the Environment Act (1995) (Ref. 3.9.3), all local authorities produce Annual Status Report (ASRs) each year. The most recently available reports for Dover District Council (Ref. 3.9.26) and Thanet District Council (Ref. 3.9.27) are the 2022 ASRs which summarise air quality within each local authority during 2021.

3.9.7.4 A review of the 2022 ASR for Dover District Council (Ref. 3.9.26) confirmed that exceedances of the objectives set in the AQS have been identified in Dover, resulting in the declaration of the following AQMAs:

- A20 AQMA – declared in 2004 and amended in 2007 and 2009 for annual mean NO_2. This is an area following the A20 from just west of the Limekiln Roundabout at the western end to a point about 140m from the Eastern Docks in Dover. No longer includes properties in Marine Parade and East Cliff to the east; and
- High Street/Lady-well AQMA – declared in 2007 for annual mean NO_2. This is an area encompassing roads and properties between the junction of Effingham Crescent/High Street, and Priory Hill/High Street.

3.9.7.5 A review of the most recently published ASR for Thanet District Council (Ref. 3.9.27) confirmed that exceedances of the objectives set in the AQS have been identified in Thanet, resulting in the current declaration of the following AQMA:

- Thanet Urban AQMA – declared in 2011, this is an area encompassing a number of urban areas within Thanet for annual mean NO_2.

3.9.7.6 The AQMAs are presented in **Figure 3.9.2 Air Quality Baseline.**

3.9.7.7 There are a number of human receptors surrounding the Proposed Project. These include:

- Great Oaks Small School (E_35) is less than 50m south of the draft Order Limits along the A256.

- A residential property along Jutes lane (R_16000) 10m from the draft Order Limits and a number of residential properties along Ebbsfleet lane (both north and south of the draft Order Limits).
- To the north-east of the draft Order Limits there are some residential properties along Sandwich Road within 50m of the draft Order Limits, and a number of residential properties along Cottington road.
- To the south-west of the draft Order Limits there is a residential receptor (R_26628) along Marsh Farm Road within 50m of the draft Order Limits.

3.9.7.8 The closest receptors to the Minster converter station and substation are Great Oaks Small School (E_35) and R_16000. These receptors are approximately 700m to the east of the Minster Converter Station and Minster Substation boundary.

3.9.7.9 There are several ecological receptors within the vicinity of the draft Order Limits. The closest ecological receptor is Sandwich Bay to Hacklinge Marshes Site of Special Scientific Interest (SSSI); part of the SSSI falls inside the draft Order Limits about 20m from the Minster Converter Station and Minster Substation boundary. Along the coast to the east of the Proposed Project, there is Thanet Coast & Sandwich Bay Special Protection Area (SPA), Sandwich Bay Special Area of Conservation (SAC), Sandwich Bay to Hacklinge Marshes SSSI and Thanet Coast and Sandwich Bay Ramsar which all overlap the draft Order Limits along the coast. See **Volume 1, Part 3, Chapter 3, Ecology and Biodiversity** for more information on ecological sites.

Local Authority Air Quality Monitoring Data

3.9.7.10 A review of the most recent Dover District Council and Thanet District Council ASR has been undertaken to identify the local air pollutant concentrations from a combination of passive diffusion tubes and automatic monitoring sites. The collated monitoring data relevant to the Proposed Project is in **Volume 2, Part 3, Appendix 3.9.B, Air Quality Monitoring Data** and displayed in **Figure 3.9.2 Air Quality Baseline**.

3.9.7.11 There is a total of 60 non-automatic monitoring sites for NO_2 across both Dover District Council and Thanet District Council. The results reported in the most recent ASRs (Ref. 3.9.26 and Ref. 3.9.27) did not record any exceedances of the annual mean NO_2 objective in 2021. There are 11 exceedances of the NO_2 annual mean AQS Objective since 2017, across eight sites.

3.9.7.12 There are three automatic monitoring station across both Dover District Council and Thanet District Council. ZH4 (Boundary Road, Ramsgate) and ZH5 (The Square, Birchington) are both inside Thanet Urban AQMA. The automatic monitoring results are shown in **Volume 2, Part 3, Appendix 3.9.B, Air Quality Monitoring Data** and show that there has not been an exceedance in the annual mean NO_2 AQS Objective in the last 5 years.

3.9.7.13 Across both local authorities there are two monitoring sites within 1km of the Kent Onshore Scheme. These are TH16 and TH77. Details of the tubes are presented in Table 3.9.13 and presented in **Figure 3.9.2 Air Quality Baseline**. The annual average NO_2 concentrations at both sites are well below the AQS objective (40µg/m^3) for all monitored years, as shown in **Volume 2, Part 3, Appendix 3.9.B, Air Quality Monitoring Data**.

Table 3.9.13: Thanet District Council NO_2 Monitoring Within 1km of Kent Onshore Scheme Draft Order Limits (Ref 9.27)

Monitoring Sites	X (OS Ref)	Y (OS Ref)	Site Type	Valid Data Capture 2021	2021 Annual Average NO_2 ($\mu g/m^3$)
TH16	634445	164416	Urban Background	100.0	12.8
TH77	636815	167297	Kerbside	100.0	17.8

Defra Background Concentrations

3.9.7.14 Predictions of background pollutant concentrations are periodically produced by Defra to assist local authorities in their review and assessment of air quality. These are produced for every 1km Ordnance Survey grid square in the UK. The draft Order Limits are located across a number of grid squares. Data for these grid squares were downloaded from the Defra website (Ref. 3.9.35) for the purposes of the assessment. Table 3.9.14 summarises the range of background concentrations for the current year 2023 relating to the grid squares covering the draft Order Limits and surrounding study area.

Table 3.9.14: Background Pollutant Concentrations 2023

Pollutant	Minimum Concentration ($\mu g/m^3$)	Maximum Concentration ($\mu g/m^3$)	Average Concentration ($\mu g/m^3$)	Annual Mean Air Quality Objective ($\mu g/m^3$)
NO_2	7.3	11.3	8.0	40
PM_{10}	11.8	15.3	13.6	40
$PM_{2.5}$	7.9	9.6	8.5	20

3.9.7.15 Table 3.9.14 shows that 2023 background NO_2 and particulate matter concentrations in the vicinity of the Proposed Project are well below the relevant annual mean air quality objective values.

Future Baseline

3.9.7.16 Background pollutant concentrations are predicted to decrease in future years, as evidenced by trends observed from local authority monitoring data and future predicted Defra background map concentrations.

3.9.7.17 Traffic emissions are likely to contribute to baseline air quality concentrations in the vicinity of the Proposed Project. Whilst vehicle numbers are likely to increase, emissions (per vehicle) are predicted to decrease over time due to new technology, increasingly stringent emission regulations and cleaner fuel formulations.

3.9.7.18 Consented developments in the surrounding area may increase traffic flows in the vicinity of the Proposed Project. This may therefore result in an increase in local air quality concentrations.

3.9.7.19 In addition, construction of any consented developments may result in a temporary increase in particulate concentrations as a result of fugitive dust emissions during construction works.

3.9.7.20 Data for the grid squares that cover the air quality study area were downloaded from the Defra website (Ref. 3.9.35) for the purposes of the assessment. Table 3.9.15 summarises the range of background concentrations for the earliest construction year of 2026 relating to the grid squares covering the Study Area.

Table 3.9.15: Future Background Pollutant Concentrations 2026

Pollutant	Minimum Concentration ($\mu g/m^3$)	Maximum Concentration ($\mu g/m^3$)	Average Concentration ($\mu g/m^3$)	Annual Mean Air Quality Objective ($\mu g/m^3$)
NO_2	6.7	10.5	7.4	40
PM_{10}	11.5	14.9	13.3	40
$PM_{2.5}$	7.7	9.3	8.2	20

3.9.7.21 Table 3.9.15 shows that 2026 background NO_2 and particulate matter concentrations in the vicinity of the Proposed Project are below the relevant annual mean air quality objective values.

3.9.7.22 Table 3.9.16 summarises the range of background concentrations for the proposed operational year (2031) relating to the grid squares covering the draft Order Limits. The Defra background maps (Ref. 3.9.35) do not go beyond 2030, therefore the concentrations presented are for 2030. This is considered to be conservative because background concentrations for NO_2, PM_{10} and $PM_{2.5}$ are expected to decline with time.

Table 3.9.16: Future Background Pollutant Concentrations 2030

Pollutant	Minimum Concentration ($\mu g/m^3$)	Maximum Concentration ($\mu g/m^3$)	Average Concentration ($\mu g/m^3$)	Annual Mean Air Quality Objective ($\mu g/m^3$)
NO_2	6.4	9.7	6.9	40
PM_{10}	11.6	15.0	13.4	40
$PM_{2.5}$	7.8	9.4	8.3	20

3.9.7.23 Table 3.9.16 shows that 2030 background NO_2 and particulate matter concentrations in the vicinity of the Proposed Project are below the relevant annual mean air quality objective values.

3.9.8 Mitigation

3.9.8.1 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

3.9.8.2 Embedded measures have been integral in reducing the air quality 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 Commitment and Mitigation Measures**.

Control and Management Measures

3.9.8.3 There is a comprehensive list of measures in **Volume 2, Part 1, Appendix 1.4.A, Outline Code of Construction Practice** relevant to the control and management of impacts that could affect air quality receptors. These include:

- 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.
- GG12 - Appropriate site layout and housekeeping measures will be implemented by the contractor(s) at all construction sites. This will include siting access gates to be located at least 10 m from receptors where possible.

- GG17 - Where required, wash down of vehicles and equipment will take place in designated areas within construction compounds. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps. Ensure there is an adequate area of hard surfaced road between the wash facility and the site exit, wherever site size and layout permits.
- GG19 - Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. Avoid dry sweeping of large areas.
- GG29 - Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
- GG30 - Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- AQ01 - Develop and implement a Dust Management Plan which may include measures to control other emissions, approved by the Local Authority.
- AQ02 - Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority.
- AQ03 - Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- AQ04 - Inspect on-site haul routes for integrity and investigate necessary repairs to the surface as soon as reasonably practicable. Record all inspections of haul routes and any subsequent action in a site log book. Impose and signpost a maximum-speed-limit on unsurfaced haul roads and work areas. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- AQ05 - Use enclosed chutes and conveyors and covered skips. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- AQ06 – Measures relating to materials storage. Further details included in the **Volume 2, Part 1, Appendix 1.4.A, Outline Code of Construction Practice**.
- AQ07 - Ensure all equipment complies with the appropriate Non-Road Mobile Machinery standards.

Mitigation Measures

3.9.8.4 Mitigation measures are additional topic and site-specific measures that have been applied to mitigate or offset any likely significant effects.

3.9.8.5 As a result of the preliminary construction dust assessment outlined in **Volume 2, Part 3, Appendix 3.9.A, Construction Dust Assessment and Methodology,** a number of mitigation measures have been identified (**Table 3.9.A.13, Volume 2, Part 3, Appendix 3.9.A Construction Dust Assessment and Methodology**) to reduce the impact on human health and ecology. These have been incorporated into the **Volume 2, Part 1, Appendix 1.4.A, Outline CoCP.**

3.9.8.6 Any additional mitigation measures associated with construction vehicle, generator and NRMM emissions other than those measures described in the **Volume 2, Part 1, Appendix 1.4.A, Outline CoCP** will be determined in the ES following detailed assessment.

3.9.9 Preliminary Assessment of Effects

3.9.9.1 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 3.9.8.

Construction Dust

3.9.9.2 Table 3.9.17 presents the preliminary assessment of construction dust.

Table 3.9.17: Preliminary assessment of Construction Dust Emissions

	Preliminary assessment
Receptor	Between 10 and 100 human receptors within 350m of the draft Order Limits[1]. Three ecological receptors with medium sensitivity within 50m of the draft Order Limits.
Potential Impact	Construction dust arising from trackout (transportation of dust and dirt onto the public road network), earthworks and construction activities which may impact upon human health, soils and ecological receptors
Proposed Project phase	Construction and decommissioning phase
Duration	For the duration of the construction and decommissioning phases
Mitigation	Mitigation summarised in Section 3.9.8
Preliminary sensitivity	The preliminary sensitivity of the surrounding area is summarised in Table 3.9.A.11 of **Volume 2, Part 3, Appendix 3.9.A, Construction Dust Assessment and Methodology.** The sensitivity of the surrounding area to dust soiling is considered medium from earthworks and construction and low from trackout activities. The sensitivity of the surrounding area for human health is considered low for earthworks, construction and trackout activities. The ecological sensitivity of the surrounding area is considered medium for earthworks, construction and trackout activities.
Preliminary magnitude	The preliminary magnitude of the construction activities is summarised in Table 3.9.A.9 of the Construction Dust

[1] Based on thresholds set out in Table 3.9.A.3 in Appendix 3.9.A Construction Dust Assessment and methodology.

	Preliminary assessment
	Assessment (**Volume 2, Part 3, Appendix 3.9.A, Construction Dust Assessment and Methodology)**. The magnitude of the dust emissions is considered to be medium for earthworks and large for construction and trackout activities.
Preliminary likely significance of effect	Not Significant assuming mitigation measures in Section 3.9.8 are adopted.
Sensitivity Test	No difference in significance of effect
Confidence in prediction	High

Construction Vehicle Emissions

3.9.9.3 Preliminary traffic data has been provided for the peak construction year (2029) across the traffic network. As stated in Paragraph 3.9.6.4, the traffic data presented in **Volume 2, Part 3, Appendix 3.8.F Preliminary Highway Impact Assessment** indicates that there may be exceedances of the IAQM screening criteria due to the increase in HDV movements associated with the construction phase. Therefore, a detailed air quality assessment will be undertaken at ES stage to assess the impact on air quality at human and ecological receptors within 200m of the ARN.

3.9.9.4 Table 3.9.18 presents the preliminary assessment of construction vehicle emissions.

Table 3.9.18: Preliminary assessment of Construction Vehicle Emissions

	Preliminary assessment
Receptor	Human Receptors: Great Oaks Small School (E_35), R_8335, R_11056, R_6709, R_12489, R_1895 Ecological Receptors: None
Potential Impact	Increase in NO_2 and particulate matter concentrations at sensitive receptors within 200m of the ARN.
Proposed Project phase	Construction and decommissioning phases.
Duration	For the duration of the construction and decommissioning phases.
Mitigation	To be identified in the ES following detailed modelling.
Preliminary sensitivity	Human receptors have high sensitivity.
Preliminary magnitude	To be determined in the ES following detailed modelling.
Preliminary likely significance of effect	To be determined in the ES following detailed modelling.

	Preliminary assessment
Confidence in prediction	To be determined in the ES following detailed modelling.

Non-Road Mobile Machinery Emissions

3.9.9.5 Table 3.9.19 presents the preliminary assessment of NRMM Emissions

Table 3.9.19: Preliminary assessment of NRMM Emissions

	Preliminary assessment
Receptor	Human and ecological receptors within 200m of NRMM.
Potential Impact	Increase in NO_2 and particulate matter concentrations at human and ecological receptor locations.
Proposed Project phase	Construction and decommissioning phase.
Duration	For the duration of the construction and decommissioning phases.
Mitigation	Measures GG13, AQ14 and AQ15.
Preliminary sensitivity	High.
Preliminary magnitude	Low.
Preliminary likely significance of effect	Not Significant, based on the information available to date.
Confidence in prediction	Moderate. Further assessment to be undertaken at ES stage once more detailed information is available.

Operation and Maintenance

3.9.9.6 During the operational and maintenance phase, the Proposed Project will be manned by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. Staff vehicles and those used for maintenance are primarily expected to be pickup trucks and vans, with HGVs rarely accessing the site. Therefore, due to the low level of trips likely to be generated, which would be well below the IAQM screening criteria, air quality impacts associated with operational phase vehicle emissions have been determined to be Not Significant.

3.9.9.7 Table 3.9.20 presents the preliminary assessment of substation back-up generator emissions.

Table 3.9.20: Preliminary assessment of Substation Back-up Generator Emissions

	Preliminary assessment
Receptor	No residential properties or ecological sites within 200m of the Minster Converter Station and Substation limits of deviation. The closest receptor is Great Oaks Small School (E_35) over 500m to the west of the boundary. There is one ecological receptor (Sandwich Bay to Hacklinge Marshes) 20m to the south and 20m to the west of the Minster Converter Station and Substation limits of deviation.
Potential Impact	Increase in NO_2 and particulate matter concentrations at ecological receptor locations.
Proposed Project phase	Operation phase.
Duration	Throughout the operation phase, when the back-up generator is required.
Mitigation	None
Preliminary sensitivity	Low
Preliminary magnitude	Low
Preliminary likely significance of effect	Not Significant, based on the information available to date.
Confidence in prediction	Moderate. Further assessment to be undertaken at ES stage once more detailed information is available.

3.9.10 Summary

3.9.10.1 The construction dust risk assessment undertaken for the construction phase determined that the worst-case risk of dust effects would be medium. Appropriate measures have been identified and incorporated into the CoCP. With the implementation of these measures, the effect of construction dust is considered to be **Not Significant** for the Kent Onshore Scheme of the Proposed Project.

3.9.10.2 There is also the potential for fugitive dust emissions during the decommissioning phase. It is considered that the potential effects on air quality associated with the decommissioning phase are considered to be similar to those identified during the construction phase. With the implementation of these measures, the effect of dust associated with the decommissioning phase is considered to be **Not Significant.**

3.9.10.3 Preliminary traffic data in **Volume 2, Part 3, Appendix 3.8.F, Preliminary Highway Impact Assessment** shows there are potential exceedances of the IAQM screening criteria. Therefore a detailed assessment will be undertaken for the ES Onshore Scheme Proposed Project to determine the significance once detailed traffic data is available.

3.9.10.4 There is also the potential for vehicle emissions during the decommissioning phase. Vehicle trip rates associated with the decommissioning phase are not available. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase which will be considered further in the ES.

3.9.10.5 During the operational and maintenance phase, the Proposed Project will be manned by a limited number of operatives across the site, with additional infrequent trips associated with maintenance/inspections or repairs when required. Staff vehicles and those used for maintenance are primarily expected to be pickup trucks and vans, with HGVs rarely accessing the site. Therefore, due to the low level of trips likely to be generated, which would be well below the IAQM indicative criteria, air quality impacts associated with operational phase vehicle emissions have been determined to be **Not Significant.**

3.9.10.6 Review of a high-level equipment list has identified potential air quality emissions sources from NRMM including a number of dumper trucks and other diesel powered machinery. Given the good practice measures in place, the plant used and their temporary and transient use, as well as the low background concentrations, NRMM emissions are considered to be **Not Significant** at this stage within the Kent Onshore Scheme of the Proposed Project. However, the effects of NRMM emissions will be re-assessed at ES stage once further details are available regarding the type of equipment, location and duration of use.

3.9.10.7 There is also the potential for NRMM emissions during the decommissioning phase. Details regarding decommissioning phase activities are limited. However, the potential effects on air quality associated with the decommissioning phase are considered to be similar to those risks identified during the construction phase. As such, the assessment undertaken for construction phase NRMM emissions is considered applicable in relation to decommissioning.

3.9.10.8 The backup diesel generator associated with Minster Substation would be situated within the Minster Substation boundary. Given that the generator is a back-up, it would be used very infrequently. Additionally, background NO_2, PM_{10} and $PM_{2.5}$ concentrations are very low. The substation back-up generator emissions are therefore considered to be **Not Significant** at this stage. However, the effects of the back-up generator emissions will be re-assessed at ES stage once further details are available regarding the type of generator, location and duration of use.

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