The Sizewell C Project

6.10 Volume 9 Rail

Chapter 5 Air Quality

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

May 2020

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

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5.1 Introduction

5.1.1 This chapter of **Volume 9** of the **Environmental Statement (ES)** presents an assessment of the potential air quality effects arising from the construction, operation, removal and reinstatement (as relevant) of the proposals relating to rail.

The proposals considered in this volume (together referred to as the 'proposed development') are as follows:

- the part of the green rail route comprising a temporary rail extension of approximately 1.8km from the existing Saxmundham to Leiston branch line to the proposed B1122 (Abbey Road) level crossing (the 'proposed rail extension route') as shown on **Figure 2.1** of this volume;
- Saxmundham to Leiston branch line upgrades (including track replacement and level crossing upgrades) (the 'proposed rail improvement works') as shown as **Figures 2.11** of this volume of the **ES**; and
- the additional train movements along the East Suffolk Line from Westerfield to Saxmundham, resulting from the construction of the Sizewell C main development site.

5.1.2 The proposed green rail route in its entirety comprises of a temporary rail extension of approximately 4.5km from the existing Saxmundham to Leiston branch line to a terminal within the main development site. The part of the green rail route between the proposed B1122 (Abbey Road) level crossing and the terminal within the main development site is detailed in **Volume 2, Chapters 1** to **5** and assessed in **Volume 2** of the **ES**.

5.1.3 Once the proposed rail extension route is no longer required for the construction of the Sizewell C Project, it would be removed and the land reinstated, however the other rail improvement works would be permanent.

5.1.4 Detailed descriptions of the proposed development sites (referred to throughout this volume as the 'site' as relevant to the location of the works), the proposed development and different construction, operation and removal and reinstatement phases are provided in **Chapters 1** and **2** of this volume of the **ES**. A glossary of terms and list of abbreviations used in this chapter is provided in **Volume 1**, **Appendix 1A** of the **ES**.

5.1.5 This assessment has been informed by the **Transport Assessment** (Doc Ref. 8.5), in particular the road traffic data which has been modelled to assess the potential impacts from road traffic emissions in the vicinity of the proposed development.

5.1.6 This assessment has also been informed by data presented in the following technical appendices contained in the **ES**:

- **Volume 2, Appendix 12B**: Transport Emissions Assessment;
- **Volume 9, Appendix 5A**: Dust Risk Assessment for Green Rail Route; and
- **Volume 9, Appendix 5B**: Dust Risk Assessments for Saxmundham to Leiston Branch Line Upgrades.

5.2 Legislation, policy and guidance

5.2.1 **Volume 1, Appendix 6H** of the **ES** identifies and describes legislation, policy and guidance of relevance to the assessment of the potential air quality impacts associated with the Sizewell C Project across all **ES** volumes.

5.2.2 This section provides an overview of the specific legislation, policy and guidance of relevance to the assessment of the proposed development.

a) International

5.2.3 International legislation relating to the air quality assessment include:

- European Ambient Air Quality Directive 2008 (2008/50/EC).
- Fourth Air Quality Daughter Directive 2004 (2004/107/EC).

5.2.4 The requirements of these, as relevant to the air quality assessment, are set out in **Volume 1**, **Appendix 6H**.

b) National

5.2.5 National legislation and policies relating to the air quality assessment include:

- Air Quality Standards Regulations 2010 (Ref 5.1).
- National Air Quality Strategy (Ref. 5.2).

5.2.6 The Overarching National Policy Statement for Energy (EN-1) (Ref. 5.3) and National Policy Statement for Nuclear Power Generation (EN-6) (NPS EN-6) (Ref. 5.4) set out requirements for air quality associated with the development of major energy infrastructure. These requirements are discussed in detail in **Volume 1, Appendix 6H**. Requirements specific to these sites are set out in **Table 5.1**.

Table 5.1: Requirements of the national policy statements.

Ref.	National Policy Statement Topic Requirement.	How the Requirement has been addressed.
NPS EN-6	'*During operation, the traffic generated by the operational workforce has the potential to create longer-term adverse effects on air quality. Traffic and air quality assessments should be undertaken as part of the detailed EIA process, and likely mitigations may include highway improvements, traffic and construction management plans and the use of rail and port facilities where possible.'*	The proposed development would cease operation following the completion of the main development site. Therefore, no assessment during the operational phase of the main development site is required for the proposed development.

c) Regional

5.2.7 Regional policy relating to the air quality assessment includes the Suffolk Local Transport Plan, Parts 1 and 2 (Ref. 5.5).

5.2.8 The requirements of this, as relevant to the air quality assessment, are set out in **Volume 1**, **Appendix 6H** of the **ES**.

d) Local

5.2.9 Local policies relating to the air quality assessment include:

- Suffolk Coastal District Council Core Strategy and Development Management Policies (Ref. 5.6) and
- Suffolk Coastal District Council Final Draft Local Plan (Ref. 5.7).

5.2.10 The requirements of these, as relevant to the air quality assessment, are set out in **Volume 1**, **Appendix 6H** of the **ES**.

e) Guidance

5.2.11 Guidance relating to the air quality assessment include:

- Highways England's, Sustainability and Environment Appraisal LA 105 Air Quality (Ref. 5.8);
- Institute of Air Quality Management (IAQM) and Environmental Protection UK Land-Use Planning and Development Control: Planning for Air Quality (Ref. 5.9);
- IAQM, Guidance on the Assessment of Dust from Demolition and Construction Sites (Ref. 5.10);
- IAQM, A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Ref. 5.11); and
- National Atmospheric Emissions Inventory (NAEI) Emission Factors (Ref. 5.12)

5.2.12 Further details of these, as relevant to the air quality assessment, are set out in **Volume 1, Appendix 6H** of the **ES**.

5.3 Methodology

a) Scope of the assessment

5.3.1 The generic Environmental Impact Assessment (EIA) methodology is detailed in **Volume 1**, **Chapter 6** of the **ES**.

5.3.2 The full method of assessment for air quality that has been applied for the Sizewell C Project is included within **Volume 1**, **Appendix 6H** of the **ES**.

5.3.3 This section provides specific details of the air quality methodology applied to the assessment of the proposed development, and a summary of the general approach to provide appropriate context for the assessment that follows. The scope of assessment considers the impacts of the construction and operation of the proposed development. Consideration has been given to air quality effects arising from construction dust (arising from construction activities and non-road mobile machinery (NRMM) during both the construction and removal and reinstatement phases), road traffic emissions during both the construction and removal and reinstatement phases, and road and rail traffic emissions during operation.

5.3.4 A screening exercise, as detailed below, has been undertaken for the upgrades on the level crossings on the Saxmundham to Leiston branch line which has reviewed the works proposed. Where the works are considered to have potential likely significant effects, these have been assessed. The

scope of assessment considers the impacts of the upgrade works and operational use of the branch line.

5.3.5 The scope of this assessment has been established through a formal EIA scoping process undertaken with the Planning Inspectorate. A request for an EIA scoping opinion was initially issued to the Planning Inspectorate in 2014, with an updated request issued in 2019 (**Volume 1, Appendix 6A** of the **ES**).

5.3.6 Comments raised in the EIA scoping opinion received in 2014 and 2019 have been taken into account in the development of the assessment methodology. These are detailed in **Volume 1**, **Appendix 6C** of the **ES**. Project-wide comments but no site-specific comments were raised.

b) Consultation

5.3.7 The scope of the assessment has also been informed by ongoing consultation and engagement with statutory consultees throughout the design and assessment process. Consultation on the assessment methodology and conclusions for the main development site and associated developments, including the green rail route and Saxmundham to Leiston branch line upgrades, has been undertaken with Suffolk County Council (SCC) and East Suffolk Council (ESC). A summary of consultation relating to the air quality assessment is provided in **Volume 1**, **Appendix 6H** of the **ES**.

c) Environmental Screening

5.3.8 The proposed rail extension route and track upgrades to the Saxmundham to Leiston branch line have the potential to result in environmental effects which could be significant, and therefore these works have been considered in the environmental assessment.

5.3.9 An environmental screening exercise was undertaken to identify which of the level crossing upgrade works on the Saxmundham to Leiston branch line may give rise to environmental effects that could potentially be significant. This concluded that all of the level crossing upgrade works could be screened out of the air quality assessment as they are not likely to give rise to significant environmental effects as individual developments. In addition, the cumulative effects of the proposed level crossing improvements are not likely to have significant effects at sensitive receptors.

5.3.10 **Table 5.2** provides detail of the environmental screening exercise.

Table 5.2: Summary of environmental screening exercise.

Proposed Level Crossing Improvement.	Summary of Potential Effects.	Screened In or Out of the Assessment.
Bratts Black House. Upgrade to miniature stop light.	Upgrade to level crossing would not involve road realignment or greater than 100 heavy duty vehicle (HDV) annual average daily traffic (AADT), therefore air quality effect at nearby receptors likely to be **not significant.**	Screened out.
Knodishall Upgrade to automatic barrier crossing locally monitored.	Upgrade to level crossing would not involve road realignment or greater than 100 HDV AADT, therefore air quality effect at nearby receptors likely to be **not significant.**	Screened out.
West House. Upgrade to automatic barrier crossing locally monitored.	Upgrade to level crossing would not involve road realignment or greater than 100 HDV AADT, therefore air quality effect at nearby receptors likely to be **not significant.**	Screened out.
Snowdens Upgrade to miniature stop light.	Upgrade to level crossing would not involve road realignment or greater than 100 HDV AADT, therefore air quality effect at nearby receptors likely to be **not significant.**	Screened out.
Saxmundham Road. Upgrade to automatic barrier crossing locally monitored.	Upgrade to level crossing would not involve road realignment or greater than 100 HDV AADT, therefore air quality effect at nearby receptors likely to be **not significant.**	Screened out.
Buckles Wood. Upgrade to miniature stop light.	Upgrade to level crossing would not involve road realignment or greater than 100 HDV AADT, therefore air quality effect at nearby receptors likely to be **not significant.**	Screened out.
Summerhill. Upgrade to miniature stop light.	Upgrade to level crossing would not involve road realignment or greater than 100 HDV AADT, therefore air quality effect at nearby receptors likely to be	Screened out.

Proposed Level Crossing Improvement.	Summary of Potential Effects.	Screened In or Out of the Assessment.
	not significant.	
Leiston Upgrade to train crew operated barrier with assistance.	Upgrade to level crossing would not involve road realignment or greater than 100 HDV AADT, therefore air quality effect at nearby receptors likely to be **not significant.**	Screened out.

d) Study area

5.3.11 The geographical extent of the study area, determined using methodology set out in **Volume 1**, **Appendix 6H** of the **ES**, for dust emissions includes:

- the proposed development sites for rail extension route and the Saxmundham to Leiston branch line upgrades; and
- the area within 350 metres (m) from the site boundary, and 350m from public roads up to 500m from the site entrance.

5.3.12 Additionally, the study area for road traffic and rail emissions includes the B1069, the B1119 and the B1121, sections of which all fall within 500m of the site boundary.

5.3.13 The changes to air pollutant concentrations on the wider transport network are considered in the Transport Emissions Assessment (**Volume 2, Appendix 12B** of the **ES**).

5.3.14 The study area and the locations of representative receptors are illustrated in **Figure 5.1** and **Figure 5.2** of this chapter. Receptors LE3, LE16 to LE18, LE20, LE55 and LE56 are marked twice on the figure as the nearest point of a sensitive receptor to road traffic emissions (for example 'LE3'), and the nearest point at the same property to the source of construction dust emissions (for example 'LE3c') are different.

e) Assessment scenarios

5.3.15 The assessment scenarios for the proposed rail extension route and proposed improvement works comprise the construction phase and operational phase. The assessment also considers the removal and reinstatement phase of the proposed rail extension route.

5.3.16 For the purpose of the air quality assessment, the following scenarios have been assessed:

- Construction – consideration of ambient air quality and dust impacts during the construction of the proposed rail extension route and proposed improvement works during the early years of construction of the Sizewell C Project (2023). The construction programme is likely to take place over a duration of up to 18 months. The assessment is divided into on-site emissions from construction activities and off-site emissions from road traffic movements only.
- Operation – the assessment of the operation phase considers the off-site emissions from both road traffic on the highway network and rail traffic using the proposed rail extension route during the peak construction year of the Sizewell C Project (2028).
- Removal and reinstatement – consideration of ambient air quality and dust impacts during the removal and reinstatement of the proposed rail extension route. The removal and reinstatement programme are likely to take place over a duration of up to five months. The assessment considers on-site emissions from demolition activities and off-sit emissions from road traffic movements.

5.3.17 The traffic composition and flow data come from the **Transport Assessment** (Doc Ref. 8.5) for the baseline, construction (2023) and operation (2028) scenarios. This information is inherently cumulative as it includes traffic flows associated with consented developments. Separate modelling for the removal and reinstatement has not been completed. However, the number of additional traffic movements associated with the removal and reinstatement of the site is not anticipated to be greater than the construction phase (2023), therefore, a qualitative assessment is presented on this basis.

f) Assessment criteria

5.3.18 As described in **Volume 1**, **Chapter 6H** of the **ES**, the EIA methodology considers whether impacts of the proposed rail extension route and rail improvement works would have an effect on any resources or receptors.

5.3.19 A detailed description of the assessment methodology used to assess the potential effects on the air quality arising from the proposed development is provided in **Volume 1, Appendix 6H** of the **ES**. A summary of the assessment criteria used in this assessment is presented in the following sub-sections.

i. Construction dust

5.3.20 The assessment of construction dust effects (also considered in the removal and reinstatement phase) is determined by considering the magnitude of impacts and sensitivity of receptors that could be affected in order to classify effects.

5.3.21 The significance of effects for construction phase dust emissions (including the use of NRMM) are determined using professional judgement based on the risk of dust impacts and the appropriateness of mitigation to control emissions of dust and exhaust emissions from NRMM identified with the **Code of Construction Practice** (**CoCP**) (Doc Ref. 8.11).

5.3.22 A detailed description of the assessment methodology used to assess the potential effects on air quality arising from construction dust and emissions from NRMM is provided in **Volume 1**, **Appendix 6H** of the **ES**. A summary of the assessment criteria used in the construction dust assessment is presented in the following sub-sections.

Sensitivity

5.3.23 The assessment of assigning the levels of sensitivity to receptors is set out in **Table 5.3**.

Table 5.3: Assessment of the value or sensitivity of receptors for air quality.

Sensitivity	Human Perception of Dust Soiling Effects.	PM_{10} Health Effects.	Ecological Dust Deposition Effects.
High	Experience a high level of amenity; appearance, aesthetics or value of property would be diminished by soiling; and receptor expected to be present continuously or regularly; for example, residential, museums, car showrooms or commercial horticulture.	Public present for eight hours per day or more, for example, residential, schools, care homes.	International/national designation and the designated feature is sensitive to dust soiling effects; for example, Special Areas of Conservation (SACs) for acid heathlands, or lichens, vascular species on Red Data List (Joint Nature Conservation Committee, JNCC).
Medium	Enjoy a reasonable level of amenity; appearance, aesthetics or value of property could be diminished by soiling; receptor not expected to be present continuously or regularly; for example,	Only workforce present (no residential or high sensitivity receptors) eight hours per day or more.	Important plant species - unknown sensitivity to dust soiling; national designation which may be sensitive, for example, site of special scientific interest (SSSI) with dust sensitive feature.

Sensitivity	Human Perception of Dust Soiling Effects.	PM_{10} Health Effects.	Ecological Dust Deposition Effects.
	parks or places of work.		
Low	Enjoyment of amenity not reasonably expected; appearance or aesthetics or value of property not diminished by soiling; receptors are transient or present for limited period of time; for example, playing fields, farmland, footpaths, short-term car parks* and roads.	Transient human exposure, for example, footpaths, playing fields, parks.	Local designation where feature may be sensitive to dust soiling, for example, local nature reserve.

**subject to typical usage, could be high sensitivity depending on the duration and frequency that cars would be expected to be parked there, and the level of amenity expected.*

Magnitude

5.3.24 The magnitude of risk to air quality from construction dust is based on IAQM (Ref. 5.10) suggested criteria.

5.3.25 The descriptors used to classify the potential magnitude of emissions from construction and removal and reinstatement activities are the first step in establishing the risks to air quality using the classifications shown in **Table 5.4**.

Table 5.4: Dust emission magnitude classification.

Unmitigated Dust Emission Magnitude.	Demolition	Earthworks	Construction	Trackout
High	Total building volume greater than 50,000m^3, potentially dusty construction material (for example, concrete) on-site crushing and screening, demolition activities greater	Site area greater than 1ha, potentially dusty soil type (for example, clay), greater than 10 heavy earth moving vehicles at once, bunds greater than 8m high, total material moved greater	Total building volume greater than 100,000m^3, on-site concrete batching, sandblasting.	Greater than 50 heavy duty vehicles (HDV)[1] (3.5t) peak outward movements per day, potentially dusty surface material (for example, high clay content), unpaved road

[1] The term heavy duty vehicles (HDV) is used as an extension of heavy good vehicles (HGVs) to include consideration of other heavy vehicles, for examples buses and/or coaches

Unmitigated Dust Emission Magnitude.	Demolition	Earthworks	Construction	Trackout
	than 20m above ground.	than 100,000t.		length greater than100m.
Medium	Total building volume 20,000-50,000m^3, potentially dusty construction material, demolition activities 10-20m above ground.	Site area 0.25-1ha, moderately dusty soil type (for example silt), 5-10 heavy earth moving vehicles at once, bunds 4-8m high, total material moved 20,000-100,000t.	Total building volume 25,000-100,000m^3, potentially dusty materials for example concrete, on-site concrete batching.	10-50 HDV (greater than 3.5t) peak outward movements per day, moderately dusty surface material (for example high clay content), unpaved road length 50-100m.
Low	Total building volume less than 20,000m^3, construction material with low potential for dust (for example metal/timber), demolition activities less than 10m above ground, demolition during wetter months.	Site area less than 0.25, large grain soil type (for example sand), less than 5 heavy earth moving vehicles at once, bunds less than 4m high, total material moved less than 20,000t.	Total building volume less than 25,000m^3, low dust potential construction materials e.g. metal/timber.	Less than 10 HDV (greater than 3.5t) peak outward movements per day, surface material low dust potential, unpaved road length less than 50m.

Effect definitions

5.3.26 The risk definitions for dust emissions during different activities are shown in **Table 5.5** to **Table 5.7**.

Table 5.5: Risk of dust impacts – demolition.

Sensitivity of Area.	Potential Dust Emission Magnitude Without Mitigation.		
	Large	Medium	Small
High	High risk.	Medium risk.	Medium risk.
Medium	High risk.	Medium risk.	Low risk.
Low	Medium risk.	Low risk.	Negligible risk.

Table 5.6: Risk of dust impacts – earthworks, construction.

Sensitivity of Area.	Potential Dust Emission Magnitude Without Mitigation.		
	Large	Medium	Small
High	High risk.	Medium risk.	Low risk.
Medium	Medium risk.	Medium risk.	Low risk.
Low	Low risk.	Low risk.	Negligible risk.

Table 5.7: Risk of dust impacts – trackout.

Sensitivity of Area.	Potential Dust Emission Magnitude Without Mitigation.		
	Large	Medium	Small
High	High risk.	Medium risk.	Low risk.
Medium	Medium risk.	Low risk.	Negligible risk.
Low	Low risk.	Low risk.	Negligible risk.

5.3.27 Based on the risk level of dust impacts, suitable mitigation should be applied to reduce the potential effects from dust emissions. The significance of dust effects is determined based on the mitigation proposed.

ii. Transport emissions

5.3.28 A detailed description of the assessment methodology used to assess the potential effects on air quality arising from the proposed rail extension route and proposed improvement works is provided in **Volume 1**, **Appendix 6H** of the **ES**. A summary of the assessment descriptors used in the Transport Emissions Assessment (**Volume 2, Appendix 12B** of the **ES**) is presented in the following sub-sections.

Magnitude

5.3.29 The magnitude of impact from road and rail traffic emissions is based on IAQM (Ref. 5.9) suggested descriptors.

5.3.30 The descriptors for the assessment of magnitude of impact are shown in **Table 5.8**.

Table 5.8: Assessment of transport emission magnitude of impact on air quality.

Magnitude of Change Descriptor.	Substance	Annual Mean Concentration (µg/m3).	Justification
High	NO_2 and PM_{10}.	Increase/decrease greater than 4.	Change in concentration relative to air quality

Magnitude of Change Descriptor.	Substance	Annual Mean Concentration (µg/m3).	Justification
	$PM_{2.5}$.	Increase/decrease greater than 2.5.	objective value of greater than 10%.
Medium	NO_2 and PM_{10}.	Increase/decrease 2 to 4.	Change in concentration relative to air quality objective value of between 6% and 10%.
	$PM_{2.5}$.	Increase/decrease 1.4 to 2.5.	
Low	NO_2 and PM_{10}.	Increase/decrease 0.8 to 1.9.	Change in concentration relative to air quality objective value of between 2% and 5%.
	$PM_{2.5}$.	Increase/decrease 0.5 to 1.3.	
Very Low	NO_2 and PM_{10}.	Increase/decrease 0.4 to 0.7.	Change in concentration relative to air quality objective value of 1%.
	$PM_{2.5}$.	Increase/decrease 0.3 to 0.4.	
Imperceptible	NO_2 and PM_{10}.	Increase/decrease less than 0.4.	Change in concentration relative to air quality objective value of less than 1%.
	$PM_{2.5}$.	Increase/decrease less than 0.3.	

Effect definition

5.3.31 The definitions of effect of transport emissions for air quality are shown in **Table 5.9** and **Table 5.10**.

Table 5.9: Effect descriptors for Annual Mean NO2 and PM10.

Annual Mean Pollutant Concentration at Receptor in Assessment Year (µg/m^3).	Magnitude of Impact.				
	Imperceptible	Very Low.	Low	Medium	High
Less than or equal to 30.2	Negligible	Negligible	Negligible	Minor	Moderate
Greater than 30.2 to 37.8	Negligible	Negligible	Minor	Moderate	Moderate
Greater than 37.8 to 41.1	Negligible	Minor	Moderate	Moderate	Major
Greater than 41.1 to less than 43.8	Negligible	Moderate	Moderate	Major	Major

Annual Mean Pollutant Concentration at Receptor in Assessment Year (µg/m^3).	Magnitude of Impact.				
	Imperceptible	Very Low.	Low	Medium	High
Greater than or equal to 43.8	Negligible	Moderate	Major	Major	Major

Table 5.10: Effect descriptors for Annual Mean $PM_{2.5}$.

Annual Mean Pollutant Concentration at Receptor in Assessment Year (µg/m^3).	Magnitude of Impact.				
	Imperceptible	Very Low.	Low	Medium	High
Less than or equal to 18.9	Negligible	Negligible	Negligible	Minor	Moderate
Greater than 18.9 to 23.6	Negligible	Negligible	Minor	Moderate	Moderate
Greater than 23.6 to 25.6	Negligible	Minor	Moderate	Moderate	Major
Greater than 25.6 to less than 27.4	Negligible	Moderate	Moderate	Major	Major
Greater than or equal to 27.4	Negligible	Moderate	Major	Major	Major

5.3.32 Following the classification of an effect as presented in **Table 5.9** and **Table 5.10**, a clear statement is made as to whether the effect is 'significant' or 'not significant'. As a general rule, major and moderate effects are considered to be significant and minor and negligible effects are considered to be not significant. However, professional judgement is also applied where appropriate. Where there is an increase in pollutant concentration resulting from the proposed development, the effect is adverse. Where there is a decrease in pollutant concentration, the effect is beneficial.

g) Assessment methodology

5.3.33 The methodology for the assessment of changes in air pollutant concentrations is set out in detail within **Volume 1**, **Appendix 6H** of the **ES**. The general approach is described in the following sections.

5.3.34 The change in air quality conditions is considered at sensitive receptors that are representative of changes that would occur at other sensitive receptors

located nearby. The representative receptors (shown on **Figure 5.1 of** this chapter) are the closest to the site boundary or the affected road network within the study area.

5.3.35 The magnitude of change in air pollutant concentrations of construction dust deposition rates would be greatest at these representative receptor locations. Assessment of the representative receptors therefore represents a worst-case assessment of the potential construction dust effects.. The sensitivity of individual representative receptors to construction dust is set out in **Appendix 5A** and **Appendix 5B** of this chapter.

5.3.36 All receptors are considered to be of equal sensitivity to transport emissions as any member of the public could be present, including more sensitive members such as the young, elderly or unwell. Assessment of the representative receptors therefore represents a worst-case assessment of the potential transport emission effects.

i. Construction dust

5.3.37 The assessment of likely changes in emissions of coarse particulate matter (PM_{10} and dust) has been considered at the nearest representative receptor in all directions from the site boundary. Coarse particulate matter has been assessed as these can have adverse effects on human health, amenity and ecology where levels exceed their objective values, as set out in **Volume 1, Appendix 6H** of the **ES**. Representative receptors may be located at distances where good practice guidance indicates their inclusion in this assessment would not be necessary. However, in order to undertake a robust assessment and assess a worst-case scenario, all such representative receptors have been included in the assessment regardless of their distance from the boundary.

5.3.38 There is a risk of proposed construction activities (demolition and earthworks (including vegetation and site clearance and stockpiling of soils), construction works (including construction of new road, signage and landscaping), and potential track out of dust materials onto public roads (Heavy Duty Vehicle (HDV) movements on unpaved surfaces and mud transferred onto the highway, up to 500m from site exit) giving rise to perceptible changes in dust deposition rates and to changes in concentrations of PM_{10} in air. Taking into account the sensitivity of receptors to these changes, the effectiveness of mitigation measures set out in the **CoCP** (Doc Ref. 8.11) and detailed in **section 5.5** is considered based on the professional judgement of a suitably qualified and experienced person.

5.3.39 Where the risk of a significant effect is identified in **section 5.6** of this chapter, additional site-specific secondary mitigation measures will be proposed (in **section 5.8** of this chapter) so that there are no likely significant residual effects.

ii. Transport emissions

5.3.40 The Transport Emissions Assessment (refer to **Volume 2**, **Appendix 12B** of the **ES**) details the technical dispersion modelling method and predicted air pollutant concentrations resulting from HDVs, light duty vehicles (LDVs) and rail traffic for all scenarios of the Sizewell C Project on the wider transport network. NO_2, PM_{10} and $PM_{2.5}$ are assessed as these can cause adverse effects to human health and ecology at levels exceeding their objective values.

5.3.41 In summary, dispersion modelling of road and rail transport emissions was carried out to predict baseline pollutant concentrations from existing road and rail traffic, expected concentrations in the early and peak years of the development accounting for pollutant emissions from projected transport flows without the development and a quantification of the impact of the proposed development in each year. Concentrations of NO_2, PM_{10} and $PM_{2.5}$ were predicted at existing receptors that could be affected by the proposed development.

5.3.42 The traffic model used for the assessment included data for all associated developments and therefore the study area for the Transport Emissions Assessment (**Volume 2, Appendix 12B** of the **ES**) extends from Lowestoft to Ipswich for the Sizewell C Project. However, for the purposes of this assessment the roads likely to be affected by the proposed development include the B1069, the B1122, the B1119 and the B1121. This was modelled in the Transport Emissions Assessment **(Volume 2, Appendix 12B** of the **ES**). Traffic emissions are assessed for the representative year for early construction of the Sizewell C main development site (2023) and for the anticipated peak construction of the Sizewell C main development site (2028).

5.3.43 The assessment of potential impacts presented in this chapter consider the future baseline and with assessment scenarios 2023 and 2028. The future baselines for the representative years 2023 and 2028, informed by projected traffic data for these years, are used for comparison with the future construction and operation scenarios to assess how the proposed development is expected to have an effect on air quality.

5.3.44 Traffic data for the construction year (2023) of the proposed development is based on traffic flow for an average day during the 'early year' construction scenario for the Sizewell C Project. This includes construction workers and HDVs travelling to and from the main development site, the proposed development and other Sizewell C Project sites. The traffic data for the construction year (2023) does not consider rail traffic using the Saxmundham to Leiston branch line that would take place during the early years following the completion of the proposed rail improvement works before the green rail route is operational. This is considered a part of the operational assessment.

5.3.45 Traffic data for the operational year, during the peak construction of the Sizewell C Project (2028), is based on two scenarios, an average day and a busy day. These include both rail (a maximum of three freight trains) and road traffic in combination, using the proposed development and other associated developments, and construction traffic for the main development site. Busy day traffic data includes the additional traffic expected in the event of an outage at the Sizewell B power station.

h) Assumptions and limitations

5.3.46 Assumptions and limitations relevant to this assessment, for example emission rates and engine specifications, are described in **Volume 1, Appendix 6H** of the **ES**. Site-specific assumptions include the assumption that a maximum of three freight trains would use the proposed development a day (a total of 6 movements), and the emission factors for Class 66 locomotives were used in the transport emissions assessment (**Volume 2, Appendix 12B** of the **ES**).

5.3.47 In the event the vertical or lateral alignment of the route of the rail extension route shifted within the site parameters set out in **Chapter 2** of this volume, changes in air quality would be limited and unlikely to result in a material change in the conclusions of this assessment. There are no further site-specific assumptions or limitations.

5.4 Baseline environment

5.4.1 This section presents a description of the baseline environmental characteristics within the proposed development site and in the surrounding area.

a) Current baseline

i. Proposed rail extension route

5.4.2 The closest human receptors to the site are located along Saxmundham Road (LE55 and LE56), Westward Ho (LE20, LE21, LE22, LE24 and LE53), Abbey Lane (LE18, LE23 and LE54), and Abbey Road (LE2, LE3, LE15, LE16, LE17 and LE19), as identified in **Figure 5.1** of this chapter.

5.4.3 Buckle's Wood Priority Habitat Inventory lies to the west of the site boundary.

5.4.4 There are no air quality management areas within the study area for the proposed rail extension route.

5.4.5 NO_2 and particulate matter (PM_{10} and $PM_{2.5}$) 2018 background concentrations within the area of the proposed rail extension route are projected to be 6.3µg/m^3 for NO_2, between 14.5 and 14.8µg/m^3 for PM_{10} and between 8.9 and 9.0µg/m^3 for $PM_{2.5}$ (Ref. 5.12).

5.4.6 The overall predicted baseline concentrations, including nearby road traffic contributions, for pollutants NO_2, PM_{10} and $PM_{2.5}$ at sensitive receptors near the proposed rail extension route are reported in **Table 5.11**, to one decimal place. Further details on modelled 2018 baseline pollutant concentrations at receptors can be found in **Volume 2, Appendix 12B** of the **ES**.

Table 5.11: NO_2, PM_{10} and $PM_{2.5}$ concentrations for the baseline year 2018 at sensitive receptors near the proposed rail extension route.

Receptor	2018 NO_2 Concentration (µg/m^3).	2018 PM_{10} Concentration (µg/m^3).	2018 $PM_{2.5}$ Concentration (µg/m^3).
LE2	9.5	15.0	9.2
LE3	10.8	15.0	9.4
LE15	8.3	14.8	9.0
LE16	8.2	14.8	9.0
LE17	8.1	14.2	8.8
LE18	8.2	14.5	9.0
LE19	8.5	14.9	9.1
LE20	8.3	14.5	9.0
LE21	8.3	14.5	9.0
LE22	8.4	14.6	9.0

Receptor	2018 NO_2 Concentration ($\mu g/m^3$).	2018 PM_{10} Concentration ($\mu g/m^3$).	2018 $PM_{2.5}$ Concentration ($\mu g/m^3$).
LE23	8.2	14.5	9.0
LE24	8.3	14.5	9.0
LE53	8.4	14.5	9.0
LE54	8.2	14.5	9.0
LE55	9.1	14.8	9.1
LE56	10.6	14.8	9.3

5.4.7 Dust levels are related to the action of wind on exposed soils and arable fields in the area, long range transport of airborne particulate matter, and climatic conditions year to year. However, existing levels of dust are likely to be low given the arable nature of the existing land use.

ii. Saxmundham to Leiston branch line upgrades

5.4.8 The closest human receptors to the proposed improvement works are located in Saxmundham (SX4, SX16 and SX17), at Cottage Farm (SX9), along Saxmundham Road (LE8, LE55 and LE56), Westward Ho (Westward Ho (LE20, LE21, LE22 and LE53) and in Leiston (LE1, LE9, LE12, LE34 to LE38, LE24 and LE40), as identified in **Figure 5.2** of this chapter.

5.4.9 Aldringham to Aldeburgh Disused Railway Line County Wildlife Site (CWS) is approximately 750m from the site boundary. Due to the distance of the CWS from the site and affected road network, it is not included in the construction phase air quality assessment for the proposed development.

5.4.10 There are no air quality management areas within the study area for the proposed improvement works.

5.4.11 NO_2 and particulate matter (PM_{10} and $PM_{2.5}$) 2018 background concentrations in the area of the proposed rail improvement works are projected (from reference year 2017) to be between 7.9µg/m^3 and 8.8µg/m^3 for NO_2, between 13.8µg/m^3 and 16.2µg/m^3 for PM_{10} and between 8.9µg/m^3 and 9.3µg/m^3 for $PM_{2.5}$ (Ref. 5.12).

5.4.12 The overall predicted baseline concentrations, including nearby road traffic contributions predicted from the traffic data in the **Transport Assessment**, for pollutants NO_2, PM_{10} and $PM_{2.5}$ at sensitive receptors near the proposed rail improvement works are reported in **Table 5.12**. Further details on modelled 2018 baseline pollutant concentrations at receptors can be found in **Table 12B.12** to **Table 12B.14** of **Volume 2, Appendix 12B**.

Table 5.12: NO_2, PM_{10} and $PM_{2.5}$ concentrations for the baseline year 2018 at nearby sensitive receptors near Saxmundham to Leiston branch line.

Receptor	2018 NO_2 Concentration ($\mu g/m^3$).	2018 PM_{10} Concentration ($\mu g/m^3$).	2018 $PM_{2.5}$ Concentration ($\mu g/m^3$).
LE1	16.0	14.2	9.9
LE8	12.3	14.0	9.6
LE9	20.2	14.4	10.1
LE12	11.3	14.8	9.5
LE20	8.3	14.5	9.0
LE21	8.3	14.5	9.0
LE22	8.4	14.6	9.0
LE24	8.3	14.5	9.0
LE34	8.9	14.6	9.2
LE35	9.9	13.8	9.3
LE36	10.1	14.7	9.3
LE37	10.1	14.7	9.3
LE38	10.5	14.8	9.4
LE40	9.0	14.6	9.2
LE53	8.4	14.5	9.0
LE55	9.1	14.8	9.1
LE56	10.6	14.8	9.3
SX4	16.6	14.8	10.1
SX16	11.8	14.4	9.5
SX17	9.4	14.2	9.2
SX19	8.6	15.8	9.4

** All values have been rounded to the nearest decimal place.*

b) Future baseline

i. Green rail route

5.4.13 No notable changes are expected in land use in the surrounding area and it is expected that future baseline rates of dust deposition are likely to be similar to current levels.

5.4.14 NO_2 and particulate matter (PM_{10} and $PM_{2.5}$) 2023 background concentrations in the area of the proposed rail extension route are projected to be between 6.6 and 6.7$\mu g/m^3$ for NO_2, between 13.7 and 14.0$\mu g/m^3$ for PM_{10} and between 8.2 and 8.3$\mu g/m^3$ for $PM_{2.5}$ (Ref. 5.12).

5.4.15 NO_2 and particulate matter 2028 background concentrations in the area of the proposed rail extension route are projected to be 6.0µg/m^3 for NO_2, between 13.4 and 13.7µg/m^3 for PM_{10} and 8.0µg/m^3 for $PM_{2.5}$ (Ref. 5.12).

5.4.16 The effects resulting from the proposed development at potential future receptors from committed developments in the study area are represented by effects at receptors already included in the assessment. For example, air quality effects at proposed future developments south of the proposed green rail route, including developments with application reference DC/16/2104/OUT and DC/16/1961/OUT, are represented by receptor LE22, and proposed future developments east of the proposed green rail route including development DC14/3166/OUT, are represented by receptor LE2 and LE19. Therefore, no additional receptors need to be included for the future scenarios. In addition, the traffic composition and flow data come from the **Transport Assessment** (Doc Ref. 8.9) for the baseline, construction and operation scenarios. This information is inherently cumulative as it includes traffic flows associated with consented developments.

5.4.17 The future baseline pollutant concentrations at nearby sensitive receptors for the years 2023 and 2028 are presented in **Table 5.13** and **Table 5.14**, respectively, reported to one decimal place. Further details of modelled pollutant concentrations for the years 2023 and 2028 can be found in **Volume 2, Appendix 12B** of the **ES**.

Table 5.13: NO_2, PM_{10} and $PM_{2.5}$ concentrations for the baseline year 2023 at sensitive receptors near the proposed rail extension route.

Receptor	2023 NO_2 Concentration (µg/m^3).	2023 PM_{10} Concentration (µg/m^3).	2023 $PM_{2.5}$ Concentration (µg/m^3).
LE2	7.8	14.1	8.5
LE3	8.8	14.2	8.7
LE15	6.9	13.9	8.3
LE16	6.9	13.9	8.3
LE17	6.8	13.3	8.2
LE18	6.9	13.7	8.3
LE19	7.1	14.1	8.4
LE20	7.0	13.7	8.3
LE21	7.0	13.7	8.3
LE22	7.1	13.8	8.3

Receptor	2023 NO_2 Concentration (µg/m^3).	2023 PM_{10} Concentration (µg/m^3).	2023 $PM_{2.5}$ Concentration (µg/m^3).
LE23	6.9	13.7	8.3
LE24	7.0	13.7	8.3
LE53	7.0	13.7	8.3
LE54	6.9	13.7	8.3
LE55	7.6	14.0	8.4
LE56	8.9	14.0	8.6

** All values have been rounded to the nearest decimal place.*

Table 5.14: NO_2, PM_{10} and $PM_{2.5}$ concentrations for the baseline year 2028 at sensitive receptors near the proposed rail extension route.

Receptor	2028 NO_2 Concentration (µg/m^3).	2028 PM_{10} Concentration (µg/m^3).	2028 $PM_{2.5}$ Concentration (µg/m^3).
LE2	6.8	13.8	8.3
LE3	7.4	13.8	8.4
LE15	6.1	13.6	8.1
LE16	6.1	13.6	8.0
LE17	6.1	13.0	7.9
LE18	6.2	13.4	8.0
LE19	6.3	13.7	8.2
LE20	6.2	13.4	8.0
LE21	6.2	13.4	8.0
LE22	6.3	13.5	8.1
LE23	6.2	13.4	8.0
LE24	6.2	13.4	8.0
LE53	6.2	13.4	8.0
LE54	6.2	13.4	8.0
LE55	6.6	13.7	8.2
LE56	7.6	13.7	8.4

** All values have been rounded to the nearest decimal place.*

ii. Saxmundham to Leiston branch line upgrades

5.4.18 No notable changes are expected in land use in the surrounding area and it is expected that the future baseline rates of dust deposition are likely to be similar to current levels.

5.4.19 NO_2 and particulate matter (PM_{10} and $PM_{2.5}$) 2023 background concentrations in the area of the proposed rail improvement works are projected to be between 6.6µg/m^3 and 7.5µg/m^3 for NO_2, between 12.9µg/m^3 and 15.4µg/m^3 for PM_{10} and between 8.2µg/m^3 and 8.6µg/m^3 for $PM_{2.5}$ (Ref. 5.12).

5.4.20 NO_2 and particulate matter 2028 background concentrations in the area of the proposed rail improvement works are projected to be between 6.0 and 6.7µg/m^3 for NO_2, between 12.6 and 15.0µg/m^3 for PM_{10} and between 8.0 to 8.4µg/m^3 for $PM_{2.5}$ (Ref. 5.12).

5.4.21 The effects resulting from the proposed development at potential future receptors from committed developments in the study area are represented by effects at receptors already included in the assessment. For example, air quality effects at proposed future developments south of the proposed branch line upgrades, including developments with application reference DC/17/3773/FUL and DC/16/0931/FUL, are represented by receptor LE34, proposed future developments north of the proposed branch line upgrades including development DC/16/0527/OUT, are represented by receptor LE35. Therefore, no additional receptors need to be included for the future scenarios. In addition, the traffic composition and flow data come from the **Transport Assessment** (Doc Ref. 8.5) for the baseline, construction and operation scenarios. This information is inherently cumulative as it includes traffic flows associated with consented developments.

5.4.22 The future baseline pollutant concentrations at nearby sensitive receptors for the years 2023 and 2028 are presented in **Table 5.15** and **Table 5.16**, respectively. Further details of modelled pollutant concentrations for the years 2023 and 2028 can be found in **Table 12B.15** to **Table 12B.20** of **Volume 2, Appendix 12B** of the **ES**.

Table 5.15: NO_2, PM_{10} and $PM_{2.5}$ concentrations for the baseline year 2023 at sensitive receptors near Saxmundham to Leiston branch line.

Receptor	2023 NO_2 Concentration (µg/m^3).	2023 PM_{10} Concentration (µg/m^3).	2023 $PM_{2.5}$ Concentration (µg/m^3).
LE1	12.7	13.3	9.2

Receptor	2023 NO_2 Concentration (µg/m^3).	2023 PM_{10} Concentration (µg/m^3).	2023 $PM_{2.5}$ Concentration (µg/m^3).
LE8	10.3	13.2	8.9
LE9	17.4	13.6	9.5
LE12	9.8	14.0	8.8
LE20	7.0	13.7	8.3
LE21	7.0	13.7	8.3
LE22	7.1	13.8	8.3
LE24	7.0	13.7	8.3
LE34	7.5	13.8	8.5
LE35	8.3	13.0	8.6
LE36	8.6	13.9	8.6
LE37	8.7	13.9	8.6
LE38	9.0	13.9	8.7
LE40	7.6	13.8	8.5
LE53	7.0	13.7	8.3
LE55	7.6	14.0	8.4
LE56	8.9	14.0	8.6
SX4	13.5	13.9	9.5
SX16	9.8	13.6	8.8
SX17	7.8	13.4	8.5
SX19	7.2	15.0	8.7

** All values have been rounded to the nearest decimal place.*

Table 5.16: NO_2, PM_{10} and $PM_{2.5}$ concentrations for the baseline year 2028 at sensitive receptors near Saxmundham to Leiston branch line.

Receptor	2028 NO_2 Concentration (µg/m^3).	2028 PM_{10} Concentration (µg/m^3).	2028 $PM_{2.5}$ Concentration (µg/m^3).
LE1	10.4	13.0	8.9
LE8	8.7	12.9	8.6
LE9	13.8	13.2	9.2
LE12	8.2	13.7	8.6
LE20	6.2	13.4	8.0
LE21	6.2	13.4	8.0

Receptor	2028 NO_2 Concentration ($\mu g/m^3$).	2028 PM_{10} Concentration ($\mu g/m^3$).	2028 $PM_{2.5}$ Concentration ($\mu g/m^3$).
LE22	6.3	13.5	8.1
LE24	6.2	13.4	8.0
LE34	6.7	13.5	8.2
LE35	7.3	12.7	8.3
LE36	7.4	13.6	8.4
LE37	7.5	13.6	8.4
LE38	7.6	13.6	8.4
LE40	6.7	13.5	8.2
LE53	6.2	13.4	8.0
LE55	6.6	13.7	8.2
LE56	7.6	13.7	8.4
SX4	10.8	13.6	9.2
SX16	8.2	13.2	8.6
SX17	6.9	13.1	8.2
SX19	6.4	14.7	8.4

** All values have been rounded to the nearest decimal place.*

5.5 Environmental design and mitigation

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

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

a) Primary mitigation

5.5.3 Primary mitigation is often referred to as 'embedded mitigation' and includes modifications to the location or design to mitigate impacts; these measures become an inherent part of the proposed development.

5.5.4 Primary measures to minimise and manage additional traffic associated with the construction and operation of the Sizewell C Project are set out in **Volume 2**, **Chapter 10** of the **ES** of the **ES**.

i. Proposed rail extension route

5.5.5 Primary mitigation for the proposed rail route extension includes:

- site access would be located at least 10m, from receptors;
- re-use of soils on-site to form landscape bunds instead of transporting them for off-site storage; and
- ballast stockpiling located as far as practicable from receptors.

ii. Saxmundham to Leiston branch line upgrades

5.5.6 Primary mitigation for the proposed rail improvement works includes:

- construction site access at least 10m, from receptors; and
- re-use of soils on-site to form landscape bunds instead of transporting them for off-site storage.

b) Tertiary mitigation

5.5.7 Tertiary mitigation will be required regardless of any EIA assessment, as it is imposed, for example, as a result of legislative requirements and/or standard sectoral practices.

5.5.8 Air quality impacts arising from the construction phase would be managed through a range of control measures detailed in the **CoCP** (Doc Ref. 8.11), which will include measures as per the Institute of Air Quality Management (IAQM) Guidance based on a 'high risk' site (Ref. 5.10). These measures will be incorporated into construction working practices to reduce the likelihood of significant adverse dust impacts and would include measures such as the requirement to:

- avoid direct site run-off of water or mud;
- cover, seed or fence stockpiles to prevent wind whipping; and

- ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary; and
- develop and implement dust management measures, in accordance with the **CoCP**.

5.5.9 The contractors will prepare Construction Environmental Management Plans including dust management measures, in accordance with the **CoCP.** An **Outline Dust Management Plan** is also included in **Volume 2, Appendix 12A** of the **ES**.

5.5.10 During construction, a **Construction Traffic Management Plan** (Doc Ref. 8.7) and a **Construction Workforce Travel Plan** (Doc Ref. 8.8) would be implemented to reduce and manage the effects of traffic generated by the Sizewell C Project (see **Volume 2, Chapter 10** of the **ES**).

5.5.11 Mitigation measures applied during the construction phase will also be applied during the removal and reinstatement works as construction dust impacts are likely to be similar.

5.6 Assessment

a) Introduction

5.6.1 This section presents the findings of the air quality assessment for the construction and operation of the proposed rail extension route and rail improvement works, and the removal and reinstatement phase of the proposed rail extension.

5.6.2 This section identifies any likely significant effects that are predicted to occur and **section 5.7** of this chapter then highlights any secondary mitigation and monitoring measures that are proposed to minimise any adverse significant effects (if required).

b) Construction

i. Proposed rail extension route and Saxmundham to Leiston branch line upgrades

5.6.3 The potential impacts associated with the construction of the proposed development include fugitive emissions of dust, emissions from NRMM on the site, emissions from HDVs accessing the site and emissions from vehicles carrying workers to and from the site.

Construction dust

5.6.4 Dust risk assessments have been undertaken for the proposed development, which also considers the risk from NRMM used to undertake works. A summary of the assessments is presented below in **Table 5.17** and **Table 5.18**, and full details of the assessment are provided in **Appendix 5A** and **Appendix 5B**.

Table 5.17: Potential risk of dust impacts from activities without applied mitigation associated with the proposed green rail route.

Potential Impact.	Risk			
	Earthworks: Large magnitude.	Construction: Large magnitude	Trackout: Large magnitude.	Demolition: Large magnitude.
Dust Soiling.	High risk.	High risk.	High risk.	High risk.
Human Health.	Low risk.	Low risk.	Low risk.	Medium risk.
Ecological	Low risk.	Low risk.	Low risk.	Medium risk.

Table 5.18: Potential risk of dust impacts from activities without applied mitigation associated with the proposed Saxmundham to Leiston branch line upgrades.

Potential Impact.	Risk			
	Earthworks: Large magnitude.	Construction: medium magnitude.	Trackout: medium magnitude.	Demolition: medium magnitude.
Dust Soiling.	Medium risk.	Medium risk.	Medium risk.	Medium risk.
Human Health.	Low risk.	Low risk.	Low risk.	Low risk.
Ecological	Screened out.			

5.6.5 All residential receptors are considered to be high sensitivity receptors to health and dust soiling effects. The principal risk is anticipated to be related

to earthworks, as this phase of construction can typically require a high volume of material to be moved. A high level of activity could potentially place the dust emissions category as 'Large' by IAQM classification (Ref. 5.9), with the likelihood of a 'High' risk based on the number and sensitivity of local receptors. Each risk category has the potential to lead to proportional adverse, albeit temporary, impacts which have the potential to be significant without appropriate mitigation.

5.6.6 However, assuming all primary and tertiary mitigation measures are effectively implemented and monitored through the **CoCP** (Doc Ref. 8.11), at the level recommended by the dust risk assessment, any effects would likely be negligible and would therefore be **not significant** for any of the proposed construction activities at the site.

Construction traffic

5.6.7 It is expected that the number of HDV movements required to construct the proposed development in the construction phase would not exceed the IAQM screening threshold (Ref. 5.8) of more than 100 Annual Average Daily Traffic (AADT) required for a detailed dispersion modelling assessment. However, due to the level of construction activity in the wider study area (Lowestoft to Ipswich) during the construction phase year (2023), a detailed assessment of transport emissions for the construction phase scenario has been undertaken.

5.6.8 The predicted concentrations for NO_2, PM_{10} and $PM_{2.5}$ resulting from traffic emissions in the area of the proposed development during construction, based on the average day during the construction year 2023 and the magnitude of change from the predicted baseline conditions are shown in **Table 5.19** to **Table 5.21**. The predicted baseline conditions are shown in **Table 5.13** to **Table 5.15**. Further details on modelled pollutant concentrations for the year 2023 can be found in **Volume 2**, **Appendix 12B** of the **ES**.

Table 5.19: NO_2 concentration for construction phase year 2023 and the magnitude of change compared to the 2023 baseline concentration.

Receptor	2023 average day.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE1	13.0	0.3	Imperceptible	Negligible
LE2	7.9	0.1	Imperceptible	Negligible
LE3	9.4	0.6	Very Low.	Negligible

Receptor	2023 average day.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE8	10.5	0.2	Imperceptible	Negligible
LE9	18.0	0.6	Very Low.	Negligible
LE12	10.1	0.3	Imperceptible	Negligible
LE15	7.0	Less than 0.1.	Imperceptible	Negligible
LE16	6.9	Less than 0.1.	Imperceptible	Negligible
LE17	6.8	Less than 0.1.	Imperceptible	Negligible
LE18	6.9	Less than 0.1.	Imperceptible	Negligible
LE19	7.2	Less than 0.1.	Imperceptible	Negligible
LE20	7.0	Less than 0.1.	Imperceptible	Negligible
LE21	7.0	Less than 0.1.	Imperceptible	Negligible
LE22	7.1	Less than 0.1.	Imperceptible	Negligible
LE23	6.9	Less than 0.1.	Imperceptible	Negligible
LE24	7.0	Less than 0.1.	Imperceptible	Negligible
LE34	7.5	Less than 0.1.	Imperceptible	Negligible
LE35	8.3	Less than 0.1.	Imperceptible	Negligible
LE36	8.8	0.2	Imperceptible	Negligible
LE37	8.8	0.1	Imperceptible	Negligible
LE38	9.2	0.2	Imperceptible	Negligible
LE40	7.6	Less than 0.1.	Imperceptible	Negligible
LE53	7.0	Less than 0.1.	Imperceptible	Negligible
LE54	6.9	Less than 0.1.	Imperceptible	Negligible
LE55	7.6	Less than 0.1.	Imperceptible	Negligible
LE56	9.0	0.1	Imperceptible	Negligible
SX4	13.9	0.4	Very Low.	Negligible
SX16	9.9	0.1	Imperceptible	Negligible
SX17	7.9	Less than 0.1.	Imperceptible	Negligible
SX19	7.2	Less than 0.1.	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place*

Table 5.20: PM_{10} concentration for construction phase year 2023 and the magnitude of change compared to the 2023 baseline concentration.

Receptor	2023 average day.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m³).	Magnitude of Change (µg/m³).		
LE1	13.4	Less than 0.1.	Imperceptible	Negligible
LE2	14.1	Less than 0.1.	Imperceptible	Negligible
LE3	14.3	0.1	Imperceptible	Negligible
LE8	13.2	Less than 0.1.	Imperceptible	Negligible
LE9	13.6	0.1	Imperceptible	Negligible
LE12	14.1	Less than 0.1.	Imperceptible	Negligible
LE15	14.0	Less than 0.1.	Imperceptible	Negligible
LE16	13.9	Less than 0.1.	Imperceptible	Negligible
LE17	13.3	Less than 0.1.	Imperceptible	Negligible
LE18	13.7	Less than 0.1.	Imperceptible	Negligible
LE19	14.1	Less than 0.1.	Imperceptible	Negligible
LE20	13.7	Less than 0.1.	Imperceptible	Negligible
LE21	13.7	Less than 0.1.	Imperceptible	Negligible
LE22	13.8	Less than 0.1.	Imperceptible	Negligible
LE23	13.7	Less than 0.1.	Imperceptible	Negligible
LE24	13.7	Less than 0.1.	Imperceptible	Negligible
LE34	13.8	Less than 0.1.	Imperceptible	Negligible
LE35	13.0	Less than 0.1.	Imperceptible	Negligible
LE36	13.9	Less than 0.1.	Imperceptible	Negligible
LE37	13.9	Less than 0.1.	Imperceptible	Negligible
LE38	14.0	Less than 0.1.	Imperceptible	Negligible
LE40	13.8	Less than 0.1.	Imperceptible	Negligible
LE53	13.7	Less than 0.1.	Imperceptible	Negligible
LE54	13.7	Less than 0.1.	Imperceptible	Negligible
LE55	14.0	Less than 0.1.	Imperceptible	Negligible
LE56	14.0	Less than 0.1.	Imperceptible	Negligible
SX4	14.0	Less than 0.1.	Imperceptible	Negligible
SX16	13.6	Less than 0.1.	Imperceptible	Negligible
SX17	13.4	Less than 0.1.	Imperceptible	Negligible

Receptor	2023 average day.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
SX19	15.0	Less than 0.1.	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place*

Table 5.21: $PM_{2.5}$ concentration for construction phase year 2023 and the magnitude of change compared to the 2023 baseline concentration.

Receptor	2023 average day.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE1	9.2	Less than 0.1.	Imperceptible	Negligible
LE2	8.6	Less than 0.1.	Imperceptible	Negligible
LE3	8.9	0.2	Imperceptible	Negligible
LE8	8.9	Less than 0.1.	Imperceptible	Negligible
LE9	9.6	0.1	Imperceptible	Negligible
LE12	8.9	Less than 0.1.	Imperceptible	Negligible
LE15	8.3	Less than 0.1.	Imperceptible	Negligible
LE16	8.3	Less than 0.1.	Imperceptible	Negligible
LE17	8.2	Less than 0.1.	Imperceptible	Negligible
LE18	8.3	Less than 0.1.	Imperceptible	Negligible
LE19	8.4	Less than 0.1.	Imperceptible	Negligible
LE20	8.3	Less than 0.1.	Imperceptible	Negligible
LE21	8.3	Less than 0.1.	Imperceptible	Negligible
LE22	8.3	Less than 0.1.	Imperceptible	Negligible
LE23	8.3	Less than 0.1.	Imperceptible	Negligible
LE24	8.3	Less than 0.1.	Imperceptible	Negligible
LE34	8.5	Less than 0.1.	Imperceptible	Negligible
LE35	8.6	Less than 0.1.	Imperceptible	Negligible
LE36	8.7	Less than 0.1.	Imperceptible	Negligible
LE37	8.7	0.1	Imperceptible	Negligible
LE38	8.8	0.1	Imperceptible	Negligible
LE40	8.5	Less than 0.1.	Imperceptible	Negligible
LE53	8.3	Less than 0.1.	Imperceptible	Negligible
LE54	8.3	Less than 0.1.	Imperceptible	Negligible

Receptor	2023 average day.		Magnitude of Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE55	8.4	Less than 0.1.	Imperceptible	Negligible
LE56	8.7	Less than 0.1.	Imperceptible	Negligible
SX4	9.5	0.1	Imperceptible	Negligible
SX16	8.8	Less than 0.1.	Imperceptible	Negligible
SX17	8.5	Less than 0.1.	Imperceptible	Negligible
SX19	8.7	Less than 0.1.	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place*

5.6.9 Following the classification of effects of construction phase traffic, the effects of NO_2 and particulate matter (PM_{10} and $PM_{2.5}$) at nearby sensitive receptors are considered to be very low to negligible. The overall effects on air quality resulting from traffic related to construction of the proposed development are **not significant**.

ii. Saxmundham to Leiston branch line level crossing upgrades

5.6.10 As identified in **section 5.3** of this chapter, none of the level crossing upgrades are considered to have the potential to introduce sufficient emissions from additional queuing traffic to be capable of resulting in significant environmental effects during their construction and operation. Therefore, the effect of emissions from the level crossing upgrades have been screened out of the air quality assessment.

iii. Inter-relationships

5.6.11 There are potential inter-relationship effects on ecological and amenity and recreation receptors as a result of changes to air quality during the construction phase of development. These potential impacts are considered within **Chapters 7** and **8** of this volume respectively. There is also the potential for impacts relating to soils management on site as detailed in **Chapter 10** of this volume, to give rise to air quality effects from dust. Inter-relationship effects on human health receptors are considered further in **Volume 2**, **Chapter 28** (Health and Wellbeing) of the **ES** and in **Volume 10**, **Chapter 2** of the **ES**.

c) Operation of the proposed development during the peak construction year of the main development site

i. Proposed rail extension route and Saxmundham to Leiston branch line upgrades

5.6.12 Whilst IAQM guidance (Ref. 5.12) is not explicit with regard to rail emissions, it has been used to determine the necessity for an air quality impact assessment, and it is expected that the proposed development would require a detailed assessment, given that it meets the IAQM criteria of adding a new junction (in this case a level crossing) near to receptors.

5.6.13 The air quality assessment for operation of the proposed development covers the peak year (2028) during the construction of the Sizewell C main development site on its busiest days and on an average day.

5.6.14 The predicted concentrations for NO_2, PM_{10} and $PM_{2.5}$ resulting from road traffic in the study area for the proposed development for the operational year 2028 average day and the magnitude of change from the predicted baseline conditions are shown in **Table 5.22** to **Table 5.24**, reported to one decimal place. Further details on modelled air pollutant concentrations at receptors for the 2028 average day scenario can be found in **Volume 2, Appendix 12B** of the **ES**.

Table 5.22: NO_2 concentration for construction phase years 2028 average day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 average day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE1	12.3	1.9	Low	Negligible
LE2	7.2	0.4	Very Low.	Negligible
LE3	8.2	0.7	Very Low.	Negligible
LE8	9.1	0.4	Very Low.	Negligible
LE9	15.5	1.7	Low	Negligible
LE12	8.3	0.2	Imperceptible	Negligible
LE15	6.2	0.1	Imperceptible	Negligible
LE16	6.2	0.1	Imperceptible	Negligible
LE17	6.1	0.1	Imperceptible	Negligible
LE18	6.2	Less than 0.1.	Imperceptible	Negligible
LE19	6.4	0.1	Imperceptible	Negligible

Receptor	2028 average day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE20	6.3	Less than 0.1.	Imperceptible	Negligible
LE21	6.3	Less than 0.1.	Imperceptible	Negligible
LE22	6.3	Less than 0.1.	Imperceptible	Negligible
LE23	6.2	Less than 0.1.	Imperceptible	Negligible
LE24	6.3	Less than 0.1.	Imperceptible	Negligible
LE34	6.8	0.1	Imperceptible	Negligible
LE35	7.4	0.1	Imperceptible	Negligible
LE36	8.4	1.0	Low	Negligible
LE37	9.1	1.6	Low	Negligible
LE38	9.3	1.7	Low	Negligible
LE40	6.9	0.2	Imperceptible	Negligible
LE53	6.3	Less than 0.1.	Imperceptible	Negligible
LE54	6.2	0.1	Imperceptible	Negligible
LE55	6.7	0.1	Imperceptible	Negligible
LE56	7.8	0.2	Imperceptible	Negligible
SX4	11.1	0.3	Imperceptible	Negligible
SX16	8.4	0.2	Imperceptible	Negligible
SX17	7.3	0.3	Imperceptible	Negligible
SX19	6.5	0.1	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place*

Table 5.23: PM_{10} concentration for construction phase years 2028 average day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 average day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE1	13.2	0.2	Imperceptible	Negligible
LE2	13.9	0.1	Imperceptible	Negligible
LE3	14.0	0.1	Imperceptible	Negligible
LE8	12.9	Less than 0.1.	Imperceptible	Negligible
LE9	13.3	0.1	Imperceptible	Negligible
LE12	13.7	Less than 0.1.	Imperceptible	Negligible

Receptor	2028 average day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE15	13.7	Less than 0.1.	Imperceptible	Negligible
LE16	13.6	Less than 0.1.	Imperceptible	Negligible
LE17	13.0	Less than 0.1.	Imperceptible	Negligible
LE18	13.4	Less than 0.1.	Imperceptible	Negligible
LE19	13.8	Less than 0.1.	Imperceptible	Negligible
LE20	13.4	Less than 0.1.	Imperceptible	Negligible
LE21	13.4	Less than 0.1.	Imperceptible	Negligible
LE22	13.5	Less than 0.1.	Imperceptible	Negligible
LE23	13.4	Less than 0.1.	Imperceptible	Negligible
LE24	13.4	Less than 0.1.	Imperceptible	Negligible
LE34	13.5	Less than 0.1.	Imperceptible	Negligible
LE35	12.7	Less than 0.1.	Imperceptible	Negligible
LE36	13.6	Less than 0.1.	Imperceptible	Negligible
LE37	13.6	Less than 0.1.	Imperceptible	Negligible
LE38	13.6	Less than 0.1.	Imperceptible	Negligible
LE40	13.5	Less than 0.1.	Imperceptible	Negligible
LE53	13.4	Less than 0.1.	Imperceptible	Negligible
LE54	13.4	Less than 0.1.	Imperceptible	Negligible
LE55	13.7	Less than 0.1.	Imperceptible	Negligible
LE56	13.7	Less than 0.1.	Imperceptible	Negligible
SX4	13.7	Less than 0.1.	Imperceptible	Negligible
SX16	13.2	Less than 0.1.	Imperceptible	Negligible
SX17	13.1	Less than 0.1.	Imperceptible	Negligible
SX19	14.7	Less than 0.1.	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place*

Table 5.24: $PM_{2.5}$ concentration for construction phase years 2028 average day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 average day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		

Receptor	2028 average day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE1	9.3	0.3	Very Low.	Negligible
LE2	8.4	0.1	Imperceptible	Negligible
LE3	8.7	0.2	Imperceptible	Negligible
LE8	8.7	0.1	Imperceptible	Negligible
LE9	9.3	0.1	Imperceptible	Negligible
LE12	8.6	Less than 0.1.	Imperceptible	Negligible
LE15	8.1	Less than 0.1.	Imperceptible	Negligible
LE16	8.1	Less than 0.1.	Imperceptible	Negligible
LE17	7.9	Less than 0.1.	Imperceptible	Negligible
LE18	8.0	Less than 0.1.	Imperceptible	Negligible
LE19	8.2	Less than 0.1.	Imperceptible	Negligible
LE20	8.0	Less than 0.1.	Imperceptible	Negligible
LE21	8.0	Less than 0.1.	Imperceptible	Negligible
LE22	8.1	Less than 0.1.	Imperceptible	Negligible
LE23	8.0	Less than 0.1.	Imperceptible	Negligible
LE24	8.0	Less than 0.1.	Imperceptible	Negligible
LE34	8.2	Less than 0.1.	Imperceptible	Negligible
LE35	8.3	Less than 0.1.	Imperceptible	Negligible
LE36	8.4	Less than 0.1.	Imperceptible	Negligible
LE37	8.4	Less than 0.1.	Imperceptible	Negligible
LE38	8.5	Less than 0.1.	Imperceptible	Negligible
LE40	8.2	Less than 0.1.	Imperceptible	Negligible
LE53	8.0	Less than 0.1.	Imperceptible	Negligible
LE54	8.0	Less than 0.1.	Imperceptible	Negligible
LE55	8.2	Less than 0.1.	Imperceptible	Negligible
LE56	8.5	Less than 0.1.	Imperceptible	Negligible
SX4	9.3	0.1	Imperceptible	Negligible
SX16	8.6	Less than 0.1.	Imperceptible	Negligible
SX17	8.2	Less than 0.1.	Imperceptible	Negligible
SX19	8.4	Less than 0.1.	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place*

5.6.15 The predicted concentrations for NO_2, PM_{10} and $PM_{2.5}$ for the operational year 2028 busiest day scenario and the magnitude of change from the predicted baseline conditions are shown in **Table 5.25** to **Table 5.27**, reported to one decimal place. Further details on modelled pollutant concentrations for the 2028 busiest day scenario can be found in **Volume 2, Appendix 12B** of the **ES**.

Table 5.25: NO_2 concentration for construction phase years 2028 busiest day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 busiest day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m³).	Magnitude of Change (µg/m³).		
LE1	12.3	1.9	Low	Negligible
LE2	7.2	0.4	Very Low.	Negligible
LE3	8.2	0.7	Very Low.	Negligible
LE8	9.1	0.4	Very Low.	Negligible
LE9	15.5	1.8	Low	Negligible
LE12	8.3	0.2	Imperceptible	Negligible
LE15	6.2	0.1	Imperceptible	Negligible
LE16	6.2	0.1	Imperceptible	Negligible
LE17	6.1	0.1	Imperceptible	Negligible
LE18	6.2	Less than 0.1.	Imperceptible	Negligible
LE19	6.4	0.1	Imperceptible	Negligible
LE20	6.3	Less than 0.1.	Imperceptible	Negligible
LE21	6.3	Less than 0.1.	Imperceptible	Negligible
LE22	6.3	Less than 0.1.	Imperceptible	Negligible
LE23	6.2	Less than 0.1.	Imperceptible	Negligible
LE24	6.3	Less than 0.1.	Imperceptible	Negligible
LE34	6.8	0.1	Imperceptible	Negligible
LE35	7.4	0.1	Imperceptible	Negligible
LE36	8.4	1.0	Low	Negligible
LE37	9.1	1.6	Low	Negligible
LE38	9.3	1.7	Low	Negligible
LE40	6.9	0.2	Imperceptible	Negligible

Receptor	2028 busiest day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE53	6.3	Less than 0.1.	Imperceptible	Negligible
LE54	6.2	0.1	Imperceptible	Negligible
LE55	6.7	0.1	Imperceptible	Negligible
LE56	7.8	0.2	Imperceptible	Negligible
SX4	11.1	0.3	Imperceptible	Negligible
SX16	8.4	0.2	Imperceptible	Negligible
SX17	7.3	0.3	Imperceptible	Negligible
SX19	6.5	0.1	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place*

Table 5.26: PM_{10} concentration for construction phase years 2028 busiest day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 busiest day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE1	13.2	0.2	Imperceptible	Negligible
LE2	13.9	0.1	Imperceptible	Negligible
LE3	14.0	0.1	Imperceptible	Negligible
LE8	12.9	Less than 0.1.	Imperceptible	Negligible
LE9	13.3	0.1	Imperceptible	Negligible
LE12	13.7	Less than 0.1.	Imperceptible	Negligible
LE15	13.7	Less than 0.1.	Imperceptible	Negligible
LE16	13.6.	Less than 0.1.	Imperceptible	Negligible
LE17	13.0	Less than 0.1.	Imperceptible	Negligible
LE18	13.4	Less than 0.1.	Imperceptible	Negligible
LE19	13.8	Less than 0.1.	Imperceptible	Negligible
LE20	13.4	Less than 0.1.	Imperceptible	Negligible
LE21	13.4	Less than 0.1.	Imperceptible	Negligible
LE22	13.5	Less than 0.1.	Imperceptible	Negligible
LE23	13.4	Less than 0.1.	Imperceptible	Negligible
LE24	13.4	Less than 0.1.	Imperceptible	Negligible
LE34	13.5	Less than 0.1.	Imperceptible	Negligible

Receptor	2028 busiest day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE35	12.7	Less than 0.1.	Imperceptible	Negligible
LE36	13.6	Less than 0.1.	Imperceptible	Negligible
LE37	13.6	Less than 0.1.	Imperceptible	Negligible
LE38	13.6	Less than 0.1.	Imperceptible	Negligible
LE40	13.5	Less than 0.1.	Imperceptible	Negligible
LE53	13.4	Less than 0.1.	Imperceptible	Negligible
LE54	13.4	Less than 0.1.	Imperceptible	Negligible
LE55	13.7	Less than 0.1.	Imperceptible	Negligible
LE56	13.7	Less than 0.1.	Imperceptible	Negligible
SX4	13.7	Less than 0.1.	Imperceptible	Negligible
SX16	13.3	Less than 0.1.	Imperceptible	Negligible
SX17	13.1	Less than 0.1.	Imperceptible	Negligible
SX19	14.7	Less than 0.1.	Imperceptible	Negligible

* All values have been rounded to the nearest decimal place

Table 5.27: $PM_{2.5}$ concentration for construction phase years 2028 busiest day and the magnitude of change compared to the 2028 baseline concentration.

Receptor	2028 busiest day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE1	9.3	0.3	Very Low.	Negligible
LE2	8.4	0.1	Imperceptible	Negligible
LE3	8.7	0.2	Imperceptible	Negligible
LE8	8.7	0.1	Imperceptible	Negligible
LE9	9.3	0.1	Imperceptible	Negligible
LE12	8.6	Less than 0.1.	Imperceptible	Negligible
LE15	8.1	Less than 0.1.	Imperceptible	Negligible
LE16	8.1	Less than 0.1.	Imperceptible	Negligible
LE17	7.9	Less than 0.1.	Imperceptible	Negligible
LE18	8.0	Less than 0.1.	Imperceptible	Negligible
LE19	8.2	Less than 0.1.	Imperceptible	Negligible
LE20	8.0	Less than 0.1.	Imperceptible	Negligible

Receptor	2028 busiest day.		Change Descriptor.	Effect Descriptor.
	Concentration (µg/m^3).	Magnitude of Change (µg/m^3).		
LE21	8.0	Less than 0.1.	Imperceptible	Negligible
LE22	8.1	Less than 0.1.	Imperceptible	Negligible
LE23	8.0	Less than 0.1.	Imperceptible	Negligible
LE24	8.0	Less than 0.1.	Imperceptible	Negligible
LE34	8.2	Less than 0.1.	Imperceptible	Negligible
LE35	8.3	Less than 0.1.	Imperceptible	Negligible
LE36	8.4	Less than 0.1.	Imperceptible	Negligible
LE37	8.4	Less than 0.1.	Imperceptible	Negligible
LE38	8.5	Less than 0.1.	Imperceptible	Negligible
LE40	8.2	Less than 0.1.	Imperceptible	Negligible
LE53	8.0	Less than 0.1.	Imperceptible	Negligible
LE54	8.0	Less than 0.1.	Imperceptible	Negligible
LE55	8.2	Less than 0.1.	Imperceptible	Negligible
LE56	8.5	Less than 0.1.	Imperceptible	Negligible
SX4	9.3	0.1	Imperceptible	Negligible
SX16	8.6	Less than 0.1.	Imperceptible	Negligible
SX17	8.2	Less than 0.1.	Imperceptible	Negligible
SX19	8.4	Less than 0.1.	Imperceptible	Negligible

** All values have been rounded to the nearest decimal place*

5.6.16 Following the classification of effects of operational phase traffic, the effects of both typical and busiest day traffic at all receptors are negligible. The effects on air quality resulting from traffic associated with the operation of the proposed development are **not significant** at all sensitive receptors near the site.

ii. Saxmundham to Leiston branch line level crossing upgrades

5.6.17 As identified in **section 5.3** of this chapter, none of the level crossings are considered to have the potential to result in significant environmental effects and have therefore have not been assessed in further detail.

Inter-relationship effects

5.6.18 There are potential inter-relationship effects on ecological and amenity and recreation receptors as a result of changes to air quality during the operational phase of development. These potential impacts are considered within **Chapters 7** and **8** of this volume respectively. Inter-relationship effects on human health receptors are considered further in **Volume 2**, **Chapter 28** (Health and Wellbeing) of the **ES** and in **Volume 10**, **Chapter 2** of the **ES**.

d) Removal and reinstatement

5.6.19 The removal and reinstatement phase of the proposed rail extension route would include the removal of the track bed and level crossings. Overall, the scale and nature of demolition earthwork activities expected to be undertaken are similar in scale and nature of these activities in the construction phase.

5.6.20 The likely scale of works would generate a similar level of traffic to the construction phase. Therefore, the air quality effects are expected to be negligible at all sensitive receptors.

5.6.21 As the dust and traffic emissions effects associated with the removal and reinstatement phase of the proposed rail extension route are not expected to be worse than the construction phase (and the assessed early years (2023), the impacts of NO_2 and particulate matter resulting from the removal and reinstatement phase would also be **not significant** in this phase.

i. Inter-relationship effects

5.6.22 There are potential inter-relationship effects on ecological and amenity and recreation receptors as a result of changes to air quality during the removal and reinstatement phase of development. These potential impacts are considered within **Chapters 7** and **8** of this volume respectively. There is also the potential for impacts relating to soils management on site as detailed in **Chapter 10** of this volume, to give rise to air quality effects from dust. Inter-relationship effects on human health receptors are considered further in **Volume 2**, **Chapter 28** (Health and Wellbeing) of the **ES** and in **Volume 10**, **Chapter 2** of the **ES**.

5.7 Mitigation and monitoring

5.7.1 Primary and tertiary mitigation measures which have already been incorporated within the design of the proposed development are detailed in **section 5.5** of this chapter. Where other mitigation is required to reduce, or avoid a significant effect, this is referred to as secondary mitigation.

5.7.2 No further mitigation or monitoring measures for the air quality assessment are required to reduce or avoid a significant effect. In addition, no monitoring of air pollutant concentrations or dust deposition rates is proposed, given the location of the nearest sensitive receptors relative to the proposed development, the routing of traffic using the proposed development and that **no significant** effects are predicted.

5.8 Residual effects

5.8.1 No significant adverse residual effects are predicted during the construction and operation of the proposed development, and the removal and reinstatement of the proposed rail extension route.

5.8.2 The following tables (**Table 5.28** to **Table 5.30**) present a summary of the air quality assessment. They identify the receptor/s likely to be impacted, the level of effect and, where the effect is deemed to be significant, the tables include the mitigation proposed and the resulting residual effect.

Table 5.28: Summary of effects for the construction phase.

Receptor	Impact	Primary or Tertiary Mitigation.	Assessment of Effects.	Additional Mitigation.	Residual Effects.
Residential Properties.	Potential amenity or health impacts from generation of particulate matter from construction activities.	As recommended in **CoCP** based on risk assessment.	Negligible	None required.	Negligible (**not significant**).
Residential Properties.	Emissions from additional road vehicle movements.	Final site location and indicative arrangement.	Negligible	None required.	Negligible (**not significant**).

Table 5.29: Summary of effects for both typical and busiest day operational phase.

Receptor	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
Residential Properties.	Emissions from additional road vehicle movements.	Final site location and indicative arrangement.	Negligible	None required.	Negligible (**not significant**).

Table 5.30: Summary of effects for the removal and reinstatement phase.

Receptor	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
Residential Properties.	Potential amenity or health impacts from generation of	As recommended in **CoCP** based on risk assessment.	Negligible	None required.	Negligible (**not significant**).

Receptor	Impact	Primary or Tertiary Mitigation.	Assessment of effects.	Additional Mitigation.	Residual Effects.
	particulate matter from construction activities.				
Residential Properties.	Emissions from additional road vehicle movements.	Final site location and indicative arrangement.	Negligible	None required.	Negligible (**not significant**).

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