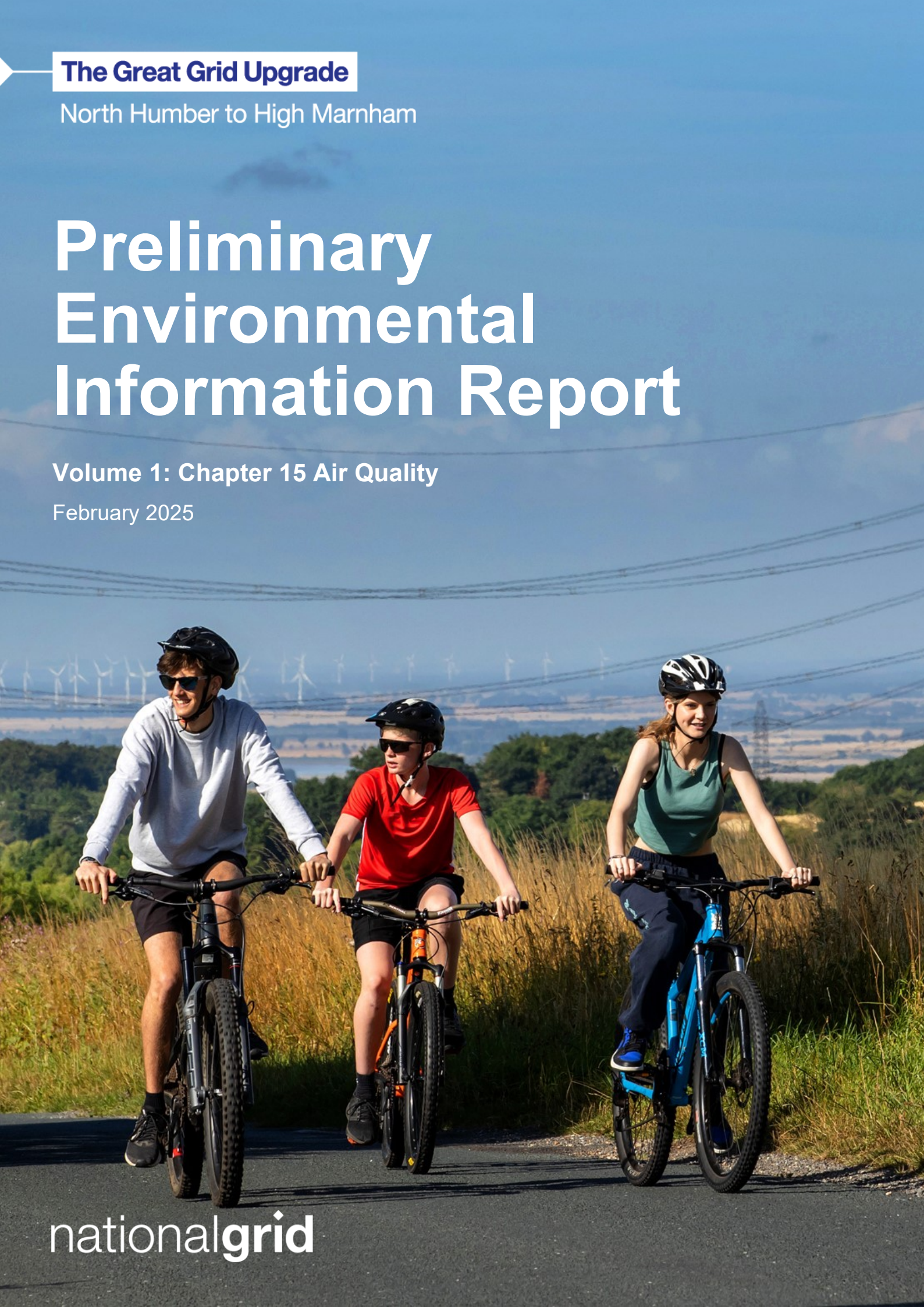
The Great Grid Upgrade

North Humber to High Marnham

# Preliminary Environmental Information Report

## Volume 1: Chapter 15 Air Quality

February 2025



nationalgrid

# Contents

# North Humber High Marnham Document Control

| Document Properties | |
|---|---|
| **Organisation** | Arcadis |
| **Author** | Arcadis |
| **Approved by** | National Grid |
| **Title** | Preliminary Environmental Information Report<br>Chapter 15 Air Quality |
| **Document Register ID** | NHHM-NG-ENV-REP-001 |
| **Data Classification** | Public |

**Version History**

| Document | Version | Status | Description / Changes |
|---|---|---|---|
| Chapter 15 | 1.0 | Final | First Issue |

# 15. Air Quality

nationalgrid

# 15. Air Quality

## 15.1 Introduction

15.1.1 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 the Proposed Overhead Line between the proposed Birkhill Wood Substation and the proposed High Marnham Substation as described in **Chapter 4 Description of the Project**.

15.1.2 **Chapter 1 Introduction** explains that the proposed Birkhill Wood Substation and proposed High Marnham Substation are proposed to be authorised through separate consenting procedures, however, they have also been included as part of the Project. As explained in **Chapter 5 Approach to Preparing the PEIR**, the environmental effects of these two substations including their associated overhead line reconfigurations, hereafter referred to as the Proposed Substation Works, have accordingly been considered within **Chapter 20 Substations and Associated Works**. For the purpose of this chapter the Proposed Overhead Line between the proposed Birkhill Wood Substation and the proposed High Marnham Substation is hereafter referred to as the Proposed Overhead Line.

15.1.3 To ensure that the Project as a whole has been assessed a summary has been included within this preliminary assessment of the likely significant effects on Air Quality which brings together the assessment of the Proposed Overhead Line and Proposed Substation Works for Air Quality.

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

15.1.5 This chapter covers effects on the following during construction noting that operation and decommissioning have been scoped out.

- Emissions
- Dust deposition
- local air pollutant concentrations and nitrogen deposition

15.1.6 This chapter should be read in conjunction with:

- **Chapter 4 Description of the Project**;
- **Chapter 5 Approach to Preparing the PEIR**; and
- **Chapter 20 Substations and Associated Works**

15.1.7 There are also interrelationships between the potential air quality affected and other environmental topics. Therefore, please also refer to the following chapters:

- **Chapter 8 Ecology;**
- **Chapter 14 Traffic and Transport;**
- **Chapter 18 Health and Wellbeing**; and
- **Chapter 21 Cumulative Effects**.

15.1.8 This chapter is supported by the following figures in Volume 2 and appendices in Volume 3:

- **Figure 15.1 Air Quality Baseline;**
- **Figure 15.2 Air Quality Construction Dust Study Area;** and
- **Appendix 15.1 Construction Dust Methodology and Assessment.**

## 15.2 Regulatory and Planning Context

15.2.1 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.

15.2.2 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 Project and the impact of this on human health and ecology. This also applies to the dust and Non-Road Mobile Machinery (NRMM) emissions during the construction of the Project.

15.2.3 **Chapter 2 Regulatory and Planning Context** describes the overall regulatory and planning policy context for the Project. Key legislation, policy and planning guidance relevant to the assessment of potential air quality effects associated with the construction of the Project is presented below.

### Legislation

15.2.4 The legislation listed below has been considered when identifying potential constraints to the Project, design options and mitigation.

#### European Legislation

- European Union (EU) Ambient Air Quality Directive (2008/50/EC) (Ref 15.1).

#### UK Legislation

- European Union (Withdrawal) Act 2018 (Ref 15.2);
- The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (Ref 15.3);
- Air Quality Standards Regulations 2010 (Ref 15.4);
- Part IV of the Environment Act 1995 (amended 2021) (Ref 15.5);
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (AQS) (Ref 15.6), published in 2007;
- The Environment Act 2021 (Ref 15.7);
- The Environmental Targets (Fine Particulate Matter) England Regulations 2023 (Ref 15.8);
- The $PM_{2.5}$ Interim Planning Guidance (Ref 15.9);
- The Air Quality (England) Regulations 2000 (Ref 15.10);

- The Air Quality (England) (Amendment) Regulations 2002 (Ref 15.11);
- Part III of the Environmental Protection Act 1990 (Ref 15.12); and
- The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 (Ref 15.13).

15.2.5 The main pollutants of concern with respect to compliance with relevant air quality legislation are nitrogen dioxide ($NO_2$), particulate matter less than 10 microns in diameter ($PM_{10}$) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). The Air Quality Strategy (AQS) objectives for the protection of human health that are applicable to this assessment are presented in Table 15.1. The AQS objectives only apply where members of the public are likely to be regularly present for the averaging time of the objective (i.e., where people will be exposed to pollutants).

Table 15.1 – Air quality objectives for the protection of human health

| Pollutant | Concentration ($\mu g/m^3$) | Averaging period |
|---|---|---|
| $NO_2$ | 200 | 1-hour mean (not to be exceeded more than 18 times per year) |
| | 40 | Annual mean |
| $PM_{10}$ | 50 | 24-hour mean (not to be exceeded more than 35 times per year) |
| | 40 | Annual mean |
| $PM_{2.5}$ | 20* | Annual mean |

*This is a target value rather than an AQS Objective, but is considered appropriate for use in this assessment

15.2.6 The AQS Critical Values for the protection of vegetation and ecosystems applicable to this assessment are presented in Table 15.2.

Table 15.2 – Air quality critical values for the protection of vegetation and ecosystems

| Pollutant | Critical levels | |
|---|---|---|
| | Concentration | Averaging period |
| Oxides of nitrogen (Nox) | 30 $\mu g/m^3$ | One calendar year |

15.2.7 Local authorities have no legal requirement to comply with AQS objectives. They are however required to demonstrate best efforts to work towards achieving AQS objectives and a framework has been developed (Ref 15.14) to enable local authorities to deliver and contribute to long-term air quality goals.

15.2.8 Under the Local Air Quality Management (LAQM) regime, local authorities have a duty to make periodic reviews of local air quality against the AQS objectives. Where a local authority's review and assessment of local air quality indicates that AQS objectives are not expected to be achieved, local authorities are required to designate an Air Quality Management Area (AQMA). An Air Quality Action Plan (AQAP) must then be formulated, outlining a plan of action to meet AQS objectives in the AQMA.

## National Policy Statements (NPSs)

15.2.9 **Chapter 2 Regulatory and Planning Context** sets out the overarching policy context relevant to the Project including the Overarching NPS for Energy (EN-1) (Ref 15.15). This is supported by the NPS for Electricity Networks Infrastructure (EN-5) (Ref 15.16).

15.2.10 NPS EN-1 (Ref 15.15) contains the following paragraphs relating to air quality which have been considered within this chapter:

Paragraph 5.2.1 (part)

- *'Energy 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 and species.'*

Paragraph 5.2.4

- *'…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.'*

Paragraph 5.2.5

- *'…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'.*

Paragraph 5.2.8

- *'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)'.*

Paragraph 5.2.9

- '*The ES should describe*:
  - *existing air quality concentrations and the relative change in air quality from existing levels;*

- *any significant air quality effects, mitigation action taken 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 emissions, concentration change and absolute concentrations as a result of the proposed project, after mitigation methods have been applied;*
- *any potential eutrophication impacts'.*

Paragraph 5.2.12

- *'Where a proposed development is likely to lead to a breach of any relevant statutory air quality limits, objectives or targets, or affect the ability of a noncompliant area to achieve compliance within the timescales set out in the most recent relevant air quality plan/strategy at the time of the decision, the applicant should work with the relevant authorities to secure appropriate mitigation measures to ensure that those statutory limits, objectives or targets are not breached'.*

Paragraph 5.2.16

- *'The Secretary of State should give air quality considerations substantial weight where a project would lead to a deterioration in air quality. This could for example include where an area breaches any national air quality limits or statutory air quality objective. 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 statutory limits, objectives or targets.'*

Paragraph 5.7.5

- '*The applicant should assess the potential for insect infestation and emissions of odour, dust, steam, smoke, and artificial light to have a detrimental impact on amenity, as part of the ES'*.

## National Planning Policy Framework

15.2.11 The National Planning Policy Framework (NPPF) (Ref 15.17) is relevant to England and sets out the Government's core policies and principles with respect to land use planning, including air quality. Paragraph 199 of the Framework states:

*'Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.'*

15.2.12 The National Planning Practice Guidance (NPPG) (Ref 15.18) 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.

15.2.13 The NPPF and NPPG have been considered for the purpose of the preliminary air quality assessment.

### Regional and Local Policy

15.2.14 **Chapter 2 Regulatory and Planning Context** lists relevant regional and local policy documents. Key policies relevant to the air quality, that have informed this preliminary assessment and will inform the assessment within the ES comprise:

- East Riding Local Plan (Ref 15.19)
  - Policy EC5 – Supporting the energy sector
- North Lincolnshire Local Development Framework Core Strategy (Ref 15.20)
  - Spatial Objective 7: Efficient Use and Management of Resources
- Bassetlaw Local Plan (Ref 15.22)
  - Policy 46: Protecting Amenity

15.2.15 North Lincolnshire Council submitted the New Local Plan for Examination in November 2022. The Examination progressed however the authority took the decision to formally withdraw the New Local Plan from the Examination in September 2024. The Saved Policies in the Local Plan (2003) as updated in October 2024 (Ref 15.21) and North Lincolnshire Local Development Framework Core Strategy (2011) (Ref 15.20) from the adopted Development Plan have been considered in the PEIR where relevant.

15.2.16 The North Lincolnshire AQAP (Ref 15.23) outlines the actions that North Lincolnshire Council will deliver between 2024- 2029 in order to reduce concentrations of air pollutants and exposure to air pollution. This has been considered in this PEIR and will inform the assessment within the ES.

## 15.3 Scoping Opinion and Consultation

### Scoping Opinion

15.3.1 The scope of the assessment has been informed by the Scoping Opinion (Ref 15.24) provided by the Planning Inspectorate on behalf of the Secretary of State, following submission of the Environmental Impact Assessment (EIA) Scoping Report (Ref 15.25). The scope has also been informed through consultation and engagement with relevant stakeholders. A summary of the Scoping Opinion (Ref 15.24) together with a response from National Grid against each point of relevance to air quality is provided in Table 15.3.

Table 15.3 - Comments raised in the Scoping Opinion

| ID | Inspectorate's comments | Response |
|---|---|---|
| 3.9.1 | **Increase in local air pollutant concentrations due to emissions from Non-Road Mobile Machinery (NRMM) – Construction** | NRMM emissions have been considered and the requirement for further assessment has been screened out at this |

| ID | Inspectorate's comments | Response |
|---|---|---|
| | The Applicant proposes to scope out this matter for the phase identified on the basis that significant effects are not likely, due to the temporary and transient nature of activities and incorporation of best practice measures (CoCP) and compliance with NRMM standards. However, this will be confirmed following review of updated information in the air quality assessment.<br>The Inspectorate is content that this matter can be scoped out subject to confirmation of the type, nature and duration of plant and machinery to be used in the construction phase and the range of measures to minimise effects on air quality, to be secured through the relevant control documentation. | preliminary stage. However, once further information in the final assessments available at ES, the requirement for the assessment of NRMM emissions will be reviewed as necessary. |
| 3.9.2 | **Dust deposition and health impacts from elevated PM10 concentrations due to dust generating activities on nearby air quality sensitive receptors – Operation (maintenance activity)**<br>The Applicant proposes to scope out this matter for the phase identified on the basis that significant effects are not likely, due to the infrequent, temporary and transient nature of activity and the incorporation of best practice measures (CoCP).<br>The Inspectorate draws the Applicant's attention to ID 2.1.11 of this Scoping Opinion. The Inspectorate is content to scope out the specific maintenance activities that are planned to occur during the operational phase in relation to the receptors identified on the basis of the proposed low-level activity and subject to the incorporation of best practice measures (CoCP). | Best practice measures to mitigate dust impacts have been proposed and incorporated in **Appendix 4.1 Draft Outline Code of Construction Practice (CoCP)**. |
| 3.9.3 | **Increase in local air pollutant concentrations and nitrogen deposition rates on nearby air quality sensitive receptors as a result of vehicle emissions – Operation (maintenance activity)**<br>The Applicant proposes to scope out this matter for the phase identified on the basis that significant effects are not likely, as vehicle trips associated with the operation and maintenance phases are anticipated to be below the IAQM screening criteria and therefore impacts are considered to be not significant. However, this will be confirmed following review of updated information in the air quality assessment. | Noted. This will be confirmed as part of the final assessments, once more detailed traffic data is available. |

| ID | Inspectorate's comments | Response |
|---|---|---|
| | The Inspectorate draws the Applicant's attention to ID 2.1.11 of this Scoping Opinion. The Inspectorate is content to scope out the specific maintenance activities that are planned to occur during the operational phase in relation to the receptors identified on the basis of the low-level activity proposed and subject to the updated information in the air quality assessment confirming that significant effects would not be likely. | |
| 3.9.4 | **Increase in local air pollutant concentrations due to emissions from NRMM on nearby air quality sensitive receptors - Operation (maintenance activity)**<br>The Applicant proposes to scope out this matter for the phase identified on the basis that significant effects are not likely, due to the infrequent, temporary and transient nature of activity during the phase and the incorporation of best practice measures (CoCP) and compliance with NRMM standards.<br>The Inspectorate draws the Applicant's attention to ID 2.1.11 of this Scoping Opinion. The Inspectorate is content to scope out the specific maintenance activities that are planned to occur during the operational phase in relation to the receptors identified on the basis of the low-level activity proposed and subject to the incorporation of best practice measures (CoCP) and compliance with NRMM standards. | Operational and maintenance air quality impacts remain scoped out of the assessment. |
| 3.9.5 | **NRMM**<br>The Inspectorate advises that the power of NRMM, where required, should meet or not exceed the latest emissions standards set out in Regulation (EU) 2016/1628 (as amended). | Noted. The emission class of NRMM to be used on the Project has been highlighted in section 15.6. |

## Project Engagement and Consultation

15.3.2 The noise assessment will be informed by consultation and engagement with stakeholders, including Bassetlaw District Council, East Riding of Yorkshire Council, Newark and Sherwood District Council, North Lincolnshire Council and Nottinghamshire County Council. Correspondence of these discussions will be presented in the ES.

## 15.4 Assessment Approach and Methods

15.4.1 **Chapter 5 Approach to Preparing the PEIR** 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 receptors and magnitude of impacts and sets out the significance criteria that have been used for the preliminary air quality assessment. This section also identifies further assessment needed to be undertaken as part of the ES.

### Guidance Specific to the Air Quality Assessment

15.4.2 Relevant guidance, specific to air quality that has informed the approach to the preliminary assessment reported in this PEIR and which will inform the final assessment reported within the ES, comprises:

- Institute of Air Quality Management (IAQM): Guidance on the Assessment of Dust from Demolition and Construction (Ref 15.26) (hereafter referred to as IAQM Construction Dust guidance). This guidance was updated in January 2024 and the construction dust study area and assessment methodology have been updated since publication of the EIA Scoping Report (Ref 15.25);
- IAQM and Environmental Protection UK (EPUK): Land Use Planning and Development Control: Planning for Air Quality guidance (Ref 15.27) (hereafter referred to as IAQM and EPUK Development Control guidance);
- IAQM: A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (Ref 15.28) (hereafter referred to as IAQM Ecological guidance);
- Defra: Local Air Quality Management Technical Guidance (LAQM.TG (22)) (Ref 15.29); and
- National Highways Design Manual for Roads and Bridges (DMRB) LA105 – Air Quality (Ref 15.30).

15.4.3 The preliminary air quality assessment within this chapter focuses on the local air quality impacts associated with the construction phase of the Project. It is anticipated that there would be no significant operational air quality impacts due to the Project being a static structure which does not have any associated emissions during its operation.

### Study Area

15.4.4 The study area for the Air Quality is presented in **Figure 15.1 Air Quality Baseline**. This is presented for the Project inclusive of both the Proposed Overhead Line and Proposed Substation Works.

#### Construction dust

15.4.5 In accordance with the IAQM Construction Dust guidance (Ref 15.26), the study area for construction phase dust is:

- 250 m from the draft Order Limits for human receptors and up to 50 m for ecological receptors; and
- 50 m from the route(s) used by construction vehicles on the public highway, up to 250 m from the proposed bellmouths.

15.4.6 The construction dust study area is presented in **Figure 15.2 Air Quality Construction Dust Study Area.**

### Construction vehicle emissions

15.4.7 The provisional construction traffic data has been reviewed. The provisional data indicates that there is potential for traffic flows to meet the screening criteria for increases in Annual Average Daily Traffic (AADT) and heavy-duty vehicles (HDV)[1], on some sections of the construction traffic routes, indicating that detailed assessment may be required at these locations. As part of the ES the data will be screened against the IAQM and EPUK Development Control criteria (Ref 15.27) to identify if (and which) roads meet the criteria. Detailed assessment will then be undertaken where required to identify the air quality impacts at sensitive receptors near the affected routes.

15.4.8 The study area for assessment of construction vehicle emissions will comprise an area within 200 m of the construction traffic routes which exceed the IAQM and EPUK Development Control screening criteria, in accordance with DMRB LA105 (Ref 15.30).

15.4.9 Representative worst-case human health receptors and ecological receptors that are sensitive to changes in air quality will be selected within the study area. Examples of receptors are presented in Table 15.4.

### Construction plant and equipment emissions

15.4.10 The EIA Scoping Report (Ref 15.25) proposed that air quality impacts from NRMM and generators, due to their size and temporary use, would be scoped out from the assessment.

15.4.11 To support the proposal to scope out detailed assessment of air quality impacts from NRMM and generators, a desk-top study of nearby receptors and baseline air quality has been undertaken. No specific guidance exists on the definition for a study area for NRMM point sources due to the large variation in the area of potential impact from different types of sources. For the purposes of this assessment, identification of any receptors within 200 m of the construction compounds 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.

15.4.12 At this preliminary stage of the assessment, it is anticipated that emissions would be temporary and transient in nature and therefore negligible in terms of air quality impacts and significance, and best practice measures to limit air quality emissions during construction will be incorporated through the CoCP. Following confirmation of construction plant and equipment to be used during construction phase, the requirement for further assessment of construction plant and equipment will be confirmed.

## Baseline Data Gathering and Forecasting Methods

15.4.13 No air quality monitoring surveys are currently proposed as part of the assessment. However, this will be reviewed once construction vehicle estimates for the construction phase are available.

[1] HDV = goods vehicles + buses >3.5t gross vehicle weight

### Data sources

15.4.14 Baseline information on air quality has been collected from the following sources:

- Defra UK AIR website (Ref 15.31) – to establish predicted background concentrations for $NO_2$, $PM_{10}$ and $PM_{2.5}$ and determine existing AQMAs;
- Local authority websites and annual Air Quality Status Reports – to determine existing AQMAs and local air quality monitoring results:
  - East Riding of Yorkshire Council 2023 Air Quality Annual Status Report (Ref 15.32);
  - East Riding of Yorkshire Council 2024 Air Quality Annual Status Report (Ref 15.33);
  - North Lincolnshire Council 2023 Air Quality Annual Status Report (Ref 15.34); and
  - Bassetlaw District Council 2022 Air Quality Annual Status Report (Ref 15.35)
- Ordnance Survey (OS) 1:10,000, 1:25,000, 1:50,000 and 1:250,000 base mapping;
- OS AddressBase Plus data;
- Multi-Agency Geographic Information for the Countryside (MAGIC) website (Ref 15.36) – to identify ecological sites within the air quality study areas; and
- Air Pollution Information Service (APIS) (Ref 15.37) – to identify any habitats or features of designated sites that are sensitive to nutrient nitrogen and acid deposition.

### Further data to be collected to inform the ES

15.4.15 In addition to the data collected for the preliminary air quality assessment presented in the PEIR, the final air quality assessment presented in the ES will be informed by any baseline data required if there are changes to the study area(s), for example because of updated draft Order Limits and screening of construction traffic data to determine the vehicle emissions study area.

## Assessment Methods and Criteria

15.4.16 The following section summarises the methodology proposed to be used for the air quality assessment which builds on the general assessment methodology presented in **Chapter 5 Approach to Preparing the PEIR**.

### Construction dust assessment

15.4.17 During the construction phase of the Project, there is the potential for fugitive dust emissions to occur as a result of construction phase activities. These have been qualitatively assessed in accordance with the methodology outlined in the latest IAQM construction dust guidance (Ref 15.26), based on the current available information for the Project.

15.4.18 The steps for assessing dust emissions in accordance with the IAQM construction dust guidance (Ref 15.26) are detailed in **Appendix 15.1 Construction Dust Assessment and Methodology**.

### Construction vehicle emissions assessment

15.4.19 The assessment of the impacts of vehicle emissions from traffic related to the construction phase of the Project is based on the IAQM and EPUK Development Control guidance (Ref 15.27). This provides screening criteria indicating the thresholds above which an assessment may be necessary.

15.4.20 There are thresholds for the daily flows of light duty vehicles (LDV) and HDV, 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 LDV flows of more than 100 AADT within or adjacent to an AQMA or more than 500 AADT elsewhere; or
- a change HDV (>3.5 tonnes) flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere; or
- where a road is realigned by 5 m or more and is within an AQMA; or
- where a junction is added or removed close to existing receptors.

15.4.21 The design requirements for road widening to enable construction of the Project remain under development, however at the preliminary stage of the assessment it is not anticipated that there will be road realignments greater than 5 m within an AQMA or junctions added or removed as part of the Project, except for the access routes required for construction and maintenance of the Project which will be used on a temporary basis during construction and infrequently during maintenance. None of the areas proposed for highways widening are located within an AQMA. If any of the LDV and HDV criteria are met, including on haul roads and access routes, a detailed assessment will be undertaken to predict the air quality impacts from construction vehicle emissions. Provisional construction traffic data has been reviewed, but this is not yet available in a format that allows meaningful comparison with the IAQM and EPUK Development Control screening criteria set out in paragraph 15.4.17. Therefore, the air quality impacts from construction vehicle emissions will be assessed once further details are available. If any of the screening criteria are met, the methodology described in paragraph 15.4.23 to 15.4.27 will be applied.

15.4.22 The significance of predicted impacts will be determined in accordance with the methodology outlined in the IAQM and EPUK Development Control guidance (Ref 15.27) and described as follows.

### Sensitivity

15.4.23 Potential impacts of vehicle emissions at sensitive receptor locations will be assessed by calculating the change in $NO_2$ and particulate matter concentrations as a result of the Project.

15.4.24 The AQS objectives only apply where members of the public are likely to be regularly present for the averaging time of the objective (i.e. where people will be exposed to pollutants). LAQM.TG22 (Ref 15.29) 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 AQS objectives are considered to apply, as detailed in Table 15.4.

Table 15.4 - 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.<br>Building façades of residential properties, schools, hospitals, care homes. | Building façades of offices or other places of work where members of the public do not have regular access.<br>Hotels, unless people live there as their permanent residence.<br>Gardens of residential properties.<br>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).<br>Those parts of car parks, bus stations and railway stations. Which are not fully enclosed, where reasonably be expected to spend one hour or more.<br>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

15.4.25 Where detailed assessment is required, detailed dispersion modelling will be undertaken using Atmospheric Dispersion Modelling Software (ADMS) to predict pollutant concentrations at worst case receptor locations within 200 m of affected vehicle routes. The magnitude of change will be calculated, and total concentrations compared against relevant AQS objectives. The magnitude of change descriptors are presented in Table 15.5.

### Significance of effects

15.4.26 The significance of effects will be assessed in accordance with the IAQM and EPUK Development Control guidance (Ref 15.27) dependent upon the percentage change in concentration between the 'without and with Project' scenarios, relative to the relevant air quality objectives, as presented in Table 15.5.

Table 15.5 - IAQM impact descriptors for individual receptors

| Long-term Average Concentration at Receptor in Assessment Year | % Change in Concentration Relative to the 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 |

15.4.27 The IAQM and EPUK Development Control guidance (Ref 15.27) notes that the impact descriptors in Table 15.5 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 Project;
- 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.

### Temporal scope

15.4.28 The air quality assessment considers the following scenarios:

- Baseline;
- 'Without Development' without Project construction traffic (or Do-Minimum (DM)); and
- 'With Development' with Project construction traffic (or Do-Something (DS)).

15.4.29 The year represented by the DM and DS construction scenarios represent the peak construction year predicted to have the maximum annual average daily traffic flows during construction phase. This is anticipated to be 2028, and therefore traffic data representing this year with and without construction traffic will be used in the air quality assessment.

### Approach to defining significance in the PEIR

15.4.30 As set out in **Chapter 5 Approach to Preparing the PEIR** 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.

15.4.31 Following on from the identification of whether an effect is considered likely to be significant or not significant a confidence in the prediction is given a rating of high, moderate or low in line with the confidence level definitions presented in **Chapter 5 Approach to Preparing the PEIR**.

## Preliminary Assessment Assumptions and Limitations

15.4.32 The assessment has been undertaken based on preliminary design information for the Proposed Overhead Line as described in **Chapter 4 Description of the Project**. This information is likely to develop further in response to ongoing design, assessment and stakeholder feedback, and will be updated for the ES as the design evolves.

15.4.33 All conclusions and assessments are by their nature preliminary. All assessment work has applied, and continues to apply, a precautionary principle, in that where limited information is available (in terms of the proposals for the Project).

15.4.34 The key parameters and assumptions will be reviewed based on the design presented in the Development Consent Order (DCO) application and, where required, updated, or refined. The ES will present the final key parameters and assumptions used within that assessment, particularly drawing attention to any areas that may have evolved from what is presented in this preliminary assessment.

15.4.35 The following assumptions and limitations have been identified:

- Dust generating activities have been assumed to occur across the full area within the draft Order Limits. This is a conservative assumption included to cover all potential effects.
- The main construction activities other than construction traffic will take place within the draft Order Limits.
- Where there is uncertainty on volumes of earthworks and construction building a ‘large’ magnitude has been assumed to provide a worst-case assessment.
- Provisional construction traffic data has been reviewed, but this is not yet in a format that allows meaningful comparison with the IAQM and EPUK Development Control screening criteria set out in paragraph 15.4.17. Therefore, screening and detailed assessment of construction vehicle emissions has not been possible at this stage but will be assessed and reported in the ES.
- There is limited detail available for NRMM during the construction and maintenance phases and regarding the potential use of diesel generators at this preliminary stage. It is assumed that emissions would be temporary and transient in nature and therefore negligible in terms of air quality impacts and significance; however, this will be confirmed in the air quality assessment once further information is available.

## Further Assessment within the ES

15.4.36 The ES will present a full detailed assessment in accordance with industry good practice guidance as detailed in the methodology presented in this section above (paragraphs 15.4.16 to 15.4.27).

15.4.37 The following assessments will be undertaken and presented within the ES:

- construction dust assessment;
- construction vehicle emissions assessment (if screening of traffic data identifies the need for a detailed assessment); and
- generators and NRMM assessment (if required following further details on construction plant and equipment).

## 15.5 Baseline Conditions

15.5.1 This section describes the baseline Air Quality environment in the study area where it relates to the Proposed Overhead Line. The baseline Air Quality in the study area in relation to the Proposed Substation Works is presented in **Chapter 20 Substations and Associated Works.**

15.5.2 Baseline conditions have been gathered from desk-based information.

15.5.3 The Proposed Overhead Line is described in **Chapter 4 Description of the Project**.

### Baseline

#### Local authority monitoring data

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

15.5.5 As required by the Environment Act 1995, and as amended by the Environment Act (2021) (Ref 15.7), the local authorities covering the air quality study area have undertaken a review and assessment of air quality within their area of jurisdiction. This process has identified one AQMA in Scunthorpe, declared by North Lincolnshire Council.

15.5.6 The Scunthorpe AQMA is declared for exceeding the 24-hour mean $PM_{10}$ AQS objective and was initially declared in 2005 and amended in 2018. The AQMA is an area encompassing the integrated steelworks site and a number of properties to the east of Scunthorpe (Ref 15.34). Scunthorpe AQMA is located approximately 7 km east of the draft Order Limits, as shown on **Figure 15.1 Air Quality Baseline**.

15.5.7 There are currently no declared AQMAs within East Riding of Yorkshire and Bassetlaw.

15.5.8 Local authority monitoring data for the most recently reported years of 2023 for East Riding of Yorkshire, 2022 for North Lincolnshire and 2021 for Bassetlaw did not show any exceedances of the annual mean $NO_2$, $PM_{10}$ or $PM_{2.5}$ AQS objectives in East Riding of Yorkshire, North Lincolnshire or Bassetlaw. The only exceedance of an AQS objective reported across the local authority districts was an exceedance of the 24-hour $PM_{10}$ AQS objective, at monitoring site CM3 which exceeded the 24-hour mean of 50 $\mu g/m^3$ 42 times. This site is located within the Scunthorpe AQMA, adjacent to Dawes Lane to the east of Scunthorpe near the Integrated Steelworks site. This monitoring site is located approximately 10.5 km east of the draft Order Limits. The monitoring locations for East Riding of Yorkshire, North Lincolnshire or Bassetlaw are shown on **Figure 15.1 Air Quality Baseline**.

15.5.9 The annual mean pollutant concentrations for the automatic monitoring sites closest to the Proposed Overhead Line for each local authority are presented in Table 15.6.

Table 15.6 - Automatic monitoring within 10 km of the Proposed Overhead Line

| Monitoring site | X (OS reference (m)) | Y (OS reference (m)) | Site type | Distance from draft Order Limits | 2022 Annual Mean Concentration (µg/m$^3$) | | |
|---|---|---|---|---|---|---|---|
| | | | | | $NO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| **East Riding of Yorkshire**[1] | | | | | | | |
| RCMelton Zephyr | 496909 | 426511 | Roadside | 4 km | 16.3 | 14.9 | 11.7 |
| Nferr Zephyr | 498036 | 426313 | Roadside | 5 km | 11.1 | 12.5 | 11.6 |
| GooleNS Zephyr | 474860 | 423508 | Roadside | 7.5 km | 11.2 | 13.1 | 12.2 |
| Bev ephyr | 504859 | 439769 | Roadside | 3.5 km | 14.2 | 13.8 | 12.8 |
| Hess Zephyr | 503048 | 425793 | Roadside | 10 km | 9.1 | 12.6 | 11.7 |
| **North Lincolnshire** | | | | | | | |
| CM1 | 490320 | 410831 | Industrial | 7.5 km | 13.0 | 19.0 | - |
| CM2 | 490663 | 409789 | Urban Background | 8.5 km | - | 22.0 | 8.0 |
| CM3 | 492945 | 411931 | Industrial | 9.5 km | 13.0 | 31.0 | 13.0 |
| CM4 | 491343 | 408782 | Industrial | 9 km | - | 20.0 | - |
| CM5 | 490224 | 411301 | Industrial | 7.5 km | - | 22.0 | - |

[1] East Riding of Yorkshire Council have not reported 2023 annual mean concentrations in the 2024 ASR.

15.5.10 The annual mean pollutant concentrations for the diffusion tube monitoring sites closest to the Proposed Overhead Line for each local authority are presented in Table 15.7.

Table 15.7 - Diffusion tube monitoring in the vicinity of the Proposed Overhead Line (within 5 km)

| Monitoring site | X (OS reference (m)) | Y (OS reference (m)) | Site Type | Distance from draft Order Limits | Annual Mean Concentration (µg/m$^3$) |
|---|---|---|---|---|---|
| **East Riding of Yorkshire – 2023 Monitoring (within 5 km)** | | | | | |
| ERYC S26 | 504637 | 440017 | Roadside | 3.8 km | 12.3 |
| ERYC S28 | 504697 | 439882 | Roadside | 3.7 km | 22.7 |
| ERYC S33 | 503754 | 439572 | Roadside | 3.2 km | 18.8 |
| ERYC S71 | 504488 | 439562 | Roadside | 3.4 km | 13.1 |
| ERYC S70 | 504063 | 439233 | Roadside | 2.9 km | 16.1 |
| ERYC S9 | 503086 | 439020 | Roadside | 2.6 km | 21.4 |
| ERYC S8 | 503064 | 439001 | Roadside | 2.6 km | 21.3 |
| ERYC S10 | 503013 | 438913 | Kerbside | 2.5 km | 19.6 |
| ERYC S22 | 504100 | 433232 | Roadside | 2 km | 19 |
| ERYC S35 | 492328 | 431214 | Roadside | 1.6 km | 13.6 |
| ERYC S53 | 492243 | 431116 | Roadside | 1.6 km | 19.2 |
| ERYC S46 | 492244 | 431032 | Roadside | 1.5 km | 21.7 |

| Monitoring site | X (OS reference (m)) | Y (OS reference (m)) | Site Type | Distance from draft Order Limits | Annual Mean Concentration (µg/m$^3$) |
|---|---|---|---|---|---|
| ERYC S18 | 501827 | 429826 | Roadside | 3.3 km | 9.5 |
| ERYC S49 | 495732 | 426997 | Roadside | 2.9 km | 23.2 |
| ERYC S36 | 495723 | 426954 | Roadside | 2.9 km | 18.7 |
| ERYC S17 | 495261 | 426908 | Roadside | 2.6 km | 13.7 |
| ERYC S45 | 496771 | 426527 | Roadside | 4 km | 22.4 |
| ERYC S44 | 496872 | 426518 | Roadside | 4.1 km | 14.9 |
| ERYC S63 | 494158 | 426490 | Roadside | 2.4 km | 13 |
| ERYC S24 | 496997 | 426490 | Roadside | 4.2 km | 29.1 |
| ERYC S59 | 497222 | 426412 | Roadside | 4.4 km | 21.4 |
| ERYC S51 | 497423 | 426118 | Roadside | 4.8 km | 14 |
| ERYC S58 | 496860 | 425815 | Roadside | 4.5 km | 18.3 |
| **North Lincolnshire – 2022 Monitoring (within 5 km)** | | | | | |
| NLC 3 | 486699 | 411110 | Roadside | 4.1 km | 19.8 |
| NLC 4 | 486928 | 411156 | Roadside | 4.4 km | 20.7 |
| NLC 2 | 487239 | 411259 | Roadside | 4.6 km | 24.3 |
| **Bassetlaw – 2021 Monitoring (within 5 km)** | | | | | |

| Monitoring site | X (OS reference (m)) | Y (OS reference (m)) | Site Type | Distance from draft Order Limits | Annual Mean Concentration (µg/m$^3$) |
|---|---|---|---|---|---|
| BDC 22 | 481341 | 374505 | Roadside | 2.7 km | 18.1 |
| BDC 29 | 473811 | 371146 | Roadside | 4.2 km | 25.9 |
| BDC 32 | 473916 | 370838 | Roadside | 4.3 km | 18.5 |
| BDC 45 | 473600 | 371013 | Urban Centre | 4.4 km | 25.8 |

### Defra background concentrations

15.5.11 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 1 km 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 15.31) for the purposes of the assessment. Table 15.8 summarises the range of background concentrations for the current year 2024 relating to the grid squares covering the draft Order Limits and surrounding study area.

Table 15.8 - Background pollutant concentrations 2024

| Pollutant | Minimum Concentration ($\mu g/m^3$) | Maximum Concentration ($\mu g/m^3$) | Average Concentration ($\mu g/m^3$) | Annual Mean Air Quality Objective ($\mu g/m^3$) |
|---|---|---|---|---|
| $NO_2$ | 5.2 | 7.0 | 5.5 | 40 |
| $PM_{10}$ | 11.3 | 15.9 | 13.4 | 40 |
| $PM_{2.5}$ | 5.6 | 6.3 | 5.9 | 20 |

15.5.12 Table 15.8 shows that 2024 background $NO_2$ and particulate matter concentrations in the vicinity of the Proposed Overhead Line are below the relevant annual mean air quality objective values.

## Future Baseline

15.5.13 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 (Ref 15.31).

15.5.14 Traffic emissions are likely to contribute to baseline air quality concentrations in the vicinity of the 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 zero emission vehicles.

15.5.15 The construction and/or operation of committed developments in the surrounding area may increase traffic flows in the vicinity of the Project, which may result in an increase in local air quality concentrations. 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.

15.5.16 Background data (Ref 15.31) for the grid squares covering the draft Order Limits and surrounding study area for the construction year 2028 (where construction activities are anticipated to generate the highest vehicle movements) are presented in Table 15.9 .

Table 15.9 - Background pollutant concentrations 2028

| Pollutant | Minimum Concentration ($\mu g/m^3$) | Maximum Concentration ($\mu g/m^3$) | Average Concentration ($\mu g/m^3$) | Annual Mean Air Quality Objective ($\mu g/m^3$) |
|---|---|---|---|---|
| $NO_2$ | 4.6 | 6.1 | 4.9 | 40 |
| $PM_{10}$ | 11.1 | 15.7 | 13.1 | 40 |
| $PM_{2.5}$ | 5.3 | 6.0 | 5.6 | 20 |

15.5.17 Table 15.9 shows that 2028 background $NO_2$ and particulate matter concentrations in the vicinity of the Project are below the relevant annual mean air quality objective values.

15.5.18 The following proposed developments within 1 km of the Project that have the potential to affect the future air quality have been identified here:

- Bumble bee solar farm and battery storage facility (22/00358/FUL);
- Tuxford Solar Farm, Land North and South Tuxford Road Skegby Tuxford Nottinghamshire (21/01147/FUL);
- Former High Marnham Power Station Power Station Access Fledborough Road High Marnham Newark Nottinghamshire NG23 6SE (19/00818/FUL);
- Part demolition, refurbishment and extension of existing buildings, Belton Business Park, A161 between Belton and Epworth, Belton, DN9 1NY (PA/2022/1520); and
- Wood Lane solar farm, Land northwest And South of Field Farm Wood Lane Sturton Le Steeple Nottinghamshire (20/00117/FUL).

15.5.19 The known planning applications that have been considered by the impact assessment and presented in **Chapter 21 Cumulative Effects**.

## 15.6 Mitigation

15.6.1 As set out in **Chapter 5 Approach to Preparing the PEIR** mitigation measures typically fall into one of three categories: embedded measures; control and management measures; and additional mitigation measures. Those measures relevant to the assessment of air quality effects are set out below.

### Embedded Mitigation Measures

15.6.2 Environmental appraisal has been an integral part of the Project design from the outset, which has meant that the Project has been able to avoid environmentally sensitive features as far as reasonably practicable.

15.6.3 National Grid has also embedded measures into the design of the Project to avoid or reduce significant effects that may otherwise be experienced during construction, operation and maintenance of the Project.

15.6.4 Embedded measures are those that are intrinsic to, and built into, the design of the Project; these are presented in Table 4.2 in **Chapter 4 Description of the Project**. Measures of relevance to the Air Quality chapter include;

- Sensitive Routeing and Siting to develop the draft overhead line alignment, siting of substations and draft Order Limits by avoiding and reducing, as far as practicable, impacts on identified receptors, in line with the National Policy Statements EN-1 (Ref 15.15) and EN-5 (Ref 15.16) as well as the Holford Rules (Ref 15.38) and the Horlock Rules (Ref 15.39). Further information on options appraisal and the alternative options considered is set out in **Chapter 3 Project Need and Alternatives**.
- The design includes strategically located and optimised temporary haul roads along the Project alignment to support construction of the Project and reducing the effects of construction traffic movements on the local public highway network during construction.

## Control and Management Measures

15.6.5 Control and management measures, comprising management activities and techniques, will be implemented during construction of the Project to limit effects through adherence to good site practices and achieving legal compliance.

15.6.6 As a result of the preliminary construction dust assessment detailed in **Appendix 15.1 Construction Dust Assessment and Methodology**, a number of mitigation measures have been identified in Table 15.12 **Appendix 15.1 Construction Dust Assessment and Methodology**) to reduce the impact on human health and ecology. These have been included in the Draft Outline Code of Construction Practice (CoCP) which is provided in **Appendix 4.1 Draft Outline Code of Construction Practice** in Volume 3. Measures contained in the Draft Outline CoCP that are relevant to the control and management of impacts that could affect air quality are:

- GG03: The following environmental management plans will be produced prior to construction;
  - Code of Construction Practice (CoCP)
  - Register of Environmental Actions and Commitments (REAC)
  - Construction Traffic Management Plan (CTMP)
  - Soil Management Plan (SMP)
  - Public Rights of Way Management Plan
  - Materials and Waste Management Plan (MWMP)
  - Noise and Vibration Management Plan
  - Landscape and Ecology Management Plan (LEMP) including an Outline Landscape Maintenance and Management Plan
  - Archaeological Written Scheme of Investigation (WSI)
- GG04: The CoCP shall include measures to manage dust, waste, water, noise, vibration and soil during construction. The contractor(s) shall undertake site inspections to check conformance to the Management Plans.

- GG11: Any activity carried out or equipment located within a construction compound that may produce a noticeable nuisance, including but not limited to dust, noise, vibration and lighting, will be located away from sensitive receptors such as residential properties or ecological sites where practicable.
- GG13: Vehicles will be correctly maintained and operated in accordance with manufacturer's recommendations and in a responsible manner. The operators of plant and vehicles will be required to switch off their engines when not in use and when it is safe to do so.

  Electric, or other low carbon plant and equipment should be used where available and where practicable.
- GG14: Materials and equipment will not be moved or handled unnecessarily. When loading and unloading materials from vehicles, including excavated materials, drop heights will be limited, where practicable.
- GG17: Wash down of vehicles and equipment will take place in designated areas, for example within construction compounds and intermittently along construction access roads. Wash water will be prevented from passing untreated into watercourses and groundwater. Appropriate measures will include use of sediment traps.
- GG18: Wheel washing facilities will be provided at each main compound, where appropriate. Road sweepers will be deployed on public roads where necessary to prevent excessive dust or mud deposits.
- GG19: Earthworks and stockpiled soil will be protected by covering, seeding or using water suppression where appropriate.
- GG20: Bonfires and the burning of waste material will be prohibited.
- TT01: The CTMP will set out measures to reduce route and journey mileage to and from, and around, the site, and to prevent potential nuisance to residents, businesses and the wider community associated with parking, vehicle movements and access restrictions. It will also provide suitable control for the means of access and egress to the public highway and set out measures for the maintenance and upkeep of the public highway. The CTMP will also identify access for emergency vehicles. It will also set out measures to reduce safety risks through construction vehicle and driver quality standards and measures to manage abnormal loads.
- AQ01: Communications. Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. Contact details for the Project will be displayed at the entrance to the main site compounds. This will include an emergency telephone number. A free telephone Project helpline and project website will be maintained and managed by the National Grid community relations team. The Project helpline and website information will be visible on boards placed in appropriate locations where they will be visible to the public.
- AQ02: Site Management. Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book. Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

- AQ03: Monitoring. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of site boundary, with cleaning to be provided if necessary. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Where possible, commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
- AQ04: Preparing and Maintaining the Site. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. Erect solid screens or barriers around dusty activities such as around the construction compounds so that they are at least as high as any stockpiles on site (where appropriate and practical). Keep site fencing, barriers and scaffolding clean using wet methods. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site, cover as described below. Cover, seed or fence stockpiles to prevent wind whipping (where needed and depending on duration).
- AQ05: Operating Vehicle/Machinery and Sustainable Travel. Impose and signpost a maximum-speed-limit on surfaced and unsurfaced haul roads and work areas (if long haul routes are required, these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where appropriate). Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. Implement a Construction Staff Travel Plan that supports and encourages sustainable travel where possible (public transport, cycling, walking, and car-sharing) and encourage construction works to report to an offsite location before loading into a site vehicle and travelling to site, where practicable.
- AQ06: Operations. Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. Use enclosed chutes and conveyors and covered skips where reasonably practicable. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. 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.
- AQ07: Demolition. Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. Avoid explosive blasting, using appropriate manual or mechanical alternatives where reasonably practicable. Bag and remove any biological debris or damp down such material before demolition.

Should any hazardous waste be identified this will be removed by an appropriate specialist in a controlled manner.

- AQ08: Earthworks. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable, where appropriate. Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. Only remove the cover in small areas during work and not all at once, where practicable.
- AQ09: Construction. Avoid scabbling (roughening of concrete surfaces) if possible. Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
- AQ10: Trackout. 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. Ensure vehicles carrying dust generating materials entering and leaving sites are covered to prevent escape of materials during transport. Inspect on-site haul routes for integrity and instigate 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. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned so as far as reasonably possible. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. Access gates to be located at least 10 m from receptors where possible.
- AQ11: Use stage 4 Non-Road-Mobile-Machinery (NRMM) as a minimum and stage 5 where possible. Additionally, where possible use electric, or other low carbon plant and equipment where practicable.

15.6.7 The full list of mitigation measures identified during the construction dust assessment are presented in **Appendix 15.1 Construction Dust Assessment and Methodology**, and **Appendix 4.1 Draft Outline CoCP**.

## Additional Mitigation Measures

15.6.8 Additional mitigation comprises measures over and above any embedded and standard mitigation measures, for which assessment within this PEIR has identified a requirement to further reduce significant environmental effects.

15.6.9 The preliminary assessment reported in this PEIR has not identified any requirements for additional mitigation at this stage, over and above the embedded or control and management measures identified. This will continue to be reviewed as the assessment progresses and the preliminary design develops further.

## 15.7 Preliminary Assessment

15.7.1 This section first identifies the potential effects that could occur as a result of the construction of the Proposed Overhead Line. The preliminary assessment is then presented for the Proposed Overhead Line as described in **Chapter 4 Description of the Project**. The preliminary assessment of the Proposed Substation Works is presented in **Chapter 20 Substations and Associated Works**.

15.7.2 The preliminary assessment takes into account the embedded, control and management and additional mitigation measures as set out in section 15.6.

### Potential Effects

15.7.3 The potential for the Proposed Overhead Line to result in likely significant effects on air quality was determined through the EIA scoping process. This section lists those potential effects that have been scoped into the assessment within the Scoping Report (Ref 15.25) taking into account the comments received within the Scoping Opinion (Ref 15.24). Where the scope has been amended since publication of the EIA Scoping Report (Ref 15.25), explanatory text has been included to provide justification for this change.

#### Construction

15.7.4 The potential effects that could result from the construction of the Proposed Overhead Line are:

- Effects from dust deposition and health impacts from elevated $PM_{10}$ concentrations on:
  - human receptors within 250 m of the draft Order Limits and 50 m of the route(s) used by construction vehicles on the public highway within 250 m of the proposed bellmouths; and
  - ecological receptors within 50 m of the draft Order Limits and 50 m of the route(s) used by construction vehicles on the public highway within 250 m of the proposed bellmouths.
- Effects on sensitive ecological and human receptors within 200 m of construction traffic routes from increases in local air pollutant concentrations and nitrogen deposition rates from vehicle emissions.
- Effects on sensitive ecological and human receptors within 200 m of NRMM

#### Operation and Maintenance

15.7.5 Potential air quality effects from the operation and maintenance of the Proposed Overhead Line have been scoped out of the assessment.

### Receptors

15.7.6 LAQM.TG22 (Ref 15.29) 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 AQS objectives are considered to apply. Table 15.4 details the types of receptors considered over varying time periods associated with long-term and short-term AQS objectives.

15.7.7 An ‘ecological receptor’ refers to any sensitive habitat affected by changes in air quality. Examples of ecological receptors include sites with international, national or local designation such as Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites, Sites of Special Scientific Interest (SSSIs), national nature reserves, local nature reserves, local wildlife sites and ancient woodland, as described in IAQM Ecological guidance (Ref 15.28).

15.7.8 A number of ecological receptors have been identified within the air quality study area. Details of the sensitive ecological receptors are provided in Table 15.10 and ecological receptors are shown on **Figure 15.1 Air Quality Baseline**.

Table 15.10 - Sensitive ecological receptors within the preliminary air quality study area

| Site Name | Site Type | Route Section | Distance to draft Order Limits (m) |
|---|---|---|---|
| Humber Estuary | Ramsar, SPA, SAC, SSSI | 4 | <1 |
| Brantingham Dale | SSSI | 2 | <1 |
| Crowle Borrow Pits | SSSI | 6 | <1 |
| Chesterfield Canal | SSSI | 9 | <1 |
| Birkhill Wood | Ancient Woodland | 1 | 10 |

15.7.9 Along the boundary of the draft Order Limits sensitive receptors include residential receptors, schools, and ecological receptors.

15.7.10 The draft Order Limits pass within 250 m of residential receptors in settlements such as Skidby, Little Weighton, Brantingham, Ellerker, Broomfleet, Gilberdyke, Yokefleet, Ousefleet, Crowle, Ealand, Belton, Beltoft, Owston Ferry, East Lound, Misterton, Sturton le Steeple, East Drayton and Darlton. There are also schools within 250 m of the draft Order Limits, including those in Crowle and Owston Ferry, and a hospital within 250 m of the draft Order Limits in Woodbeck.

## Construction Dust

15.7.11 A summary of the preliminary assessment of construction dust is presented in Table 15.11. The full preliminary assessment is presented in **Appendix 15.1 Construction Dust Assessment and Methodology**. The study area for the construction dust assessment is presented in **Figure 15.2 Air Quality Construction Dust Study Area**.

15.7.12 The preliminary likely significant effects of the Proposed Overhead Line have been considered based upon currently available data relating to the construction phase of the Proposed Overhead Line.

Table 15.11 - Preliminary assessment of construction dust

| | Preliminary assessment |
|---|---|
| Receptor | Over 100 human receptors with high sensitivity within 250 m of the draft Order Limits.<br>Five ecological receptors with high sensitivity within 50 m of the draft Order Limits. |
| Potential impact | Construction dust arising from trackout (transportation of dust and dirt onto the public road network), demolition, earthworks and construction activities which may impact upon human and ecological receptors. |
| Project phase | Construction phase. |
| Duration | For the duration of the construction phase. |
| Mitigation | Mitigation set out in **Appendix 15.1 Construction Dust Assessment and Methodology**. |
| Preliminary sensitivity | The preliminary sensitivity of the surrounding area is summarised in **Appendix 15.1 Construction Dust Assessment and Methodology**.<br>The sensitivity of the surrounding area to dust soiling is considered high from demolition, earthworks and construction, and medium for trackout activities.<br>The sensitivity of the surrounding area for human health is considered low from demolition, earthworks, construction and trackout activities.<br>The ecological sensitivity of the surrounding area is considered high from demolition, earthworks, construction and trackout activities |
| Preliminary magnitude | The preliminary magnitude of the construction activity is summarised in **Appendix 15.1 Construction Dust Assessment and Methodology**. The magnitude of dust emissions is considered to be small from demolition activities and large from earthworks, construction and trackout activities. |
| Preliminary likely significance of effect | Not significant assuming the mitigation measures in **Appendix 15.1 Construction Dust Assessment and Methodology** are adopted. |
| Confidence in prediction | High |

15.7.13 Proposed standard mitigation measures for high-risk sites are set out in **Appendix 15.1 Construction Dust Assessment and Methodology**. Following the implementation of the proposed standard mitigation measures, the effects of construction on dust soiling and human health are anticipated to be not significant, in line with IAQM guidance (Ref 15.26). The confidence in this preliminary assessment is Moderate as the assessment is based on preliminary construction information that may change as the Project design progresses; however, it is unlikely that the conclusion of significance will change. This will be confirmed in the ES.

## Construction Vehicle Emissions

15.7.14 Provisional construction traffic data has been reviewed as part of the preliminary assessment, but this is not yet available in a format that allows meaningful comparison with the IAQM and EPUK Development Control screening criteria set out in paragraph 15.4.17 (Ref 15.27). Therefore, the air quality impacts from construction vehicle emissions will be assessed once further details are available and if any of the IAQM and EPUK screening criteria (Ref 15.27) have been met.

15.7.15 The provisional construction traffic data indicates that there is the potential for traffic flows to meet the screening criteria for increases in AADT and HDV on some sections of the construction route network, based on the worst-case assumption that peak construction activity would occur in all sections at the same time. As such, detailed assessment may be required at these locations; these include sections of the A164, the A63, the M62, the A161, the M180, Brough Road, Tongue Lane and Main Street (Skidby). Part of the A63 construction route travels through Kingston-Upon-Hull City Council's Hull AQMA No.1(A), where the more stringent criteria apply.

15.7.16 Once the construction traffic data is finalised, the data will be screened against the IAQM and EPUK Development Control criteria to identify if and which roads meet the criteria, and detailed assessment will be undertaken to identify the air quality impacts at sensitive receptors near the affected routes.

15.7.17 Based on available information at the current stage, the preliminary assessment of construction vehicle emissions is presented in Table 15.12.

Table 15.12 - Preliminary assessment of construction vehicle emissions

| | **Preliminary assessment** |
|---|---|
| Receptor | Human and ecological receptors within 200 m of the construction traffic routes meeting the IAQM and EPUK screening criteria (Ref 15.27). |
| Potential impact | Increase in NOx, $NO_2$ and particulate matter concentrations at receptor locations. |
| Project phase | Construction phase. |
| Duration | For the duration of the construction phase. |
| Mitigation | To be identified in the ES following detailed modelling (if required). |
| Preliminary sensitivity | Receptors have high sensitivity. |
| Preliminary magnitude | To be determined in the ES following detailed modelling (if required). |
| Preliminary likely significance of effect | To be determined in the ES following detailed modelling (if required). |
| Confidence in prediction | To be determined in the ES following detailed modelling (if required). |

## Generator Use/NRMM

15.7.18 Generators and NRMM have not been assessed in detail as described previously. However, it is assumed generator effects would be sufficiently mitigated by measures including, but not limited to, locating away from sensitive receptors, increasing the release height of emissions for sufficient dispersion, and relevant abatement technology.

15.7.19 Receptors within 200 m of the proposed construction compounds have been identified. Only one construction compound, the satellite compound S-1, has receptors within 200 m which includes:

- Birkhill Wood Ancient Woodland, located approximately 30 m west; and
- A human receptor located approximately 165 m northeast.

15.7.20 Background air quality for the current (2024) and future (2028) baseline at this construction compound location are presented in Table 15.13.

Table 15.13 - Background pollutant concentrations at construction compound (background map grid reference: 503500, 435500)

| Pollutant | 2024 Background Concentration (µg/m$^3$) | 2028 Background Concentration (µg/m$^3$) | Annual Mean Air Quality Objective / Critical Value (µg/m$^3$) |
|---|---|---|---|
| $NO_2$ | 7.4 | 6.8 | 40 |
| $PM_{10}$ | 14.6 | 14.5 | 40 |
| $PM_{2.5}$ | 7.8 | 7.6 | 20 |
| NOx | 9.5 | 8.7 | 30 |

15.7.21 The background pollutant concentrations are well below the respective air quality objectives and critical value for each pollutant. Due to the temporary and transient nature of NRMM operation, the use of construction NRMM is unlikely to result in significant effects on local air quality that would result in exceedances of the AQS objectives and critical values at receptors within 200 m of the construction compound.

15.7.22 In addition, LAQM. TG(22) (Ref 15.29) concludes that:

*'Experience of assessing the exhaust emissions from on-site plant (NRMM) and site traffic suggests that, with suitable controls and site management, they are unlikely to make a significant impact on local air quality.'*

15.7.23 Therefore, it is considered that emissions from construction equipment and plant are likely to be not significant. The confidence in prediction for this assessment is high.

## Summary

15.7.24 The construction dust risk assessment undertaken for the construction phase determined that the worst-case risk of dust effects would be not significant. Appropriate measures have been identified in **Appendix 15.1 Construction Dust Assessment and Methodology** and will be incorporated into the CoCP following final assessment in the ES. With the implementation of these measures, the effect of construction dust is considered to be not significant.

15.7.25 Provisional construction traffic data has been reviewed as part of the preliminary assessment, but this is not yet available in a format that allows meaningful comparison with the IAQM and EPUK Development Control screening criteria set out in paragraph 15.4.17 (Ref 15.27). Therefore, the air quality impacts from construction vehicle emissions will be assessed once further details are available and if any of the IAQM and EPUK screening criteria (Ref 15.27) have been met.

15.7.26 Due to the assumed temporary and transient nature of the use of NRMM and low background concentrations, as well as the low background pollutant concentrations, it is considered that significant effects arising from NRMM and plant emissions during construction are unlikely.

## Summary of the Preliminary Assessment of the Proposed Overhead Line with the Proposed Substation Works

15.7.27 The preliminary assessment of the Proposed Substation Works is presented in **Chapter 20 Substations and Associated Works**.

15.7.28 The Proposed Overhead Line and the Proposed Substation Works at Birkhill Wood and High Marnham have the potential to shared receptors such as:

- Human receptors within,
  - 250 m of construction works;
  - 50 m of the route(s) used by construction vehicles on the public highway; and
  - within 250 m of the proposed bellmouths.
- Ecological receptors within,
  - 50 m of construction works;
  - 50 m of the route(s) used by construction vehicles on the public highway;and
  - within 250 m of the proposed bellmouths.
- Effects on sensitive ecological and human receptors within 200 m of construction traffic routes from increases in local air pollutant concentrations and nitrogen deposition rates from vehicle emissions.
- Effects on sensitive ecological and human receptors within 200 m of Non-Road Mobile Machinery (NRMM).

15.7.29 Taking account of the embedded measures set out in **Chapter 4 Description of the Project** and the control and management measures as set out in **Appendix 4.1 Draft Outline Code of Construction Practice** any potential effects from the Proposed Substation Works are not likely to be significant, and, when considered together are unlikely to change the preliminary significance that is presented in this Chapter.

## 15.8 References


Ref 15.1 European Union (2008). Directive 2008/50/EC of the European Parliament and of the Council, on Ambient Air Quality and Cleaner Air for Europe. [Online]. Available at: https://www.legislation.gov.uk/eudr/2008/50/introduction [Accessed: November 2024].

Ref 15.2 Legislation.gov (2018). European Union (Withdrawal) Act 2018. [Online]. Available at: https://www.legislation.gov.uk/ukpga/2018/16/contents/enacted [Accessed: November 2024].

Ref 15.3 Legislation.gov (2019). The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019. [Online]. Available at: https://www.legislation.gov.uk/uksi/2019/74/made [Accessed: November 2024].

Ref 15.4 Legislation.gov (2010). Air Quality Standards Regulations 2010. SI 2010/1001. [Online]. Available at: https://www.legislation.gov.uk/uksi/2010/1001/contents/made [Accessed: November 2024].

Ref 15.5 Legislation.gov (1995). Environment Act 1995. [Online]. Available at: https://www.legislation.gov.uk/ukpga/1995/25/contents [Accessed: November 2024].

Ref 15.6 Department for Environment, Food and Rural Affairs, (2007), The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. [Online]. Available at: https://assets.publishing.service.gov.uk/media/5a758459ed915d731495a940/pb12654-air-quality-strategy-vol1-070712.pdf [Accessed: November 2024].

Ref 15.7 Legislation.gov (2021). Environment Act 2021. [Online]. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents [Accessed: November 2024].

Ref 15.8 Legislation.gov (2023). The Environment Targets (Fine Particulate Matter) (England) Regulations 2023. Available at: https://www.legislation.gov.uk/uksi/2023/96/note/made [Accessed: November 2024].

Ref 15.9 Department for Environment, Food and Rural Affairs, (2024), $PM_{2.5}$ Targets: Interim Planning Guidance. Available at: https://uk-air.defra.gov.uk/pm25targets/planning [Accessed: December 2024].

Ref 15.10 Legislation.gov (2000). The Air Quality (England) Regulations 2000. [Online]. Available at: https://www.legislation.gov.uk/uksi/2000/928/contents/made [Accessed: November 2024].

Ref 15.11 Legislation.gov (2002). The Air Quality (England) (Amendment) Regulations 2002. [Online]. Available at: https://www.legislation.gov.uk/uksi/2002/3043/contents [Accessed: November 2024].

Ref 15.12 Legislation.gov (1990). Environmental Protection Act 1990. [Online]. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents [Accessed: November 2024].

Ref 15.13 Legislation.gov (2018). The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018. [Online]. Available at: https://www.legislation.gov.uk/uksi/2018/764/contents [Accessed: September 2024].

Ref 15.14 Department for Environment, Food and Rural Affairs, (2023), Air Quality Strategy: Framework for Local Authority Delivery. [Online]. Available at: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery [Accessed: November 2024].

Ref 15.15 Department for Energy Security and Net Zero (2023). Overarching National Policy Statement for Energy (EN-1). [Online]. Available at: https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf [Accessed: November 2024].

Ref 15.16 Department for Energy Security and Net Zero (2023). National Policy Statement for Electricity Networks Infrastructure (EN-5). [Online]. Available at: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5 [Accessed: November 2024].

Ref 15.17 Ministry of Housing Communities and Local Government, (2024). National Planning Policy Framework. [Online]. Available at: https://assets.publishing.service.gov.uk/media/675abd214cbda57cacd3476e/NPPF-December-2024.pdf [Accessed: December 2024].

Ref 15.18 Ministry of Housing, Communities and Local Government, (2021). National Planning Practice Guidance. [Online]. Available at: https://www.gov.uk/government/collections/planning-practice-guidance [Accessed: November 2024].

Ref 15.19 East Riding of Yorkshire Council, (2016). East Riding Local Plan 2012-2029. [Online]. Available at: https://downloads.eastriding.org.uk/corporate/pages/east-riding-local-plan/Strategy%20Document%20-%20Adopted%20April%202016%20lo.pdf [Accessed: November 2024].

Ref 15.20 North Lincolnshire Council, (2011). North Lincolnshire Local Development Framework Core Strategy. [Online]. Available at: https://m.northlincs.gov.uk/public/planningreports/corestratergy/adopteddpd/FullCoreStrategy.pdf [Accessed: November 2024].

Ref 15.21 North Lincolnshire Council (2024). Saved 2003 Local Plan Policies. [Online]. Available at: https://www.northlincs.gov.uk/planning-and-environment/planning-policy-the-north-lincolnshire-local-plan/#1593095254001-ec189f5a-67c8 [Accessed: December 2024].

Ref 15.22 Bassetlaw District Council, (2024). Bassetlaw Local Plan 2020-2038. [Online]. Available at: https://www.bassetlaw.gov.uk/media/gn1kjm1b/adopted-bassetlaw-local-plan-2020-2038.pdf [Accessed: November 2024].

Ref 15.23 North Lincolnshire Council, (2024). Air Quality Action Plan 2024 - 2029. [Online]. Available at: https://www.nlincsair.info/Files/Reports/APPROVED%20AQAP%202024-29.pdf [Accessed: November 2024].

Ref 15.24 National Grid (2024). Scoping Opinion: Proposed North Humber to High Marnham Scoping Opinion Responses. [Online]. Available at: https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN020034/documents [Accessed: November 2024].

Ref 15.25 National Grid (2023). North Humber to High Marnham Environmental Impact Assessment Scoping Report. [Online]. Available at: https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN020034/documents [Accessed: November 2024].

Ref 15.26 Institute of Air Quality Management, (2024). Guidance on the Assessment of Dust from Demolition and Construction Version 2.2. [Online]. Available at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf [Accessed: November 2024].

Ref 15.27 Institute of Air Quality Management and Environmental Protection UK, (2017). Land-Use Planning & Development Control: Planning for Air Quality. [Online]. Available at: https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf [Accessed: November 2024].

Ref 15.28 Institute of Air Quality Management, (2020). A guide to the assessment of air quality impacts on designated nature conservation sites. [Online]. Available at: https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf [Accessed: November 2024].

Ref 15.29 Department for Environment, Food and Rural Affairs, (2022). Local Air Quality Management Technical Guidance (TG22). [Online]. Available at: https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf [Accessed: November 2024].

Ref 15.30 National Highways (formerly Highways England), (2024). Design Manual for Roads and Bridges LA 105 – Air Quality (Vertical Barriers). [Online]. Available at: https://www.standardsforhighways.co.uk/search?q=LA105&pageNumber=1&suite=DMRB&suite=MCHW&suite=IAN&to=2025-01-10&from=2025-01-10&discipline&lifecycle=&dmrbSection&mchwVolume&mchwSection [Accessed: November 2024].

Ref 15.31 Department for Environment, Food and Rural Affairs, UK AIR (2024). [Online]. Available at: https://uk-air.defra.gov.uk/ [Accessed: November 2024].

Ref 15.32 East Riding of Yorkshire Council, (2023). 2023 Air Quality Annual Status Report (ASR). [Online]. Available at: https://downloads.eastriding.org.uk/corporate/pages/air-quality-monitoring/pdfs/Air%20Quality%20Annual%20Status%20Report%20(ASR)%202023.pdf [Accessed: November 2024].

Ref 15.33 East Riding of Yorkshire Council, (2024). 2024 Air Quality Annual Status Report (ASR). [Online]. Available at: https://downloads.eastriding.org.uk/corporate/pages/air-quality-monitoring/pdfs/Air%20Quality%20Annual%20Status%20Report%20(ASR)%202024.pdf [Accessed: November 2024].

Ref 15.34 North Lincolnshire Council, (2023). 2023 Air Quality Annual Status Report (ASR). [Online]. Available at: https://www.nlincsair.info/Files/Reports/ASR%202023%20FINAL.pdf [Accessed: November 2024].

Ref 15.35 Bassetlaw District Council, (2022). 2022 Air Quality Annual Status Report (ASR). [Online]. Available at: https://data.bassetlaw.gov.uk/media/9076/air-quality-report-bassetlaw-2022.pdf [Accessed: November 2024].

Ref 15.36 Department for Environment, Food and Rural Affairs and Natural England, MAGIC. [Online]. Available at: https://magic.defra.gov.uk/ [Accessed: November 2024].

Ref 15.37 UK Centre for Ecology and Hydrology, Air Pollution Information System (2024). Air Pollution Information System. [Online]. Available at: https://www.apis.ac.uk/ [Accessed: November 2024].

Ref 15.38 National Grid (1959). Holford Rules. [Online]. Available at: https://www.nationalgrid.com/sites/default/files/documents/13795-The%20Holford%20Rules.pdf [Accessed: November 2024].

Ref 15.39 National Grid (2009). Horlock Rules. [Online]. Available at: https://www.nationalgrid.com/sites/default/files/documents/13796-The%20Horlock%20Rules.pdf [Accessed: November 2024].

National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152
nationalgrid.com