Preliminary Environmental Information Report Volume 2

Appendix 7.3 Air Quality Assessment Results

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Contents

7 Air Quality Assessment Results

7.1 Introduction

7.1.1 This appendix supports and should be read in conjunction with **Chapter 7 Air Quality** of the Preliminary Environmental Information Report (PEIR) for LionLink (referred to as the 'Proposed Scheme'). This appendix presents the results of the following assessments:

a. construction dust assessment;
b. construction related generators and non-road mobile machinery (NRMM) assessment; and
c. operational onsite combustion sources.

7.1.2 The Proposed Onshore Scheme has been broken down into four geographical sections. These are presented on **Figure 2.1: Zoning Plan** and comprise:

a. Section A: Friston to Saxmundham;
b. Section B: Saxmundham to Middleton;
c. Section C: Middleton to south of Blythburgh; and
d. Section D: south of Blythburgh to Walberswick.

7.1.3 A review of the current air quality legislation and planning policies relevant to the Proposed Onshore Scheme has been undertaken, and is presented in **Chapter 7 Air Quality**. The assessment covers each of the main areas highlighted as being essential for an air quality assessment, where data has been provided and allowed an assessment, which is compliant with National Policy Statement for Energy (NPS EN-1) (Ref 1), National Policy Statement for Energy Infrastructure (NPS EN-3) (Ref 2), and relevant local policy in **Table 7.3** of **Chapter 7 Air Quality**.

7.1.4 Results are reported with reference to the receptor and the Proposed Onshore Scheme section in which they are located are presented in **Figure 2.1 Zoning Plan**.

7.2 Construction dust assessment

7.2.1 This appendix provides the results of the assessment of construction-related activities on air quality. As described in **Chapter 2 Description of the Proposed Scheme**, the construction of the Proposed Onshore Scheme requires dust generating activities.

Magnitude of impacts

7.2.2 The construction dust assessment has been summarised to indicate potential risk and identify locations which pose the greatest risks to air quality.

7.2.3 The magnitude of the dust generating activities during construction phase is summarised in **Table 7.1**. Dust activities have not been broken down into activities across the four sections. This level of detail is not known during the PEIR assessment, however, will be included in the Environmental Statement (ES). The sensitivity of areas has been assessed for each of the four sections individually. Details of the equipment and durations of use are not available for the PEIR. The PEIR as a reasonable worst-case assumes that generators would be present at all construction compounds.

Table 7.1: Dust magnitude for dust generating activities

Activity	Dust emission magnitude	Reasoning
Demolition	Small	Exact quantity not known, but presumed to be small scale due to known demolition activities would only take place at the Proposed Converter Station
Earthworks	Large	Total site area for earthworks >110,000m^2 >10 heavy earth moving vehicles moving at any one time
Construction	Large	Total building volume >75,000m^3 Potentially dusty construction material (e.g. concrete)
Trackout	Large	Presumed to be >50 Heavy-Duty Vehicles (HDV) trips in any one day, as a worst-case approach, as numbers not known Potentially dusty surface material

Sensitivity of receptors

7.2.4 The sensitivity of the area is defined by determining the number of receptors using a set of distance criteria (20m, 50m, 100m and 250m) from the Institute of Air Quality Management (IAQM) dust guidance (Ref 3). The sensitivity for each section of the Proposed Onshore Scheme is presented below.

Section A – sensitive receptors

7.2.5 The sensitivity of the area for dust soiling is defined as '*high*' due to the presence of between 10 to 100 high sensitivity human receptors within 20m of Section A.

7.2.6 The annual average Particulate Matter (10 micrometres or less in diameter) (PM_{10}) concentration estimated by the Department for Environment, Food and Rural Affairs (Defra) for the grid squares within and around Section A, in the baseline year of 2023, is 14.1 µg/m^3, which is lower than 24 µg/m^3. Therefore, the sensitivity of the area around Section A to human health impacts has been assigned as '*low*'.

7.2.7 There are 20 low sensitivity ancient woodland (AW) and veteran tree (VT) ecological sites within 20m of Section A. Therefore, the sensitivity of the area surrounding the Draft Order Limits within Section A has been assigned as '*low*'

for ecological impacts from dust deposition in line with the IAQM dust guidance (Ref 3).

Section A - risk categorisation of dust impacts

7.2.8 Considering the magnitude of dust emissions and the sensitivity of the area, Section A has been classified as high risk to dust soiling prior to mitigation, low risk to human health and ecological effects from demolition, earthworks, construction and trackout as summarised in **Table 7.2**.

Table 7.2: Summary dust risk table prior to mitigation – Section A

Activity	Dust soiling	Human health	Ecological
Demolition	Medium Risk	Negligible	Negligible
Earthworks	High Risk	Low Risk	Low Risk
Construction	High Risk	Low Risk	Low Risk
Trackout	High Risk	Low Risk	Low Risk

Section B – sensitive receptors

7.2.9 The sensitivity of the area for dust soiling is defined as '*high*' due to the presence of between 10 to 100 high sensitivity human receptors within 20m of Section B.

7.2.10 The annual average PM_{10} concentration estimated by Defra for the grid squares within and around Section B, in the baseline year of 2023, is 14.4 µg/m^3, which is lower than 24 µg/m^3. Therefore, the sensitivity of the area around Section B to human health impacts has been assigned as '*low*'.

7.2.11 There are two low sensitivity VT and country wildlife sites (CWS) ecological sites within 20m of Section B. Therefore, the sensitivity of the area surrounding the Draft Order Limits within Section B has been assigned as '*low*' for ecological impacts from dust deposition in line with the IAQM guidance (Ref 3).

Section B - risk categorisation of dust impacts

7.2.12 Taking into consideration the dust emission magnitude and the sensitivity of the area, Section B has been classified as high risk to dust soiling prior to mitigation, low risks to human health and ecological effects from demolition, earthworks, construction and trackout as summarised in **Table 7.3**.

Table 7.3: Summary dust risk table prior to mitigation – Section B

Activity	Dust Soiling	Human Health	Ecological
Demolition	Medium Risk	Negligible	Negligible
Earthworks	High Risk	Low Risk	Low Risk
Construction	High Risk	Low Risk	Low Risk
Trackout	High Risk	Low Risk	Low Risk

Section C – sensitive receptors

7.2.13 The sensitivity of the area for dust soiling is defined as '*high'* due to the presence of between 10 to 100 high sensitivity human receptors within 20m of Section C.

7.2.14 The annual average PM_{10} concentration estimated by Defra for the grid squares within and around Section C, in the baseline year of 2023, is 14.4 µg/m^3, which is lower than 24 µg/m^3. Therefore, the sensitivity of the area around Section C to human health impacts has been assigned as '*low'*.

7.2.15 There is one high sensitivity special area of conservation (SAC) (Minsmere to Walberswick Heaths and Marshes) within 20m of Section C. Additionally, there are 10 low sensitivity AW, VT and CWS ecological sites within 20m of Section C. Therefore, the sensitivity of the area surrounding the Draft Order Limits within Section C has been assigned as '*high*' for ecological impacts from dust deposition in line with the IAQM guidance (Ref 3).

Section C - risk categorisation of dust impacts

7.2.16 Taking into consideration the dust emission magnitude and the sensitivity of the area, Section C has been classified as high risk to dust soiling prior to mitigation, low risk to human health effects and high risk to ecological effects from demolition, earthworks, construction and trackout as summarised in **Table 7.4**.

Table 7.4: Summary dust risk table prior to mitigation – Section C

Activity	Dust Soiling	Human Health	Ecological
Demolition	Medium Risk	Negligible	Negligible
Earthworks	High Risk	Low Risk	High Risk
Construction	High Risk	Low Risk	High Risk
Trackout	High Risk	Low Risk	High Risk

Section D – sensitive receptors

7.2.17 The sensitivity of the area for dust soiling is defined as '*high'* due to the presence of between 10 to 100 high sensitivity human receptors within 20m of Section D.

7.2.18 The annual average PM_{10} concentration estimated by Defra for the grid squares within and around Section D, in the baseline year of 2023, is 12.8 µg/m^3, which is

lower than 24 µg/m^3. Therefore, the sensitivity of the area around Section D to human health impacts has been assigned as '*low*'.

7.2.19 There are two high sensitivity ecological receptors within 20m of Section D. One SAC (Southern North Sea), and one Ramsar (Minsmere-Walberswick). Additionally, there are two medium sensitivity sites of special scientific interest (SSSI) (Minsmere-Walberswick Heaths and Marshes) and national nature reserve (NNR) (Suffolk Coast 446) ecological sites within 20m of Section D. Therefore, the sensitivity of the area surrounding the Draft Order Limits within Section D has been assigned as '*high*' for ecological impacts from dust deposition in line with the IAQM guidance (Ref 3).

Section D - risk categorisation of dust impacts

7.2.20 Taking into consideration the dust emission magnitude and the sensitivity of the area, Section D has been classified as high risk to dust soiling prior to mitigation, low risk to human health effects and high risk to ecological effects from demolition, earthworks, construction and trackout as summarised in **Table 7.5**.

Table 7.5: Summary dust risk table prior to mitigation – Section D

Activity	Dust Soiling	Human Health	Ecological
Demolition	Medium Risk	Negligible	Negligible
Earthworks	High Risk	Low Risk	High Risk
Construction	High Risk	Low Risk	High Risk
Trackout	High Risk	Low Risk	High Risk

Significance of effects

7.2.21 Without dust controls, there would be a high risk of impact to sensitive receptors. Therefore, high risk dust management measures are to be implemented as part of standard mitigation for the Proposed Onshore Scheme (see **Appendix 2.1 Outline Onshore CoCP**). Such measures are expected to reduce the risk of impact to a negligible level. Therefore, the effect of dust emissions during the construction phase would be negligible and not significant.

7.3 Construction related generator use/NRMM assessment results

7.3.1 The type of equipment to be used along with numbers of units and estimates of daily use are shown in **Table 7.6**. Work would be carried out along the length of the Proposed Onshore Scheme with concentrations of activity around compounds and work areas. Specific locations and durations of use of the construction related equipment are not available for the PEIR.

Table 7.6: NRMM works across the Proposed Onshore Scheme

Construction Plant/Equipment	Description of works
Compound construction	
Tractor/front shovel and backhoe	Establishment of construction compound and associated control measures. Install field drains, remove top soil, install geotext/granular surface. Provide entrances/car parking. Delivery of cabins/storage, power, water, waste water, data connection and wheel washing facility set up. Vehicle movements.
Bulldozer	
360 excavators	
6T dumper	
HRA paver	
Tandem roller	
Concrete delivery vehicle	
Telescopic handler	
Trenchless installation	
360 excavators	Prepare HDD platform (geotext/granular surface), fencing and acoustic barrier. Excavate launch and reception location. HDD drill.
Horizontal Directional Drilling (HDD) drill rig	
Diesel generator	
Supports for all directional drill	
Haul road and trenched installation	
Tractor/front shovel and backhoe	Bell mouth junction installation (for discrete off road access points only) Haul road installation. Trench excavation. Prepare base of trench. Backfilling. Excavate the proposed Underground Cable Corridor.
360 excavators	
360 excavators (idling)	
Bulldozer	
Dumper trucks (idling)	
Ready mix delivery (discharging)	
Ready mix delivery (idling)	
Diesel generator	
Small excavator 5 t excavator	
Joint Bay Works	
Tractor	

Construction Plant/Equipment	Description of works
Bulldozer	Joint bay excavation (wider and marginally deep than typical cable trench). Fencing. Install joint bay base (typically reinforced concrete slab). Proposed Underground Cables pulling/jointing. Proposed Underground Cables system testing. Backfilling.
Excavator	
Roller	
Concrete mixer truck	
Concrete pump	
Diesel generator	
Hand tools	
Proposed Converter Station	
Lorry for transformer delivery, specialist loader	Transport transformers to site Construction plant for the installation of the Proposed Converter Station and proposed Underground Cables Construction of equipment foundations
360 excavators	
Bulldozer	
Dumper trucks	
Smooth roller compacting plant	
Cement mixer truck	
Telehandler	
Hydrovac	
Transportation of material/equipment	
Tracker trailer	Transport proposed Underground Cables equipment along haulage road, plant equipment, materials, steel structures to site, spoil and aggregates within site
Medium low loader	
Articulated lorry	
Cable drum	
Rear-facing trailer	
Standard HGV tractor	
Dump truck	
Dumper	
Miscellaneous	
Fuel tank	Provide fuel to vehicles on site Lift heavy material and transport them into position on site Pass-by lorry Install piles on site Compact asphalt on roads and earthworks compaction
Crane	
Delivery lorry	
Piling rig	
Roller	
Telehandler	

Construction Plant/Equipment	Description of works
Tipper	

7.3.2 Locations where compounds are within 100m of receptors have been reviewed using geographic information system (GIS) and the results are shown in **Figure 7.4 NRMM Impacts.**

7.3.3 Indicative compounds across the Draft Order Limits have been identified as having human receptors located within 100m of the works boundary. For all sites where receptors are located within 100m, additional site management practices should be considered where feasible. These are included in **Appendix 2.1 Outline Onshore CoCP**.

7.3.4 The solutions included in **Appendix 2.1 Outline Onshore CoCP**, where feasible, be built into the design to minimise emissions from the compound areas presented in **Figure 7.4 NRMM Impacts.**

7.3.5 There are 17 human receptors located within the 100m buffer zone of the compounds. These human receptors are shown in **Figure 7.4 NRMM Impacts**. Given the small number of receptors within the 100m buffer zones of the compounds, which are located across the Draft Order Limits, the risk of incurring a significant impact due to the use of NRMM is considered to be low, with mitigation in place.

7.4 Operational onsite combustion plant

7.4.1 The known locations of back-up generators are one generator located at Kiln Lane Substation and one at the proposed Converter Station. The specifications of the generators and their operational hours are not available during the preparation of the PEIR, therefore the extent of the study area will be determined in the environmental standard (ES) stage. Should additional onsite combustion sources be identified in the ES stage, further review will be undertaken.

7.5 Summary

7.5.1 The assessment has examined the potential impacts of construction dust and generator and NRMM activities, during both construction and operational phases, from the Proposed Onshore Scheme on air quality.

Appropriate mitigation methods applicable to the study area for construction dust and NRMM have been included in **Appendix 2.1 Outline Onshore CoCP** to minimise impacts from air quality. Therefore, the Proposed Onshore Scheme is not likely to result in any significant adverse effects that would require further mitigation.

Topic Glossary

Acronym/Phrase/Abbreviation	Definition
µg/m^3	Micrograms per cubic metre
Annual mean	The average (mean) of the concentrations measured for each pollutant for one year.
AQMA	Air Quality Management Area
AW	Ancient Woodland
CoCP	Code of Construction Practice
CWS	County Wildlife Site
Defra	Department for Environment, Food and Rural Affairs
ES	Environmental Statement
GIS	Geographic Information System
HDD	Horizontal Directional Drilling
IAQM	Institute of Air Quality Management
NNR	National Nature Reserve
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxide
NPSNN	National Policy Statement for National Networks
NRMM	Non-Road Mobile Machinery
PEIR	Preliminary Environmental Information Report
PM_{10}	Particulate Matter (10 micrometres or less in diameter)
$PM_{2.5}$	Particulate Matter (2.5 micrometres or less in diameter)
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
Trackout	The transport of dust and dirt from the construction/demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network.
VT	Veteran Tree

References

Ref 1 Great Britain. Department for Energy Security & Net Zero. (2023). National Policy Statement (NPS) (EN-1). Available from: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1 (Accessed July 2025).

Ref 2 Great Britain. Department for Energy Security & Net Zero. (2023). National Policy Statement (NPS) (EN-3). Available from: https://assets.publishing.service.gov.uk/media/65a7889996a5ec000d731aba/nps-renewable-energy-infrastructure-en3.pdf (Accessed July 2025).

Ref 3 Institute of Air Quality Management, 2024. Guidance on the Assessment of Dust from Demolition and Construction. Available from: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf (Accessed July 2025).

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