NORTH FALLS

Offshore Wind Farm

ENVIRONMENTAL STATEMENT

Appendix 20.1 Construction Dust and Fine Particulate Matter Assessment Methodology

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Contents

Tables

Glossary of Acronyms

AW	Ancient Woodland
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LNR	Local Nature Reserve
LWS	Local Wildlife Site
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10 µm
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Specific Scientific Interest

Glossary of Terminology

The Applicant	North Falls Offshore Wind Farm Limited (NFOW)
The Project or 'North Falls'	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure
Onshore export cables	The cables which take the electricity from landfall to the onshore substation. These comprise High Voltage Alternative Current (HVAC) cables and auxiliary cables, buried underground.
Onshore project area	The boundary within which all onshore infrastructure required for the Project will be located (i.e. landfall; onshore cable route, accesses, construction compounds; onshore substation and cables to the National Grid substation).

1 Introduction

1. The following sections outline the detailed criteria developed by the Institute of Air Quality Management (IAQM) (IAQM, 2024) for the assessment of air quality impacts arising from construction activities associated with the North Falls Offshore Wind Farm. The assessment procedure is divided into four steps and is summarised below.

2 Step 1: Screening the need for a detailed assessment

2. An assessment will normally be required where there are human receptors within 250m of the site boundary and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s). Internal guidance from Natural England recommends that ecological receptors within 200m of a site should be considered in a construction dust and fine particulate matter assessment, as opposed to only those ecological sites within 50m of a site (as stated in IAQM Guidance (IAQM, 2024)).
3. An 'ecological receptor' refers to any sensitive habitat affected by dust soiling. For locations with a statutory designation, such as a Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) and Special Protection Area (SPA), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites, such as ancient woodlands (AWs), local nature reserves (LNRs) and local wildlife sites (LWSs), have also been considered, where appropriate.
4. Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is 'negligible'.
5. The construction dust and fine particulate matter assessment was undertaken using a worst-case scenario whereby the maximum magnitude of works (e.g. cable trenching, a construction compound, jointing bay and link box construction) are undertaken in proximity to the greatest number of human and ecological receptors (note: this may not necessarily be in the same location). Recommended mitigation measures for the worst-case location(s) would then be applied to all onshore construction works, to provide a conservative assessment.
6. There are a number of human receptors within 250m and ecological receptors within 200m of the onshore project area. Therefore, a detailed assessment was required to consider the potential for impacts at both human and ecological receptors.

3 Step 2: Assess the Risk of Dust Impacts

7. A risk category is allocated to a site based on the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the implementation of mitigation measures. The assigned risk categories may

be different for each of the four construction activities outlined by the IAQM (i.e., demolition, construction, earthworks and trackout).

8. The site can also be divided into zones, for example on a large site, or in the case of the Project a linear site, where there are differing distances to the nearest receptors.

3.1 Step 2A: Define the Potential Dust Emission Magnitude

9. The IAQM guidance recommends that the dust emission magnitude is determined for demolition, earthworks, construction and trackout. The dust emission magnitude is based on the scale of the anticipated works. Table 1 describes the potential dust emission class criteria for each outlined construction activity. As no demolition would be undertaken during the construction phase, impacts associated with demolition have not been considered within the assessment.

Table 1 Criteria used in the determination of dust emission magnitude

Activity	Criteria used to determine dust emission class		
	Small	Medium	Large
Earthworks	Total site area <18,000m^2 Soil with a large grain size (e.g., sand) <5 heavy earth moving vehicles active at any one time Formation of bunds <4 m in height	Total site area 18,000 – 110,000 m^2 Moderately dusty soil type (e.g., silt) 5-10 heavy earth moving vehicles active at any one time Formation of bunds 3-6 m in height	Total site area >110,000 m^2 Potentially dusty soil type (e.g., clay, which will be prone to suspension when dry) >10 heavy earth moving vehicles active at any one time Formation of bunds >6 m in height
Construction	Total building volume <12,000 m^3 Construction material with low potential for dust release (e.g. metal cladding or timber)	Total building volume 12,000 – 75,000 m^3 Potentially dusty construction material (e.g. concrete), on site concrete batching	Total building volume >75,000 m^3 On site concrete batching, sandblasting
Trackout	<20 outward Heavy Duty Vehicle (HDV) trips in any one day Unpaved road length <50 m	20-50 outward HDV trips in any one day Unpaved road length 50-100 m	>50 outward HDV trips in any one day Unpaved road length >100 m

10. The potential dust emission magnitude for the Project was determined using criteria detailed in Table 1.

3.2 Step 2B: Define the Sensitivity of the Area

11. The sensitivity of the area takes into account the following factors and is detailed in Table 2:

- The specific sensitivities of receptors in the area;
- The proximity and number of receptors;
- The local background PM10 concentration; and

- Site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of windblown dust.

Table 2 Criteria used in the determination of dust emission magnitude

Sensitivity of Receptor	Criteria used to determine dust emission class		
	Human receptors		Ecological receptors
	Dust soiling effects	Health effects of PM_{10}	Ecological effects
High	Dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms.	Residential properties, hospitals, schools and residential care homes.	Locations with an international or national designation and the designated features may be affected by dust soiling.
Medium	Parks, places of work.	Office and shop workers not occupationally exposed to PM_{10}.	Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown
Low	Playing fields, farmland, footpaths, short-term car parks and roads.	Public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition

12. The criteria detailed in Table 3 to Table 5 were used to determine the sensitivity of the area to dust soiling effects, human health impacts and ecological effects. ES Figure 20.2 (Document Reference: 3.2.16) in ES Chapter 20 Air Quality (Document Reference: 3.1.22) details the distance bands, as detailed in Table 3 to Table 5, from the onshore project area for use in the construction phase assessment.

Table 3 Sensitivity of the area to dust soiling effects on people and property

Sensitivity of Receptor	No. of receptors	Distance from source (m)			
		<20	<50	<100	<250
High	>100	High	High	Low	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table 4 Sensitivity of the area to human health impacts

Sensitivity of Receptor	Annual mean PM_{10} conc.	No. of receptors	Distance from source (m)				
			<20	<50	<100	<200	<250
High	>32µg.m^{-3}	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32µg.m^{-3}	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low

Sensitivity of Receptor	Annual mean PM_{10} conc.	No. of receptors	Distance from source (m)				
			<20	<50	<100	<200	<250
	24-28µg.m^{-3}	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24µg.m^{-3}	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32µg.m^{-3}	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32µg.m^{-3}	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<28µg.m^{-3}	≥1	Low	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low	Low

Table 5 Sensitivity of the area to ecological effects

Sensitivity of Receptors	Distance from source (m)		
	<20	<50	<200
High	High	Medium	Low
Medium	Medium	Low	Low
Low	Low	Low	Low

3.3 Step 2C: Define the Risk of Impacts

13. The dust emission magnitude and sensitivity of the area are combined to determine the risk of impacts from each activity (earthworks, construction and trackout) before mitigation is applied. These criteria are detailed in Table 6.

Table 6 Risk of impacts – earthworks, construction and trackout

Sensitivity of Receptors	Dust emission magnitude		
	Large	Medium	Small
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible risk

4 Step 3: Site specific mitigation

14. Step three of the IAQM guidance identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium or high-risk site. Mitigation for the Project is detailed in ES Chapter 20 Onshore Air Quality (Document Reference: 3.1.22).

5 Step 4: Determine Significant Effects

15. As shown in Step 2C above, in assessing the significance of construction dust impacts using the IAQM guidance (2024), the dust emission magnitude is combined with the sensitivity of the area to determine the risk of impacts prior to mitigation. Step 3 identifies appropriate site-specific mitigation depending on the risk of impact. This assessment deviates slightly from the methodology set out in ES Chapter 6 EIA Methodology (Document Reference: 3.1.8), as the IAQM guidance does not assign a significance before applying mitigation measures. Once appropriate mitigation measures have been identified as required, the significance of construction phase impacts can be determined. The IAQM considers it to be most appropriate to only assign significance post mitigation as it assumes mitigation is inherent in the design/construction approach. The guidance (IAQM, 2024) states that with the implementation of mitigation measures, the residual impacts from construction would be **not significant**.

6 References

Institute of Air Quality Management (2024). Guidance on the assessment of dust from demolition and construction. Version 2.1.

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HARNESSING THE POWER OF NORTH SEA WIND

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A joint venture company owned equally by SSE Renewables and RWE.

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