



FIVE
ESTUARIES
OFFSHORE WIND FARM

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OFFSHORE WIND FARM
PRELIMINARY ENVIRONMENTAL
INFORMATION REPORT

VOLUME 5, ANNEX 10.5: AIR QUALITY
MITIGATION MEASURES

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FIVE ESTUARIES OFFSHORE WIND FARM

Preliminary Environmental Information Report

**Appendix 10.5 of Volume 3, Chapter 10: Air
Quality Mitigation Measures**

Prepared for: Five Estuaries Wind Farm Ltd

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DEFINITION OF ABBREVIATIONS AND ACRONYMS

Term	Definition
CoCP	Code of Construction Practice
DCO	Development Consent Order
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
NRMM	Non-Road Mobile Machinery
PEIR	Preliminary Environmental Impact Report
PM	Particulate Matter

1.0 Mitigation Measures

1. The air quality control measures and mitigation included herein will be included as part of the Code of Construction Practice (CoCP). The CoCP will be developed for the proposed onshore construction activities which will adhere to construction industry good practice guidance for control measures and dust management. The CoCP will be secured as a requirement of the Development Consent Order (DCO).
2. This annex has been included within the Preliminary Environmental Impact Report (PEIR) in order to present these measures and aligns with Volume 7, Report 3: Draft Code of Construction Practice.

1.1 Construction Dust Mitigation Measures

3. Following the outcomes of the construction dust assessment presented within Volume 3, Chapter 10: Air Quality, proportionate mitigation, as recommended by the Institute of Air Quality Management (IAQM) (IAQM, 2016) is proposed in order to minimise, or where possible remove potential impacts. The measures are grouped into those which are highly recommended and those which are desirable.
4. Table 1.1 details the extent of controls required to ameliorate impacts associated with dust/ particle matter (PM)₁₀ generated from construction activities. These measures derive from IAQM guidance (IAQM, 2016), but have been refined according to proposed construction activities/ logistics to make them site specific.
5. Following effective implementation, residual effects associated with construction dust/ PM₁₀ are considered to be not significant.

Table 1.1
Construction Dust Mitigation Measures

Site Application	Mitigation Measures
Highly Recommended	
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
Construction	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.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
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 windowsills within 100m of site boundary, with cleaning to be provided if necessary.

Site Application	Mitigation Measures
	Carry out regular site inspections to monitor compliance with air quality and dust control measures within the CoCP, record inspection results, and make an inspection log available to the local authority if requested.
	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.
Operating Vehicle / Machinery and Sustainable Travel	Ensure all vehicles switch off engines when stationary – no idling vehicles.
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
	Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, where appropriate).
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).
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.
	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.
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 where there is a sensitive receptor within 350m.
	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
	Avoid site runoff of water or mud.
	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.	
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.
	Make the complaints log available to the local authority if requested.

Site Application	Mitigation Measures
	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.
	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.
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 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 the on-site haul routes and any subsequent action in a site logbook.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the unsurfaced haul routes or/ site where reasonably practicable and appropriate).
	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 10m from receptors where possible.
Waste Management	Avoid bonfires and burning of waste materials.
Desirable	
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	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 power materials ensure bags are sealed after use and stored appropriately to prevent dust.

1.2 NRMM Controls

6. Following the outcomes of the Non-Road Mobile Machinery (NRMM) qualitative emissions assessment presented within Volume 3, Chapter 10: Air Quality, proportionate mitigation, as recommended by relevant guidance is proposed in order to minimise, or where possible remove potential impacts. It is acknowledged that a number of these measures are presented in Table 1.1 – as are effective in controlling dust/ PM₁₀ generated by construction activities and NRMM emissions. The measures include:

- Plan site layout so that NRMM are located away from receptors, as far as is possible;
- Ensure all vehicles switch off engines when stationary - no idling vehicles;
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable;

- Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on 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;
 - Ensure all equipment complies with the latest (Stage V) emission standards or has suitable dispensation; and
 - Where feasible, ensure further abatement plant is installed on NRMM equipment, e.g. Diesel Particulate Filters (DPFs).
7. As per Defra's Local Air Quality Management (LAQM).TG(22), following application of the above controls, impacts associated with NRMM emissions on sensitive receptors are unlikely to be significant. Furthermore, impacts associated with NRMM emissions are believed to be temporary (given the nature of construction works), with no long-term deterioration of conditions.

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