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MONA OFFSHORE WIND PROJECT

Environmental Statement

Volume 3, Chapter 10: Air quality

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Image of an offshore wind farm

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Glossary

Term	Meaning
Annoyance (dust)	Loss of amenity due to dust deposition or visible dust plumes, often related to people making complaints, but not necessarily sufficient to be a legal nuisance.
Air Quality Management Area (AQMA)	An area declared by a local authority where its review and assessment of air quality shows that an air quality objective is likely to be exceeded.
Construction	Any activity involved with the provision of a new structure (or structures), its modification or refurbishment. A structure will include a residential dwelling, office building, retail outlet, road, etc.
Demolition	Any activity involved with the removal of an existing structure (or structures). This may also be referred to as de-construction, specifically when a building is to be removed a small part at a time.
Deposited Dust	Dust that has settled out onto a surface after having been suspended in air.
Dust Management Plan	A document that describes the site-specific methods to be used to control dust emissions.
Dust	Solid particles suspended in air or settled out onto a surface after having been suspended in air.
Earthworks	Covers the processes of soil-stripping, ground-levelling, excavation, and landscaping.
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.

Acronyms

Acronym	Description
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
AURN	Automatic Urban and Rural Network
CoCP	Code of Construction Practice
Defra	Department for Environment, Food & Rural Affairs
EPUK	Environmental Protection UK
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicle
NGET	National Grid Electricity Transmission
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxides

Acronym	Description
PM_{10}	Particulate matter with diameters of 10 micrometres or smaller
$PM_{2.5}$	Particulate matter with diameters of 2.5 micrometres or smaller
R&A	Review and Assessment
SSSI	Site of Special Scientific Interest
TG	Technical Guidance

Units

Unit	Description
%	Percentage
km^2	Square kilometres
m	Metre
$\mu g.m^{-3}$	Microgram per cubic metre
m^3	Cubic metres
m^2	Square metres
mm	Millimetre

10 Air Quality

10.1 Introduction

10.1.1 Overview

10.1.1.1 This chapter of the Environmental Statement presents the assessment of the potential impact of the Mona Offshore Wind Project on air quality. Specifically, this chapter considers the potential impact of the Mona Offshore Wind Project landward of Mean High Water Springs (MHWS) during the construction, operations and maintenance, and decommissioning phases.

10.1.1.2 Given the nature of the Mona Offshore Wind Project, it is considered that only the onshore elements located within the Mona Onshore Development Area have the potential to impact on air quality. This is because there are no receptors offshore that are sensitive to air quality. The scope of the assessment has been agreed with Natural Resources Wales as outlined in Table 10.6. The scope of the air quality assessment was agreed with the NRW through the EIA Scoping Report.

10.1.1.3 Therefore, this chapter does not consider the potential impacts on air quality arising from the construction, operations and maintenance, and decommissioning phases of the offshore and intertidal elements.

10.1.1.4 This chapter of the Environmental Statement also considers the potential for cumulative effects between the Mona Offshore Wind Project and other proposed developments. This has been reported in section 10.10 of this chapter.

10.1.1.5 In addition, this chapter is informed by the following technical chapters of the Environmental Statement, where relevant:

- Volume 1, Chapter 3: Project description of the Environmental Statement
- Volume 3, Chapter 3: Onshore ecology of the Environmental Statement
- Volume 3, Chapter 4: Onshore and intertidal ornithology of the Environmental Statement
- Volume 3, Chapter 8: Traffic and transport of the Environmental Statement
- Volume 4, Chapter 4: Human health of the Environmental Statement.

10.2 Legislative and policy context

10.2.1 Legislation

Air Quality Standards Regulations

10.2.1.1 The Air Quality Standards (Wales) Regulations 2010, by The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020, sets limit values for ambient air concentrations for the main air pollutants: particulate matter (PM_{10} and $PM_{2.5}$), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), ozone (O_3), carbon monoxide (CO), lead (Pb) and benzene, certain toxic heavy metals (arsenic, cadmium, and nickel) and polycyclic aromatic hydrocarbons (PAHs). These apply at locations where members of the public have regular access and therefore will not apply offshore as there are no sensitive receptors.

10.2.1.2 These limit values are legally binding on the Secretary of State. The UK Government and devolved administrations operate various national ambient air quality monitoring

networks to measure compliance and develop plans to meet the set limit values for the main air pollutants.

UK Air Quality Strategy

10.2.1.3 The Environment Act 1995 established the requirement for the Government and the devolved administrations to produce a National Air Quality Strategy (AQS) for improving ambient air quality, the first being published in 1997 and having been revised several times since, with the latest published in 2020 (Welsh Government, 2020).

10.2.1.4 The AQS sets UK air quality standards[1] and objectives[2] for the pollutants in the Air Quality Standards Regulations, and recognises that action at national, regional and local level may be needed, depending on the scale and nature of the air quality problem. In addition to this, Natural Resources Wales is required to consider the AQS when discharging it's pollution control functions. There is no legal requirement to meet objectives set within the UK AQS except where equivalent limit values are set within the Air Quality Standards Regulations

10.2.1.5 The Environment Act 1995 also established the UK system of Local Air Quality Management (LAQM), that requires local authorities to go through a process of review and assessment of air quality in their areas, identifying places where objectives are not likely to be met, then declaring Air Quality Management Areas (AQMAs) and putting in place Air Quality Action Plans to improve air quality. These plans also contribute, at local level, to the achievement of the limit values in the Air Quality Standards Regulations.

10.2.1.6 The limit values and objectives relevant to this assessment are summarised in Table 10.1 of this chapter below. Where the limit values and the AQS objectives differ, the more stringent objective/limit value has been used.

Table 10.1: Summary of relevant air quality limit values and objectives.

Pollutant	Averaging period	Objectives/Limit Values (micrograms per cubic metre, $\mu g.m^{-3}$)	Not to be exceeded more than
Nitrogen Dioxide (NO_2)	1 hour	200 $\mu g.m^{-3}$	18 times per calendar year
	Annual	40 $\mu g.m^{-3}$	-
Particulate Matter (PM_{10})	24 Hour	50 $\mu g.m^{-3}$	35 times per calendar year
	Annual	40 $\mu g.m^{-3}$	-
Particulate Matter ($PM_{2.5}$)	Annual	20 $\mu g.m^{-3}$	-

10.2.2 Planning policy context

10.2.2.1 The Mona Offshore Wind Project will be located in Welsh offshore waters (beyond 12 nautical miles (nm) from the Welsh coast) and inshore waters, with the onshore infrastructure located wholly within Wales. As set out in Volume 1, Chapter 1: Introduction of the Environmental Statement, as the Mona Offshore Wind Project is an

[1] Standards are concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. Standards, as the benchmarks for setting objectives, are set purely with regard to scientific evidence and medical evidence on the effects of the particular pollutant on health, or on the wider environment, as minimum or zero risk levels.

[2] Objectives are policy targets expressed as a concentration that should be achieved, all the time or for a percentage of time, by a certain date.

offshore generating station with a capacity of greater than 350 MW located in Welsh waters, it is a Nationally Significant Infrastructure Project (NSIP) as defined by section 15(3) of the Planning Act 2008 (as amended) (the 2008 Act). As such, there is a requirement to submit an application for a Development Consent Order (DCO) to the Planning Inspectorate to be decided by the Secretary of State for the Department for Energy Security and Net Zero.

10.2.3 National Policy Statements

10.2.3.1 There are currently six energy National Policy Statements (NPSs), three of which contain policy relevant to offshore wind development and the Mona Offshore Wind Project, specifically:

- Overarching NPS for Energy (NPS EN-1) which sets out the UK Government's policy for the delivery of major energy infrastructure (Department for Energy Security & Net Zero, 2024a)
- NPS for Renewable Energy Infrastructure (NPS EN-3) (Department for Energy Security & Net Zero, 2024b)
- NPS for Electricity Networks Infrastructure (NPS EN-5) (Department for Energy Security & Net Zero, 2024c).

10.2.3.2 NPS EN-1 and NPS EN-3 include guidance on what matters are to be considered in the assessment. NPS EN-3 also highlights factors relating to the determination of an application and in relation to mitigation. These are summarised in Table 10.2 below.

Table 10.2: Summary of the NPS EN-1 and NPS EN-3 provisions relevant to air quality.

Summary of EN-1 provision	How and where considered in the Environmental Statement Chapter
NPS EN-1 includes generic guidance on the assessment of air quality impacts for major energy projects: *'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 ES.' (paragraph 5.2.8 of NPS EN-1).* *This requires the Environmental Statement to describe:* *' 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; and any potential eutrophication impacts.' (paragraph 5.2.9 of NPS EN-1).*	The potential air quality impacts which may arise during construction and decommissioning of the Mona Offshore Wind Project have been described and considered within this chapter. This chapter focuses on the potential impacts from dust generated during construction of the Mona Offshore Wind Project and considers mitigation and residual effects. There may also be air quality effects associated with emissions from traffic generated during construction of the Mona Offshore Wind Project. This is assessed in section 10.8.3 through dispersion modelling using traffic data to quantify the potential impact of the Mona Offshore Wind Project.
NPS EN-1 and NPS EN-3 refer to NPS EN-5 as the primary guidance document in relation to onshore grid connection infrastructure. Air quality is not identified as a key impact for such infrastructure within either NPS EN-5 or the offshore wind farm section of NPS EN-3.	The potential air quality impacts which may arise during construction of the Mona Offshore Wind Project have been described and considered within this chapter. This chapter focuses on the potential impacts arising from dust generated during construction of the Mona Offshore Wind Project and considers suitable mitigation measures and identifies residual effects (section 10.7).

Table 10.3: Summary of NPS EN-1 and NPS EN-3 policy on decision making relevant to air quality.

Summary of EN-3 provision	How and where considered in the Environmental Statement Chapter
NPS EN-3 states that '*Applicants should include in the ES an assessment of the air emissions resulting from the proposed infrastructure and demonstrate compliance with the relevant regulations*.' (paragraph 2.7.36)	This air quality assessment considers potential impacts of dust on sensitive receptors located within the air quality study area (section 10.8).

10.2.4 National planning policy

Planning Policy Wales

10.2.4.1 Planning Policy Wales (Welsh Government, 2021) (PPW) sets out the land use planning policies of the Welsh Government. The objective is to ensure the planning system contributes towards sustainable development and improves the social, economic, environmental and cultural wellbeing of Wales. Those sections of particular relevance to air quality are set out in Table 10.4, below.

Table 10.4: Planning Policy Wales

Summary of PPW provision	How and where considered in the Environmental Statement Chapter
Section 6.7 of PPW states that 'planning authorities must consider the potential for temporary environmental risks, including airborne pollution and surface and subsurface risks, arising during the construction phases of development. Where appropriate planning authorities should require a construction management plan, covering pollution prevention, noisy plant, hours of operation, dust mitigation and details for keeping residents informed about temporary risks.'	The temporary environmental effects will be assessed in a construction dust assessment in section 10.8.

Clean Air Strategy and Clean Air Plan for Wales

10.2.4.2 The Clean Air Strategy 2019 (Department for Energy Security and Net Zero *et al*., 2019) sets out actions that the UK Government intends to take to reduce emissions arising from transport, in the home, from farming and from industry.

10.2.4.3 The Clean Air Plan for Wales (Welsh Government, 2020) aims to improve air quality and reduce the impacts of air pollution on human health, biodiversity, the natural environment, and the economy. The Clean Air Plan for Wales sets out a 10-year pathway to achieving cleaner air and is structured around four core themes:

- People – Protecting the health and well-being of current and future generations
- Environmental – Taking action to support our natural environment, ecosystems, and biodiversity
- Prosperity- working with industry to reduce emissions, supporting a cleaner and more prosperous Wales
- Place – Creating sustainable places through better planning, infrastructure and transport.

10.2.5 Local planning policies

10.2.5.1 The Mona Offshore Wind Project lies within the administrative areas of Conwy County Borough Council and Denbighshire County Council.

10.2.5.2 The assessment of potential changes to air quality has also been made with consideration to specific policies set out in the Conwy Local Development Plan 2007-2022 (Conwy County Borough Council, 2013) and Denbighshire County Council Local Development Plan 2006-2021 (Denbighshire County Council, 2013). These local planning policies are set out in Table 10.5 below. There are no planning policies relevant to air quality in the Denbighshire County Council Local Development Plan.

10.2.5.3 However, Denbighshire County Council is currently preparing a replacement Local Development Plan to supersede the adopted Denbighshire County Council Local Development Plan 2006-2021, which expired in December 2021. The Local Development Plan 2006-2021 LDP Review Report (December 2017) (Denbighshire County Council, 2017) sets out several key sustainability issues to be considered by the replacement LDP which include objectives to protect and improve air quality.

Table 10.5: Local Planning Policy of relevant to Air Quality.

Policy	Key provisions	How and where considered in the Environmental Statement Chapter
Conwy Strategic Policy DP/1	Protect the quality of natural resources including water, air, and soil in line with Strategic Policy NTE1.	The risk of dust impacts arising during construction of the Mona Offshore Wind Project has been assessed and the measures to prevent, reduce and protect the surrounding area are set out in this chapter (section 10.7). Vehicle movements generated by construction activities and their associtated routes, as set out in Volume 3, Chapter 8: Traffic and transport chapter, are assessesed in the section 10.8.3.
Conwy Strategic Policy NTE/1	Prevent, reduce, or remedy all forms of pollution, including air, light, noise, soil and water.	

10.3 Consultation

10.3.1.1 A summary of the key issues raised during consultation activities undertaken to date specific to air quality is presented in Table 10.6 below, together with how these issues have been considered in the production of this Environmental Statement chapter.

10.3.1.2 In addition, agreement will be sought regarding the methodology and scope of the air quality assessment, including mitigation requirements through consultation with Environmental Health Officers from relevant local authorities (if required) following submission of the Environmental Statement chapter.

10.3.1.3 Denbighshire County Council and Conwy County Borough Council did not comment at the Preliminary Environmental Information Report (PEIR) stage.

Table 10.6: Summary of key consultation issues raised during consultation activities undertaken for the Mona Offshore Wind Project relevant to air quality.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
June 2022	The Planning Inspectorate - Scoping Opinion	The Inspectorate agrees that the activities associated with the operation and maintenance of the onshore transmission assets are unlikely to generate large quantities of dust and therefore it is unlikely that any likely significant effect will arise in relation to humans and ecological receptors. As such, this can be scoped out of the ES.	Impacts arising from operations and maintenance of the Mona Offshore Wind Project have been scoped out of the air quality assessment. This is detailed within Table 10.8 below.
June 2022	The Planning Inspectorate - Scoping Opinion	The Inspectorate agrees that it is unlikely that there would be a significant change in vehicle flows during operation and maintenance and therefore it is also unlikely that significant effects would occur in respect of air quality. However, the ES should confirm that the anticipated road vehicle movements are below the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK) screening values, and if values are exceeded then an assessment of likely significant effects should be provided.	Traffic generated during the operations and maintenance phase, in relation to the IAQM and EPUK screening values, is assesed within section 10.8.
June 2022	The Planning Inspectorate - Scoping Opinion	The Proposed Development does not include proposals for the construction of plants or stacks and therefore air emissions arising from these components are unlikely to arise during the operational and maintenance phase. For this reason, the Inspectorate agrees this can be scoped out of the ES.	Impacts arising from operations and maintenance of the plants and stacks have been scoped out of the air quality assessment. This is detailed within Table 10.8 below.
June 2022	Environmental Public Health Service Wales - Scoping Response	It is important to mitigate and minimise public exposure as much as possible to these non-threshold air pollutants so as to not create, or further add to, health inequalities. We encourage this to be considered in detail during design, development, construction, and operation of the purposed activity	A construction dust assessment has been undertaken to identify appropriate mitigation measures necessary to minimise dust impacts arising during construction of the Mona Offshore Wind Project, which are provided in section 10.7. Impacts arising from trackout and construction traffic emissions are considered in section 10.8.
June 2023	Natural Resources Wales (NRW) – PEIR Response	NRW (A) notes that Chapter 23 Air Quality rules out the need to consider any offshore impacts. However, we advise that a rationale should be presented and evidence to screen out offshore air quality (AQ)impacts from increased marine vessel traffic during construction, operation, maintenance and decommissioning phases. It is thought the level of traffic will be low enough to screen out, however we advise that evidence should be submitted to justify that decision.	Local Air Quality Management (LAQM) Technical Guidance (TG22) (Defra, 2022) provides the following threshold criteria for determining whether ship movements need to be specifically considered: *'Are there more than 5,000 large ship movements per year, with relevant exposure withing 250 m of the berths and main areas of manoeuvring; or* *Are there more than 15,000 large ship movements per year, with relevant exposure within 1km of these areas?'* The development will generate less than 5,000 vessel movements a year (as detailed with Volume 2, Chapter 7: Shipping and navigation, of the Environmental Statement) and therefore impacts arising from marine vessel traffic during construction, operations and maintenance and decommisioning have been scoped out of the air quality assessment.
June 2023	NRW – PEIR Response	The screening approach to heavy duty vehicles (HDV) and light duty vehicles (LDV) traffic is sound and NRW (A) agree with the assessment in the forthcoming Environmental Statement (ES) of 8 of the 23 road links.	Traffic impacts are considered in section 10.8.

10.4 Baseline environment

10.4.1 Relevant guidance

10.4.1.1 EPUK and IAQM guidance highlight public information from Defra and local monitoring studies as potential sources of information on background air quality. LAQM.TG22 recommends that Defra mapped concentration estimates are used to inform background concentrations in air quality modelling and states that: '*Where appropriate these data can be supplemented by and compared with local measurements of background, although care should be exercised to ensure that the monitoring site is representative of background air quality.*'

10.4.2 Scope of this assessment

10.4.2.1 The scope of this Environmental Statement has been developed in consultation with relevant statutory and non-statutory consultees as detailed in Table 10.7. The impacts of dust and traffic generated by the onshore construction effects have been assessed in section 10.8.

10.4.2.2 Taking into account the scoping and consultation process, Table 10.7 summarises the issues considered as part of this assessment.

Table 10.7: Issues considered within the assessment for air quality

Activity	Potential effects scoped into the assessment
Construction phase	
Construction of Onshore assets.	Assessment of dust and traffic generated by construction undertaken in section 10.8.
Operations and maintenance phase	
Not applicable.	Scoped out as described in Table 10.8.
Decommissioning	
Decommissioning of Onshore assets.	Assessment of dust and traffic generated by construction undertaken in section 10.8.

10.4.2.3 Effects which are not considered likely to be significant have been scoped out of the assessment. A summary of the effects scoped out, together with justification for scoping them out and whether the approach has been agreed with key stakeholders through either scoping or consultation, is presented in Table 10.8.

Table 10.8: Impacts scoped out of the assessment for air quality

Potential impact	Justification
The impact on human and ecological receptors (dust soiling and human health) arising from fugitive dust emissions generated during operations and maintenance.	Activities associated with the operations and maintenance of the onshore transmission assets are unlikely to generate large quantities of dust. Therefore, the potential impact on human or ecological receptors arising from fugitive dust emissions generated during operations and maintenance of the onshore transmission assets is unlikely to be significant and is proposed to be scoped out of the assessment for air quality. This approach was agreed in the Scoping Opinion (see Table 10.6).
The impact on human and ecological receptors arising from air emissions generated by vehicle traffic during operations and maintenance.	Operation of the onshore transmission assets will generate a small number of additional two-way vehicle movements as result of staff trips and occasional maintenance activities. However, the additional two-way vehicle movements associated with operations and maintenance of the onshore transmission assets are unlikely to exceed the EPUK and IAQM indicative criteria (see paragraph 10.5.1.1) for an air quality assessment, irrespective of whether the air quality study area was located within or adjacent to an AQMA. Therefore, the potential impact on human or ecological receptors arising from air emissions generated by vehicle traffic during operations and maintenance of the onshore transmission assets is unlikely to be significant and an air quality assessment is proposed to be scoped out. This approach was agreed in the Scoping Opinion (see Table 10.6).
The impact on human and ecological receptors arising from air emissions generated by plants or stacks during operations and maintenance of the onshore transmission assets.	The Mona Offshore Wind Project does not include proposals for the construction of plants or stacks which could give rise to air emissions during operations of the onshore transmission assets. Therefore, the potential impact on human or ecological receptors arising from plant or stack emissions is unlikely to be significant and is proposed to be scoped out of the assessment for air quality. This approach was agreed in the Scoping Opinion (see Table 10.6).

10.4.3 Methodology to inform baseline

10.4.3.1 During the construction and decommissioning phases of the Mona Offshore Wind Project, the key pollutant for the purpose of this air quality assessment is dust. This includes both the suspended particulate matter (PM_{10}) fraction in the air that can be breathed, and the deposited dust that has fallen out of the air onto surfaces, which can potentially cause temporary annoyance effects.

10.4.4 Study area

10.4.4.1 Guidance on the assessment of dust from demolition and construction (Institute of Air Quality Management (IAQM), 2024) indicates that there could potentially be annoyance dust and particulate matter (PM) with diameters of 10 micrometres or smaller (PM_{10}) effects on human heath receptors located within 250 m of onsite construction activities and ecological receptors located within 50 m of onsite construction activities.

10.4.4.2 As such, the air quality study area has been defined with respect to construction dust and covers an area up to 250 m around the Mona Onshore Development Area, and 250 m from construction site entrances. In accordance with IAQM guidance (IAQM, 2024), receptors are also considered within 20 m, 50 m, 100 m, and 250 m.

10.4.4.3 To note, the study area used within this assessment differs from the study area utilised within the air quality chapter of the PEIR, as it has decreased from 350 m to 250 m. This reflects the updates made to the IAQM construction dust guidance in 2024 (IAQM, 2024).

10.4.4.4 The location and geographic extent of the air quality study area used to inform the air quality assessment is presented in Figure 10.1 below.

10.4.4.5 In accordance with the Local Air Quality Management (LAQM) Technical Guidance 2022, an assessment of traffic emissions includes all roads on which there is a significant change in traffic (over 100 Heavy Duty Vehicles (HDV) or 500 Light Duty Vehicles (LDVs) in an area without an AQMA). The vehicle movements generated by construction activities and their associated routes, as set out in Volume 3, Chapter 8: Traffic and transport of the Environmental Statement, are assessed in section 10.8.3. The potential risk of tracked out dust is considered in section 10.8.2.

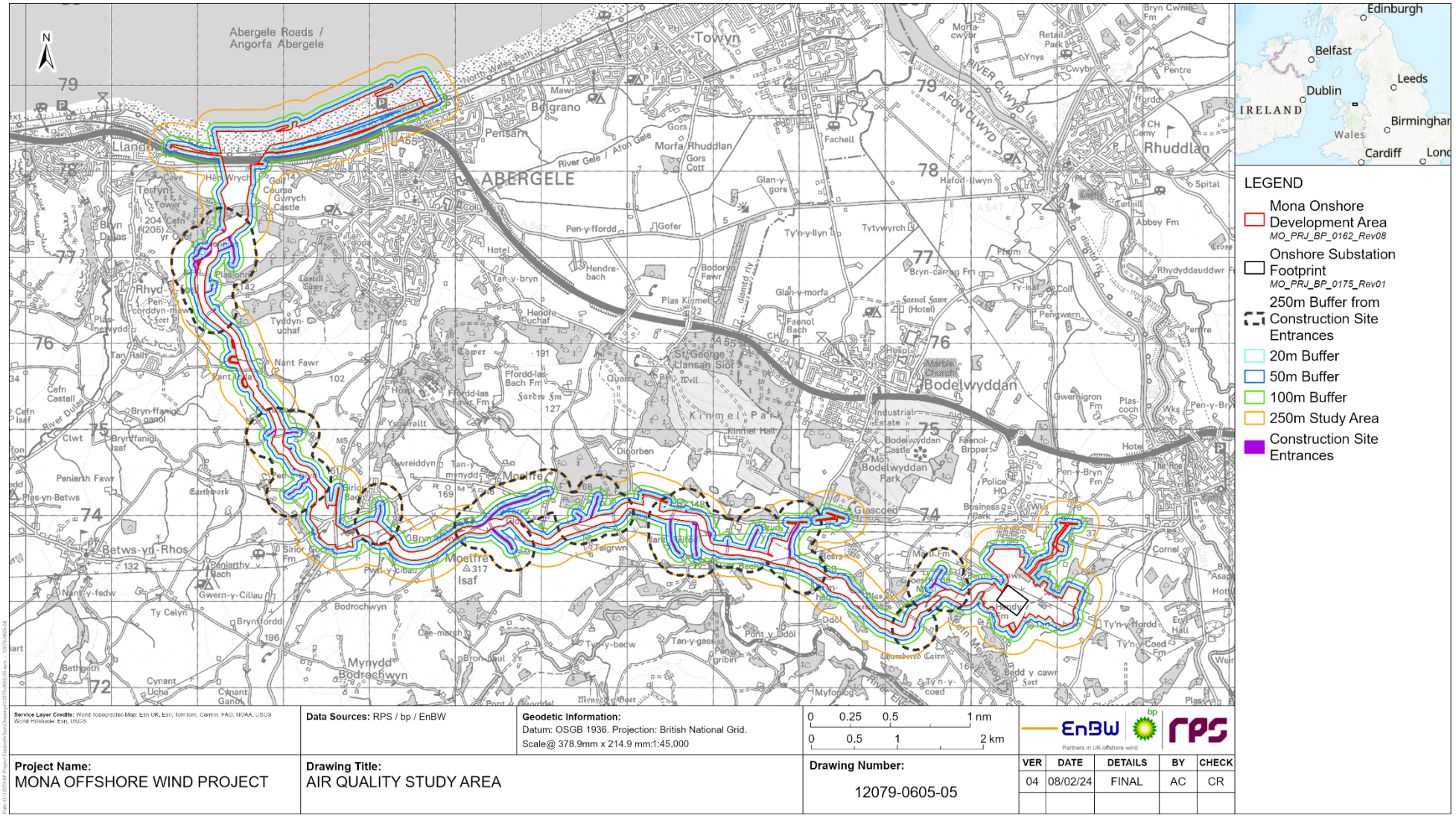


Figure 10.1: Air quality study area

10.4.5 Desktop study

10.4.5.1 A large proportion of the total pollutant concentration is usually made up of the background concentration. It is therefore important that the background concentration selected for the assessment is realistic to avoid inaccurate results.

10.4.5.2 Such background data may come from local monitoring studies or from national or government data sources, including the Department for Environment, Food & Rural Affairs (Defra) UK AIR Air Information Source national pollution maps as outlined in Table 10.9.

10.4.5.3 Local Air Quality Management (LAQM) Technical Guidance (TG22) (Defra, 2022) recommends that Defra mapped concentration estimates are used in the first instance to inform background concentrations in air quality modelling. For this air quality assessment, the baseline air quality has been determined using Defra's mapped concentration estimates data, which are set out in Table 10.9 below.

Table 10.9: Summary of key desktop reports.

Title	Source	Year	Author
North Wales Authorities Collaborative Project 2021 Air Quality Progress Report (Wood, 2021)	Denbighshire County Council website	2021	Wood
Defra projections of pollutant concentrations for years from 2018 to 2030 for each 1km grid square in the UK (Defra, 2018)	*UK Air Information Source - Background Mapping data for local authorities - 2018*	2018	Defra

10.4.6 Site specific surveys

10.4.6.1 No site-specific surveys have been undertaken to inform the assessment for air quality. This is because baseline characterisation provided by the desktop survey is considered sufficient to inform the assessment of construction dust.

10.4.6.2 This is in-line with the proposed approach as set out in the Mona Offshore Wind Project Scoping Report (bp/EnBW, 2022) which listed the *'2018- based background mapping data for NO_2, PM_{10} and* $PM_{2.5}$' and *'Air Quality Progress Reports and Annual Status Reports (ASRs)'* as a baseline data source.

10.4.7 Baseline environment

10.4.7.1 This section reviews the existing air quality conditions within the air quality study area using the baseline data sources identified in Table 10.9 above.

10.4.7.2 There are no designated Air Quality Management Areas (AQMAs) within the air quality study area as concentrations of all pollutants (including PM_{10}) are below the relevant objectives and limit values within the local authority areas of Conwy County Borough Council and Denbighshire County Council.

10.4.7.3 For this air quality assessment, the background air quality has been characterised by drawing upon information provided in the North Wales Authorities Collaborative Project 2021 Air Quality Progress Report (Wood, 2021), and Defra projections of pollutant concentrations for years from 2018 to 2030 for each km grid square in the UK (Defra, 2018).

10.4.7.4 A detailed description of how the baseline air quality within the air quality study area has been derived for this air quality assessment is summarised in the following sections of this chapter.

Review and assessment process

10.4.7.5 Neither Conwy County Borough Council nor Denbighshire County Council has designated an AQMA, indicating that air quality within the air quality study area falls below the relevant objectives and limit values for the main air pollutants.

Local monitoring

10.4.7.6 There is no local monitoring of NO_x concentrations within the local authority areas of Conwy County Borough Council or Denbighshire County Council. There are three local urban background monitoring stations in the neighbouring borough of Flintshire County Council where concentrations are measured using passive diffusion tubes. The most recently measured annual-mean concentrations (prior to the COVID-19 pandemic) are presented in Table 10.10.

Table 10.10: Passively monitored annual-mean NO_x concentrations

Site ID	Site Type	Distance from Site (km)	NO_x concentrations				
			2016	2017	2018	2019	Defra
Site 6/ADDC-013	Rural background	25	14	8.1	10.5	10.5	7.7
Site 8	Urban background	25	14.5	11.7	12.6	12.3	10.4
ADDC-029	Rural background	32	18.6	14.6	17.6	17.2	18.7

10.4.7.7 There is also no local monitoring of PM_{10} or $PM_{2.5}$ concentrations within the local authority areas of Conwy County Borough Council or Denbighshire County Council. The nearest PM_{10} monitoring is in the Isle of Anglesey and Wrexham. The most recently monitored (prior to the COVID-19 pandemic) concentrations at the rural and roadside monitoring locations and the Defra mapped concentrations are set out in Table 10.11 and Table 10.12 below.

Table 10.11: Automatically monitored annual-mean PM_{10} concentrations.

Site ID	Site Type	Distance from Site (km)	PM_{10} concentrations				
			2016	2017	2018	2019	Defra
CM2 Brynteg	Rural	44	8.1	11.0	10.1	14.0	9.8
CM4 Penhesgyn	Rural	38	-	8.1	9.5	13.0	9.3
Wrexham Automatic Urban and Rural Network (AURN)	Roadside	38	-	-	-	12.0	11.7

Table 10.12: Automatically monitored annual-mean $PM_{2.5}$ concentrations.

Site ID	Site Type	Distance from Site (km)	$PM_{2.5}$ concentrations			
			2017	2018	2019	Defra
CM2 Brynteg	Rural	44	8.4	6	6	5.9
CM4 Penhesgyn	Rural	38	6.8	7	7	5.8
Wrexham Automatic Urban and Rural Network (AURN)	Roadside	38	-	-	8	7.6

Appropriate background concentrations for the air quality study area

10.4.7.8 Table 10.10 shows that the Defra mapped background concentration estimates for NO_x are generally lower than the measured concentrations, and use of these data would not be conservative. Site 8 is the closest monitoring location to the Application Site. To ensure that the assessment is conservative, the background annual-mean NO_2 concentration has been derived from the 12.3 micrograms per cubic metre ($\mu g.m^{-3}$) measured in 2019.

10.4.7.9 Table 10.11 shows that the Defra mapped background concentration estimates at CM2 and CM4 are within the range of results from monitoring. At the Wrexham Automatic Urban and Rural Network (AURN) the Defra mapped background concentration estimate is almost identical to the measured concentration. This indicates that the Defra mapped concentrations are a reasonable estimate of concentrations in the area. The Defra mapped background (Defra, 2018) estimates across the Mona Onshore Development Area range from 9.1 to 9.8 $\mu g.m^{-3}$. On that basis, the background PM_{10} concentration used in the air quality assessment has been

derived from the highest Defra mapped background concentration estimate of 9.8 µg.m^{-3}.

10.4.7.10 Table 10.12 shows that the Defra mapped background concentration estimates for $PM_{2.5}$ at CM2 and CM4 are also within the range of results from monitoring. The Defra mapped background estimates across the Mona Onshore Development Area range from 5.8 to 6.4 µg.m^{-3} for $PM_{2.5}$. On that basis, the background $PM_{2.5}$ concentration used in the air quality assessment has been derived from the highest Defra mapped background concentration estimate of 6.4 µg.m^{-3}

Future baseline scenario

10.4.7.11 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 requires that '*an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge*' is included within the Environmental Statement. In the event that Mona Offshore Wind Project does not come forward, an assessment of the future baseline conditions has been carried out and is described within this section.

10.4.7.12 With UK-wide initiatives such as those set out in the Clean Air Strategy and Clean Air for Wales, air quality is likely to improve over time. As such, to ensure that the assessment presents conservative results, no reduction in the background concentration has been assumed in future years.

Data limitations

10.4.7.13 In the absence of site-specific local monitoring, the background NO_2, PM_{10} and $PM_{2.5}$ concentration has been drawn from a comparison of monitoring and Defra's mapped background concentration estimates. Whilst this does not provide a site-specific concentration, the published information provides a sufficient level of detail to enable the assessment of the impacts generated during construction of the Mona Offshore Wind Project to be predicted robustly.

10.5 Impact assessment methodology

10.5.1 Construction phase

Construction traffic

10.5.1.1 The Environmental Protection UK (EPUK) and IAQM Land-Use Planning & Development Control: Planning for Air Quality guidance document (EPUK and IAQM, 2017) provides the following threshold criteria for determining when an air quality assessment should be undertaken:

- Roads within an AQMA:
  - an increase in annual average daily LDV flows by more than 100
  - an increase in annual average daily HDV flows by more than 25.
- Roads outside of an AQMA:
  - an increase in annual average daily LDV flows by more than 500
  - an increase in annual average daily HDV flows by more than 100.

10.5.1.2 The EPUK and IAQM guidance document continues by stating that '*If none of the criteria are met then there should be no requirement to carry out an air quality assessment for the impact of the proposed development on the local area, and the impacts can be considered to have insignificant effects*.'

10.5.1.3 Therefore, if the threshold criteria identified above are not exceeded, an assessment of construction-related vehicle movements will not be undertaken, and the effects will be considered not significant. However, if these criteria are exceeded, an assessment of construction-related vehicle movements will be undertaken as part of the air quality assessment in the Environmental Statement.

10.5.1.4 Estimates of average daily construction vehicle movements during construction of the Mona Offshore Wind Project were generated in line with the data provided within Volume 7, Annex 8.6: Traffic flows with construction traffic of the Environmental Statement. Data is provided for the road links located within the traffic and transport study area, which are all located outside of an AQMA. Therefore, as these road links are located outside of an AQMA, the higher threshold criteria of 500 LDVs and 100 HDV flows applies.

10.5.1.5 In line with data provided within Volume 7, Annex 8.6: Traffic flows with construction traffic of the Environmental Statement, it is estimated that there would be an increase in heavy vehicles of between 22 and 205 per day. At 9 of the 28 road links considered, the estimated number of heavy vehicles is more than the 100 HDVs per day threshold set out above. Therefore only nine of the 28 road links are assessed in section 10.8.

10.5.1.6 When considering LDVs, it is estimated that there would be an increase of between 42 and 581 total vehicles (HDV and LDVs) per day. These estimates fall below the threshold criteria of 500 LDVs per day at all but three road links. Therefore, additional LDVs have been considered along three road links.

10.5.1.7 Taking the above information into account and based on the construction traffic flow estimates provided in Volume 7, Annex 8.6: Traffic flows with construction traffic of the Environmental Statement, only the following road links are assessed:

- Link 1 – A55 between Junctions 27 and 27a
- Link 2 – A55 between Junctions 27 and 26
- Link 3 – A55 between Junctions 26 and 25
- Link 4 – A55 between Junctions 25 and 24
- Link 5 – A55 between Junctions 24 and 24a
- Link 6 – A55 between Junctions 24 and 23a
- Link 7 – A55 between Junctions 23a and 23
- Link 21 – Ffordd William Morgan between A55 and Carlton Court
- Link 22 – Ffordd William Morgan between Carlton Court and B5381 Glascoed Road.

10.5.1.8 Assessed links are shown in Figure 10.4

10.5.1.9 In urban areas, pollutant concentrations are primarily determined by the balance between pollutant emissions that increase concentrations, and the ability of the atmosphere to reduce and remove pollutants by dispersion, advection, reaction and deposition. An atmospheric dispersion model is used as a practical way to simulate these complex processes; such a model requires a range of input data, which can include emissions rates, meteorological data and local topographical information.

10.5.1.10 The atmospheric pollutant concentrations in an urban area depend not only on local sources at a street scale, but also on the background pollutant level made up of the local urban-wide background, together with regional pollution and pollution from more remote sources brought in on the incoming air mass. This background contribution needs to be added to the fraction from the modelled sources, and is usually obtained from measurements or estimates of urban background concentrations for the area in locations that are not directly affected by local emissions sources.

10.5.1.11 The ADMS-Roads model has been used in this assessment to predict the air quality impacts from changes in traffic on the local road network during construction. This is a version of the Atmospheric Dispersion Modelling System (ADMS), a formally validated model developed in the UK by Cambridge Environmental Research Consultants Ltd (CERC) and widely used in the UK and internationally for regulatory purposes.

10.5.1.12 Modelling of the traffic generated has been undertaken using Defra's 2023 emission factor toolkit (version 12) which draws on emissions generated by the European Environment Agency (EEA) COPERT 5.6 emission calculation tool.

10.5.1.13 ADMS-Roads requires detailed meteorological data as an input. The most representative observing station for the region of the study area that supplies all the data in the required format is Rhyl approximately 500 m south of the study area. Meteorological data from that station for 2022 have been used within the dispersion model.

10.5.1.14 The air quality assessment predicts the impacts at locations that could be sensitive to any changes. For assessing human-health impacts, such sensitive receptors should be selected where the public is regularly present and likely to be exposed over the averaging period of the objective. LAQM.TG22 provides examples of exposure locations and these are summarised in Table 10.13.

Table 10.13 Examples of Where Air Quality Objectives Apply

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
Annual-mean	All locations where members of the public might be regularly exposed. 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. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building's façades), or any other location where public exposure is expected to be short-term.
Daily-mean	All locations where the annual-mean objective would apply, together with hotels. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building's façade), or any other location where public exposure is expected to be short-term.

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
Hourly-mean	All locations where the annual and 24 hour mean would apply. Kerbside sites (e.g. pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations to which the public might reasonably be expected to spend 1-hour or longer.	Kerbside sites where the public would not be expected to have regular access.

10.5.1.15 Representative sensitive receptors for this assessment have been selected at properties where pollutant concentrations and/or changes in pollutant concentrations are anticipated to be greatest, as listed in Table 10.14.

Table 10.14 Modelled Sensitive Receptors

ID	Description	x	y
1	Residential	303749	374911
2	School	303648	374848
3	Residential	303538	374859
4	Residential	303280	374833
5	Hotel	303140	374790
6	Residential	302920	374636
7	Residential	302631	374622
8	Residential	300785	375194
9	Residential	300235	375473
10	Residential	299133	375556
11	Residential	298372	376112
12	Residential	298062	376176
13	Residential	296985	376402
14	School	295126	377876
15	Residential	295058	378133
16	Residential	294636	378496
17	Residential	294120	378428
18	Holiday park	291427	378316
19	Residential	290784	378392
20	Business Park	301553	374168

10.5.1.16 The annual, daily and hourly-mean AQS objectives apply at the front and rear façades of all residential properties and at the school. The daily and hourly-mean AQS objectives only, apply at the business park and hotels. The approaches used to predict the concentrations for these different averaging periods are described below.

Long-Term Pollutant Predictions

10.5.1.17 Annual-mean NOx and PM_{10} concentrations have been predicted at representative sensitive receptors using ADMS-Roads, then added to relevant background concentrations. Primary NO in the NO_X emissions is converted to NO_2 to a degree determined by the availability of atmospheric oxidants locally and the strength of sunlight. For road traffic sources, annual-mean NO_2 concentrations have been derived from the modelled road-related annual-mean NOx concentration using Defra's calculator (Defra, 2023).

Short-Term Pollutant Predictions

10.5.1.18 In order to predict the likelihood of exceedances of the hourly-mean AQS objectives for NO_2 and the daily-mean AQS objective for PM_{10}, the following relationships between the short-term and the annual-mean values at each receptor have been considered.

Hourly-Mean AQS Objective for NO_2

10.5.1.19 Research undertaken in support of LAQM.TG22 has indicated that the hourly-mean limit value and objective for NO_2 is unlikely to be exceeded at a roadside location where the annual-mean NO_2 concentration is less than 60 $\mu g.m^{-3}$. The threshold of 60 $\mu g.m^{-3}$ NO_2 has been used as the guideline for considering a likely exceedance of the hourly-mean nitrogen dioxide objective.

Daily-Mean AQS Objective for PM_{10}

10.5.1.20 The number of exceedances of the daily-mean AQS objective for PM_{10} of 50 $\mu g.m^{-3}$ may be estimated using the relationship set out in LAQM.TG22:

- Number of Exceedances of Daily Mean of 50 $\mu g.m^{-3}$ = -18.5 + 0.00145 * (Predicted Annual-mean PM_{10})3 + (206 / Predicted Annual-mean PM_{10} Concentration).

10.5.1.21 This relationship indicates that the daily-mean AQS objective for PM_{10} is likely to be met if the predicted annual-mean PM_{10} concentration is 31.8 $\mu g.m^{-3}$ or less.

10.5.1.22 The daily mean objective is therefore not considered further within this assessment if the annual-mean PM_{10} concentration is predicted to be less than 31.5 $\mu g.m^{-3}$.

Fugitive PM_{10} Emissions

10.5.1.23 Transport PM_{10} emissions arise from both the tailpipe exhausts and from fugitive sources such as brake and tyre wear and re-suspended road dust. Improvements in vehicle technologies are reducing PM_{10} exhaust emissions; therefore, the relative importance of fugitive PM_{10} emissions is increasing. Current official vehicle emission factors for particulate matter include brake dust and tyre wear which studies suggest may account for approximately one-third of the total particulate emissions from road transport; but not re-suspended road dust (which remains unquantified).

Significance Criteria for Development Impacts on the Local Area

10.5.1.24 The EPUK & IAQM Land-Use Planning & Development Control: Planning For Air Quality document advises that:

"*The significance of the effects arising from the impacts on air quality will depend on a number of factors and will need to be considered alongside the benefits of the development in question. Development under current planning policy is required to be sustainable and the definition of this includes social and economic dimensions, as well as environmental. Development brings opportunities for reducing emissions at a wider level through the use of more efficient technologies and better designed buildings,*

which could well displace emissions elsewhere, even if they increase at the development site. Conversely, development can also have adverse consequences for air quality at a wider level through its effects on trip generation."

10.5.1.25 When describing the air quality impact at a sensitive receptor, the change in magnitude of the concentration should be considered in the context of the absolute concentration at the sensitive receptor. Table 10.15 provides the EPUK & IAQM approach for describing the long-term air quality impacts at sensitive human-health receptors in the surrounding area.

Table 10.15 Impact Descriptors for Individual Sensitive Receptors

Long term average concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level			
	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 than AQAL	Moderate	Substantial	Substantial	Substantial

1. AQAL = Air Quality Assessment Level, which may be an air quality objective, limit value, or an Environment Agency 'Environmental Assessment Level (EAL)'.

2. The table is intended to be used by rounding the change in percentage pollutant concentration to whole numbers, which then makes it clearer which cell the impact falls within. The user is encouraged to treat the numbers with recognition of their likely accuracy and not assume a false level of precision. Changes of 0%, i.e. less than 0.5% will be described as negligible.

3. The table is only designed to be used with annual mean concentrations.

4. Descriptors for individual receptors only; the overall significance is determined using professional judgement. For example, a 'moderate' adverse impact at one receptor may not mean that the overall impact has a significant effect. Other factors need to be considered.

5. When defining the concentration as a percentage of the AQAL, use the 'without scheme' concentration where there is a decrease in pollutant concentration and the 'with scheme;' concentration for an increase.

6. The total concentration categories reflect the degree of potential harm by reference to the AQAL value. At exposure less than 75% of this value, i.e. well below, the degree of harm is likely to be small. As the exposure approaches and exceeds the AQAL, the degree of harm increases. This change naturally becomes more important when the result is an exposure that is approximately equal to, or greater than the AQAL.

7. It is unwise to ascribe too much accuracy to incremental changes or background concentrations, and this is especially important when total concentrations are close to the AQAL. For a given year in the future, it is impossible to define the new total concentration without recognising the inherent uncertainty, which is why there is a category that has a range around the AQAL, rather than being exactly equal to it.

10.5.1.26 The human-health impact descriptors above apply at individual receptors. The EPUK & IAQM guidance states that the impact descriptors "*are not, of themselves, a clear and unambiguous guide to reaching a conclusion on significance. These impact descriptors are intended for application at a series of individual receptors. Whilst it maybe that there are 'slight', 'moderate' or 'substantial' impacts at one or more receptors, the overall effect may not necessarily be judged as being significant in some circumstances.*"

10.5.1.27 Professional judgement by a competent, suitably qualified professional is required to establish the significance associated with the consequence of the impacts. This judgement is likely to take into account the extent of the current and future population exposure to the impacts and the influence and/or validity of any assumptions adopted during the assessment process.

Uncertainty

10.5.1.28 All air quality assessment tools, whether models or monitoring measurements, have a degree of uncertainty associated with the results. The choices that the practitioner makes in setting-up the model, choosing the input data, and selecting the baseline monitoring data will decide whether the final predicted impact should be considered a central estimate, or an estimate tending towards the upper bounds of the uncertainty range (i.e. tending towards worst-case).

10.5.1.29 The atmospheric dispersion model itself contributes some of this uncertainty, due to it being a simplified version of the real situation: it uses a sophisticated set of mathematical equations to approximate the complex physical and chemical atmospheric processes taking place as a pollutant is released and as it travels to a receptor. The predictive ability of even the best model is limited by how well the turbulent nature of the atmosphere can be represented.

10.5.1.30 Each of the data inputs for the model, listed earlier, will also have some uncertainty associated with them. Where it has been necessary to make assumptions, these have mainly been made towards the upper end of the uncertainty range informed by an analysis of relevant, available data.

10.5.1.31 The atmospheric dispersion model used for this assessment, ADMS Roads, has been validated by its supplier and is widely used by professionals in the UK and overseas. A site-specific verification (calibration) provides additional certainty and is particularly important when air quality levels are close to exceeding the objectives/limit values.

10.5.1.32 LAQM.TG22 requires that local authorities verify the results of any detailed modelling undertaken for the purposes of fulfilling their R&A duties. Model verification refers to the checks that are carried out on model performance at a local level. Modelled concentrations are compared with the results of monitoring. Where there is a disparity between modelled and monitored concentrations, the first step is to review the appropriateness of the data inputs to determine whether the performance of the model can be improved. Once reasonable efforts have been made to reduce the uncertainties in the data inputs, an adjustment may be established and applied to reduce any remaining disparity between modelled and monitored concentrations. No adjustment factor is deemed necessary where the modelled concentrations are within 25% of the monitored concentrations.

10.5.1.33 For the verification and adjustment of NO_x/NO_2 concentrations for R&A purposes, it is recommended that the comparison involves a combination of automatic and diffusion monitoring, rather than a single automatic monitor. This is to ensure any adjustment factor derived is representative of all locations modelled and not unduly weighted towards the characteristics at a single site. Where only diffusion tubes are used for the model verification, the study should consider a broad spread of monitoring locations across the study area to provide sufficient information relating to the spatial variation in pollutant concentrations.

10.5.1.34 Local Authorities generally implement a broad spread of monitoring, particularly in areas that are known to be sensitive to changes in air quality. Consequently, Local Authorities are usually able to verify the models they use for R&A purposes; however for individual developments, there is less likely to be a broad range of monitoring

locations within the relevant study area. Notwithstanding this, a small number of monitoring locations have been identified within the study area and a model verification study has been undertaken for the project.

10.5.1.35 The main components of uncertainty in the total predicted concentrations, made up of the background concentration and the modelled fraction, include those summarised in Table 10.16.

Table 10.16 Approaches to Dealing with Uncertainty used Within the Assessment

Concentration	Source of Uncertainty	Approach to Dealing with Uncertainty	Comments
Background Concentration	Characterisation of current baseline air quality conditions	The background concentration used within the assessment is the most conservative value from a comparison of measured and Defra mapped concentration estimate.	The background concentration is the major proportion of the total predicted concentration.
	Characterisation of future baseline air quality (i.e. the air quality conditions in the future assuming that the development does not proceed)	The future background concentration used in the assessment is the same as the current background concentration and no reduction has been assumed. This is a conservative assumption as, in reality, background concentrations are likely to reduce over time as cleaner vehicle technologies form an increasing proportion of the fleet.	The conservative assumptions adopted ensure that the background concentration used within the model contributes to the result being towards the top of the uncertainty range, rather than a central estimate.
Fraction from Modelled Sources	Traffic flow estimates	High growth assumptions have been used to develop the traffic dataset used within the model.	The modelled fraction is likely to contribute to the result being between a central estimate and the top of the uncertainty range.
	Traffic speed estimates	The average speed has been reduced in congested areas to take account of slow-moving and queuing traffic.	
	Road-related emission factors – projection to future years	The most recently published emission factors have been used within the modelling and these are based on the current and best understanding of the variation in emission factors in future years.	
	Meteorological Data	Uncertainties arise from any differences between the conditions at the met station and the development site, and between the historical met years and the future years. These have been minimised by using meteorological data collated at a representative measuring site. The model has been run for a full year of meteorological conditions. This means that the conditions in 8,760 hours have been considered in the assessment.	

Concentration	Source of Uncertainty	Approach to Dealing with Uncertainty	Comments
	Receptors	Receptor locations have been identified where concentrations are highest or where the greatest changes are expected.	
	Dispersion Modelling	The model predictions have been compared with monitored concentrations and the model is systematically over-predicting as outlined in the model verification section below.	

10.5.1.36 The analysis of the component uncertainties indicates that, overall, the predicted total concentration is likely to be towards the top of the uncertainty range rather than being a central estimate. The actual concentrations that will be found when the development is operational are unlikely to be higher than those presented within this report and are more likely to be lower.

Model Verification

10.5.1.37 The approach to model verification that LAQM.TG22 recommends for local authorities when they carry out their LAQM duties is summarised above. For the verification and adjustment of NOx /NO_2 concentrations, the guidance recommends that the comparison considers a broad spread of automatic and diffusion-tube monitoring.

10.5.1.38 Conwy Borough Council monitors roadside NO_2 concentrations passively using diffusion tubes at three locations in the vicinity of the Application Site.

10.5.1.39 The concentrations monitored over recent years are provided in Table 10.17.

Table 10.17 Measured Annual-mean NO_2 Concentrations ($\mu g.m^{-3}$)

Monitoring Site	Measured Annual-mean NO_2 Concentrations ($\mu g.m^{-3}$)		
	2017	2018	2019
RHBC007	14.1	14.5	12.9
CCBC018	19.8	18	17.2
CCBC040	-	15.8	14.2

10.5.1.40 The monitored annual-mean NOx road contributions have been derived from the monitored annual-mean NO_2 concentrations using the LAQM.TG22 calculator. The monitored annual-mean NO_X road contributions have then been compared with the modelled annual-mean NOx road contributions. This comparison is provided in Table 10.18 below.

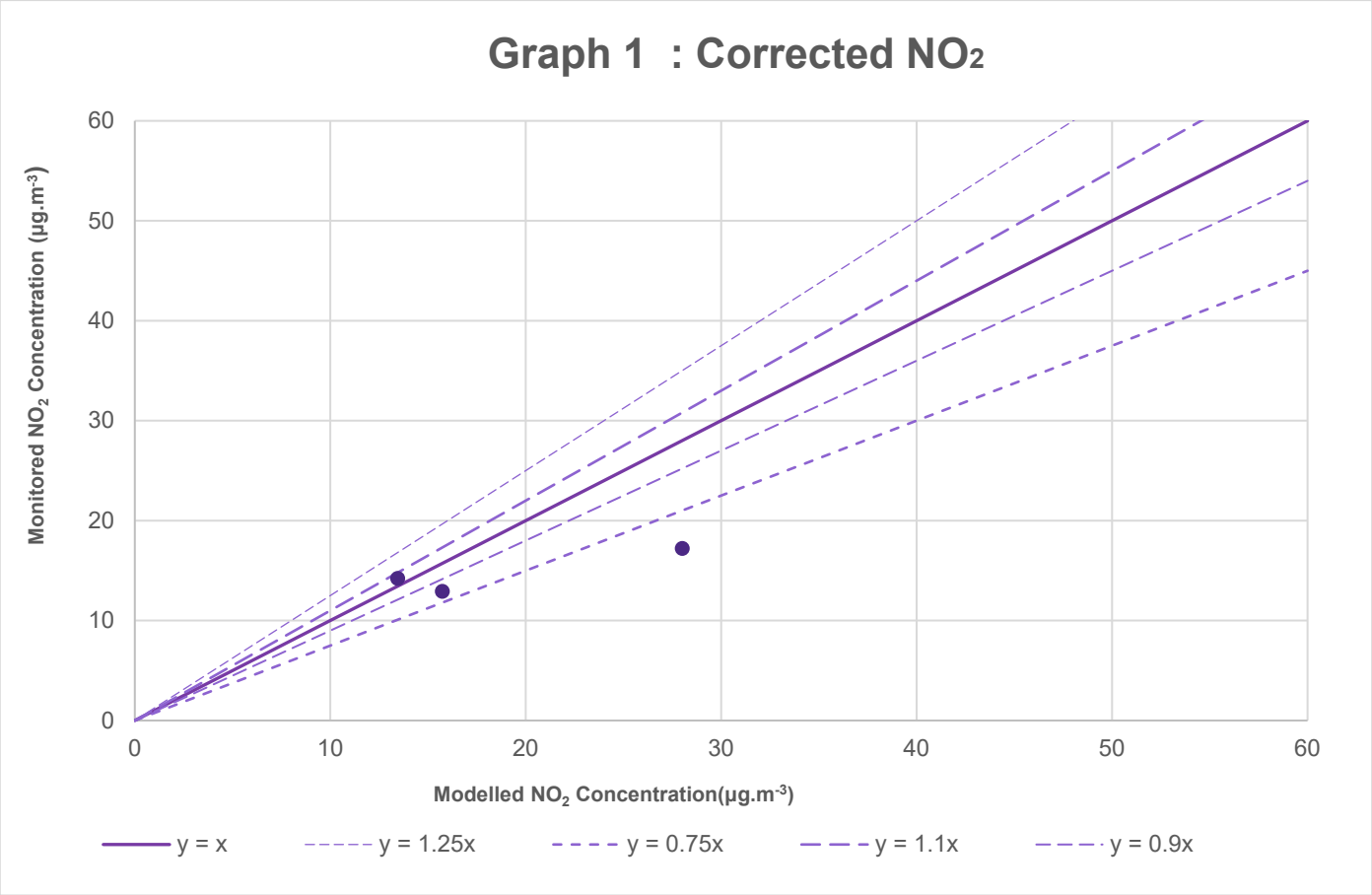
Table 10.18 Comparison of Monitored and Modelled Annual-mean Road NOx Contribution (µg.m-3)

Monitoring Site	Annual-mean Road NO_X Contribution ($\mu g.m^{-3}$)	
	Monitored	Modelled
RHBC007	1.1	6.39
CCBC018	9.17	18.98
CCBC040	3.51	2.53

10.5.1.41 It should be borne in mind that the monitored concentrations are themselves only estimates to the true concentrations at each point; the EU Directive on air quality designates passive NO_2 samplers indicative measures with a potential uncertainty of +/-30 %. Ignoring any uncertainty errors in the monitoring results, the table above indicates that the model is over-predicting.

10.5.1.42 Modelled annual-mean NO_2 concentrations have been derived from the modelled annual-mean NOx road contributions. The modelled annual-mean NO_2 concentrations have been plotted against the monitored annual-mean NO_2 concentrations in Graph 10.1.

Graph 10.1: Corrected NO_2



10.5.1.43 As the modelled annual-mean NO_2 concentrations are within or above 25% of the monitored annual-mean NO_2 concentrations, no adjustment factor is required and the model is over-predicting.

Construction dust

10.5.1.44 An assessment of the risk of the dust impacts during the construction phase on human-health and ecological receptors has been undertaken in accordance with the method set out in the Guidance on the assessment of dust from demolition and construction (IAQM, 2024).

10.5.1.45 The following types of activities during construction of the Mona Offshore Wind Project could result in fugitive dust emissions:

- Demolition of structures (minor structures only, e.g. fencing, walls, etc.)
- Earthworks
- Handling and disposal of spoil
- Wind-blown particulate material from stockpiles
- Handling of loose construction materials
- Movement of vehicles, both on and off site (trackout).

10.5.1.46 The level and distribution of construction dust emissions will vary according to factors, such as the type of dust, duration and location of dust-generating activity, weather conditions and the effectiveness of dust suppression methods.

10.5.1.47 The main effect of any dust emissions, if not mitigated, could be annoyance due to soiling of surfaces, particularly windows, cars and laundry. Farmland is considered to be a low sensitivity receptor with respect to dust soiling. However, it is normally possible, following the implementation of proper control and good practice methods, to ensure that dust deposition does not give rise to significant adverse effects, although short-term events may occur (e.g. due to technical failure or exceptional weather conditions).

10.5.1.48 In accordance with Guidance on the assessment of dust from demolition and construction (IAQM, 2024), the following air quality assessment predicts the risk of dust impacts occurring on sensitive receptors identified within the air quality study area and recommends appropriate mitigation measures required to control the residual effects to a level that is considered "not significant" in EIA terms.

Source magnitude

10.5.1.49 Guidance on the assessment of dust from demolition and construction (IAQM, 2024) gives examples of the dust emission magnitudes for demolition, earthworks, construction activities and track-out. These example dust emission magnitudes are based on the site area, building volume, number of HDV movements generated by the activities and the materials used.

10.5.1.50 These example magnitudes have been combined with the anticipated duration of construction activities to determine the ranking of source magnitude. The features of the source of dust emissions and associated dust emission magnitude are set out in Table 10.19 below.

Table 10.19: Risk allocation – source (magnitude of dust impacts).

Features of the source of dust emissions	Dust emission magnitude
Demolition - building over 75,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities > 12 m above ground level. **Earthworks** – total site area over 110,000 m^2, potentially dusty soil type (e.g. clay), >10 heavy earth moving vehicles active at any one time, formation of bunds > 6 m in height. **Construction** - total building volume over 75,000 m^3, activities include piling, on-site concrete batching, sand blasting. **Trackout** – 50 HDV outwards movements in any one day, potentially dusty surface material (e.g. High clay content), unpaved road length > 100 m.	Large
Demolition - building between 12,000 to 75,000 m^3, potentially dusty construction material and demolition activities 6 - 12 m above ground level. **Earthworks** – total site area between 18,000 to 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. **Construction** - total building volume between 12,000 and 75,000 m^3, use of construction materials with high potential for dust release (e.g. concrete), activities include piling, on-site concrete batching. **Trackout** – 20 - 50 HDV outwards movements in any one day, moderately dusty surface material (e.g. High clay content), unpaved road length 50 – 100 m.	Medium

Features of the source of dust emissions	Dust emission magnitude
Demolition - building less than 12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities < 10 m above ground, demolition during winter months. **Earthworks** – total site area less than 18,000 m^2. Soil type with large grain size (e.g. sand), < 5 heavy earth moving vehicles active at any one time, formation of bunds < 4 m in height. **Construction** - total building volume below 12,000 m^3, use of construction materials with low potential for dust release (e.g. metal cladding or timber). **Trackout** – < 20 HDV outwards movements in any one day, surface material with low potential for dust release, unpaved road length < 50 m.	Small

Pathway and receptor – sensitivity of the area

10.5.1.51 Pathway means the route by which dust and particulate matter may be carried from the source to a receptor. The main factor affecting the pathway effectiveness is the distance from the receptor to the source of dust. The orientation of the receptors to the source compared to the prevailing wind direction is a relevant risk factor for long-duration construction projects. However, short term construction projects may be limited to a few months when the most frequent wind direction might be quite different, so adverse effects can potentially occur in any direction.

10.5.1.52 Guidance on the assessment of dust from demolition and construction (IAQM, 2024) states that several attempts have been made to categorise receptors into high, medium, and low sensitivity categories. However, there is no unified sensitivity classification scheme that covers the different types of potential effects on property, human health, and ecological receptors and so separate sensitivity categories are used for each of these effects.

10.5.1.53 Table 10.20, Table 10.21 and Table 10.22 below set out the sensitivity of people, property, and ecological receptors to dust and PM_{10}, in accordance with IAQM guidance (IAQM, 2024).

Table 10.20: Sensitivities of people and property receptors to dust.

Receptor	Sensitivity
Principles: • Users can reasonably expect enjoyment of a high level of amenity • The appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods as part of the normal pattern of use of the land • Indicative examples: – Residential properties – Museums and other culturally important collections – Medium and long-term car parks and car showrooms.	High
Principles: • Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home • The appearance, aesthetics or value of their property could be diminished by soiling • The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. • Indicative examples: – Parks – Places of work.	Medium
Principles: • The enjoyment of amenity would not reasonably be expected • There is property that would not reasonably be expected to be diminished in appearance, aesthetics, or value by soiling • There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land • Indicative examples: – Playing fields – Farmland (unless commercially sensitive horticultural) – Footpaths – Roads – Short-term car parks.	Low

Table 10.21: Sensitivities of people and property receptors to PM_{10}.

Receptor	Sensitivity
Principles: • Locations where members of the public are exposed over a time period relevant to the air quality objective (in the case of the 24-hour objective for PM_{10}, a relevant location would be one where individuals may be exposed for eight hours or more in a day) • Indicative examples: – Residential properties – Schools, hospitals and residential care homes.	High
Principles: • Locations where the people exposed are workers and exposure is over a time period relevant to the air quality objective (in the case of the 24-hour objective for PM_{10}, a relevant location would be one where individuals may be exposed for eight hours or more in a day) • Indicative examples include: – Office workers – Shop workers • Generally excludes workers occupationally exposed to PM_{10} as protection is covered by Health and Safety at Work legislation.	Medium
Principles: • Locations where human exposure is transient. • Indicative examples: – Public footpaths – Playing fields – Parks – Shopping streets.	Low

Table 10.22: Sensitivities of ecological receptors to dust.

Receptor	Sensitivity
Principles: • Locations with an international or national designation and the designated features may be affected by dust soiling; or • Locations where there is a community of a particular dust sensitive species such as vascular plants included in the Red Data List for Great Britain. • Indicative Examples:- – Special Area of Conservation designated for acid heathlands adjacent to the demolition of a large site containing concrete (alkali) buildings or for the presence of lichen.	High
Principles: • Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or • Locations with a national designation where the features may be affected by dust deposition. • Indicative Examples:- – Site of Special Scientific Interest (SSSI) with dust sensitive features.	Medium

Receptor	Sensitivity
Principles: • Locations with a local designation where the features may be affected by dust deposition • Indicative Examples: – A Local Nature Reserve with dust sensitive features.	Low

10.5.1.54 The location of ecological receptors within the Mona Onshore Development Area study are shown in Figure 10.2. Dust sensitive human health receptors located within 20 m, 50 m, 100 m, 250 m have been considered and are shown in Figure 10.3. These distances are based on the matrices in the IAQM guidance which are reproduced in Table 10.23 to Table 10.25.

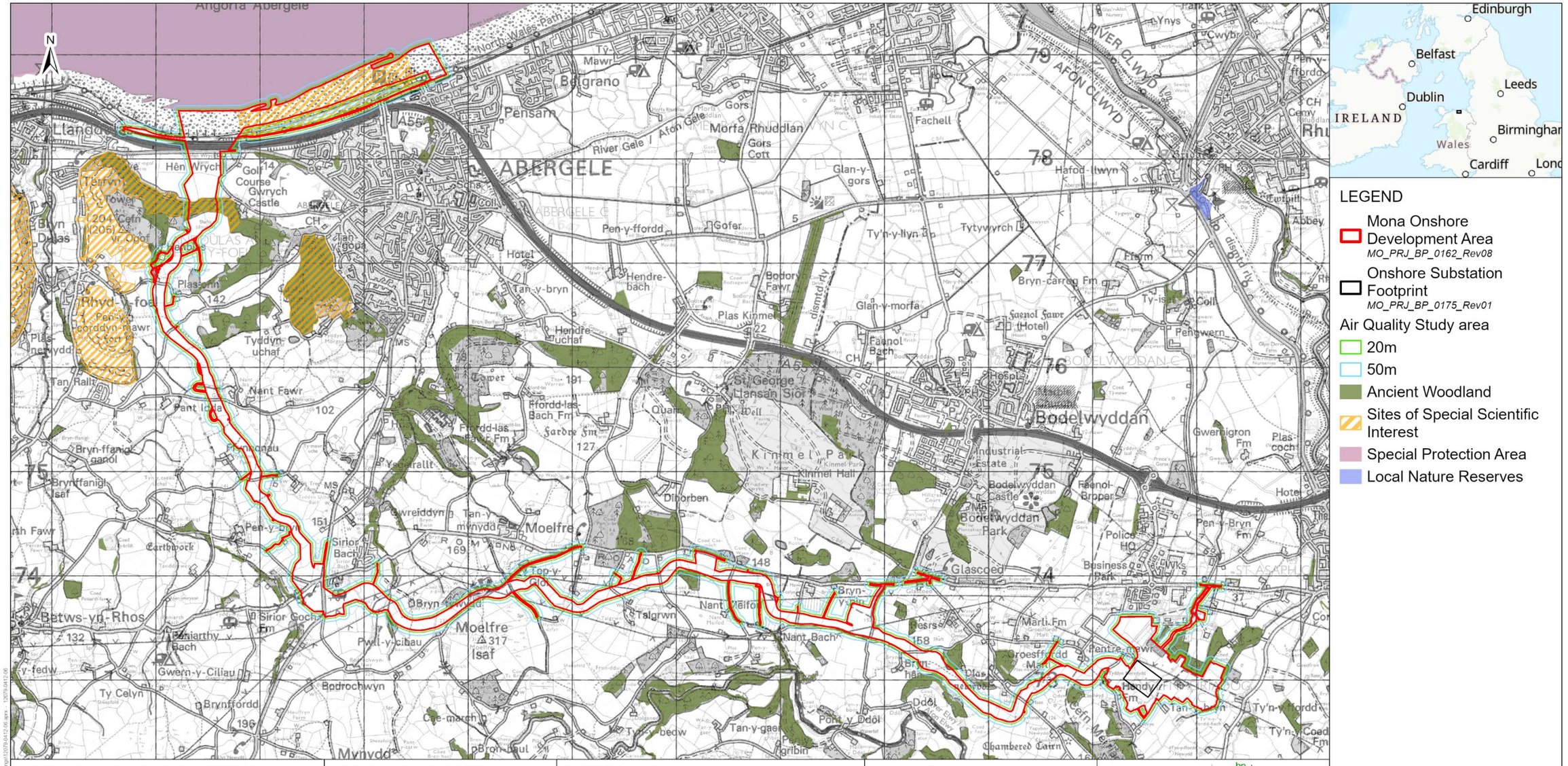
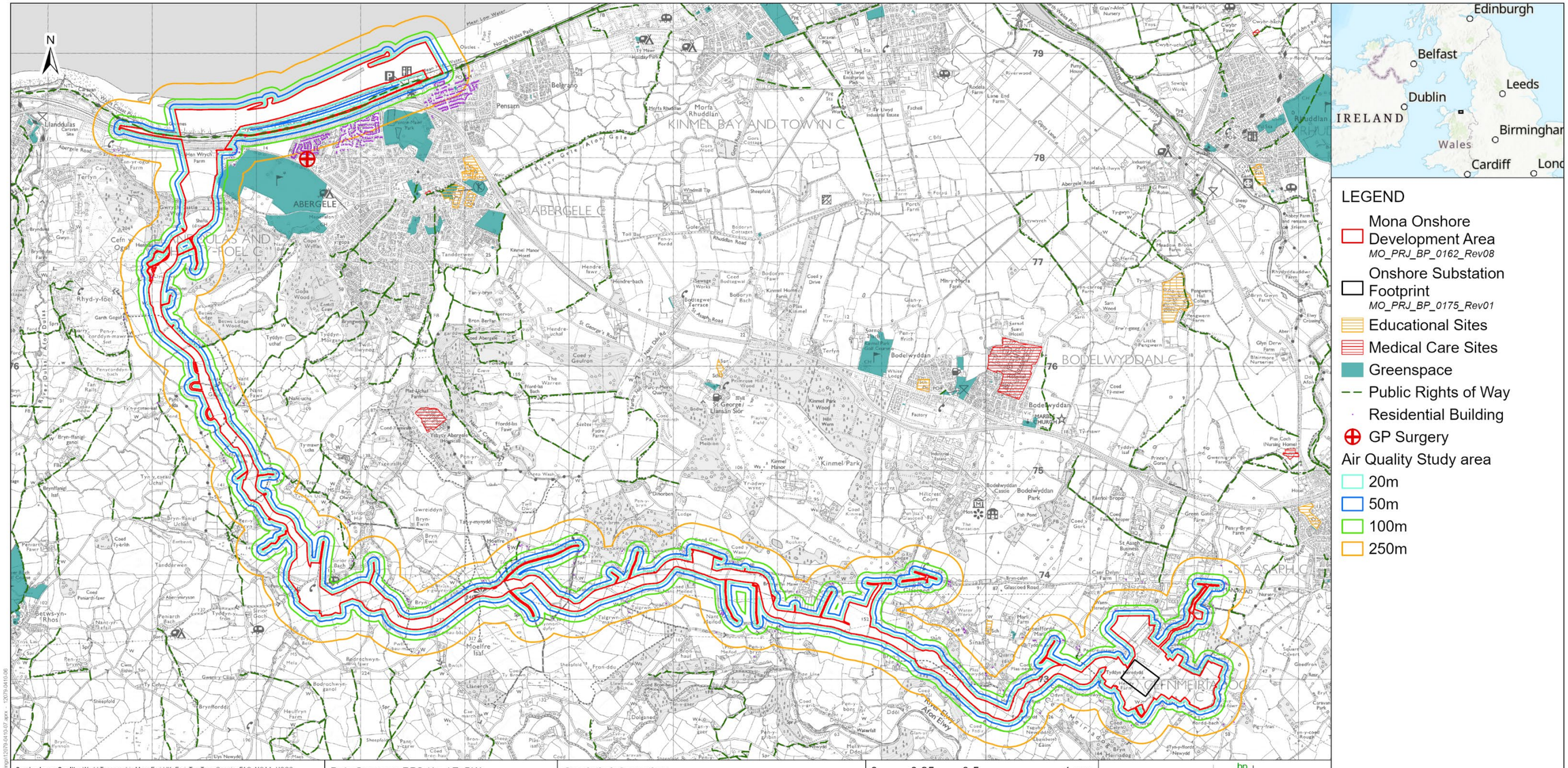


Figure 10.2: Ecological receptors located within the air quality study area.



Service Layer Credits: World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Hillshade: Esri, USGS

Data Sources: RPS / bp / EnBW

Geodetic Information:
Datum: OSGB 1936. Projection: British National Grid.
Scale@ 378.9mm x 214.9 mm:1:40,000

0 0.25 0.5 1 nm
0 0.25 0.5 1 km

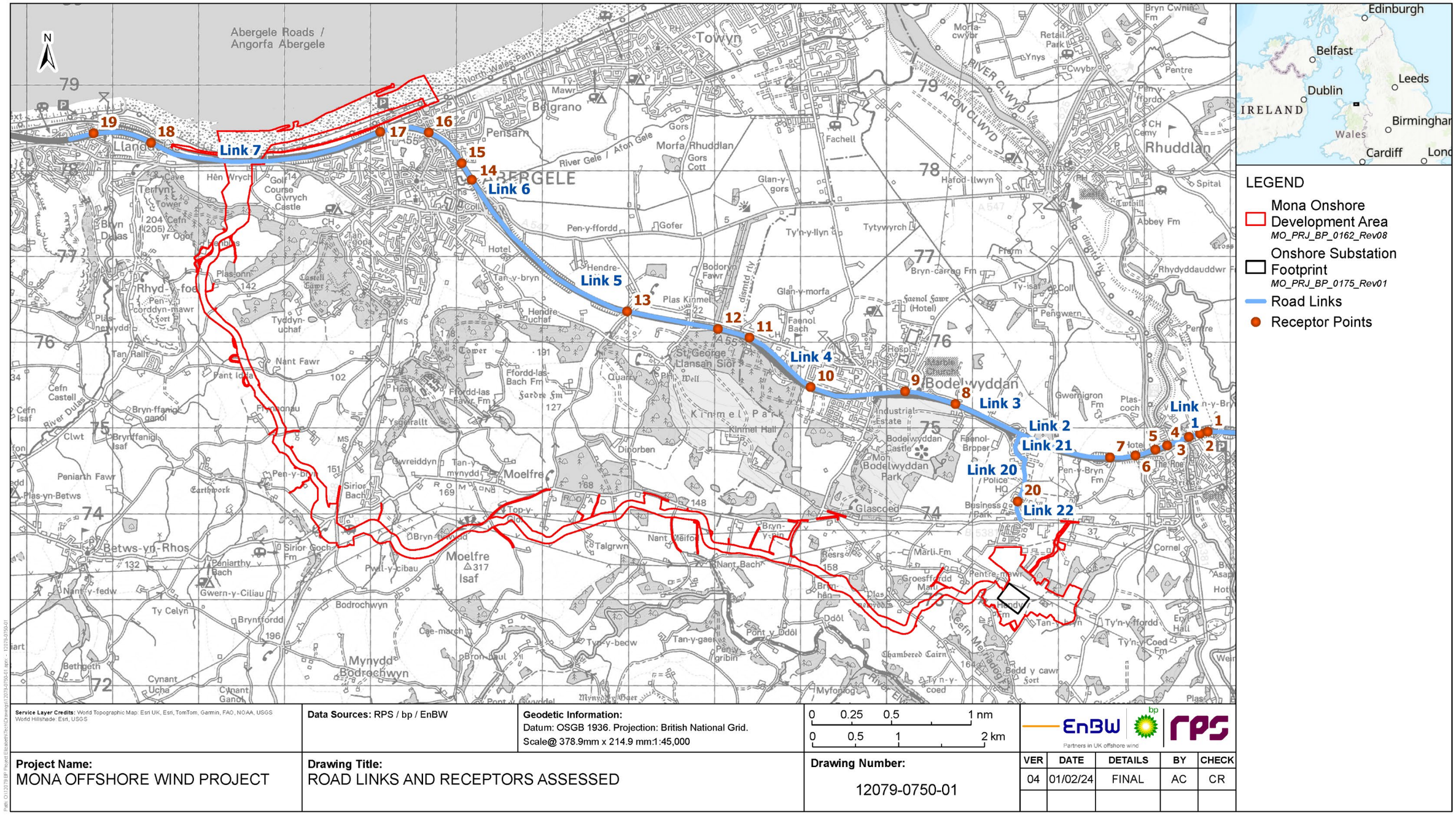
Partners in UK offshore wind

Project Name:	Drawing Title:	Drawing Number:
MONA OFFSHORE WIND PROJECT	HUMAN HEALTH RECEPTORS LOCATED WITHIN AIR QUALITY STUDY AREA	12079-0410-07

VER	DATE	DETAILS	BY	CHECK
06	08/02/24	FINAL	AC	CR

Path: O:\12079 BP Project Elizabeth\Tech\Drawings\12079-0410-07.aprx - 12079-0410-06

Figure 10.3: Human health receptors located within the air quality study area.



Service Layer Credits: World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS World Hillshade: Esri, USGS	**Data Sources:** RPS / bp / EnBW	**Geodetic Information:** Datum: OSGB 1936. Projection: British National Grid. Scale@ 378.9mm x 214.9 mm:1:45,000	0 0.25 0.5 1 nm 0 0.5 1 2 km	
Project Name: MONA OFFSHORE WIND PROJECT	**Drawing Title:** ROAD LINKS AND RECEPTORS ASSESSED	**Drawing Number:** 12079-0750-01		

VER	DATE	DETAILS	BY	CHECK
04	01/02/24	FINAL	AC	CR

Figure 10.4: Road links and receptors assessed.

10.5.1.55 The IAQM methodology (IAQM, 2024) combines consideration of the pathway and receptor to derive the sensitivity of the area. Table 10.23, Table 10.24 and Table 10.25 show how the sensitivity of the area has been derived for this air quality assessment, in accordance with the IAQM approach.

Table 10.23: Sensitivity of the area to dust impacts on people and property.

Receptor sensitivity	Number of receptors [a]	Distance from the source (m) [b]			
		Less than (<) 20	<50	<100	<250
High	Greater than (>) 100	High	High	Medium	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

The sensitivity of the area has been derived for demolition, construction, earthworks and trackout.

[a] The total number of receptors within the stated distance has been estimated. Only the highest level of area sensitivity from the table has been recorded.

[b] For trackout, the distances have been measured from the side of the roads used by construction traffic. The impact declines with distance from the site and trackout impacts have only been considered up to 50m from the edge of the road.

Table 10.24: Sensitivity of the area to PM_{10} impacts on human health.

Receptor sensitivity	Annual mean PM_{10} concentration [a]	Number of receptors [b, c]	Distance from the source (m) [d]			
			<20	<50	<100	<250
High	> 32 µg.m^{-3}	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28 - 32 µg.m^{-3}	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24 - 28 µg.m^{-3}	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg.m^{-3}	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32 µg.m^{-3}	>10	High	Medium	Low	Low
		1 – 10	Medium	Low	Low	Low
	28 – 32 µg.m^{-3}	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low

Receptor sensitivity	Annual mean PM_{10} concentration [a]	Number of receptors [b, c]	Distance from the source (m) [d] <20	<50	<100	<250
	< 28 µg.m^{-3}	>1	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

The sensitivity of the area has been derived for demolition, construction, earthworks and trackout.

[a] This refers to the background concentration derived from the assessment of baseline conditions earlier in this chapter. The concentration categories listed in this column apply to England, Wales, and Northern Ireland but not to Scotland.

[b] The total number of receptors within the stated distance has been estimated. Only the highest level of area sensitivity from the table has been recorded.

[c] For high sensitivity receptors with high occupancy (such as schools or hospitals), the approximate number of occupants has been used to derive an equivalent number of receptors.

[d] For trackout, the distances have been measured from the side of the roads used by construction traffic. The impact declines with distance from the site, and trackout impacts have only been considered up to 50m from the edge of the road.

Table 10.25: Sensitivity of the area to ecological impacts.

Receptor Sensitivity	Distance from the Source (m) [a] <20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

The sensitivity of the area has been derived for demolition, construction, earthworks and trackout and for each designated site.

a Only the highest level of area sensitivity has been recorded.

10.5.1.56 The IAQM guidance (IAQM, 2024) lists the following additional factors that can potentially affect the sensitivity of the area. In addition, where necessary, professional judgement has been used to adjust the sensitivity allocated to a particular area:

- Any history of dust generating activities in the area
- The likelihood of concurrent dust generating activity on nearby sites
- Any pre-existing screening between the source and the receptors
- Any conclusions drawn from analysing local meteorological data which accurately represent the area; and if relevant the season during which the works will take place
- Any conclusions drawn from local topography
- Duration of the potential impact, as a receptor may become more sensitive over time
- Any known specific receptor sensitivities which are considered to go beyond the classifications given in the table above.

10.5.1.57 The matrices provided in Table 10.26 below have been used to assign the level of risk for each activity type required during the construction of the Mona Offshore Wind Project.

Table 10.26: Risk of dust impacts for each activity type.

Sensitivity of area	Magnitude of dust impacts		
	Large	Medium	Small
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

10.5.2 Operational phase

10.5.2.1 As outlined in section 10.3 of this chapter above, impacts during the operations and maintenance phase of the Mona Offshore Wind Project have been scoped out of the air quality assessment, as agreed through relevant consultation.

10.5.3 Decommissioning phase

10.5.3.1 The risk of dust impacts arising during decommissioning of the Mona Offshore Wind project will be the same as (or similar to) the risk of construction dust impacts during the construction phase. Notwithstanding, a Decommissioning Management Plan will be prepared and submitted prior to decommissioning of the Mona Offshore Wind Project. The Decommissioning Management Plan will set out the measures required to mitigate potential impacts of dust generated during the decommissioning phase and will be included in the Code of Construction Practise (CoCP).

10.5.3.2 Decommissioning-related traffic is expected to be lower than the construction phase and therefore the impacts of decommissioning-vehicle exhaust emissions have not been assessed specifically. As the impacts from construction vehicle emissions are negligible the impacts from decommissioning vehicle emissions will also be negligible.

10.6 Key parameters for assessment

10.6.1 Maximum design scenario

10.6.1.1 The maximum design scenarios (MDS) identified in Table 10.27 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the Project Design Envelope provided in Volume 1, Chapter 3: Project description of the Environmental Statement. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g., different infrastructure layout), to that assessed here be taken forward in the final design scheme.

Table 10.27: Maximum design scenario considered for the assessment of potential impacts on air quality.

[a] C=construction, O=operational and maintenance, D=decommissioning

Potential impact	Phase [a]			Maximum design scenario	Justification
	C	O	D		
The impact of dust soiling (annoyance) on property and an increase in suspended particulate matter arising from dust emissions generated by onsite construction and decommissioning activities.	✓	×	✓	**Construction phase** <u>Open cut trenching along the Onshore Cable Corridor:</u> • The maximum duration of the construction phase for the Onshore Cable Corridor, including 400kV Grid Connection Cable Corridor is 33 months. • The area of the permanent Onshore Cable Corridor is up to 450,000 m^2 based on a corridor measuring 30 m wide and 15 km in length. The temporary working corridor requires an additional 44 m wide corridor (making the total width of the Onshore Cable Corridor (temporary and permanent requirements) 74 m wide. In localised stretches of the Onshore Cable Corridor (temporary and permanent requirements), the total width may be increased to 100 m (e.g. trenchless technique crossings). • There are up to four cable trenches within the permanent Onshore Cable Corridor, each trench measures up to 2.5 m wide at the top, 1.5 m at the base and the depth is up to 1.8 m. • The maximum number of joint bays along the Onshore Cable Corridor is 80 (based on a minimum distance of 750 m between each joint bay on up to four trenches). • The area of each joint bay is up to 200 m^2 and each joint bay is 2 m deep; the volume of material excavated per joint bay is 400 m^3 (a total of up to 32,000 m^3 of material excavated for the joint bays). • The maximum number of link boxes along the Onshore Cable Corridor is 80 (based on a distance of 750 m between each link box on up to four trenches). • The area of each link box is up to 6 m^2 and each link box is up to 1 m deep; the volume of material excavated per link box is 6 m^3 (a total of up to 480 m^3 of material excavated for the link boxes). • There is one haul road within the Onshore Cable Corridor along the length of the corridor; it is 6 m wide excluding passing places. It will be constructed using imported engineered granular fill with geotextile layers with a nominal thickness of 400 mm and a maximum thickness of up to 1000 mm. <u>Open cut trenching along the 400kV Grid Connection Cable Corridor:</u> • The maximum duration of the construction phase for the Onshore Cable Corridor, including 400kV Grid Connection Cable Corridor is 33 months. • The area of the permanent 400kV Grid Connection Cable Corridor is up to 16,000 m^2 based on a corridor measuring 16 m wide and 1 km in length. The temporary working corridor requires an additional 32 m wide corridor (making the total width of the route to grid connection (temporary and permanent requirements) 48 m wide representing an area of up to 48,000 m^2. • There are up to two cable trenches within the permanent 400kV Grid Connection Cable Corridor, each trench measures up to 2.5 m wide at the top, 1.5 m at the base and the depth is 1.8 m. • The maximum number of joint bays along the 400kV Grid Connection Cable Corridor is 2 (based on a minimum distance of 500 m between each joint bay on up to two trenches). • The area of each joint bay is up to 200 m^2 and each joint bay is up to 2 m deep; the volume of material excavated per joint bay is 400 m^3 (a total of up to 800 m^3 of material excavated for the joint bays). • The maximum number of link boxes along the 400kV Grid Connection Cable Corridor is 2 (based on a distance of 500 m between each link box on up to two trenches). • The area of each link box is up to 6 m^2 and each link box is 1 m deep; the volume of material excavated per link box is 6 m^3 (a total of up to 12 m^3 of material excavated for the link boxes). • There is one haul road within the 400kV Grid Connection Cable Corridor along the length of the corridor; it is 6 m wide excluding passing places. It will be constructed using imported engineered granular fill with geotextile layers with a nominal thickness of 400 mm and a maximum thickness of up to 1000mm.	The MDS presents the greatest area required for the construction of the onshore cable, 400kV grid connection cables and the onshore substation; the greatest size of the temporary working areas; the movement of construction vehicles; and the longest duration of construction represents the greatest potential for dust soiling generated by construction and decommissioning activities.

Potential impact	Phase [a] C	O	D	Maximum design scenario	Justification
				Trenchless techniques • The maximum number of trenchless crossing locations along the Onshore Cable Corridor is 45 and three on the 400kV Grid Connection Cable Corridor. Trenchless crossing operations will require a temporary working area of up to 2,500 m^2 and will be located within the temporary construction corridor. Trenchless techniques in the intertidal area between Mean Low Water Springs (MLWS) and MHWS: • The corridor width will be 200 m landward of MHWS and the location of the trenchless technique entry point (onshore) is Llanndulas. • Up to four transition joint bays each measuring up to 300 m^2 (with a total area of 1200 m^2) and up to 4 m deep; with spacing of up to 10 m between each pit. • The trenchless technique working area will measure up to 30,000 m^2 • The maximum bore diameter of the trenchless technique is 1650 mm; the maximum burial depth landward of the MHWS is 30 m and the length of each cable duct is 1.4 km Construction compounds • One primary construction compound (measuring up to 22,500 m^2) and up to four secondary construction compounds (each measuring up to 15,000 m^2) will be located along the Onshore Cable Corridor. The compounds will be located within the Mona Onshore Development Area. Construction compounds will be prepared by removing and storing soils and then constructing hardstanding areas using crushed stone or other suitable material. Mona Onshore Substation • The maximum duration of the construction phase for the Mona Onshore Substation is 33 months. • The maximum footprint of the Mona Onshore Substation will measure up to 65,000 m^2 : this area will include the substation buildings. The Mona Onshore Substation will comprise up to four buildings. The maximum dimensions of the main buildings are 15 m high, 80 m wide and 140 m long • The area of temporary works required to support the construction of the Mona Onshore Substation will extend up to 150,000 m^2. • Access to the substation will be via a new permanent access road measuring up to 15 m wide and 800 m in length. **Decommissioning phase** • The Onshore Cable and 400kV Grid Connection Cable will remain in situ however, some of the other onshore infrastructure (e.g. link boxes) may be removed.	

10.7 Measures adopted as part of the Mona Offshore Wind Project

10.7.1.1 For the purposes of the EIA process, the term 'measures adopted as part of the project' is used to include the following measures (adapted from IEMA, 2016):

- Measures included as part of the project design. These include modifications to the location or design of the Mona Offshore Wind Project which are integrated into the application for consent. These measures are implemented through the consent itself; through the requirements of the DCO or the conditions within the marine licences (referred to as primary mitigation in IEMA, 2016)
- Measures required to meet legislative requirements, or actions that are standard practice used to manage commonly occurring environmental effects (referred to as tertiary mitigation in IEMA, 2016).

10.7.1.2 A number of measures (primary and tertiary) have been adopted as part of the Mona Offshore Wind Project to reduce the potential for impacts on air quality. These are outlined in the Outline Dust Management Plan (Document Reference J26.2), which is appended to the Outline CoCP (Document Reference J26). As there is a commitment to implementing these measures, they are considered inherently part of the design of the Mona Offshore Wind Project and have therefore been considered in the assessment presented in section 10.8 below (i.e. the determination of magnitude and therefore significance assumes implementation of these measures).

10.8 Assessment of significant effects

10.8.1 Introduction

10.8.1.1 The impacts of the construction and decommissioning phases of the Mona Offshore Wind Project have been assessed on air quality. The potential impacts arising from dust soiling (annoyance) and suspended particulate matter, as well as emissions from construction traffic, during the construction and decommissioning phases of the Mona Offshore Wind Project are summarised in Table 10.37.

10.8.2 Assessment of dust

Construction phase

Magnitude of impact

10.8.2.1 The dust risk categories that have been determined for the activities in Table 10.31 have been used to define the appropriate site-specific dust control measures based on those described in the Guidance on the assessment of dust from demolition and construction (IAQM, 2024).

10.8.2.2 The IAQM guidance states that, 'provided the dust control measures are successfully implemented, the resultant effects of the dust exposure will normally be "not significant"'. For those cases where the risk category is negligible, no dust controls are considered necessary.

10.8.2.3 The volume of the structures e.g. walls to widen road, on site that would be demolished has been estimated to be below 12,000 m^3. Therefore, the dust emission magnitude for the demolition phase is classified, using the IAQM dust guidance, as **small**.

10.8.2.4 Given that the area of the Mona Onshore Development Area exceeds 110,000 m^2, the dust emission magnitude for the earthworks phase is classified, using the IAQM dust guidance, as **large**.

10.8.2.5 The total volume of the development area to be constructed would be over 75,000 m^3. The dust emission magnitude for the construction phase is classified, using the IAQM dust guidance, as **large**.

10.8.2.6 The maximum number of outwards movements in any one day 50 HDVs, the dust emission magnitude for trackout would be classified as large.

Table 10.28: Dust emission magnitude for demolition, construction and earthworks.

Demolition	Earthworks	Construction	Trackout
Small	Large	Large	Large

Pathway and receptor – sensitivity of the area

10.8.2.7 All demolition, earthworks and construction activities will occur within the Mona Onshore Development Area.

10.8.2.8 As such, dust sensitive receptors located within 20 m, 50 m, 100 m, and 250 m of the Mona Onshore Development Area have been considered as following the matrices in Table 10.23 to Table 10.25. Not all distances needed to be considered as the IAQM guidance (IAQM, 2024) states in footnote b of Table 2 '*Estimate the total number of receptors within the stated distance. Only the highest level of area sensitivity from the table needs to be considered. For example, if there are 7 high sensitivity receptors < 20 m of the source and 95 high sensitivity receptors between 20 and 50 m, then the total number of receptors < 50 m is 102. The sensitivity of the area in this case would be high*.'

10.8.2.9 The sensitivity of the Mona Onshore Development Area has been classified and the results are provided in Table 10.29 below.

Table 10.29: Sensitivity of the surrounding area for demolition, construction and earthworks.

Potential Impact	Sensitivity of the Surrounding Area	Reason for Sensitivity Classification
Dust Soiling	**Medium**	There are between 10 to 100 high sensitivity receptors (residential properties) located within 20 m of the Mona Onshore Development Area.
Human Health	**Low**	The background PM_{10} concentrations used for the purposes of the assessment was 9.8 $\mu g.m^{-3}$. In addition, there are between 10 to 100 high sensitivity receptors (residential properties) located within 20 m of the Mona Onshore Development Area.
Ecology	**High**	There are several dust sensitive ecological receptors located within 20 m of the Mona Onshore Development Area. These include: • Liverpool Bay SPA (high sensitivity) • Traeth Pensarn SSSI (medium sensitivity) • Limestone and Gwrych Castle Wood SSSI (medium sensitivity) • Several areas of Ancient Woodland (low sensitivity).

10.8.2.10 The Dust Emission Magnitude for trackout is classified as large and trackout may occur on roads up to 250 m from the site. The sensitivity of the area has been classified and the results are provided in Table 10.30.

Table 10.30: Sensitivity of the surrounding area for trackout

Potential Impact	Sensitivity of the Surrounding Area	Reason for Sensitivity Classification
Dust Soiling	**Medium**	There are between 10 to 100 high sensitivity receptors (residential properties) located within 20 m of the Mona Onshore Development Area.
Human Health	**Low**	The background PM_{10} concentrations used for the purposes of the assessment was 9.8 $\mu g.m^{-3}$. In addition, there are between 10 to 100 high sensitivity receptors (residential properties) located within 20 m of the Mona Onshore Development Area.
Ecology	**Medium**	There are several dust sensitive ecological receptors located within 20 m of the roads used. These include: • Traeth Pensarn SSSI (medium sensitivity) • Limestone and Gwrych Castle Wood SSSI (medium sensitivity) • Several areas of Ancient Woodland (low sensitivity).

Overall dust risk

10.8.2.11 The Dust Emission Magnitude has been considered in the context of the sensitivity of the area to give the dust impact risk.

10.8.2.12 Table 10.31 below summarises the dust impact risk for demolition, earthworks, and construction.

Table 10.31: Dust impact risk for demolition, earthworks and construction.

Potential impact	Demolition		Earthworks		Construction		Trackout	
	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation
Potential impact of dust soiling	Low	Negligible	Medium	Negligible	Medium	Negligible	Medium	Negligible
Potential impact on human health	Negligible	Negligible	Low	Negligible	Low	Negligible	Low	Negligible
Potential impact on ecology	Medium	Negligible	High	Negligible	High	Negligible	Medium	Negligible

10.8.2.13 Based on the dust emission magnitudes and the receptor sensitivities in the area, and in the absence of the dust controls measures to be included as part of the CoCP (Document Reference J26), the dust impact risk for demolition and trackout is **medium** and **high** for earthworks and construction for ecological receptors.

10.8.2.14 The dust impact on human receptors (including the potential impact of dust soiling and impact on human health) for demolition is categorised as **low.** The dust impact risk for construction, earthworks and trackout is categorised as **medium** for human receptors.

10.8.2.15 However, the IAQM dust guidance states that '*For almost all construction activity, the aim should be to prevent significant effects on receptors through the use of effective mitigation. Experience shows that this is normally possible. Hence the residual effect will normally be "not significant*"' (IAQM, 2024). The IAQM dust guidance recommends that significance is only assigned to the effect after the activities are considered with mitigation in place.

10.8.2.16 Therefore, following the implementation of dust control measures recommended for high risk sites within 50 m of ecological receptors and medium risk sites elsewhere, the dust impact risk for demolition, construction, earthworks and trackout associated with construction of the Mona Offshore Wind Project is categorised as **negligible**, which is not significant in EIA terms. In addition, the potential effects of construction dust are predicted to be of local spatial extent, intermittent in frequency and mostly reversible.

Operations and maintenance phase

10.8.2.17 The potential impacts with respect to air quality arising from operations and maintenance of the Mona Offshore Wind Project have been scoped out of the assessment.

Decommissioning phase

10.8.2.18 The Mona Onshore Substation and permanent access road will be removed during the decommissioning. The magnitude of dust impacts of associated with earthworks and trackout are expected to be the same as (or similar to) the impacts from construction at the Mona Onshore Substation. The Onshore Cable Corridor and 400kV Grid Connection Corridor will be left in situ, however other onshore infrastructure (e.g. link boxes) may be removed.

10.8.2.19 No additional construction work is anticipated during the decommissioning phase. The potential impacts during decommissioning of the Mona Offshore Wind Project are expected to be similar to the impacts during demolition, earthworks and construction.

Future monitoring

10.8.2.20 Following the implementation of appropriate recommended mitigation measures (IAQM, 2024) set out in section 10.7, the air quality effects are not expected to be significant, and no future monitoring is proposed.

10.8.3 Construction traffic assessment

Construction phase

Assessment of Air Quality Impacts on Surrounding Area

10.8.3.1 This section of the report summarises the future operational-phase air quality impacts of the key pollutants associated with the construction traffic.

Nitrogen Dioxide (NO2)

10.8.3.2 Table 10.32 presents the annual-mean NO_2 concentrations predicted at the façades of existing receptors.

Table 10.32: Predicted Annual-Mean NO2 Impacts at Existing Receptors

Receptor ID	Concentration (µg.m-3)		With - Without Dev as % of the AQS Objective	Impact Descriptor
	Without Development	With Development		
1	14.2	14.2	0	Negligible
2	13.4	13.4	0	Negligible
3	14.3	14.3	0	Negligible
4	19.6	19.6	0	Negligible
5	18.0	18.1	0	Negligible
6	14.1	14.1	0	Negligible
7	15.0	15.1	0	Negligible
8	13.1	13.1	0	Negligible
9	15.1	15.1	0	Negligible
10	15.1	15.1	0	Negligible
11	16.9	16.9	0	Negligible
12	20.2	20.3	0	Negligible
13	16.7	16.8	0	Negligible
14	14.1	14.1	0	Negligible
15	22.0	22.0	0	Negligible
16	21.1	21.1	0	Negligible
17	18.0	18.0	0	Negligible
18	16.6	16.7	0	Negligible
19	14.8	14.8	0	Negligible
Maximum	**22.0**	**22.0**	**0**	
Minimum	**13.1**	**13.1**	**0**	

10.8.3.3 Predicted annual-mean NO_2 concentrations at the façades of the existing receptors are below the AQS objective for NO_2. When the magnitude of change is considered in the context of the absolute concentrations, the impact descriptor is ‘negligible’.

10.8.3.4 As all predicted annual-mean NO_2 concentrations are below 60 µg.m^{-3}, the hourly-mean objective for NO_2 is likely to be met at all receptors. The short-term NO_2 impact can be considered 'negligible' and is not considered further within this assessment.

10.8.3.5 Overall, the impact on the surrounding area from NO_2 is considered to be '**negligible'**, using the criteria adopted for this assessment and based on professional judgement.

Particulate Matter (PM_{10})

10.8.3.6 Table 10.33 presents the annual-mean PM_{10} concentrations predicted at the façades of existing receptors.

Table 10.33 Predicted Annual-Mean PM_{10} Impacts at Existing Receptors

Receptor ID	Concentration (µg.m^{-3})		With - Without Dev as % of the AQS Objective	Impact Descriptor
	Without Development	With Development		
1	10.1	10.1	0	Negligible
2	10.0	10.0	0	Negligible
3	10.1	10.1	0	Negligible
4	10.9	10.9	0	Negligible
5	10.7	10.7	0	Negligible
6	10.1	10.1	0	Negligible
7	10.2	10.2	0	Negligible
8	9.9	9.9	0	Negligible
9	10.2	10.2	0	Negligible
10	10.2	10.2	0	Negligible
11	10.5	10.5	0	Negligible
12	11.0	11.0	0	Negligible
13	10.5	10.5	0	Negligible
14	10.1	10.1	0	Negligible
15	11.3	11.3	0	Negligible
16	11.1	11.1	0	Negligible
17	10.6	10.6	0	Negligible
18	10.4	10.4	0	Negligible
19	10.2	10.2	0	Negligible
Maximum	**11.3**	**11.3**	**0**	
Minimum	**9.9**	**9.9**	**0**	

10.8.3.7 Predicted annual-mean PM_{10} concentrations in the opening year at the façades of the existing receptors are well below the AQS objective for PM_{10}. When the magnitude of change is considered in the context of the absolute concentrations, the impact descriptor is categorised as 'negligible' at all receptors.

10.8.3.8 As all predicted annual mean PM_{10} concentrations are below 31.5 µg.m^{-3}, the daily-mean PM_{10} objective is expected to be met at all receptors and the short-term PM_{10} impact is not considered further within this assessment.

10.8.3.9 Overall, the impact on the surrounding area from PM_{10} is considered to be '**negligible'**, using the criteria adopted for this assessment and based on professional judgement.

Fine Particulate Matter ($PM_{2.5}$)

10.8.3.10 Table 10.34 presents the annual-mean $PM_{2.5}$ concentrations predicted at the façades of existing receptors.

Table 10.34 Predicted Annual-Mean $PM_{2.5}$ Impacts at Existing Receptors

Receptor ID	Concentration (µg.m^{-3})		With - Without Dev as % of the AQS Objective	Impact Descriptor
	Without Development	With Development		
1	6.6	6.6	0	Negligible
2	6.5	6.5	0	Negligible
3	6.6	6.6	0	Negligible
4	7.1	7.1	0	Negligible
5	6.9	6.9	0	Negligible
6	6.6	6.6	0	Negligible
7	6.7	6.7	0	Negligible
8	6.5	6.5	0	Negligible
9	6.7	6.7	0	Negligible
10	6.7	6.7	0	Negligible
11	6.8	6.8	0	Negligible
12	7.1	7.2	0	Negligible
13	6.8	6.8	0	Negligible
14	6.6	6.6	0	Negligible
15	7.3	7.3	0	Negligible
16	7.2	7.2	0	Negligible
17	6.9	6.9	0	Negligible
18	6.8	6.8	0	Negligible
19	6.6	6.6	0	Negligible
Maximum	**7.3**	**7.3**	**0**	
Minimum	**6.5**	**6.5**	**0**	

AQS objective = 20µg.m^{-3}

10.8.3.11 Predicted annual-mean $PM_{2.5}$ concentrations in the opening year at the façades of the existing receptors are below the AQS objective for $PM_{2.5}$ at all receptors. When the magnitude of change is considered in the context of the absolute concentrations, the impact descriptor is categorised as 'negligible' at all receptors.

10.8.3.12 Overall, the impact on the surrounding area from $PM_{2.5}$ is considered to be '**negligible'**, using the criteria adopted for this assessment and based on professional judgement.

Operations and maintenance phase

10.8.3.13 The potential impacts with respect to air quality arising from operations and maintenance of the Mona Offshore Wind Project have been scoped out of the assessment.

Decommissioning phase

10.8.3.14 The number of daily vehicle trips generated during the decommissioning phase is expected to be less than that of the construction phase. Taking into account reductions in background concentrations of air pollutants due to improvements in vehicle emissions, it is anticipated that impacts during the decommissioning phase will be lower than those during the construction phase.

Future monitoring

10.8.3.15 Following the implementation of appropriate recommended mitigation measures (IAQM, 2024) set out in the CoCP (Document Reference J26), the air quality effects are not expected to be significant, and no future monitoring is proposed.

10.9 Cumulative effect assessment methodology

10.9.1 Methodology

10.9.1.1 The Cumulative Effects Assessment (CEA) takes into account the impact associated with the Mona Offshore Wind Project together with other projects and plans. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise (see Volume 5, Annex 5.1: Cumulative effects screening matrix of the Environmental Statement). Each project has been considered on a case by case basis for screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

10.9.1.2 The air quality CEA methodology has followed the methodology set out in Volume 1, Chapter 5: Environmental impact assessment methodology of the Environmental Statement. As part of the assessment, all projects and plans considered alongside the Mona Offshore Wind Project have been allocated into ‘tiers’ reflecting their current stage within the planning and development process, these are listed below.

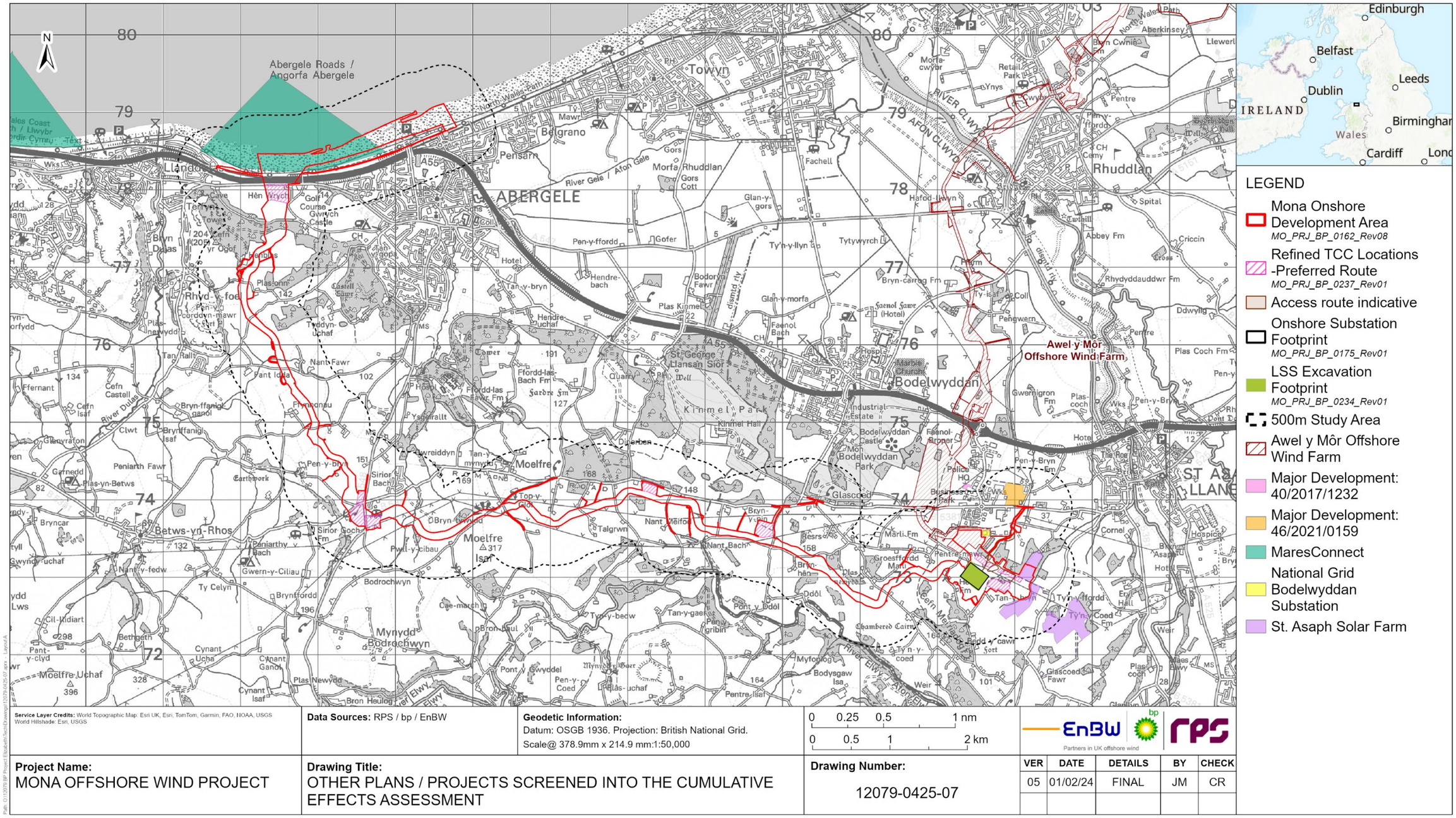
10.9.1.3 A tiered approach to the assessment has been adopted, as follows:

- Tier 1:
  - Under construction
  - Permitted application
  - Submitted application
  - Those currently operational that were not operational when baseline data were collected, and/or those that are operational but have an ongoing impact.
- Tier 2:
  - Scoping report has been submitted and is in the public domain.
- Tier 3:
  - Scoping report has not been submitted or is not in the public domain
  - Identified in the relevant Development Plan
  - Identified in other plans and programmes.

10.9.1.4 This tiered approach is adopted to provide a clear assessment of the Mona Offshore Wind Project alongside other projects, plans and activities. The specific projects, plans and activities scoped into the CEA, are outlined in Table 10.35 and presented in Figure 10.5.

Table 10.35: List of other projects, plans and activities considered within the CEA.

Project/Plan	Status	Distance from the Mona Onshore Development Area (km)	Distance from the Mona Onshore Substation (km)	Description of project/plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Mona Offshore Wind Project
Tier 1-							
Awel y Môr Offshore Windfarm (Onshore infrastructure)	Application determined	0	0.1	Application for the construction of a offshore windfarm. Consent granted in Q3 2023.	Construction to commence in 2026.	Site to be commissioned by 2030.	Yes
Major Development 40/2017/1232	Granted	0.64	1.09	Application for the erection of the seven industrial units with associated parking, landscaping and external storage areas.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Yes
Major Development 46/2021/0159	Granted	0.23	0.80	Application for the erection of a commercial vehicle sales unit (sui generis). Formation of associated parking area, landscaping and associated works. Outline Planning application for the erection of five business buildings.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Yes
Tier 3							
Mares Connect	Pre-application	0	-	A proposed 750MW subsea underground electricity interconnector system linking the electricity grids in Ireland and Great Britain.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Yes
St Asaph Solar Farm	Pre-application	0.49	0.87	A proposed solar farm with a potential generating capacity of between 10MW and 350 MW.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Not provided but assumed to overlap with Mona Offshore Wind Project.	
NGET 31/2023/0525	Pre-application (EIA screening request)	0.03	0.41	Extension to the existing Bodelwyddan electricity substation.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Yes
NGET	Pre-application	0.03	0.41	Application under section 37 of the Electricity Act 1989 for the installation of new overhead lines.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Yes
NGET	Pre-application	0.03	0.41	Permitted development comprising extension to the GIS hall required to facilitate the extension to the existing Bodelwyddan electricity substation.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Not provided but assumed to overlap with Mona Offshore Wind Project.	Yes



Service Layer Credits: World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS World Hillshade: Esri, USGS	**Data Sources:** RPS / bp / EnBW	**Geodetic Information:** Datum: OSGB 1936. Projection: British National Grid. Scale@ 378.9mm x 214.9 mm:1:50,000	0 0.25 0.5 1 nm 0 0.5 1 2 km	EnBW bp rps Partners in UK offshore wind
Project Name: MONA OFFSHORE WIND PROJECT	**Drawing Title:** OTHER PLANS / PROJECTS SCREENED INTO THE CUMULATIVE EFFECTS ASSESSMENT	**Drawing Number:** 12079-0425-07		

VER	DATE	DETAILS	BY	CHECK
05	01/02/24	FINAL	JM	CR

Path: O:\12079 BP Project Elizabeth\Tech\Drawings\12079-0425-07.aprx - Layout A

Figure 10.5: Other plans/projects screened into the cumulative effects assessment

10.9.2 Maximum design scenario

10.9.2.1 The maximum design scenarios identified in Table 10.36 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The cumulative effects presented and assessed in this section have been selected from the Project Design Envelope provided in Volume 1, Chapter 5: Project description, of the Environmental Statement as well as the information available on other projects and plans, in order to inform a 'maximum design scenario'. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g. different wind turbine layout), to that assessed here, be taken forward in the final design scheme.

10.9.2.2 The CEA has considered the Mona Offshore Wind Project, alongside the National Grid Bodelwyddan substation extension proposal. The CEA has been undertaken on the basis of the latest available information in the public domain, which is the Autumn 2023 consultation material. It is understood that the application for the proposal is imminent. If further information is available for the proposal before the Mona Offshore Wind Project receives Development Consent, the Applicant will provide an update to the cumulative assessment presented within this chapter.

10.9.2.3 The MARES Connect project is proposing to submit a planning application in 2024 for an interconnector cable, landfall and onshore substation with connection to the National Grid. The project has identified several landfall zones and zones for its onshore substation and there is the potential for overlap with the Mona Onshore Development Area. The CEA has not considered the Mona Offshore Wind Project, alongside the MARES Connect project as insufficient information was publicly available prior to the Mona Offshore Wind Project DCO submission (see Volume 1, Chapter 3: Environmental impact assessment methodology of the Environmental Statement). However, if further information becomes available for the proposal before the Mona Offshore Wind Project receives Development Consent, the Applicant will review the information and provide any update needed to the CEA.

Table 10.36: Maximum design scenario considered for the assessment of potential cumulative effects on air quality.

Potential cumulative effect	Phase[a]			Maximum Design Scenario	Justification
	C	O	D		
The impact of dust soiling (annoyance) on property and an increase in suspended particulate matter arising from dust emissions generated by onsite construction and decommissioning activities.	✓	×	✓	Maximum design scenario as described for the Mona Offshore Wind Project (Table 10.27) assessed cumulatively with the following other projects/plans: **Tier 1** • Awel y Môr Offshore Wind Farm • Major Development 40/2017/1232. • Major Development 46/2021/0159 **Tier 3** • Mares Connect • St Asaph Solar Farm • NGET 31/2023/0525	The MDS presented in Table 10.27 above identifies the largest geographical area and the longest time period required to complete construction of the Mona Offshore Wind Project. Therefore, the MDS provides the greatest potential for spatial and temporal cumulative effects to occur between the Mona Offshore Project and other projects/plans with respect to air quality.
The impact of an increase in suspended particulate matter on people arising from dust emissions generated by onsite construction and decommissioning activities.	✓	×	✓		
The impact of an increase in suspended particulate matter on ecology arising from dust emissions generated by onsite construction and decommissioning activities.	✓	×	✓		
The impact of an increase in NOx, PM_{10} and $PM_{2.5}$ on people arising from traffic generated by onsite construction and decommissioning activities.	✓	×	✓		

10.10 Cumulative effects assessment

10.10.1 Construction phase

10.10.1.1 There is potential for cumulative effects to occur with other proposed developments within 500 m of the Mona Onshore Development Area during construction of the Mona Offshore Wind Project. However, on the basis that other proposed developments implement suitable *primary and tertiary mitigation*, as recommended in the Guidance on the assessment of dust from demolition and construction (IAQM, 2024), it is considered that cumulative effects arising during construction of the Mona Offshore Wind Project are **not significant**.

10.10.1.2 Traffic data modelled in section includes cumulative developments as outlined in Volume 3, Chapter 8: Traffic and transport chapter. On that basis, the cumualtive effects from construction traffic is **not significant.**

10.10.2 Operations and maintenance phase

10.10.2.1 The potential impacts with respect to air quality arising from operations and maintenance of the Mona Offshore Wind Project have been scoped out of the assessment.

10.10.3 Decommissioning phase

10.10.3.1 The potential impacts during decommissioning of the Mona Offshore Wind Project are expected to be similar to the impacts during demolition, earthworks and construction. Therefore, it is considered that cumulative effects arising during decommissioning of the Mona Offshore Wind Project are **not significant**.

10.11 Transboundary effects

10.11.1.1 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to air quality from the Mona Offshore Wind Project upon the interests of other states.

10.12 Inter-related effects

10.12.1.1 Inter-relationships are considered to be the impacts and associated effects of different aspects of the proposal on the same receptor. These are considered to be:

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Mona Offshore Wind Project (construction, operations and maintenance, and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three phases
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. Receptor-led effects may be short term, temporary or transient effects, or incorporate longer term effects.

10.12.1.2 A description of the likely interactive effects arising from the Mona Offshore Wind Project on air quality is provided in Volume 3, Chapter 11: Inter-related effects – onshore, of the Environmental Statement.

10.13 Summary of impacts, mitigation measures and monitoring

10.13.1.1 Information on air quality within the air quality study area was collected through a desktop review.

10.13.1.2 Table 10.37 presents a summary of the potential impacts, measures adopted as part of the project and residual effects in respect to air quality. The impacts assessed include:

- The potential impact of dust soiling on dust sensitive receptors arising from demolition, earthworks, construction and trackout
- The impact of an increase in suspended particulate matter on people arising from dust emissions generated by onsite construction and decommissioning activities
- The impact of an increase in suspended particulate matter on ecology arising from dust emissions generated by onsite construction and decommissioning activities
- The impact of an increase NO_2, PM_{10} and $PM_{2.5}$ on people arising from dust emissions generated by onsite construction and decommissioning activities.

10.13.1.3 Overall, it is concluded that there will be no significant effects arising from the Mona Offshore Wind Project during the construction, operations and maintenance or decommissioning phases.

10.13.1.4 Table 10.38 presents a summary of the potential cumulative impacts, mitigation measures and residual effects. The cumulative impacts assessed include:

- The potential impact of dust soiling on dust sensitive receptors arising from demolition, earthworks, construction and trackout
- The impact of an increase in suspended particulate matter on people arising from dust emissions generated by onsite construction and decommissioning activities
- The impact of an increase in suspended particulate matter on ecology arising from dust emissions generated by onsite construction and decommissioning activities
- The impact of an increase NO_2, PM_{10} and $PM_{2.5}$ on people arising from dust emissions generated by onsite construction and decommissioning activities.

10.13.1.5 Overall it is concluded that there will be no significant cumulative effects from the Mona Offshore Wind Project alongside other projects/plans.

10.13.1.6 No potential transboundary impacts have been identified in regard to effects of the Mona Offshore Wind Project.

Table 10.37: Summary of potential environmental effects, mitigation and monitoring.

[a] C=construction, O=operational and maintenance, D=decommissioning

Description of impact	Phase[a]			Measures adopted as part of the project	Magnitude of impact	Sensitivity of the surrounding area	Dust Impact Risk	Further mitigation	Residual effect	Proposed monitoring
	C	O	D							
The impact of dust soiling (annoyance) on property arising from dust emissions generated by onsite construction and decommissioning activities.	✓	×	✓	Measures based on the highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP.	Large	Medium	Medium	No further mitigation required beyond measures based on highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP (Document Reference J26).	Negligible	The desktop survey is considered sufficient to inform the assessment of construction dust and site specific surveys are not considered necessary at this stage.
The impact of an increase in suspended particulate matter on people arising from dust emissions generated by onsite construction and decommissioning activities.	✓	×	✓	Measures based on the highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP.	Large	Low	Low	No further mitigation required beyond measures based on highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP (Document Reference J26).	Negligible	The desktop survey is considered sufficient to inform the assessment of construction dust and site specific surveys are not considered necessary at this stage.
The impact of an increase in suspended particulate matter on ecology arising from dust emissions generated by onsite construction and decommissioning activities.	✓	×	✓	Measures based on the highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP.	Large	High	High	No further mitigation required beyond measures based on highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP (Document Reference J26).	Negligible	The desktop survey is considered sufficient to inform the assessment of construction dust and site specific surveys are not considered necessary at this stage.
The impact of an increase NO_2, PM_{10} and $PM_{2.5}$ on people arising from dust emissions generated by onsite construction and decommissioning activities	✓	×	✓	None	Negligible	High	-	None	Negligible	None

Table 10.38: Summary of potential cumulative environmental effects, mitigation and monitoring.

[a] C=construction, O=operational and maintenance, D=decommissioning

Description of impact	Phase[a]			Measures adopted as part of the project	Magnitude of impact	Sensitivity of the surrounding area	Dust Impact Risk	Further mitigation	Residual effect	Proposed monitoring
	C	O	D							
The impact of dust soiling (annoyance) on property arising from dust emissions generated by onsite construction and decommissioning activities.	✓	×	✓	Measures based on the highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP	Large	Medium	Medium	No further mitigation required beyond measures based on highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP (Document Reference J26).	Negligible	The desktop survey is considered sufficient to inform the assessment of construction dust and site specific surveys are not considered necessary at this stage.
The impact of an increase in suspended particulate matter on people arising from dust emissions generated by onsite construction and decommissioning activities.	✓	×	✓	Measures based on the highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP	Large	Low	Low	No further mitigation required beyond measures based on highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP (Document Reference J26).	Negligible	The desktop survey is considered sufficient to inform the assessment of construction dust and site specific surveys are not considered necessary at this stage.
The impact of an increase in suspended particulate matter on ecology arising from dust emissions generated by onsite construction and decommissioning activities.	✓	×	✓	Measures based on the highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP	Large	High	High	No further mitigation required beyond measures based on highly recommended measures for sites with medium dust risk (IAQM, 2024) as set out in CoCP (Document Reference J26).	Negligible	The desktop survey is considered sufficient to inform the assessment of construction dust and site specific surveys are not considered necessary at this stage.
The impact of an increase NO_2, PM_{10} and $PM_{2.5}$ on people arising from dust emissions generated by onsite construction and decommissioning activities	✓	×	✓	None	Negligible	High	-	None	Negligible	None

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