Awel y Môr Offshore Wind Farm

Category 6: Environmental Statement

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Glossary of terms

TERM	DEFINITION
Air Quality Strategy	The 2007 Air Quality Strategy for England, Scotland, Wales and Northern Ireland provides details of national air quality Objectives for air pollutants.
Ancient Woodland	Typically, a woodland that has existed continuously since 1600 or before (this can include areas where trees have been cut down and/ or replanted).
Applicant	Awel y Môr Offshore Wind Farm Limited.
Cable Works TCC	Temporary construction compound associated with cable works.
Critical Level	The concentration of an air pollutant above which adverse effects on ecosystems may occur based on present knowledge.
Critical Load	Deposition flux of an air pollutant below which significant harmful effects on sensitive ecosystems do not occur, based on present knowledge.
European Sites	Sites designated for nature conservation under the Habitats Directive and Birds Directive, as defined in Regulation 8 of the Conservation of Habitats and Species Regulations 2017 and Regulation 18 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. These include candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas.
Evidence Plan	A voluntary consultation process with specialist stakeholders to agree the approach to the Environmental Impact Assessment.

TERM	DEFINITION
Habitats Regulations	The Conservation of Habitats and Species Regulations 2017.
Heavy Duty Vehicle	Vehicles ≥3.5 tonnes. Includes Heavy Goods Vehicles and buses.
Light Duty Vehicle	Vehicles <3.5 tonnes. Includes Light Goods Vehicles and cars.
Local Nature Reserve	Statutory designation for places with wildlife or geological features that are of special interest locally.
Objective	An objective set by the UK Government's Expert Panel on Air Quality to be achieved either without exception or with a permitted number of exceedances within a specific timescale.
Onshore Export Cable Corridor (onshore ECC)	The proposed cable route which represents a corridor, typically 40 m to 60 m wide, within which the cable trenching, haul road and stockpiling areas associated with cable construction, will be undertaken and the cables will be installed.
Order Limits	The extent of development including all works, access routes, TCCs and visibility splays.
PEIR	Preliminary Environmental Information Report. The PEIR was written in the style of a draft Environmental Statement (ES) for statutory consultation purposes. Following that consultation, the PEIR documentation was updated into the final ES that accompanies the applications for the Development Consent Order (DCO) and Marine Licence.
Relevant Exposure	Locations where members of the public are regularly present and might reasonably be expected to be exposed to pollutant concentrations over the relevant averaging period.

TERM	DEFINITION
Review and Assessment	A statutory duty for all local authorities to review local air quality and assess whether health-based air quality objectives will be achieved.
Site of Special Scientific Interest	A geological or biological conservation designation denoting a nationally protected area in the UK.
Special Area of Conservation	Area of protected habitats and species as defined in the European Union's Habitats Directive (92/43/EEC).
Special Protection Area	A designated area for birds under the European Union Directive on the Conservation of Wild Birds (2009/147/EC).
OnSS Access Zone	The area which will contain the final substation access route(s) (both construction and operational). The route(s) of the construction and operational access will be confirmed following detailed design (post consent).
OnSS Construction Area	The area within which the OnSS construction would take place. This area incorporates both the Substation Footprint and areas of cut and fill required to construct the OnSS platform.
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. This arises when heavy duty vehicles leave the construction/ demolition site with dusty materials, which may then spill onto the road, and/ or when heavy duty vehicles transfer dust and dirt onto the road having travelled over muddy ground on site.

Abbreviations and acronyms

TERM	DEFINITION
AADT	Annual Average Daily Traffic
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQMP	Air Quality Management Plan
AQS	Air Quality Strategy
AQSR	Air Quality Standards (Wales) Regulations 2010
AW	Ancient Woodland
AyM	Awel y Môr Offshore Wind Farm
CAPW	Clean Air Plan for Wales
CAS	Clean Air Strategy
CO_2	Carbon Dioxide
CoCP	Code of Construction Practice
DCC	Denbighshire County Council
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EPUK	Environmental Protection UK
ES	Environmental Statement

TERM	DEFINITION
ETG	Expert Topic Group
ETS	Emissions Trading System
EU	European Union
HDD	Horizontal Directional Drilling
HDV	Heavy-Duty Vehicle
HRA	Habitats Regulations Assessment
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LAQM.TG(16)	LAQM Technical Guidance 16
LDP	Local Development Plan
LDV	Light Duty Vehicle
LNR	Local Nature Reserve
MDS	Maximum Design Scenario
NO_2	Nitrogen Dioxide
NPS	National Policy Statements
NRMM	Non-Road Mobile Machinery
NRW	Natural Resources Wales
NSIP	Nationally Significant Infrastructure Projects
O&M	Operation and Maintenance&
OL	Order Limits
OnSS	Onshore Substation
PEIR	Preliminary Environmental Information Report

TERM	DEFINITION
PINS	The Planning Inspectorate
PM_{10}	Particulate Matter (≤10 µG)
$PM_{2.5}$	Particulate Matter (≤2.5 µG)
PPW	Planning Policy Wales
SAC	Special Areas of Conservation
SPA	Special Protection Areas
SPG	Supplementary Planning Guidance
SSSI	Sites of Special Scientific Interest
TAN	Technical Advice Note
TCC	Temporary Construction Compounds

Units

UNIT	DEFINITION
Km	Kilometre
Km^2	Square kilometre
M	Metre
M^3	Cubic metre
µG	Microgram
$µG/M^3$	Microgram (of pollutant) per cubic meter of air

11 Air Quality

11.1 Introduction

1 This chapter of the Environmental Statement (ES) considers the likely significant effects associated with the onshore elements of the Awel y Môr Offshore Wind Farm (AyM) on air quality.

2 This chapter describes the scope, relevant legislation, assessment methodology, and the baseline conditions existing at the site and its surroundings. It considers any potential significant environmental effects the onshore elements of AyM would have on this baseline environment, the mitigation measures required to prevent, reduce or offset any significant adverse effects, and the likely residual effects after these measures have been implemented. Consideration has also been given to potential cumulative air quality effects with other proposed developments.

3 In particular it considers the onshore activities during the construction, operational and decommissioning phases of AyM.

4 The chapter is complemented with the following supporting document:

- Outline Air Quality Management Plan (outline AQMP) that is included as Appendix 3 (application ref: 8.13.3) of the Outline Code of Construction Practice (application ref: 8.13).

5 The chapter has also been informed by the following ES chapters:

- Volume 3, Chapter 1: Onshore Project Description (application ref: 6.3.1); and
- Volume 3, Chapter 9: Traffic and Transport (application ref: 6.3.9).

11.2 Statutory and policy context

11.2.1 Legislation

Air Quality Standards (Wales) Regulations

6 The Air Quality Standards (Wales) Regulations 2010 (AQSR) transpose both the EU Ambient Air Quality Directive (2008/50/EC), and the Fourth Daughter Directive (2004/107/EC) within UK legislation.

7 The AQSR includes limit values, target values, Objectives, Critical Levels and exposure reduction targets for the protection of human health and the environment. Limit values are legally binding and are considered to apply everywhere with the exception of the carriageway and central reservation of roads and any location where the public do not have access (e.g. industrial sites). Compliance is regulated at a national level (based upon a series of zones and agglomerations).

Air Quality Strategy

8 The UK Government and the devolved administrations are required under the Environment Act 1995 to produce a national air quality strategy to improve air quality. The latest Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland was published in 2007 (Defra, 2007).

9 The AQS provides the over-arching strategic framework for air quality management in the UK and contains non-statutory national air quality Objectives established by the UK Government and devolved administrations for the protection of public health and the environment.

10 The AQS Objectives of relevance to human receptors in this assessment are provided in Table 1.

Table 1: Relevant ambient AQS Objectives.

POLLUTANT	STANDARD (µG/M³)	MEASURED AS
Nitrogen Dioxide (NO_2)	200	1-hour mean not to be exceeded more than 18 times a year
	40	Annual mean
Particulate Matter (PM_{10})	50	24-hour mean not to be exceeded more than 35 times a year
	40	Annual mean
Particulate Matter ($PM_{2.5}$)	25	Annual mean

11 The above AQS Objectives apply at locations outside buildings or other natural or man-made structures above or below ground, where members of the public are regularly present and might reasonably be expected to be exposed to pollutant concentrations over the relevant averaging period (Relevant Exposure). Table 2 provides an indication of those locations.

Table 2: Human health Relevant Exposure.

AVERAGING PERIODS	SHOULD APPLY AT	SHOULD NOT APPLY AT
Annual Mean	Building facades of residential properties, schools, hospitals etc.	Facades of offices Hotels Gardens of residences Kerbside sites
24-hour mean	As above together with hotels and gardens of residential properties	Kerbside sites where public exposure is expected to be short term
1-hour mean	As above together with kerbside sites of regular access, car parks, bus stations etc.	Kerbside sites where public would not be expected to have regular access

Local Air Quality Management

12 As reinforced within the AQS, Part IV (Section 82) of the Environment Act 1995 includes a statutory duty for local authorities to undergo a process of Local Air Quality Management (LAQM). This requires local authorities to review and assess air quality within their areas to determine the likeliness of compliance, regularly and systematically.

13 Where any of the prescribed AQS Objectives are not likely to be achieved, the authority must designate an Air Quality Management Area (AQMA). For each AQMA, the local authority is required to prepare an Air Quality Action Plan (AQAP), which details measures the authority intends to introduce to deliver improvements in local air quality in pursuit of the Objective.

14 The Welsh Government amended the LAQM regime in Wales in 2017 by issuing new statutory policy guidance (described in further detail below in paragraph 34) in order to bring the system into line with the Well-being of Future Generations (Wales) Act 2015.

Ecological Habitats

15 Ecological habitats vary in terms of their sensitivity, perceived ecological value, geographic importance, and level of protection. Within the UK, there are three types of nature conservation designations: international, national and local designations, with a greater level of protection afforded to the former, relative to the latter.

16 The EU Habitats Directive (92/43/EEC) (The Council of European Communities, 1992) requires member states to introduce a range of measures for the protection of habitats and species. This requirement was transposed into UK legalisation by the Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations'). These regulations were amended in 2019 to make them operable from 1 January 2021 despite the UK's withdrawal from the EU, via the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

17 The Habitats Regulations require that projects can only be permitted to proceed having ascertained that there will be no adverse effect on the integrity of the designated site. It requires an assessment to determine if significant effects are likely, followed by an 'appropriate assessment' by the competent authority, if necessary.

18 European Sites include Special Areas of Conservation (SAC) and Special Protection Areas (SPA), previously termed the Natura 2000 network, and now collectively called the national site network following the changes introduced by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

19 Other sites of international significance are Ramsar sites, which are wetlands protected under the 1971 Ramsar Convention[i]. Many of these sites in the UK were initially selected on the basis of their importance to waterbirds and are therefore also classified as SPAs.

20 The Countryside and Rights of Way Act 2000 provides protection to Sites of Special Scientific Interest (SSSI) to ensure that developments are not likely to cause damage. This act also provides a degree of protection to local nature conservation sites, which can be particularly important in providing 'buffers' to SSSIs and European Sites.

11.2.2 National Policy

National Policy Statements

21 The National Policy Statements (NPS) are a series of documents comprising relevant policies in relation to Nationally Significant Infrastructure Projects (NSIP) and reference the content of supporting assessments. As such, this assessment has made explicit reference to the relevant NPS requirements.

22 Those relevant to AyM are:

- Overarching National Policy Statement for Energy (EN-1);
- National Policy Statement for Renewable Energy Infrastructure (EN-3); and
- National Policy Statement for Electricity Networks Infrastructure (EN-5).

23 Revised draft NPS were consulted upon during September to November 2021 and are expected to be published in 2022. To ensure AyM is compliant with regards to future relevant policies, due consideration has been given to these draft NPSs.

[i] Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat

24 Details of the current and future draft policies of relevance to this assessment are provided in Table 3 together with an indication of where each requirement is addressed. Where any part of the NPS has not been followed, an explanation as to why the requirement is not deemed relevant, or has been met in another manner, is provided. Policies that are relevant to air quality considerations for windfarm developments are set out within EN-1.

Planning Policy Wales (Edition 11)

25 Planning Policy Wales (PPW) (Edition 11) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TAN), Welsh Government Circulars, and policy clarification letters.

26 The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015 and the Well-being of Future Generations (Wales) Act 2015.

27 PPW places a requirement for new developments to consider potential air quality effects, and:

- Address any implication arising as a result of its association with, or location within, AQMAs, or areas where there are sensitive receptors;
- Not create areas of poor air quality; and
- Seek to incorporate measures which reduce overall exposure to air and noise pollution.

28 To assist with decision making, PPW requires a technical air quality assessment to be prepared by a suitably qualified and competent person on behalf of the developer.

29 PPW also provides guidance in relation to the sensitivity and significance of designated ecological sites in relation to planning, providing a hierarchy of designations (international, national and local). These requirements have been followed, and/ or assessed within this chapter.

30 Furthermore, PPW states that where possible, the proposed development should be designed to prevent adverse effects to amenity, health and the environment but as a minimum to limit or constrain any effects that do occur. Where required, mitigation measures proportionate to the air quality effects identified will be proposed and secured to ensure compliance with PPW. This includes preparation of an outline Air Quality Management Plan (AQMP) as part of an outline Code of Construction Practice (CoCP) in response to potential construction-led effects. The outline AQMP sets out the key elements that will be secured in the detailed AQMP which Awel y Môr Offshore Wind Farm Limited (the Applicant) will be required to submit to Denbighshire County Council (DCC) the relevant planning authority for approval as a requirement of the Development Consent Order (DCO). The outline AQMP is provided as Appendix 3 to the outline CoCP (application ref: 8.13.3).

Clean Air Plan for Wales

31 The Clean Air Plan for Wales (CAPW) was published in 2020 (Welsh Government, 2020). The aim of which is to improve air quality nationally and reduce the impacts of air pollution on human health, biodiversity, the natural environment and the economy over a 10-year pathway.

32 Actions within the CAPW are split into three tranches, short (2020-21), medium (2021-26) and long term (2026-2031).

The Clean Air Strategy

33 The Clean Air Strategy (CAS), published in 2019 (Defra, 2019), sets out a wide range of actions by which the UK Government, in partnership with the devolved administrations will seek to reduce pollutant emissions and deliver cleaner air across the UK. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air, focussing on transport, domestic, farming and industry. The CAS also indicates how the devolved administrations intend to make their share of emissions reductions.

Local Air Quality Management in Wales: Policy Guidance

34 The Welsh Government issued the Local Air Quality Management in Wales: Policy Guidance document in 2017 to complement the LAQM regime (Welsh Government, 2017). The document is principally aimed at local authorities to assist with their statutory LAQM duties. However it does convey the importance of joined-up working to achieve compliance and reduce exposure.

11.2.3 Denbighshire County Council Local Policy

35 The Denbighshire County Council Local Development Plan (LDP) was adopted by DCC in June 2013 (DCC, 2013 (adopted)) and is supported by several adopted and draft Supplementary Planning Guidance (SPG) documents.

36 Whilst there are no policies of relevance to air quality, the LDP does state that DCC is committed to securing future air quality compliance.

37 DCC is preparing a new LDP to replace the adopted plan, which expired in December 2021. At the time of writing (March 2022), the LDP remains under preparation. In lieu of the replacement LDP reference has instead been made to the existing LDP and supplemented by consultation with DDC through the AyM Evidence Plan, as detailed in Table 4.

11.2.4 Guidance

38 The AyM air quality assessment has been carried out in accordance with the principles contained within the following guidance documents:

- LAQM Technical Guidance 16 (TG16) (LAQM.TG(16));
- Guidance on the Assessment of Dust from Demolition and Construction (Institute of Air Quality Management (IAQM) (IAQM, 2016);
- Land-Use Planning and Development Control: Planning for Air Quality (IAQM and Environmental Protection UK (EPUK), 2017);
- A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites (IAQM, 2020); and

- Design Manual for Roads and Bridges (DMRB) LA 105 (Highways England et al[ii]. 2019).

Table 3: Legislation and policy context.

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
NPS EN-1	Paragraph 5.2.2 of EN-1 states that an ES will include an assessment of Carbon Dioxide (CO_2) emissions, but the policies set out in Section 2, including the EU Emissions Trading System (ETS), apply to these emissions. The IPC (now Planning Inspectorate) does not, therefore need to assess individual applications in terms of carbon emissions against carbon budgets.	Not applicable for this assessment. No further comment needed.
NPS EN-1	Paragraph 5.2.7 of EN-1state that an ES should describe: - Any significant air emissions, their mitigation and any residual effects distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by AyM; - The predicted absolute emission levels of the proposed project, after mitigation methods have been applied; - Existing air quality levels and the relative change in air quality from existing levels; and	See Section 11.10 to 11.13

[ii] DMRB LA 105 is co-authored by the Welsh Government

LEGISLATION/ POLICY	KEY PROVISIONS	SECTION WHERE COMMENT ADDRESSED
	▲ Any potential eutrophication impacts.	
Draft NPS EN-1	Paragraph 5.2.6 of the Draft EN-1 states that an ES should describe: ▲ Any significant air emissions, their mitigation and any residual effects distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by AyM; ▲ The predicted absolute emission levels of the proposed project, after mitigation methods have been applied; ▲ Existing air quality levels and the relative change in air quality from existing levels; and ▲ Any potential eutrophication impacts.	See Section 11.10 to 11.13

11.3 Consultation and scoping

39 To date, consultation with regards to the scope of the air quality assessment has comprised:

- Submission of a Scoping Report (Innogy, 2020);
- AyM Evidence Plan (Air Quality Expert Topic Group (ETG)) process, comprising discussions with Natural Resources Wales (NRW) and DCC; and
- Statutory Consultation that was accompanied by a Preliminary Environmental Information Report (PEIR) (RWE, 2021).

40 A Scoping Opinion for AyM was sought from the Planning Inspectorate in 2020 (PINS) which included a consultation response from NRW (PINS, 2020). This included responses to the proposed assessment methodology for further consideration.

41 The AyM Statutory Consultation, under Section 42 of the Planning Act 2008, ran from 31 August to 11 October 2021, a period of six weeks. A PEIR was published as part of formal consultation which provided preliminary information on Air Quality within Volume 3, Chapter 11: Air Quality. Following submission of the PEIR, section 42 consultation comments were provided by NRW and DCC for consideration within the ES.

42 Further statutory consultation was undertaken in February 2022 on areas where the Order Limits (OL) extend beyond those included in the PEIR that were consulted on in Autumn 2021.

43 Table 4 provides a summary of consultation comments received to date relating to Air Quality, and associated responses.

Table 4: Summary of consultation relating to Air Quality.

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
PINS Scoping Opinion July 2020	Construction traffic impacts in terms of dust and vehicle emissions on human health and ecological designations should be undertaken.	An assessment of impacts associated with road traffic emissions and dust generated from onshore construction works has been undertaken with reference to both human and ecological designations. See Section 11.10.
PINS Scoping Opinion July 2020	Operational traffic effects can be scoped out of the assessment.	Consideration of operational traffic effects has been provided, with reference to likely vehicle movements as this had been requested by NRW and the consideration of impacts upon ecological receptors has been requested. See Section 11.11.
PINS Scoping Opinion July 2020	The requirement for a project specific air quality monitoring survey should be discussed with the local planning authorities and other relevant consultees. Rationale behind the assessment methodology,	A project specific survey has not been undertaken. The coverage of existing local monitoring networks is considered sufficient for the purposes of a screening assessment with respect to road traffic emissions. Use of publicly available monitoring data has been agreed with the Air Quality ETG.

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	including consultation undertaken on data sources and data gathering should be present.	See Section 11.7.
PINS Scoping Opinion July 2020	The information on which the air quality assessment of traffic impacts has been based must be explained clearly and include cross references to the Traffic and Transport assessment where appropriate.	Traffic data used for the purposes of the Air Quality assessment is consistent with values used within Volume 3: Chapter 9: Traffic and Transport (application ref: 6.3.9).
PINS Scoping Opinion July 2020	The assessment should assess the impacts from emissions generated by construction and operational traffic on nutrient nitrogen deposition at ecological receptors.	An assessment of construction and operational generated road traffic flows has been undertaken with reference to ecological designations, where identified. See Section 11.10.2 and 11.11.

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
PINS Scoping Opinion July 2020	The assessment should use the latest publicly available guidance documents, specifically in relation to nitrogen deposition impacts from road traffic emissions and resulting effects on ecological receptors.	The latest publicly available guidance documents have been used in this assessment. See Section 11.2.4.
PINS Scoping Opinion July 2020	The Scoping Report states the intention to produce an AQMP as part of a CoCP and that these are 'designed in' measures. Whilst it is understood that at this stage much is unknown, no guidance or specific measures needed to address other air quality effects are outlined.	Following completion of the construction dust assessment, a list of mitigation measures is provided in an outline AQMP (application ref 8.13.3) that is appended to the outline CoCP (application ref: 8.13). These mitigation measures are proportionate to the level of risk identified and their inclusion in the outline AQMP will secure their implementation. Other potential impacts assessed can be screened out and therefore do not require further mitigation. This includes road traffic emissions associated with the construction phase, as well as potential activities during the operational and decommissioning phases.

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
PINS Scoping Opinion July 2020	Uncertainty relating to the use of a 550m distance screening criterion to determine consideration of cumulative construction dust impacts.	A cumulative construction dust assessment has been completed which does not include consideration of the previously advised screening criteria. See Section 11.13.
PINS Scoping Opinion July 2020	Further assessment is required to establish the extent of air quality effects from construction and operational phase traffic.	An assessment of construction and operational generated road traffic flows has been undertaken with reference to human and ecological receptors. See Sections 11.10.2 and 11.11.
NRW Scoping Opinion July 2020	The assessment should use the latest publicly available guidance documents.	The latest publicly available guidance documents have been used in this assessment. See Section 11.2.4.
NRW Scoping Opinion July 2020	Clarity as to why a limited number of receptors have been identified at Scoping.	Identification of receptors requiring assessment has been undertaken following receipt of project information. See Section 11.10 and 11.11.

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
NRW Scoping Opinion July 2020	Road traffic effects cannot be scoped out at this stage.	An assessment of road traffic impacts associated with the construction and consideration of operational phases has been undertaken. See Section 11.10.2 and 11.11. Decommissioning impacts are not considered to be greater than those assessed for the construction phase, given anticipated improvements in local air quality, and the potential for cables to remain in situ reducing the volume of works in comparison. See Section 11.12
NRW Scoping Opinion July 2020	Construction dust impacts on ecological sites should be included.	An assessment of potential construction dust impacts on ecological sites has been undertaken, as per relevant guidance. See Section 11.10.1.
NRW Scoping Opinion July 2020	Habitats Regulations Assessment (HRA) mitigation measures should not be considered in the test of likely significant effects phase.	Not applicable to this chapter, but a separate report to inform the appropriate assessment is included as part of the application documentation (Report to Inform Appropriate Assessment (application Ref: 5.2)), which considers mitigation in line with the agreed process.

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
NRW Scoping Opinion July 2020	Screening of construction road traffic trips should be done in combination with other committed developments, and not alone - as per the Wealden Judgement juridical outcome.	Screening of road traffic impacts on ecological designations has been undertaken as per relevant guidance documents. This has included consideration of recent case law outcomes in terms of in-combination screening within the context of international designations, as agreed via the ETG process with NRW and DCC. In-combination screening has also been conducted in relation to national sites for the ES, following receipt of NRW's in response to Statutory Consultation (see below). See Sections 11.5.2 and 11.10.2.
Evidence Plan Air Quality ETG: PEIR Method Statement June 2021	No comments on the proposed methodology received. NRW provided a formal response agreeing with the approach proposed (NRW, 2021). Was agreed to conduct an in-combination road traffic screening exercise on international designations only.	No action required.

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
DCC Response to Statutory Consultation October 2021	DCC agree that a dust assessment is necessary and that a dust abatement plan should be included in the CoCP.	A dust management plan containing relevant dust controls proportionate to the calculated risks will be included, as part of the AQMP, within the CoCP. An outline NVMP is provided as Appendix 3 of the outline CoCP and sets out the principles to be followed when the final NVMP is finalised. The Applicant will be required to submit the final AQMP to DCC for approval as a requirement of the DCO
NRW Response to Statutory Consultation October 2021	Clarification required in relation to Table 2 of the Air Quality Chapter within the PEIR where the time threshold of "6 months" for annual mean exposure is derived from and the supporting evidence for this. Similarly, clarification is	Removed from text, no further action required.

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	required where the time threshold of “eight hours or more in a day” originates from.	
NRW Response to Statutory Consultation October 2021	The report argues that “the significance of unmitigated effect of construction dust cannot be defined”, but the report also states that “significance is only assigned to the effect after considering the construction activity with mitigation”. However, the report hasn’t clarified how the effectiveness of the mitigation can be defined.	The assessment methodology (and identification of appropriate level of mitigation) has been undertaken as per relevant guidance listed in Section 11.2.4. As per relevant guidance, a series of dust controls are recommended following identification of potential risks – based upon potential activities and surrounding sensitivities. Following effective application of these dust controls, residual effects are considered to be not significant. Relevant dust controls (and monitoring framework) will be included within the AQMP that is part of the CoCP,

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
		developed for the proposed onshore construction activities, to secure their effective implementation and anticipated residual effects. See Section 11.4.1.
NRW Response to Statutory Consultation October 2021	In-combination assessment should also be applied to the national sites, if appropriate.	Following discussions with NRW and DCC via the ETG process, it had been agreed, prior to Statutory Consultation, that in-combination screening of road traffic impacts on ecological designations would be limited to international sites. This approach was formally proposed to the ETG Air Quality members (DCC and NRW) via a PEIR Method Statement (SLR, 2021) with the inclusion of a specific question on these matters. NRW provided a formal response

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
		agreeing with the approach proposed (NRW, 2021). However, in response to NRW's feedback from Statutory Consultation, an in-combination screening has also been conducted in relation to national sites for the ES. See Section 11.5.2.
NRW Response to Statutory Consultation	NRW cannot agree to rule out any future assessment requirement at this stage, as some may need a site-specific assessment at a later stage.	The assessments undertaken in support of the PEIR have been repeated for the ES with the consideration of further project information and design clarifications.
NRW Response to Statutory Consultation	Volume 5, Annex 11.1: Construction Dust Assessment Methodology (of the PEIR) Table 4: Clarification is needed	Impacts associated with likely NRMM PM_{10} emission contributions on human health have been considered as part of the

DATE AND CONSULTATION PHASE/ TYPE	CONSULTATION AND KEY ISSUES RAISED	SECTION WHERE COMMENT ADDRESSED
	whether the table relating to establishing the sensitivity of the area with respect to human health impacts from PM_{10} concentrations considers emissions from possible Non-Road Mobile Machinery (NRMM) if a close human receptor(s) is present.	construction dust assessment within the ES. See Section 11.10.1.

11.4 Scope and methodology

44 The assessment scope has been informed by both national and local planning policy and guidance, established best practice and experience, as well as via the consultation process from relevant consultees.

11.4.1 Construction dust assessment

45 The assessment of dust generated by potential construction activities on nearby sensitive human and ecological receptors has been undertaken in accordance with the IAQM guidance (IAQM, 2016).

46 The study area has been defined on the following screening criteria (provided in the IAQM guidance (IAQM, 2016)) :

- Human receptors within 350m of the onshore Order Limits (OL), and within 50m of routes used by construction vehicles, up to 500m from the onshore OL; and
- Ecological receptors within 50m of the onshore OL and within 50m of routes used by construction vehicles, up to 500m from the onshore OL.

47 The likely unmitigated dust emission magnitude associated with four activities (demolition, earthworks, construction and Trackout) is used in conjunction with the sensitivity of the surrounding area to determine the risk of impact for each activity. These sensitivities are:

- annoyance due to dust soiling,
- the risk of health effects due to an increase in exposure to PM_{10}, and
- harm to ecological receptors.

48 Further details are provided in Section 11.5.1.

49 In its response to the AyM Statutory Consultation, NRW requested clarification of whether PM_{10} emission contributions from NRMM have been considered in establishing the sensitivity of the area with regards to human health effects (as part of the construction dust assessment), as per Table 8 in Section 11.5.1.

50 Table 8 in Section 11.5.1 presents the matrix provided by the IAQM, used to define the sensitivity of the area with respect to human health impacts.

51 To characterise sensitivity, a local annual mean background PM_{10} concentration needs to be defined in conjunction with the number, sensitivity and proximity of receptors with distances from potential dust sources. In accordance with this request from NRW, due consideration has been given to likely NRMM PM_{10} emission contributions whilst characterising the surrounding sensitivity with respect to human health impacts with use of Table 8 in Section 11.5.1.

52 The risk of impact is then used to determine proportionate mitigation requirements, whereby through effective application, residual effects are considered to be not significant.

53 Full details of the assessment methodology are provided within Section 11.5.1.

11.4.2 Construction phase road traffic screening assessment

54 The assessment of additional road vehicle movements generated during the onshore construction phase of AyM on sensitive receptor locations has been undertaken with reference to established screening criteria. The screening criteria utilised is dependent on the application (there are different criteria for human and ecological receptors). These are discussed further in Section 11.5.2.

55 Human and ecological receptors within 200 m of roads which are expected to experience increases in traffic flows as a result of the proposed AyM onshore construction activities have been assessed, where necessary. If an ecological and/ or human receptor is located >200 m from an affected road link, further consideration is not required.

56 The 200 m distance screening threshold is supported in various guidance documents (IAQM, 2020 and Highways England et al., 2019) and is therefore considered appropriate.

11.4.3 Operational and maintenance activities

57 Following the PINS comments contained within the Scoping Opinion (PINS, 2020), it was agreed that effects associated with operation and maintenance (O&M) activities could be scoped out, given that expected activities are unlikely to affect air quality.

58 However, given consideration of operational effects was requested by NRW in response to Environmental Impact Assessment (EIA) Scoping, an assessment of likely O&M activities has been undertaken qualitatively, given the reduced scale of works anticipated in comparison to those assessed in relation to construction.

59 This has also included reference to indicative operational traffic movements to address NRW's comments, alongside other operational considerations, as detailed within the Scoping Opinion (PINS, 2020).

11.4.4 Decommissioning activities

60 Decommissioning activities are not anticipated to exceed the construction phase worst case criteria assessed, given forecast improvements to air quality. In addition, it is also recognised that policy, legislation, and local sensitivities constantly evolve which will limit the relevance of undertaking an assessment at this stage.

61 Furthermore, the decommissioning methodology would be finalised nearer to the end of the lifetime of AyM, to be in line with current guidance, policy and legislation. As such, any methodology would be agreed with the relevant authorities and statutory consultees at the appropriate time.

62 As such, in recognition of the above, a qualitative assessment of likely decommissioning activities has not been undertaken, given the uncertainty of potential works.

11.5 Assessment criteria and assignment of significance

63 Whilst Volume 1, Chapter 3 EIA Methodology (application ref: 6.1.3) provides an indicative EIA assessment matrix, it also identifies that assessment methodologies will reflect the prevailing technical area guidance and specific requirements of receptor groups. As such the following sections provide a description of the assessment criteria and assessment methodologies used to assess air quality, which are derived from best practice guidance documents.

11.5.1 Construction dust assessment

64 The IAQM construction dust assessment methodology provides a framework to establish the unmitigated risk of construction dust impacts associated with a development at both human and ecological receptors.

65 This risk is based on a relationship between the anticipated dust emission magnitude and the sensitivity of the surrounding area. These have been defined with use of criteria provided within IAQM guidance (IAQM, 2016) have been used.

66 Following determination of these risks, proportionate mitigation is recommended, with the aim of rendering residual effects as 'not significant'.

67 Significance is only assigned to the effect after considering the construction activity with mitigation. This is because for construction activities, the aim is to prevent significant effects on receptors through the use of effective mitigation.

68 The IAQM guidance (*ibid*) therefore does not provide a framework to determine the significance of unmitigated effects, as is not considered appropriate nor relevant in this context. For these reasons, the significance of the unmitigated effect of construction dust cannot be defined.

69 Full details of the assessment methodology are provided in the following sections

Step 1: Screening the need for a detailed assessment.

70 A detailed construction dust assessment is required where a:

- human receptor is located within 350m of the development site, and/ or within 50m of routes used by construction vehicles, up to 500m from the site entrance(s); and/ or
- ecological receptor is located within 50m of the development site, and/ or within 50m of routes used by construction vehicles, up to 500m from the site entrance(s).to dust. Some non-statutory sites may also be considered if appropriate.

71 Where the need for a more detailed assessment is screened out, effects are not believed to be significant, and no further assessment is required.

Step 2: Define the potential dust emission magnitude.

72 The dust emission magnitude is defined for the following construction activities, based on anticipated works:

- Demolition;
- Earthworks;
- Construction; and
- Trackout.

73 This is determined using criteria provided within the IAQM guidance (Table 5), in combination with professional judgment.

Table 5: Criteria used for the determination of the dust emission magnitude for each activity.

ACTIVITY	DUST EMISSION MAGNITUDE		
	SMALL	MEDIUM	LARGE
Demolition	• Total building volume <20,000 m^3 • Construction material with low potential for dust release (e.g. metal cladding or timber) • Demolition activities <10 m above ground or demolition during wetter months	• Total building volume 20,000 – 50,000 m^3 • Potentially dusty construction material • Demolition activities 10-20 m above ground level	• Total building volume >50,000 m^3 • Potentially dusty construction material (e.g. concrete) • On-site crushing and screening demolition activities >20 m above ground level
Earthworks	• Total site area <2,500 m^2 • <5 heavy earth moving vehicles active at any one time	• Total site area 2,500 to 10,000 m^2 • 5-10 heavy earth moving vehicles active at any one time	• Total site area >10,000 m^2 • >10 heavy earth moving vehicles active at any one time

ACTIVITY	DUST EMISSION MAGNITUDE		
	SMALL	MEDIUM	LARGE
Construction	• Total building volume <25,000 m^3 • Construction material with low potential for dust release (e.g. metal cladding or timber)	• Total building volume 25,000 to 100,000 m^3 • Potentially dusty construction material (e.g. concrete) • On site concrete batching	• Total building volume >100,000 m^3 • On site concrete batching; sandblasting
Trackout	• <10 outward heavy duty vehicles (HDV) trips in any one day • Unpaved road length <50 m	• 10-50 outward HDV trips in any one day	• <10 outward HDV trips in any one day • Unpaved road length <50 m

Step 3: Define the sensitivity of the area.

74 The sensitivity of the area is defined in relation to each assessed impact. This is informed by several parameters such as the proximity and number of receptors in relation to construction activities, as well as their individual sensitivity.

75 Receptors can demonstrate different sensitivities to changes in their environment, dependant on location, use and perceived value. The sensitivities for individual receptors are determined using the approach outlined in Table 6. Sensitivities are provided for each assessed impact.

Table 6: Criteria for defining sensitivity of receptors.

SENSITIVITY OF AREA	HUMAN RECEPTORS		ECOLOGICAL RECEPTORS (A)
	DUST SOILING EFFECTS	HEALTH EFFECTS OF PARTICULATE MATTER (PM_{10})	
High	▲ users can reasonably expect an enjoyment of a high level of amenity. ▲ the appearance, aesthetics or value of their property would be diminished by soiling. ▲ 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 include dwellings, museums and other culturally important collections-, medium- and long-term car parks and car showrooms.	▲ locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). ▲ indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.	▲ locations with an international or national designation and the designated features may be affected by dust soiling. ▲ locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain. ▲ indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.

SENSITIVITY OF AREA	HUMAN RECEPTORS		ECOLOGICAL RECEPTORS [A]
	DUST SOILING EFFECTS	HEALTH EFFECTS OF PARTICULATE MATTER (PM_{10})	
Medium	⅄ 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; or ⅄ the appearance, aesthetics or value of their property could be diminished by soiling; or ⅄ 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 include parks and places of work.	⅄ locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day); ⅄ indicative examples include office and shop workers but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by Health and Safety at Work legislation.	⅄ 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 example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.
Low	⅄ the enjoyment of amenity would not reasonably be expected; or ⅄ property would not reasonably be expected to be diminished in	⅄ locations where human exposure is transient;	⅄ locations with a local designation where the features may be affected by dust deposition;

SENSITIVITY OF AREA	HUMAN RECEPTORS		ECOLOGICAL RECEPTORS (A)
	DUST SOILING EFFECTS	HEALTH EFFECTS OF PARTICULATE MATTER (PM_{10})	
	appearance, aesthetics or value by soiling; or • 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 include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short term car parks and roads.	• indicative examples include public footpaths, playing fields, parks and shopping streets.	• indicative example is a local Nature Reserve with dust sensitive features.

Notes:

(A) Only applicable if ecological habitats are present which may be sensitive to dust effects.

76 Once the sensitivity of each individual receptor has been determined, this is used to determine the sensitivity of the surrounding area.

77 Table 7 to Table 9 present the criteria for defining how the sensitivity of the area may be determined for dust soiling, human health and ecosystem impacts, respectively. The highest level of sensitivity from each table should be recorded.

78 The quoted distances relate to the nearest dust emission source(s). In the context of construction, demolition and earthworks these activities will occur on-site. Where these activities are not known, receptor distances are determined from the site boundary.

79 Given that trackout relates to the resuspension of dust from HDV on the public road network, these distances relate to proximity to likely routes constructions traffic will use. The extent of those links affected by trackout relates is determined by the calculated trackout dust emission magnitude as per Step 2. Without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites, 200 m from medium sites and 50 m from small sites, as measured from the site exit(s).

Table 7: Sensitivity of area to dust soiling effects on people and property.

RECEPTOR SENSITIVITY	NUMBER OF RECEPTORS	DISTANCE FROM SOURCE (M)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10 – 100	Medium	Medium	Low	Low
	1 – 10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	<1	Low	Low	Low	Low

Table 8: Sensitivity of area to human health impacts.

RECEPTOR SENSITIVITY	ANNUAL MEAN PM_{10} CONCENTRATION	NUMBER OF RECEPTORS	DISTANCE FROM SOURCE (M)			
			<20	<50	<100	<350
High	>32 µg/m³	>100	High	High	High	Medium
		10 – 100	High	High	Medium	Low
		1 – 10	High	Medium	Low	Low
	28 – 32 µg/m³	>100	High	High	Medium	Low
		10 – 100	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low
	24 – 28 µg/m³	>100	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low
		1 – 10	Medium	Low	Low	Low
	<24 µg/m³	>100	Medium	Low	Low	Low
		10 – 100	Low	Low	Low	Low

RECEPTOR SENSITIVITY	ANNUAL MEAN PM_{10} CONCENTRATION	NUMBER OF RECEPTORS	DISTANCE FROM SOURCE (M)			
			<20	<50	<100	<350
		1 – 10	Low	Low	Low	Low
Medium	>32 µg/m³	>10	High	Medium	Low	Low
		1 – 10	Medium	Low	Low	Low
	28 – 32 µg/m3	>10	Medium	Low	Low	Low
		1 – 10	Low	Low	Low	Low
	24 – 28 µg/m³	>10	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low
	<24 µg/m³	>10	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low
Low	-	1	Low	Low	Low	Low

Table 9: Sensitivity of area to ecological impacts.

RECEPTOR SENSITIVITY	DISTANCE FROM THE SOURCE (M)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Define the risk of impacts

80 The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area.

81 Table 10 to Table 13 illustrates how the dust emission magnitude should be combined with the sensitivity of the area to determine the risk of impacts with no mitigation measures applied.

Table 10: Risk of dust impacts – demolition.

SENSITIVITY OF AREA	DUST EMISSION MAGNITUDE		
	LARGE	MEDIUM	SMALL
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table 11: Risk of dust impacts – earthworks.

SENSITIVITY OF AREA	DUST EMISSION MAGNITUDE		
	LARGE	MEDIUM	SMALL
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 12: Risk of dust impacts –construction.

SENSITIVITY OF AREA	DUST EMISSION MAGNITUDE		
	LARGE	MEDIUM	SMALL
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table 13: Risk of dust impacts – trackout.

SENSITIVITY OF AREA	DUST EMISSION MAGNITUDE		
	LARGE	MEDIUM	SMALL
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Recommendation of Mitigation

82 Mitigation, as provided within the IAQM guidance (IAQM, 2016), is then recommended based upon the calculated risks i.e. low, medium or high-risk.

Determine significant effects

83 Following the effective application of the recommended mitigation measures, residual effects from construction dust are considered to be not significant, in accordance with the IAQM guidance (IAQM, 2016).

84 As per IAQM guidance (IAQM, 2016), significance is only assigned to the effect after considering the construction activity with mitigation. This is because for almost all construction activities, the aim is to prevent significant effects on receptors through the use of effective mitigation. The IAQM guidance (IAQM, 2016) therefore recommends that the significance of the unmitigated effect is not defined, as is not considered appropriate nor relevant in this context.

11.5.2 Construction phase road traffic screening assessment

Human receptors

85 Screening criteria provided within the EPUK & IAQM guidance document (IAQM & EPUK, 2017) has been used to determine whether further assessment of construction-generated traffic on sensitive human receptor locations is required.

86 The screening criteria relevant to this assessment is as follows (specific to a development located outside of an AQMA):

- A change of light duty vehicle (LDV) flows of more than 500 annual average daily traffic (AADT); and/ or
- A change of heavy duty vehicle (HDV) flows of more than 100 AADT.

87 If the onshore construction traffic is not found to exceed any of the screening criteria presented, then effects are considered to be insignificant and can be screened out of further consideration.

Ecological receptors

88 The assessment procedure outlined within the IAQM guidance document (IAQM, 2020) has been used in relation to the assessment of sensitive ecological receptors and road traffic. This initially comprises a screening assessment to indicate whether:

- Any sensitive qualifying features are located within 200 m of a road link projected to experience development-generated vehicle movements; and
- Onshore construction activities are likely to generate either >1,000 (and/ or >200 HDV) AADT movements on a road link within 200 m of the ecological receptor, or result in >1% of a Critical Level and/ or Critical Load.

89 Whilst assessing impacts on internationally designated ecological sites, screening should be undertaken in combination with other projects and plans. No international ecological designations are found within 200 m of the proposed construction haul roads or road links.

90 Following receipt of NRW's comments submitted in response to Statutory Consultation, in-combination screening has also been conducted with respect to national ecological designations. No national ecological designations are found within 200 m of the proposed construction haul roads or road links.

91 Whilst assessing impacts on local ecological designations, it is appropriate to assess developmental trips in isolation. This is reflective of the level of protection afforded to these sites

92 This approach has been agreed formally with NRW via the ETG process, as well as on other projects within the development locale such as the Elwy Solar Energy Farm (Air Quality Consultants, 2020).

93 The outcomes of the above will determine whether impacts associated with AyM could result in a likely significant effect on the assessed ecological feature (either alone, or in-combination in the context of international and national sites).

94 If the above conditions are not met, then impacts on ecological designations are likely to be imperceptible, whereby resultant effects are considered to be not significant.

11.6 Uncertainty and technical difficulties encountered

11.6.1 Construction dust assessment.

95 The construction dust assessment is primarily a tool to identify the proportionate level of mitigation required for the various construction activities.

96 Resultant effects ultimately depend on the effective application of this mitigation. Therefore, there can be uncertainty on how representative the assessment procedure and associated post-mitigated outcomes would be if appropriate mitigation is not secured.

97 To secure the necessary mitigation an AQMP, included as part of the overall CoCP, will be developed for the proposed onshore construction activities which will adhere to construction industry good practice guidance for control measures and dust management. The CoCP will be secured as a requirement of the DCO and an outline version of the AQMP is provided in as an appendix to the outline CoCP (application ref 8.13.3).

98 The AQMP will detail control measures to manage dust during construction works. At this stage the outline AQMP provided with the outline CoCP provides principals for agreement, which will subsequently be developed to ensure that all required mitigation measures are appropriately secured via a requirement in the DCO that will be approved by DCC prior to works commencing.

11.6.2 Construction phase road traffic screening assessment

99 To provide greater confidence in the screening assessment, construction road traffic flows have been calculated using the average flow (HDVs and employees (LDVs) separately) across an 18 month construction programme for the onshore ECC and 27 months construction programme for the onshore substation (OnSS). This ensures all peak periods of construction are captured.

100 This approach is considered appropriate and suitably conservative in comparison to averaging out road traffic values across a full two-year period to derive AADT flows (i.e. annualised average daily traffic flows), which would dilute the predicted datasets. In comparison to AADT equivalent values, calculated road traffic values averaged across the periods outlined above will be greater – therefore leading to a more robust assessment, and an increased level of confidence in the associated outcomes.

101 Traffic data for the purposes of this screening assessment is consistent with the analysis undertaken, and presented as part of Volume 3, Chapter 9: Traffic and Transport (application ref: 6.3.9).

11.7 Existing environment

102 The characterisation of the existing environment has been undertaken using the latest publicly available data sources collected prior to the COVID-19 pandemic (i.e. pre-2020), as pollutant concentrations monitored during 2020 and 2021 are expected to be atypical, and not representative of the local environment and have therefore not been considered.

103 The data sources are listed in Table 14 and agreed with via the Evidence Plan process.

Table 14: Baseline Data Sources

DATA	SOURCE	YEAR	COVERAGE
2020 Air Quality Progress Report	North Wales Combined Authority	2020	Regional (North Wales)
Automatic Urban and Rural Network	Defra	2021	National (Wales)
Background Mapped Concentration Estimates	Defra	2018	National (Wales)

11.7.1 LAQM Review and Assessment

104 DCC, in fulfilment of their statutory requirements, has conducted an on-going exercise to review and assess air quality within their administrative area, termed 'Review and Assessment'.

105 This is undertaken collectively as part of the North Wales Combined Authority.

106 Consequently, DCC does not have any declared AQMAs within their administrative area.

107 The nearest AQMA is located >30 km east of the proposed onshore construction area, in Liverpool (Liverpool City AQMA). As such, with respect to air quality and human health, the surrounding locale to the AyM onshore works is not believed to be sensitive.

11.7.2 Review of Air Quality Monitoring

Automatic Air Quality Monitoring

108 The nearest automatic monitor is located >39 km from the onshore OL, and is, therefore, unlikely to be representative of site conditions. No further consideration has therefore been given to automatic monitoring data.

Non-Automatic Air Quality Monitoring

109 Passive NO_2 diffusion tube monitoring is undertaken by DCC, and other Welsh local authorities, at numerous locations – in fulfilment of their statutory LAQM obligations.

110 The details and results of the monitoring locations of relevance to this assessment (i.e. located within 2.5 km of any onshore construction working area) are presented in Table 15 and Table 16, respectively, whilst their locations are illustrated in Figure 1.

111 As illustrated in Figure 1, these monitoring locations appear to be distributed at relevant locations (i.e. roadside of arterial routes, adjacent to the onshore ECC where construction traffic may pass). As such, use of these monitoring locations to inform baseline conditions with reference to potential construction road traffic effects is considered sufficient, and appropriate for the purposes of characterising the receiving environment for EIA.

Table 15: Details of local non-automatic monitoring locations.

SITE ID	SITE TYPE	X	Y	CLOSEST DISTANCE TO OL (KM)
DBR5	Suburban	302938	374638	0.7

SITE ID	SITE TYPE	X	Y	CLOSEST DISTANCE TO OL (KM)
DBR8	Roadside	303270	374640	0.7
DBR9	Roadside	303197	374830	0.7
DBR10	Suburban	303263	374867	0.7
DBR58	Roadside	302300	378000	0.7
DBK1	Roadside	300846	381407	2.5
DBR2	Roadside	300903	381292	2.5

Table 16: Results from local non-automatic monitoring locations.

SITE ID	2019 DATA CAPTURE %	ANNUAL MEAN NO_2 CONCENTRATION ($\mu g/m^3$)				
		2015	2016	2017	2018	2019
DBR5	100.0	14.0	15.5	14.1	14.5	12.9
DBR8	100.0	14.7	15.5	15.2	14.2	11.8
DBR9	100.0	21.2	21.1	21.3	19.8	18.6
DBR10	92.0	14.5	16.1	15.3	14.0	13.8
DBR58	100.0	-	-	-	16.4	14.5
DBK1	100.0	23.1	23.5	24.9	25.3	23.6
DBR2	100.0	26.7	26.4	25.7	25.1	23.4

112 For the period assessed (2015-2019), annual mean NO_2 concentrations recorded at the non-automatic monitoring locations of relevance to the onshore construction working area were below 75% of the AQS Objective (e.g. 40 $\mu g/m^3$ annual mean).

113 The maximum annual mean NO_2 concentration recorded was at DBR2 during 2015 (26.7 µg/m³), located within Rhyl, at the roadside of the Wellington Road and High Street intersection – two key arterial routes within the area.

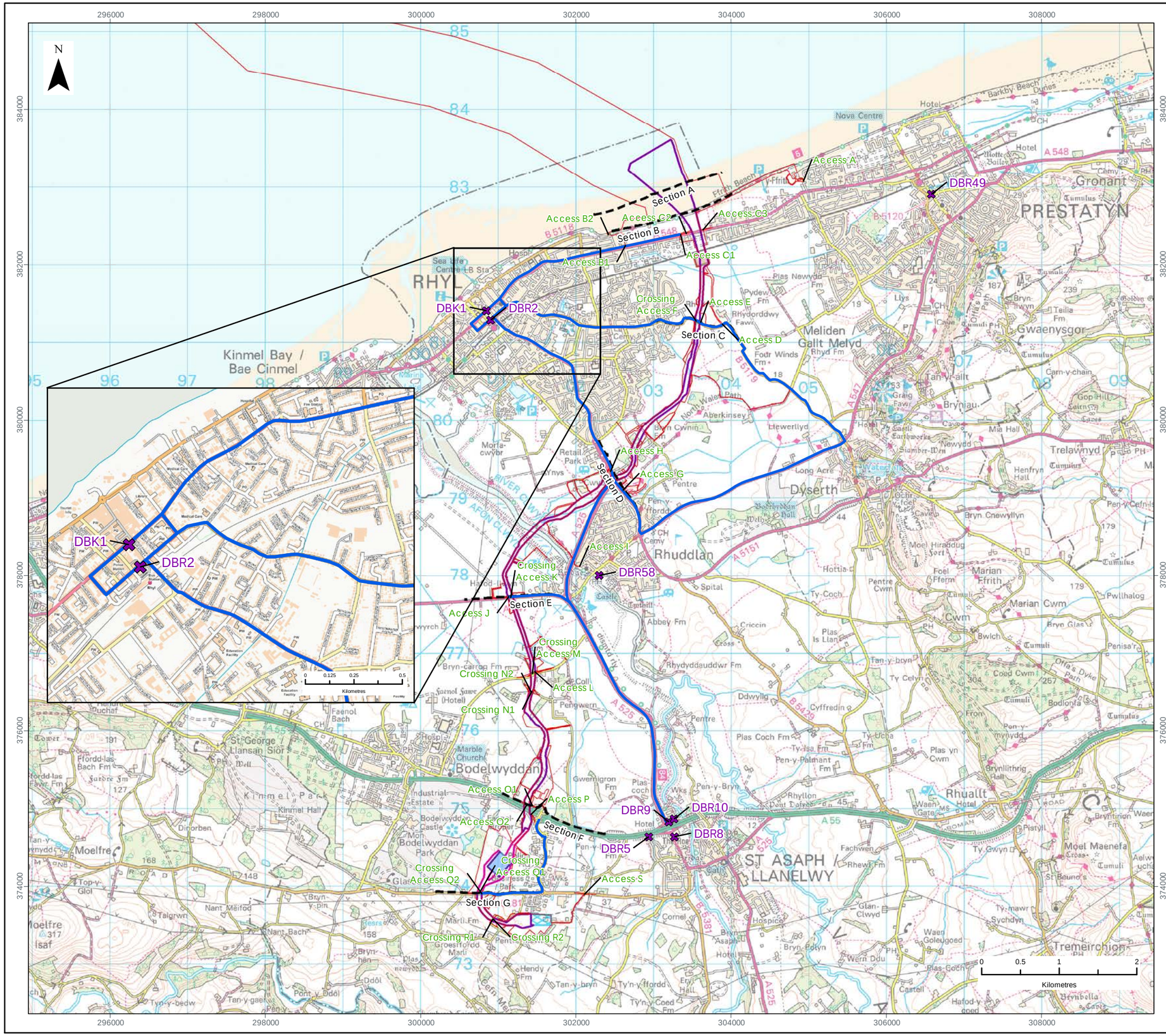
114 It is considered that DBR2 represents worst-case conditions in comparison to other monitoring locations, given the confluence of key arterial routes (B5119 Grange Road and A525 Vale Road) within an urban environment where traffic lights are present (i.e. stop/ start conditions).

115 DBR2 is also located along a proposed construction haul route, as illustrated in Figure 1, and therefore represents a potential worst-case location, given the maximum NO_2 annual mean concentration for the area was recorded here.

116 Despite this, NO_2 concentrations at this location have remained well-below the AQS Objective for the period assessed (2015-2019). Furthermore, concentrations since 2015 at DBR2 appear to have reduced year-on-year.

117 From review of monitoring, annual mean NO_2 concentrations appear to be stable across the period assessed. Furthermore, despite concentrations already being well below the AQS Objective (i.e. <75%), a slight long-term reduction in annual mean NO_2 concentrations is evident at some locations.

118 Furthermore, the empirical relationship given in LAQM.TG(16) states that exceedances of the 1 hour mean AQS Objective for NO_2 are only likely to occur where annual mean concentrations are 60 µg/m³ or above at a location of Relevant Exposure. This indicates that an exceedance of the 1-hour mean AQS Objective is unlikely to have occurred at these sites between 2015 and 2019.



LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Proposed Onshore Export Cable Corridor
- Proposed Substation Cable Corridor Zone
- Proposed Transition Joint Bay Construction Compound
- Proposed Access Location
- Proposed Crossing Location
- Proposed Onshore Substation (OnSS) Footprint
- Unlicenced Work Zone
- Local Air Quality Monitoring Location
- Proposed Construction Access Route

PROJECT TITLE:

AWEL Y MÔR OFFSHORE WINDFARM

FIGURE TITLE:

LOCAL AIR QUALITY MONITORING LOCATIONS

VER	DATE	REMARKS	Drawn	Checked
1	08/04/2022	ES Issue	JRS	MF

FIGURE NUMBER:

FIGURE 1

SCALE:	PLOT SIZE:	DATUM:	COORDINATE SYSTEM:
1:50,000	A3	ODN	British National Grid

Fferm Wynt Alltraeth
AWEL Y MÔR
Offshore Wind Farm

P:\05356 - GoBe Consultants Ltd\00009 Awel y Mor\Tech\GIS\Dwgs\Wking\202201 Environmental Statement\Chapter 3.11 - Air Quality\05356.00009.0303.0 Local Air Quality Monitoring Locations.mxd

Defra Mapped Background Concentrations

119 Defra maintains a nationwide model of existing and future background air quality concentrations at a 1km grid square resolution.

120 Annual mean background concentrations of NO_2, PM_{10} and $PM_{2.5}$ have been obtained from the Defra published background maps (2018 reference year), based on the 1km grid squares which cover the onshore construction areas (Defra, 2020). The maximum predicted Defra mapped background concentrations across the study area for the following milestone years are presented in Table 17:

- 2021 – Base/ current full year;
- 2026 – Indicative construction start year; and
- 2028 – Indicative operational start year.

Table 17: Maximum Defra mapped background concentrations.

YEAR	MAXIMUM ANNUAL MEAN BACKGROUND CONCENTRATION (µG/M³)		
	NO_2	**PM_{10}**	**$PM_{2.5}$**
2021	8.4	11.8	7.3
2026	7.1	11.3	7.0
2028	6.7	11.3	6.9

121 All of the predicted background concentrations are below the respective annual mean AQS Objectives.

11.7.3 Evolution of the baseline

122 Baseline air quality conditions are expected to evolve during the interim period, prior to construction commencing.

123 As discussed in Section 11.7.1, NO_2, PM_{10} and $PM_{2.5}$ concentrations monitored in proximity to the onshore OL remain stable, with a slight long-term downward trend between the year 2015 and 2019 observed at most locations.

124 Air quality is expected to improve in future years, with the introduction of electric vehicles and more stringent emission standards, as well as the recent enforcement of local and national policy and initiatives (CAS and CAPW). With the introduction of these initiatives and cleaner technologies, pollutant concentrations reported locally are expected to reduce further, or at least remain comparable to those presented.

125 Local background future year projections provided by Defra (based upon semi-empirical evidence) are provided in Table 17. These data demonstrate the anticipated improvement in background pollutant concentrations for the local area, particularly for NO_2; given current emphasis, such as the Air Quality Plan for NO_2 in UK (Defra and DfT 2017).

11.8 Key parameters for assessment

126 The maximum design scenarios (MDS) identified in Table 18 have been selected as those having the potential to result in the greatest effect on air quality. These scenarios have been selected from the details provided in the project description (Volume 3, Chapter 1 (application ref: 6.3.1)).

127 Table 18 identifies the MDS in environmental terms.

Table 18: Maximum design scenario.

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
CONSTRUCTION		
Dust/ PM_{10} generated from temporary construction activities	Maximum design parameters/ extents of any proposed construction area have been used for the purposes of defining potential dust sources. To present a worst-case assessment, the onshore ECC has been used to define the spatial extent of the onshore cabling.	This ensures that all potential scenarios and associated impacts have been assessed.

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
	Excavation activities comprise either Horizontal Directional Drilling (HDD) (or other trenchless crossing techniques) or open trench technology. Where optionality in excavation approach exists, open trench technology has been adopted in order to assess worst case dust impacts i.e. dust emitted at ground level. For the purposes of Trackout, all construction access points and subsequent access routes have been used. Onshore construction areas have been assessed collectively, rather than in discrete sections, allowing for greater flexibility. This aggregated approach will increase the opportunity for greater derived sensitivities and dust emission magnitudes, and therefore impacts.	
Temporary construction-generated road traffic volumes on human receptors	Road traffic volumes for all potential scenarios have been assessed. Construction road traffic flows have been calculated using the average flow across the 18 month construction programme for the onshore ECC and 27 months for the OnSS, in contrast to averaging out road traffic values across a full yearly period to derive AADT flows (i.e. annualised average daily traffic flows).	This ensures that all potential scenarios and associated impacts have been assessed.
Temporary construction-generated road traffic		

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
volumes on ecological receptors	For further information see Volume 3, Chapter 9: Traffic and Transport (application ref: 6.3.9).	
OPERATION		
Likely air quality impacts associated with operational activities	A description of all possible operational activities and likely indicative volumes has been provided.	This ensures that all potential design parameters associated impacts have been assessed.
DECOMMISSIONING		
Likely air quality impacts associated with decommissioning activities.	Details surrounding the decommissioning phase are not fully known, however, decommissioning activities are not anticipated to exceed the construction phase worst case criteria assessed, given forecast improvements to air quality and the potential for the cables to remain in situ.	
CUMULATIVE EFFECTS		
Cumulative dust/ PM_{10} generated from temporary concurrent construction activities	Maximum design parameters/ extents of any proposed construction area have been used for the purposes of defining potential dust sources, where not finalised.	This ensures that all potential scenarios and associated impacts have been assessed for the purposes of providing a worst-case

POTENTIAL EFFECT	MAXIMUM ADVERSE SCENARIO ASSESSED	JUSTIFICATION
		cumulative assessment.

11.9 Mitigation

128 Mitigation measures that were identified and adopted as part of the evolution of the project design (embedded into the project design) and that are relevant to Air Quality are listed in Table 19. The mitigation includes embedded measures such as design changes and applied mitigation, the requirement for which is embedded in the proposed project but the implementation of which is subject to further study or approval of details; these include avoidance measures that will be informed by pre-construction surveys, and necessary additional consents where relevant. The composite of embedded and applied mitigation measures apply to all parts of the AyM development works, including pre-construction, construction, O&M and decommissioning.

Table 19: Mitigation measures relating to Air Quality.

PARAMETER	MITIGATION MEASURES EMBEDDED INTO THE PROJECT DESIGN
CONSTRUCTION	
Best practice construction measures	Construction works would be undertaken in accordance with best practice measures that are proportional to the likely impacts identified, as per Section 11.10.1
CoCP	Development of, and adherence to, a CoCP secured as a requirement of the DCO that sets out management measures, commitments and working standards proposed to be adopted and implemented throughout the construction process. This will include preparation of an AQMP, an outline version of which is provided as Appendix 3 to the outline CoCP (application ref 8.13.3).
DECOMMISSIONING	

PARAMETER	MITIGATION MEASURES EMBEDDED INTO THE PROJECT DESIGN
Best practice construction measures	Decommissioning works would be undertaken in accordance with best practice measures that are proportional to the likely impacts.

11.10 Environmental assessment: construction phase

11.10.1 Construction dust assessment

129 Where figures relating to area or volume of the onshore OL, approximate number of construction vehicles or distances to receptors are given, these relate to thresholds as defined in the IAQM guidance (IAQM, 2016) to guide the assessor to define the dust emissions magnitude and sensitivity of the area.

Assessment screening

130 There are both human and ecological receptors within the relevant screening distances. Therefore, an assessment of construction dust on both human and ecological receptors has been undertaken.

Potential dust emission magnitude

131 No demolition activities are proposed as part of the onshore construction works. As such, impacts associated with demolition activities have therefore not been considered further and are screened out.

132 The total area where earthworks are required is greater than 10,000 m^2 across the whole onshore construction works. The aggregated total of material exported/ excavated is >100,000 tonnes. In addition, >10 heavy earth moving vehicles will be active at any worst-case time. Therefore, with reference to the methodology described in Section 11.5.1, the dust emission magnitude for earthworks is considered to be large.

133 Indicative building dimensions have been provided to inform the total building volume (~25,000 m^3) for the whole onshore construction works. However, to adopt a conservative approach, a total building volume of <100,000 m^3 has been assumed, taking a conservative approach. Therefore, the dust emission magnitude for construction is considered to be medium.

134 The number of outward HDV movements in any worst-case day is greater than 50. In addition, unpaved road lengths are likely to be greater than 100 m. Therefore, the dust emission magnitude for Trackout is considered to be large.

135 Table 20 presents a summary of the assigned dust emission magnitude for each activity.

Table 20: Potential dust emission magnitude.

ACTIVITY	DUST EMISSION MAGNITUDE
Demolition	N/A
Earthworks	Large
Construction	Medium
Trackout	Large

Sensitivity of the area

136 Overall, there are <10 existing residential properties (highly sensitive receptors) within 20 m of any worst-case working area of potential dust generation. Furthermore, there are <100 existing residential properties (highly sensitive receptors) within 50 m.

137 There are >10 high sensitivity receptors located within 20m from road links within 500 m of any construction access point (commensurate of a large site).

138 Therefore, with reference to the methodology described in Section 11.5.1, sensitivity of the area with respect to dust soiling impacts on people and property is considered to be medium in relation to earthworks and construction, and high in relation to Trackout.

139 The sensitivity of the area with regards to human health impacts from PM_{10} concentrations is defined using the matrix outlined in Table 4 presented in Section 11.5.1, taken from the IAQM guidance (IAQM, 2016). To characterise sensitivity, a local annual mean background PM_{10} concentration needs to be defined in conjunction with the number, sensitivity and proximity of receptors with distances from potential dust sources.

140 As discussed in Section 11.7.2, no local background PM_{10} monitoring exists within proximity of the onshore elements of AyM.

141 For the purposes of characterising the local PM_{10} background concentration, the latest iteration of the Defra supplied background maps (2018 reference year) have been used – in accordance with the recommendations contained within the IAQM guidance.

142 The maximum mapped background PM_{10} concentration (2018 reference year) for the 1 km^2 grid squares covering any potential onshore construction works is estimated to be 11.8 $\mu g/m^3$ (i.e. falls into the <24 $\mu g/m^3$ class) (Table 17). This value relates to 2021, and as such is believed to be conservative, given that it does not take into account any forecast improvements to air quality within the interim period until 2026 (expected start of construction works).

143 Given the number of highly sensitive receptors within 20 m and 50 m of any potential construction works, and within 20 m of potential Trackout routes, the sensitivity of the area with respect to human health impacts in relation to earthworks, construction and Trackout is therefore considered to be low.

144 With respect to ecological designations, areas of Ancient Woodland (AW) are found within 20 m and/ or 50 m of any construction working area and Trackout routes. No international designations are found within these areas. The sensitivity of the area with respect to ecological impacts in relation to earthworks, construction and Trackout activities is therefore considered to be medium.

145 A summary of the sensitivity of the surrounding area is detailed in Table 21.

Table 21: Sensitivity of the area.

POTENTIAL IMPACT	SENSITIVITY OF SURROUNDING AREA		
	EARTHWORKS	**CONSTRUCTION**	**TRACKOUT**
Dust Soiling	Medium	Medium	High
Human Health	Low	Low	Low
Ecological	Medium	Medium	Medium

146 Within its response to Statutory Consultation, NRW requested clarification as to whether PM_{10} emission contributions from NRMM have been considered in establishing the sensitivity of the area (as part of the construction dust assessment) with regards to human health effects.

147 As above, the maximum Defra background PM_{10} concentrations have been used as per IAQM guidance (IAQM, 2016). The Defra supplied background concentrations do not account for non-committed PM_{10} sources, such as possible NRMM used in fulfilment of onshore construction activities.

148 According to the IAQM guidance (ibid), experience of assessing exhaust emissions from NRMM suggests that they are unlikely to make a significant impact on local air quality. Furthermore, NRMM emissions are controlled through European Directives (e.g. Regulation EU 2016/1628) in terms of maximum operable emission limits.

149 To achieve an increased level of sensitivity with respect to PM_{10} human health impacts, an annual mean concentration contribution of 12.2 µg/m³ (or greater) of excess localised PM_{10} emissions would be required to exceed the 24 µg/m³ threshold. Local sources (such as NRMM) are unlikely to contribute to this over an annual averaging period at off-site receptor locations.

150 Despite this, the resultant level of mitigation measures recommended relate to the total risk assessed across all sensitivities and activities.

151 From review of Table 22, the greatest risk in relation earthworks and construction is medium, and high in relation to Trackout – relating to dust soiling and ecological impacts. Therefore mitigation measures recommended are already proportionate to medium and high-risk sites.

Risk of impacts

152 The outcome of the assessment of the potential magnitude of dust emissions, and the sensitivity of the area are combined in Table 22 below to determine the risk of impact.

153 The defined level of risk is then used to inform the selection of appropriate mitigation.

154 The IAQM construction dust assessment methodology does not include the consideration of embedded mitigation measures when determining the potential risk of dust impacts.

Table 22: Risk of dust impacts.

POTENTIAL IMPACT	EARTHWORKS	CONSTRUCTION	TRACKOUT
Dust Soiling	Medium Risk	Medium Risk	High Risk
Human Health	Low Risk	Low Risk	Low Risk
Ecological	Medium Risk	Medium Risk	Medium Risk

155 Following the construction dust assessment, potential worst-case onshore construction works are found to be:

- High risk in relation to dust soiling impacts on people and property;
- Low risk in relation to human health impacts; and
- Medium risk in relation to ecological impacts.

156 Potential dust effects during the construction phase are considered to be temporary and short-term (up to 27 months for the OnSS construction and 18 months for onshore ECC) and may only arise at particular times (i.e. certain activities and/ or meteorological conditions).

157 Nonetheless, commensurate with the above assessment of dust risk, mitigation measures, as identified by IAQM guidance (IAQM, 2016) are required to ensure that any potential impacts arising from any onshore construction works are minimised and, where possible, completely removed.

158 A list of these measures is provided in the outline AQMP which is provided as Appendix 3 of the Outline CoCP (application ref: 8.13.3), that will be submitted to DCC for approval post consent and in advance of works and so securing their implementation.

159 As such, in accordance with IAQM guidance and with reference to the methodology described in Section 11.5.1, construction dust impacts are considered to be removed or minimised. As such, residual effects are concluded to be not significant in terms of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations).

11.10.2 Road traffic screening assessment

160 All road traffic scenarios assessed as part of the of Volume 3, Chapter 9: Traffic and Transport chapter (application ref: 6.3.9) have been considered within the air quality road traffic screening assessment.

161 The maximum road traffic flows generated across all scenarios was considered on each link to ensure a robust assessment.

162 The maximum onshore construction-generated road traffic flows for all potential scenarios occurs on A525 north of A55 Junction 27 and is presented in Table 23.

Table 23: Maximum construction-generated road traffic flows

ROAD LINK	AADT	
	HDVS	LDVS
A525 north of A55 Junction 27	100	117

163 It is worth noting that these flows refer to the maximum trips reported across any one link. Beyond this, vehicles will distribute across the local highways network, such that flows on other roads will be lower.

164 Furthermore, construction road traffic flows have been calculated using the average flow across the 18 month construction programme for the onshore ECC and 27 months for the OnSS, in contrast to averaging out road traffic values across a full yearly period to derive AADT flows (i.e. annualised average daily traffic flows).

165 In comparison to AADT equivalent values, calculated road traffic values averaged across 18 months will be greater – therefore leading to a more robust assessment, and an increased level of confidence in the associated outcomes.

Human receptors

166 The maximum onshore construction generated flows do not exceed the applied EPUK & IAQM screening criteria (EPUK & IAQM, 2017), despite the overly conservative calculations used.

167 Furthermore, these flows refer to the maximum trips reported across all affected links. Beyond this, vehicles will distribute across the local highways network, such that flows on other roads will be lower.

168 As such, road traffic impacts associated with onshore construction activities on air quality can be considered as having an insignificant/ neutral effect on human health. Effects are concluded to be not significant in terms of the EIA Regulations. No further assessment is therefore required.

169 Furthermore, onshore construction works are expected to last up to 27 months in one location (for the OnSS), and as such any consequential impacts onto local road traffic flows are believed to be temporary, with no long-term deterioration of conditions.

Ecological receptors

170 Figure 2 provides an illustration of the proposed main public road network routing arrangements for all potential scenarios, along with 200 m buffers from these roads.

171 It should be noted that these links capture all potential construction scenarios assessed as part of the Volume 3, Chapter 9: Traffic and Transport chapter (application ref: 6.3.9), and therefore provides a conservative outlook, whereby the anticipated footprint is expected to be smaller.

172 These potential links are provided in relation to surrounding ecological designations to determine whether any are present within 200 m of an affected road requiring further assessment.

173 Rhuddlan Pond Local Nature Reserve (LNR) and three unnamed AW are within 200 m of the main roads used by construction vehicles. No international ecological designations are found within 200 m of the proposed construction haul roads for all potential scenarios.

174 Given the nature of these of designations, screening of road traffic flows can be undertaken in isolation directly with the IAQM prescribed screening criteria (IAQM, 2020), without consideration of in-combination impacts.

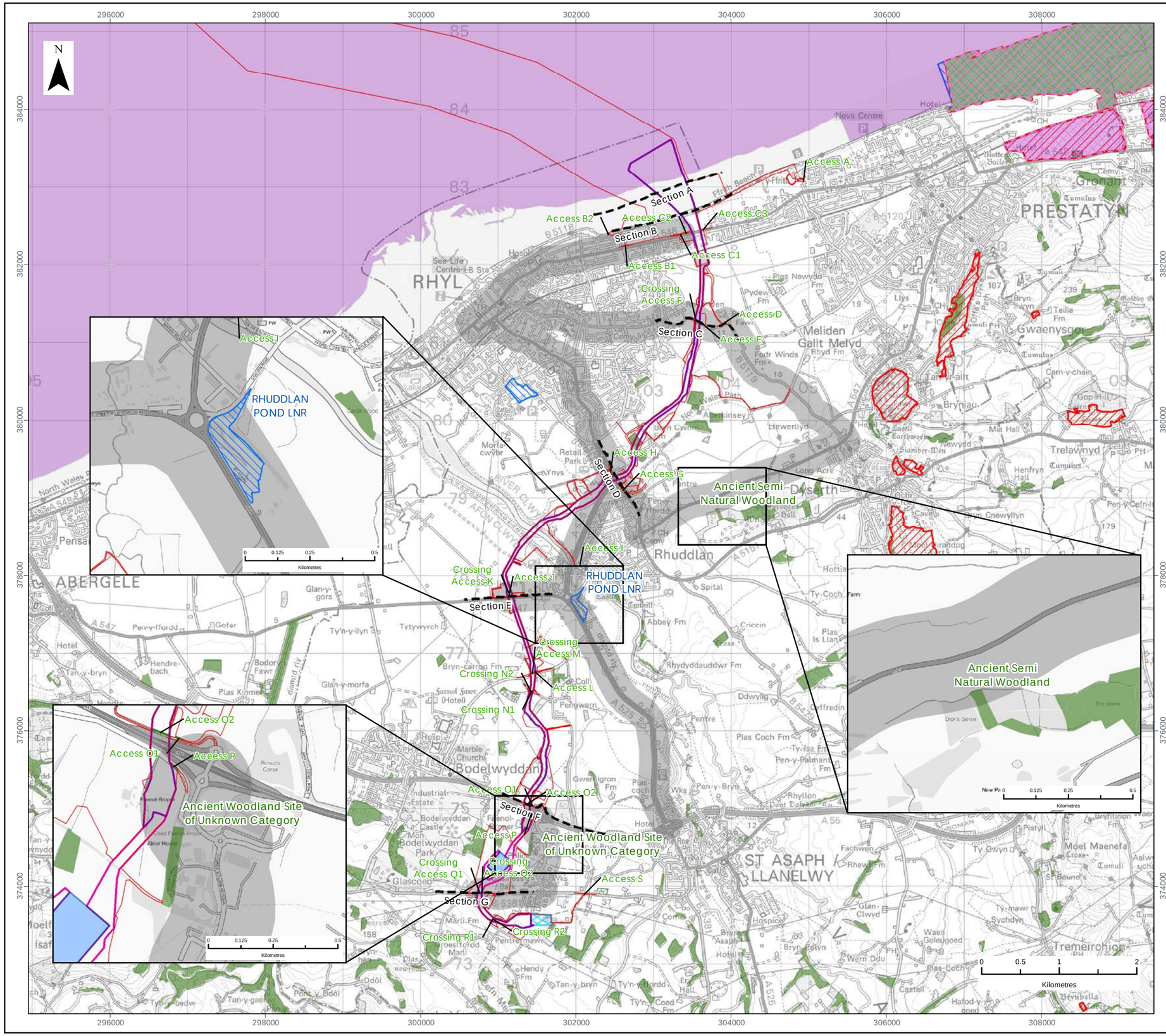
175 The maximum 24-hour AADT road traffic flows generated during the onshore construction phase for all potential scenarios assessed (Table 23) are well below the screening criteria of 1,000 AADT (and/ or 200 HDVs).

176 Furthermore, these flows refer to the maximum trips reported across any one link. Beyond this, vehicles will distribute across the local highways network, such that flows on other roads, including those within 200 m of the above designations will be lower.

177 Onshore construction works are expected to last up to 27 months in one location (for the OnSS), and as such any consequential impacts onto local road traffic flows are believed to be temporary, with no long-term deterioration of conditions.

178 Whilst taking the above into account, in conjunction with the sensitivity and level of protection afforded to the identified sites, use of dispersion modelling to quantify the resultant impact on Critical Loads and/ or Critical Levels is not considered appropriate in this context. This approach has been agreed with NRW formally via the ETG process, consistent with previous assessments submitted in the project locale (Air Quality Consultants, 2020).

179 As such, road traffic impacts associated with onshore construction activities on air quality can be considered as having an insignificant/ neutral effect on ecological designations. Effects are concluded to be not significant in terms of the EIA Regulations. No further assessment is therefore required.



LEGEND

- Order Limits
- Onshore Cable Route Section Breaks
- Proposed Onshore Export Cable Corridor
- Proposed Substation Cable Corridor Zone
- Proposed Transition Joint Bay Construction Compound
- Proposed Access Location
- Proposed Crossing Location
- Proposed Onshore Substation (OnSS) Footprint
- Unlicenced Work Zone
- Proposed Construction Haul Route 200m Buffer
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Ramsar
- Sites of Special Scientific Interest (SSSI)
- Local Nature Reserve (LNR)
- Ancient Woodland

PROJECT TITLE:

AWEL Y MÔR OFFSHORE WINDFARM

FIGURE TITLE:

ECOLOGY
DESIGNATIONS WITHIN 200m

VER	DATE	REMARKS	Drawn	Checked
1	08/04/2022	ES Issue	JRS	MF

FIGURE NUMBER:

FIGURE 2

SCALE:	PLOT SIZE:	DATUM:	COORDINATE SYSTEM:
1:50,000	A3	ODN	British National Grid

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Offshore Wind Farm

11.11 Environmental assessment: operational phase

180 Once operational, activities will be limited to maintenance activities. These are expected to be intermittent/ infrequent in comparison to the assessed construction activities.

181 Relevant onshore operational air quality considerations are limited to road vehicle and helicopter movements for onshore and offshore maintenance tasks.

182 In relation to likely operational vehicle movements, it is anticipated that at a maximum, there would be approximately 4-8 traffic movements per day limited to a 2-week period for annual testing. Outside of this period, there are likely to be approximately 4-8 traffic movements per week. In addition, there is expected to be 1 visit to each cable joint pit per year.

183 As such, based on the above information, operational road traffic impacts can be screened out from requiring further assessment with regards human and ecological receptors.

184 In relation to operational helicopter use, these will only be used for unplanned offshore maintenance tasks when CTV access is not possible. Helicopters will use an existing base/ helipad and be limited to a maximum of 4 two-way movements (2 return) a week, accounting for a degree of flexibility. The increased number of helicopter movements at the existing helipad is anticipated to be within the maximum assessed capacity of the site.

185 Furthermore, the likelihood for potential effects to occur are considered unlikely given the frequency of use, and as such can be screened out from further consideration. Effects are concluded to be not significant.

11.12 Environmental assessment: decommissioning phase

186 Details surrounding the decommissioning phase are yet to be fully clarified. In addition, it is also recognised that policy, legislation and local sensitivities evolve, which will limit the relevance of undertaking an assessment at this stage. Nevertheless, decommissioning activities are not anticipated to exceed the construction phase worst case criteria assessed, given forecast improvements to air quality, and the potential for onshore ducts to remain *in situ* with only the cable removed which would see a reduction in impacts and resulting level of significance in comparison to the assessment of construction effects.

187 Decommissioning activities are expected to occur for up to 3 years – however this will be driven primarily by offshore works. Landfall infrastructure is expected to be left *in situ* where appropriate, to abate potential future impacts. However, this will be reviewed over the design life of AyM, and adapt to local sensitivities, policy, and legalisation.

188 The decommissioning methodology would be finalised nearer to the end of the lifetime of AyM, to be in line with current guidance, policy and legislation. Any such methodology would be agreed with the relevant authorities and statutory consultees. The DCO includes a requirement to submit a written scheme of decommissioning 6 months before decommissioning starts.

11.13 Environmental assessment: cumulative effects

189 Cumulative dust effects arising from construction activities could be experienced where construction activities from more than one scheme overlap at an affected receptor, dependent on the impact (e.g. dust soiling, human health and ecological). Table 24 lists the sites that have been considered that are within the study area.

190 However, all schemes which are considered to pose a risk of cumulative effects will have had to undertake a construction dust assessment separately relating to their own site activities and associated risks, with the recommendation of best practice mitigation to remedy residual effects not significant.

191 These measures would be integrated into a Construction Environmental Management Plan or similar, to be adhered to during construction, as part of their own environmental responsibilities and commitment. The presence of such dust control measures is summarised in Table 24 l

Table 24: Cumulative Sites Considered

DEVELOPMENT TYPE	PROJECT	STATUS	DATA CONFIDENCE ASSESSMENT/ PHASE	TIER
Industrial	7 Industrial Units	Consented	Erection of 7 no. industrial units with associated parking, landscaping, access road and external storage areas approximately 200 m to the east of the proposed OnSS. Construction Method Statement (submitted to discharge planning conditions), includes mitigation to control dust during construction).	1
Energy	Elwy Solar Farm	Under Consideration as a Development of National Significance	Development of a hybrid solar farm and energy storage park approximately 220 m to the east of the OL. The proposals are separated from the OL by Nant y Faenol road and farmland. The application documents include a commitment to provide a Construction Environment Management Plan (CEMP) that will include appropriate dust mitigation for approval by DCC.	1
Residential	198 Bedroom Care Home	Consented	A 1.6 Ha site approximately 50 m from OL. An air quality assessment has been undertaken that	Tier 1

DEVELOPMENT TYPE	PROJECT	STATUS	DATA CONFIDENCE ASSESSMENT/ PHASE	TIER
			includes mitigation measures to control dust during construction.	
Commercial	Commercial Vehicle Dealership	Pending decision	Outline hybrid planning application for the erection of a commercial vehicles sales unit to include the formation of parking area, landscaping and the erection of 5 No. business buildings. Proposals are located on previously developed land near the existing access point for GyM and National Grid Bodelwyddan substations that could be used for AyM construction vehicles. The proposals include dust control measures (wheel wash and sheeting).	
Coastal Defence	East Rhyl Coastal Defence works	Consented	Construction of coastal protection scheme, incorporating. interlocking rock revetment and recurved upstand sea wall to replace existing, raising of walkway, new and amended accesses and associated works. Proposed development is located adjacent to the OL along coastline to the west of Garford Road TCC.	

DEVELOPMENT TYPE	PROJECT	STATUS	DATA CONFIDENCE ASSESSMENT/ PHASE	TIER
			Proposals include a construction dust assessment and dust mitigation as part of a dust management plan.	
Coastal Defence	Central Prestatyn Coastal Defence Scheme	Pending decision	Development of 5 Ha of land to form Coastal Defence scheme comprising of the formation of flood embankments, ramps, outfall structures and rock armour including landscaping, habitat enhancements, works to existing culverts and associated works. The application documents include dust mitigation measures (such as wheel washing facilities), and a commitment to provide a Construction Environment Management Plan (CEMP) that will include appropriate dust mitigation for approval by DCC.	

192 IAQM guidance (IAQM, 2016) states that, with the implementation of the recommended mitigation, effects will be not significant. As such, it is not anticipated that there would be significant cumulative effects associated with construction phase dust emissions.

193 Given that all other assessment considerations (i.e. construction traffic emissions) have been screened out in isolation as per IAQM guidance (IAQM, 2016), no further assessment in relation to cumulative effects is therefore required.

11.14 Transboundary effects

194 There are no national transboundary implications with regard to local air quality.

11.15 Summary of effects

195 This assessment has considered the potential air quality effects arising from onshore activities associated with AyM. Consideration has been given to potential worst-case effects arising from onshore construction, operational and decommissioning activities based upon available information. Worst-case parameters have been adopted to provide a robust assessment.

196 The approach undertaken was based upon:

- PINS Scoping Opinion (PINS, 2020);
- AyM Evidence Plan (Air Quality ETG) process, comprising discussions with NRW and DCC; and
- Comments received through Statutory Consultation which ran from August to October 2021.

197 A qualitative assessment of the potential dust effects associated with worst-case construction activities has been undertaken following IAQM guidance (IAQM, 2016).

198 Following the construction dust assessment, the onshore construction activities are found to be at worst high risk in relation to dust soiling impacts on people and property, medium risk in relation to ecological designations, and low risk in relation to human health impacts.

199 Effects will be temporary and are only likely to materialise if certain activities and/ or meteorological conditions coincide.

200 Providing effective mitigation measures are implemented, as outlined in the CoCP, residual effects are not considered to be significant.

201 A screening assessment of potential construction generated vehicle flows has been undertaken, with due consideration given to both human and ecological receptors. These impacts are believed to be temporary, as they will only occur throughout the duration of construction works (27 months in one location (for the OnSS)).

202 In relation to human receptors, maximum developmental flows generated by all potential scenarios are not projected to exceed the IAQM & EPUK screening criteria (EPUK & IAQM, 2017). As such, impacts on human receptors can be screened out and effects are not considered to be significant. No further assessment is required.

203 In relation to ecological receptors, one LNR and three AWs are located within 200 m of the proposed main routing arrangements for all potential scenarios.

204 Road traffic flows for all potential scenarios are observed to be below the IAQM prescribed screening criteria (IAQM, 2020). As such, impacts on ecological receptors can therefore be screened out and effects are not considered to be significant. No further assessment is required.

205 A summary of the above assessment outcomes is provided in Table 25.

Table 25: Summary of effects.

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
CONSTRUCTION				
Dust/ PM_{10} generated from temporary construction activities	Low - High	Low - High	Implementation of best-practice mitigation as specified in industry guidance via a CoCP	Negligible
Temporary construction-generated road traffic volumes on human receptors	Negligible (below relevant screening criteria)	High	Not required	Negligible
Temporary construction-generated road traffic volumes on ecological receptors	Negligible (below relevant screening criteria)	Medium - Low	Not required	Negligible
OPERATION				

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
Likely air quality impacts associated with operational activities	Negligible	High	Not required	Negligible
DECOMMISSIONING				
Likely air quality impacts associated with decommissioning activities.	Comparable to construction, perhaps lesser if underground cables remain in situ.			
CUMULATIVE EFFECTS				
Cumulative dust/ PM_{10} generated from temporary concurrent construction activities	Low - High	Low - High	Implementation of best-practice mitigation as specified in industry guidance via a CoCP. All schemes which are considered to pose a potential cumulative effect will have had to	Negligible

IMPACT	MAGNITUDE	SENSITIVITY OF RECEPTOR	MITIGATION MEASURES	RESIDUAL EFFECT
			undertake a construction dust assessment separately relating to their own site activities and associated risks, with the recommendation of best practice mitigation.	

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