Margam Substation, Port Talbot

Air Quality Assessment

On behalf of

National Grid Electricity Transmission

Project Ref: 331201497/2000 | Rev: Final | Date: August 2025

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
Office Address: 10 Queen Square, Bristol, BS1 4NT
T: +44 (0)117 332 7840 E: bristolqueensquare@stantec.com

Document Control Sheet

Project Name: **Margam Substation, Port Talbot**

Project Ref: **331201497/2000**

Report Title: **Air Quality Assessment**

Doc Ref: **Final**

Date: **August 2025**

	Name	Position	Signature	Date
Prepared by:	William Storey	Graduate Air Quality Consultant	Storey, William Digitally signed by Storey, William Date: 2025.08.15 11:43:32 +01'00'	August 2025
Reviewed by:	Laura Smart	Associate Air Quality Consultant	Laura Smart Digitally signed by Laura Smart Date: 2025.08.15 11:43:56 +01'00'	August 2025
Approved by:	Michelle Robinson	Planning Associate Director	Robinson, Michelle Digitally signed by Robinson, Michelle Date: 2025.08.15 11:56:39 +01'00'	August 2025
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
Draft	July 2025	Draft for client comment	WS	LS	MR
Final	August 2025	Final	WS	LS	MR

Contents

Tables

Appendices

1 Introduction

1.1 Proposed Development

1.1.1 National Grid Electricity Transmission (NGET) (the 'Applicant') has commissioned Stantec to undertake an air quality assessment to support an application for full planning permission for the upgrade/expansion of a substation in Margam, Port Talbot (the 'Site'). The Site is located within the administrative boundary of Neath Port Talbot Council (NPTC).

1.1.2 The planning application, (the 'Proposed Development'), is for "*full planning application for the extension of the Margam 275kV substation including the erection of a gas insulated switchgear hall (GIS hall) and the demolition of the existing control and amenities buildings to enable the erection of a new amenities building. Works to include earthworks, surface water management and drainage infrastructure, lighting, CCTV, boundary treatment, car parking, ecological improvements including a wildlife tower and gabion baskets, improved internal access roads, diesel generator and hardstanding, storage buildings, water storage tank, flood defence wall including flood gates and appropriate landscaping and other associated engineering operations.*

1.1.3 A detailed overview of the proposed works to the existing Margam 275kV substation compound is provided below:

- *Construction of a GIS hall to house 275 kV electrical switchgear and ancillary equipment;*
- *The GIS hall to include 12 bays with the provision of 3 spare bays;*
- *Mechanically Switched Capacitor with Damping Network;*
- *Realignment of the existing downleads and Super Grid Transformer circuits to new bays within the GIS hall;*
- *New amenities building to include welfare facilities, meeting room and ancillary office space;*
- *One diesel generator to be used in a backup situation only and hardstanding for a replacement freestanding diesel generator;*
- *Security fencing;*
- *Surface water management and drainage infrastructure including internal drainage systems;*
- *Flood defence wall (1150mm high and depth 1000mm) and flood gates at existing access points into the existing substation;*
- *Water storage tank (6m high and 6.1m diameter);*
- *CCTV;*
- *Lighting to include 6m medium duty, tilt down tubular steel constructure (exact location to be agreed), 27no. 'label C', 18no. 'label E' and 13no. 'label EX1), dark sky approved.*
- *Creation of new designated car parking area (four standard bays and two accessible bays).*

- *Landscaping to incorporate native planting / wildflowers.*
- *Ecological mitigation to include a wildlife tower and gabion baskets*."

1.2 Scope of Assessment

1.2.1 This report describes existing air quality within the study area and assesses the impact of the construction and decommissioning of the Proposed Development on air quality in the study area. The Site itself is not considered sensitive to poor air quality due to the nature of the proposed end-use (substation).

1.2.2 The main air pollutants of concern related to construction and decommission are dust and fine particulate matter (PM_{10}) associated with on-site construction and decommissioning activities and off-site trackout, and nitrogen dioxide (NO_2), PM_{10} and $PM_{2.5}$ associated with construction and decommissioning traffic.

1.2.3 The Proposed Development will be mainly unmanned during operation and the only operational vehicle trips associated with the Proposed Development will be from infrequent maintenance or repair works. The operational vehicle trips associated with the Proposed Development are also expected to be no more than presently associated with the Site. Therefore, the impacts of operational road traffic emissions will be 'not significant' and have therefore been scoped out of this assessment.

1.2.4 The substation will use gas for insultation; however, the gases will not be combusted and will be contained and therefore will not give rise to any emissions to air or impacts on local air quality.

1.2.5 As part of the Proposed Development there is a back-up power generator (diesel fired) which is required in case of a power outage. Whilst due to the size of the generator (circa 1,300 kVA), the NOx emission rate screening criteria of 5 mg/sec (Environmental Protection UK and the Institute of Air Quality Management (EPUK / IAQM), 2017) would be exceeded, given the infrequent operation (1 hour tests each month) and the fact that the closest sensitive receptor is located approximately 500 m to the northeast; the emissions to air (of NOx and PM_{10}/$PM_{2.5}$) are not considered to have the potential to give rise to significant offsite impacts on the National Air Quality Objectives (NAQOs) and have therefore not been assessed further.

1.2.6 It is anticipated that the minimum operational life for the Proposed Development is approximately 40 years. Equipment can be removed from the Site at the end of the Proposed Development's operational life (c. 2067). The installation of the equipment will be designed in a way that it could be decommissioned and deconstructed non-intrusively due to the above ground nature of the development. Should the Proposed Development be decommissioned, all above ground structures would be removed from the Site. The potential air quality impacts associated with the decommissioning of the Proposed Development have been assessed in this report.

1.2.7 The assessment has been prepared taking into account relevant local and national guidance, policy and legislation.

1.2.8 A glossary of terms used in this assessment is provided in **Appendix A .**

1.3 Consultation

1.3.1 Consultation has been carried out between Stantec and NPTC Environmental Health Department in the form of email correspondence (09/10/2024) with the Environmental Health Department. At the time of writing, a response from NPTC has not yet been received. Additional local monitoring data was requested, and this will be incorporated into the report if provided in time. Stantec and NGET will continue to liaise with NPTC to seek inclusion of this data in the

report. An EIA screening report which determined that no significant air quality impacts were likely was also submitted to NPTC in March 2025.

2 Legislation, Policy and Guidance

2.1 Air Quality Regulations

2.1.1 The Air Quality (Wales) Regulations 2000 (AQR) defined National Air Quality Objectives (NAQOs, a combination of concentration-based thresholds, averaging periods and compliance dates) for a limited range of pollutants. Subsequent amendments were made to the AQR in 2001 and 2002 to incorporate 'limit values' and 'target values' for a wider range of pollutants as defined in European Union (EU) Directives.

2.1.2 These amendments were consolidated by the Air Quality Standards (Wales) Regulations 2010 (AQSR) (with subsequent amendments most notably in 2016), which transposed the EU's Directive on ambient air quality and cleaner air for Europe (2008/50/EC).

2.1.3 Following the Transition Period after the UK's departure from the EU in January 2020, the Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 (and subsequent amendments for the devolved administrations) have amended the Air Quality Standards Regulations 2010 to reflect the fact that the UK has left the EU. The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 amended the $PM_{2.5}$ limit value in the AQSR to 20 µg/m^3.

2.1.4 The relevant NAQOs for this assessment are The Environment (Miscellaneous Amendments) (Wales) (EU Exit) Regulations 2020 shown in **Table 2-1**.

Table 2-1 Relevant Air Quality Objectives

Pollutant	Time Period	NAQOs	Source
NO_2	1-hour mean	200 µg/m^3 not to be exceeded more than 18 times a year	NAQO and AQSR limit value
	Annual mean	40 µg/m^3	NAQO and AQSR limit value
PM_{10}	24-hour mean	50 µg/m^3 not to be exceeded more than 35 times a year	NAQO and AQSR limit value
	Annual mean	40 µg/m^3	NAQO and AQSR limit value
$PM_{2.5}$	Annual mean	20 µg/m^3	AQSR limit value

2.1.5 The NAQOs for NO_2 and PM_{10} were to have been achieved by 2005 and 2004 respectively, but also continue to apply in all future years thereafter.

2.1.6 The Environment (Air Quality and Soundscapes) (Wales) Act 2024 (Welsh Government, 2024a) contains a requirement for Ministers to set at least one $PM_{2.5}$ air quality target and received Royal Assent in February 2024. However, no $PM_{2.5}$ air quality targets have been set in Wales to date.

National Air Quality Plan for NO_2 in the UK

2.1.7 The National Air Quality Plan for NO_2 (Department for Environment, Food and Rural Affairs (DEFRA), 2018) sets out how the Government plans to deliver reductions in NO_2 throughout the

UK, with a focus on reducing concentrations to below the EU Limit Values throughout the UK within the 'shortest possible time'.

2.1.8 The Plan requires all local authorities in Wales which DEFRA identified as having exceedances of the limit values in their areas past 2020 to develop local plans to improve air quality and identify measures to deliver reduced emissions, with the aim of meeting the limit values within their area within "*the shortest possible time*". Potential measures include changing road layouts, encouraging public and private ultra-low emission vehicle (ULEV) uptake, the use of retrofitting technologies and new fuels and encouraging public transport. In cases where these measures are not sufficient to bring about the required change within 'the shortest possible time' then local authorities may consider implementing access restrictions on more polluting vehicles (e.g. Clean Air Zones (CAZs)). A CAZ is defined within the plan as being "*an area where targeted action is taken to improve air quality and resources are prioritised and coordinated in a way that delivers improved health benefits and supports economic growth*" and may be charging or non-charging.

Tackling Roadside Nitrogen Dioxide Concentrations in Wales

2.1.9 The Welsh Government produced the Welsh Government Supplemental (Welsh Government, 2018) Plan (WGSP) to the UK Plan for Tackling Roadside NO_2 Concentrations. The WGSP sets out work that has been completed, and further work that continues to be done to identify how Wales will reduce concentrations of NO_2 around roads where concentrations are above legal limits in the "*shortest time possible*". The following measure was introduced in Port Talbot approximately 3.75 km to the northwest of the Site.

2.1.10 In June 2018, temporary 50 mph speed limits were introduced at five locations on motorways and trunk roads in Wales where NO_2 concentrations exceeded the NAQOs set out in **Table 2-2**. These speed limits were implemented to deliver immediate reductions in emissions. One of these 50 mph speed limits was introduced on the M4 between Junctions 41 and 42 at Port Talbot and is being enforced with Average Speed Enforcement to this day. The effectiveness of these interventions has been assessed though the Welsh Transport Appraisal Guidance (WelTAG) process, which involved detailed modelling and feasibility studies of pollutant concentrations on the section of the M4.

2.2 Air Quality Management

The Air Quality Strategy

2.2.1 Part IV of the Environment Act 1995 (Statutory Instrument, 1995) required the Secretary of State to prepare and publish and 'strategy' regarding air quality.

2.2.2 The Air Quality Strategy (2007) established the policy framework for ambient air quality management and assessment in the UK (DEFRA in partnership with the Scottish Executive, The National Assembly for Wales and the Department of the Environment for Northern Ireland, 2007). The primary objective of the Air Quality Strategy is to ensure that everyone can enjoy a level of ambient air quality which poses no significant risk to health or quality of life. The Air Quality Strategy sets out the NAQOs and Government policy on achieving these.

2.2.3 In 2023 the Welsh Government reviewed the Air Quality Strategy (2007) and concluded that it no longer met their ambition for air quality in Wales. As a result, the National Air Quality Strategy for Wales was modified in accordance with section 80 of the Environment Act 1995 by replacing the Air Quality Strategy (2007) with the Clean Air Plan for Wales: Healthy Air, Healthy Wales 2020 (Welsh Government, 2020). Despite this, the air quality objectives set out in Table 2 of the Air Quality Strategy (2007) remain applicable in Wales.

2.2.4 The aim of the Clean Air Plan for Wales is to improve air quality and reduce the impacts of air pollution on human health, biodiversity, the natural environment and the economy. The Plan

sets out a 10-year pathway to achieving cleaner air. The Plan is structured around four core themes, with actions to enable collaborative approaches to reducing air pollution:

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

2.2.5 The Clean Air Strategy (2019) aims to lower national emissions of pollutants, thereby reducing background pollution and minimising human exposure to harmful concentrations of pollution. The Strategy aims to create a stronger and more coherent framework for action to tackle air pollution (DEFRA, 2019).

Local Air Quality Management

2.2.6 Part IV of the Environment Act 1995 (Statutory Instrument, 1995) introduced a system of Local Air Quality Management (LAQM) which requires local authorities to regularly and systematically review and assess air quality within their boundary and appraise development and transport plans against these assessments.

2.2.7 Where a NAQO is unlikely to be met, the local authority must designate an Air Quality Management Area (AQMA) and draw up an Air Quality Action Plan (AQAP) setting out the measures it intends to introduce in pursuit of the NAQOs within its AQMA.

2.2.8 The Local Air Quality Management Technical Guidance 2022 ((LAQM.TG(22); (DEFRA, 2025)), issued by the Department for Environment, Food and Rural Affairs for local authorities provides advice as to where the NAQOs apply. These include outdoor locations where members of the public are likely to be regularly present for the averaging period of the objective (which vary from 15 minutes to a year) as summarised in **Table 2-2**.

Table 2-2 Relevant Public Exposure

Averaging Period	NAQOs should apply at:	NAQOs don't apply at:
Annual mean	All locations where members of the public might be regularly exposed For example: Building façades of residential properties, schools, hospitals, care homes etc	Façades of offices or other places of work where members of the public do not have regular access Hotels, unless people live there as their permanent residence Gardens of residences Kerbside sites Any other location where public exposure is expected to be short term
24-hour mean and 8-hour mean	All locations where the annual mean NAQO would apply, together with hotels and gardens of residences	Kerbside sites

		Any other location where public exposure is expected to be short term
1-hour mean	All locations where the annual mean and 24 and 8-hour mean NAQOs apply as well as: Kerbside sites Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside locations where the public would not be expected to have regular access
15-minute mean	All locations where members of the public might reasonably be regularly exposed for a period of 15 minutes or longer.	

2.3 Planning Policy

National Planning Policy

Planning Policy Wales

2.3.1 Planning Policy Wales (PPW) (Welsh Government, 2024b) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales.

2.3.2 Paragraph 1.2 states that "*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...*"

2.3.3 Chapter 6 provides specific guidance on air quality within Section 6.7 Air Quality and Soundscape. Paragraph 6.7.6 states that:

"In proposing new development, planning authorities and developers must, therefore:

address any implication arising as a result of its association with, or location within, air quality management areas…

- *not create areas of poor air quality or inappropriate soundscape; and*

seek to incorporate measures which reduce overall exposure to air and noise pollution…"

Planning Policy Wales Technical Advice Note 18: Transport National Planning Policy

2.3.4 The PPW TAN 18 was adopted in March 2007 (Welsh Government, 2007) and should be read in conjunction with the PPW. There are no policies within the TAN 18 that relate directly to air quality. However, the TAN states that "*transport emissions contribute significantly to climate change and poor air quality"* and when *"considering planning applications, planning authorities should take into account statutory air quality objectives, together with the results of air quality reviews and assessments and any Air Quality Management Area Action Plans that may have been prepared."*

Future Wales: The National Plan 2040

2.3.5 Future Wales: The National Plan 2040 (Welsh Government, 2021) was adopted in February 2021 and "*influences all levels of the planning system in Wales and will help to shape Strategic and Local Development Plans prepared by councils and national park authorities*". One of the key outcomes of the National Plan is for Welsh residents to live in places where travel is sustainable, with all modes of transport having low environmental impacts and emissions. The policies relating to air quality have been set out below.

2.3.6 Policy 12: Regional Connectivity

"The Welsh Government will support and invest in improving regional connectivity. In urban areas, to support sustainable growth and regeneration, our priorities are improving and integrating active travel and public transport. In rural areas our priorities are supporting the uptake of ultra-low emission vehicles and diversifying and sustaining local bus services.

The Welsh Government will work with Transport for Wales, local authorities, operators and partners to deliver the following measures to improve regional connectivity:

- *Active Travel – Prioritising walking and cycling for all local travel. We will support the implementation of the Active Travel Act to create comprehensive networks of local walking and cycling routes that connect places that people need to get to for everyday purposes.*
- *[…]*
- *Ultra-Low Emission Vehicles – Support the roll-out of suitable fuelling infrastructure to facilitate the adoption of ultra-low emission vehicles, particularly in rural areas.*

[…]."

2.3.7 Policy 18: Renewable and Low Carbon Energy Developments of National Significance

"Proposals for renewable and low carbon energy projects (including repowering) qualifying as Developments of National Significance will be permitted subject to policy 17 and the following criteria:

[…]

> *7. there are no unacceptable adverse impacts by way of shadow flicker, noise, reflected light, air quality or electromagnetic disturbance;*

[…]."

Local Planning Policy

Neath Port Talbot County Borough Council Local Development Plan (2011-2026)

2.3.8 NPTC adopted the Local Development Plan (LDP) (NPTC, 2016) in 2016. It sets out the County Borough's clear vision for where, when and how much development can take place up until 2026 with the aim to provide developers and the public with certainty about the planning framework for Neath Port Talbot. Within the LDP, 18 key issues are identified with one of these being poor air quality. As a result, one of the key objectives set out in the Plan is to "*address air quality issues and minimise the adverse impacts from noise generating and polluting activities"*. The policies relating to air quality can be seen below.

2.3.9 Policy SP 16: Environmental Protection

"Air, water and ground quality and the environment generally will be protected and where feasible, improved through the following measures:

1. Ensuring that proposals have no significant adverse effects on water, ground or air quality and do not significantly increase pollution levels;

2. Giving preference to the development of brownfield sites over greenfield sites where appropriate and deliverable;

3. Ensuring that developments do not increase the number of people exposed to significant levels of pollution."

2.3.10 Policy EN 8: Pollution and Land Stability

"Proposals which would be likely to have an unacceptable adverse effect on health, biodiversity and/or local amenity or would expose people to unacceptable risk due to the following will not be permitted:

- *Air pollution; …*

… Proposals which would create new problems or exacerbate existing problems detailed above will not be acceptable unless mitigation measures are included to reduce the risk of harm to public health, biodiversity and/or local amenity to an acceptable level. "

2.3.11 Policy EN 9: Developments in the Central Port Talbot Area

"Developments in the Central Port Talbot area that could result in breaches of air quality objectives during their construction phase, will be required to be undertaken in accordance with a Construction Management Plan submitted as part of the planning process and agreed by the Council."

2.3.12 NPTC are in the process of creating a Replacement Local Development Plan (2023-2038) which will replace the current Local Development Plan once adopted. Following the Preferred Strategy consultation, this stage will be followed by the Deposit Plan and considered at Examination in Public in due course.

Neath Port Talbot Air Quality Strategy

2.3.13 The Neath Port Talbot Air Quality Strategy (NPTC, 2013) was adopted in 2000 and updated in November 2014. The Strategy called, 'Air Wise – clean air for everyone', sets out the Council's strategic plan for tackling air pollution across the borough. The Strategy recognises the significant impact of industrial emissions from the Port Talbot steelworks in the Boroughs poor air quality therefore, the strategy is aiming to improve air quality by involving local authorities, Natural Resources Wales, and other stakeholders. It also addressed traffic-related pollution and emphasized the importance of protecting public health.

2.3.14 As part of the Strategy a comprehensive air quality monitoring network measuring PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO, ozone, and heavy metals was put in place in the Borough. The strategy also committed to investment into public engagement and integration of air quality considerations into planning and transport policies in the future.

Clean Air for Port Talbot Short Term Action Plan

2.3.15 The Clean Air for Port Talbot Short Term Action Plan (Welsh Government, 2012) was adopted in 2012. Despite there being no legal requirements for a Short-Term Competent Authority Action Plan, the Welsh Minsters concluded that there was a risk of the PM_{10} limit value being exceeded

in Neath Port Talbot. The Plan shows the "*actions, over and above the day to day existing activities, that will be taken where there is a risk of exceedance*".

Neath Port Talbot Council Air Quality Action Plan

2.3.16 NPTC has produced an Air Quality Action Plan (AQAP) (NPTC, 2024) as part of its statutory duties under the LAQM framework. It outlines actions to improve air quality within the County Borough between 2024 and 2029 and aims to ensure that new developments do not adversely affect PM_{10} levels in Port Talbot. Measures are considered under nine broad topics:

- Alternatives to private vehicle use
- Environmental permits
- Policy guidance and development control
- Promoting low emission plants
- Promoting low emission transport
- Promoting travel alternatives
- Public information
- Transport planning and infrastructure
- Traffic management

Neath Port Talbot County Borough Council 2023 Air Quality Progress Report

2.3.17 NPTC has produced an Air Quality Progress Report (NPTC, 2023) which details the progress that the council has made in improving its air quality up to 2023. Within the report, actions that have been put in place to reduce air pollution are reviewed, air quality data is compared to the NAQOs and proposed new actions are set out.

2.4 Assessment Guidance

2.4.1 The primary guidance documents used in undertaking this assessment are detailed below.

DEFRA 'Local Air Quality Management Technical Guidance (LAQM.TG (22))'

2.4.2 DEFRA LAQM.TG(22) was published for use by local authorities in their LAQM review and assessment work (DEFRA, 2025). The document provides key guidance on aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

EPUK-IAQM 'Land-Use Planning & Development Control: Planning for Air Quality

2.4.3 Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have together published guidance to help ensure that air quality is properly accounted for in the development control process (Environmental Protection UK and the Institute of Air Quality Management (EPUK / IAQM), 2017). It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed including guidelines for assessing the significance of impacts.

IAQM 'Guidance on the Assessment of Dust from Demolition and Construction'

2.4.4 Guidance on the assessment of dust from demolition and construction has been published by the IAQM (IAQM, 2024). The guidance provides a series of matrices to determine the risk magnitude of potential dust sources associated with construction activities in order to identify appropriate mitigation measures that are defined within further IAQM guidance.

2.4.5 Within the IAQM guidance, an 'impact' is described as a change in pollutant concentrations or dust deposition and an 'effect' is described as the consequence of an impact.

3 Methodology

3.1 Introduction

3.1.1 The assessment methodology detailed in the following sections has been applied to ascertain the potential impacts of emissions to air in order to identify their significance and compliance with policy and regulatory requirements (outlined in **Section 2** of this report), and whether or not additional mitigation is required.

3.1.2 This assessment first outlines the existing air quality within the study area set out in **Section 4.2** . It then assesses the impact of construction, operational and decommissioning activities on air quality and sensitive receptors in the study area.

3.2 Baseline Air Quality

3.2.1 Any exceedances of the limit values along roads within the study area set out in **Section 4.2** have been identified using the 2020 NO_2 Projections Data published by DEFRA (DEFRA, 2020). Information on baseline air quality in the study area has been obtained by collating the results of monitoring carried out by NPTC and their LAQM reports to identify potential AQMAs. Background concentrations for the study area have been defined using the national pollution maps published by DEFRA which cover the whole country on a 1x1 km grid (DEFRA, 2024).

3.3 Construction and Decommission Dust Impacts

3.3.1 During demolition, construction and decommission, dust from on-site activities and off-site trackout by construction vehicles has the potential to impact on sensitive human receptors within the study area. The main potential impacts are loss of amenity (as a result of dust soiling) and deterioration of human health (as a result of increased concentrations of PM_{10}) and harm to sensitive ecological receptors.

3.3.2 The suspension of particles in the air is dependent on surface characteristics, weather conditions and on-site activities. Impacts have the potential to occur when dust generating activities coincide with dry, windy conditions, and where sensitive receptors are located downwind of the dust source(s).

3.3.3 Separation distance is also an important factor. Large dust particles (greater than 30 µm), can be potentially responsible for most dust annoyance, will largely deposit within 100 m of sources. Intermediate particles (10-30 µm) can travel 200-500 m. Consequently, significant dust annoyance is usually limited to within a few hundred metres of its source. Smaller particles (less than 10 µm), which are the predominant fraction that can be potentially responsible for human health impacts largely remain airborne. However, the impact on the short-term concentrations of PM_{10} occurs over a shorter distance due to the rapid decrease in concentrations with distance from the source due to dispersion.

3.3.4 The assessment of the risk of potential dust impacts has been undertaken with reference to relevant guidance (IAQM, 2024). The assessment methodology considers three separate potential dust impacts:

- loss of amenity due to dust soiling;
- human health effects due to increases in concentrations of PM_{10}; and
- harm to ecological receptors due to increased dust deposition.

3.3.5 The first stage of the assessment involves screening to determine if there are sensitive receptors within threshold distances of the activities associated with the construction and

decommission phases of the scheme; defined as the study area. No further assessment is required if there are no receptors within the study area.

3.3.6 The IAQM guidance outlines that an assessment is only required in cases where:

- A 'human receptor' is located within:
  - 250 m of the boundary of the Site; or
  - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Site entrance(s).
- An 'ecological receptor' is located within:
  - 50 m of the boundary of the Site; or
  - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Site entrance(s).

3.3.7 The assessment of potential risk is determined by considering the risk of dust impacts arising from four activities in the absence of mitigation demolition, earthworks, construction and trackout.

3.3.8 The dust emission class (or magnitude) for each activity, receptor sensitivity and the overall sensitivity of the area are determined using the criteria outlined in **Table B-1** to **Table B-5** in **Appendix B** (based on the IAQM guidance), indicative thresholds and professional judgement. The risk of dust impacts arising is a product of the relationship between the dust emission magnitude and the area sensitivity and is based on the criteria outlined in **Table B-6** (based on the IAQM guidance). The risk of impact is then used to determine the mitigation requirements.

3.3.9 The IAQM guidance recommends that no assessment of the significance of effects is made without mitigation in place, as mitigation is assumed to be secured by planning conditions, legal requirements or required by regulations.

3.3.10 With appropriate mitigation in place, the IAQM guidance indicates that the residual effect of dust emissions associated with the demolition, construction and decommission of the Proposed Development can be classified as being 'not significant'.

3.4 Demolition, Construction and Decommission Road Traffic Emission Impacts

Human Receptors

3.4.1 The potential for a significant overall effect on existing sensitive receptors within the study area as a result of emissions from demolition, construction and decommission traffic generated by the Proposed Development has been determined qualitatively, taking into consideration the screening criteria outlined in the EPUK / IAQM guidance (Environmental Protection UK and the Institute of Air Quality Management (EPUK / IAQM), 2017) (see **Appendix B**), the anticipated routing of the generated traffic and the anticipated duration of impacts associated with the generated traffic.

Ecological Receptors

3.4.2 In relation to ecological receptors, a detailed (quantitative) air quality assessment of impacts is required if there are sensitive habitats (within designated sites) within 200 m of a road with a 'potentially significant change'. If there are no designated sites containing sensitive habitats within 200 m of the affected road, then no further assessment is required as research shows

(Natural Resources Wales, 2025) that there is no credible risk of a significant effect beyond 200 m from a road which might undermine a site's conservation objectives.

3.4.3 The potentially significant change could be associated with realignment (i.e. increased proximity to receptors), changes to speed (>10 kph) or traffic flow. The applied screening criteria for changes in road traffic flows is a change of LDV flows of more than 1,000 Annual Average Daily Traffic (AADT) (or HDV flows of more than 200 AADT) (Natural Resources Wales, 2025). Changes in traffic flows below the 1,000 AADT (or HDV flows of less than 100 AADT) criteria are therefore not considered to have the potential to result in a significant effect which might undermine a site's conservation objectives.

3.5 Demolition, Construction and Decommission Non-Road Mobile Machinery (NRMM) Emission Impacts

3.5.1 The impacts of emissions associated with NRMM during the construction and decommission phases of Proposed Development has been undertaken qualitatively, taking into account the following:

- Duration of works;
- Type and number of NRMM to be used on-site;
- Operating hours of NRMM;
- Emissions standard to which NRMM comply;
- Proximity of receptors to NRMM working areas; and
- Existing background pollutant concentrations.

3.5.2 In accordance with DEFRA's LAQM TG.22 (DEFRA, 2025), with suitable controls and site management in place, emissions associated with NRMM and site traffic are unlikely to have significant impact on local air quality.

4 Baseline Environment

4.1 Site Context

4.1.1 The Site is located in Port Talbot, South Wales, which is approximately 14 km south-east of Swansea. The Site is approximately 600 m inland from the coastline with the Bristol Channel. The Site is located both within and immediately adjacent to the Tata Port Talbot Steelworks.

4.1.2 The north-eastern boundary of the Site is formed by the A4241 Harbour Way and land used as a golf course associated with the Tata Sports & Social Club, the reminder of which lies beyond the A4241. To the east, the Site is bound by woodland and the BOC Plant, Margam Green Energy Plant and Western Wood Energy Plant both lie approximately 130 m east of the Site. Approximately 600 m east of the Site lies the A48, beyond which the M4 is located. To the south of the Site lies the Heol Cae'r Bont beyond which lies the Eglwys Nunydd Reservoir, a rail depot (Margam Knuckle Yard) and Margam Moors. The west and north-west of the Site are bounded by industrial land forming part of the Tata Steelworks.

4.2 Study Area

4.2.1 For the construction and decommission phase dust assessment, the study area (based on IAQM, 2024 guidance) (Figure 5-1) is defined as up to 250 m from the Site or 50 m from the route of construction vehicles (up to 250 m from the site entrance).

4.2.2 For the construction and decommission phase road traffic emissions assessment, the study area (based on EPUK / IAQM, 2017 guidance) is defined as all roads within 250 m of the Site and any other roads which could potentially exceed the screening criteria outlined in **Appendix C**.

4.3 Ambient Air Quality

Limit Values

4.3.1 The study area does not contain any predicted exceedances of a limit values either in the existing year (2022[1]) (DEFRA, 2020).

LAQM

4.3.2 NPTC has investigated air quality within its area as part of its responsibilities under the LAQM regime. An Air Quality Management Area (AQMA) has been declared in Neath Port Talbot covering an area covering the majority of land and properties between the Corus Steel Works and the M4 Motorway for exceedances of the 24-hour mean PM_{10} NAQO, however there has been a decline in measured PM_{10} levels since the AQMA was declared (NPTC, 2023).

Local Monitoring Data

NO_2

4.3.3 NPTC undertakes automatic monitoring of NO_2 concentrations at two locations in the County Borough, the closest of which to the Site is the Dyffryn School (DS1) monitoring station which is located approximately 370 m Northeast of the Site. NPTC also undertakes monitoring using NO_2 diffusion tubes at a number of locations. The closest diffusion tube monitoring location to the Site, 19a/19b/19c, is located approximately 1.9 km north at the Port Talbot Fire Station. Data for the closest and most representative monitoring locations to the Site are provided in **Table 4-**

[1] 2022 has been chosen as the 'existing' year as it is the latest year of available monitoring data.

1 and **Table 4-2** and their locations are shown in **Figure 4-1**. Whilst 2020 and 2021 monitoring results are presented, it should be noted that these are not considered to be representative of typical conditions due to COVID-19 restrictions in place during these years.

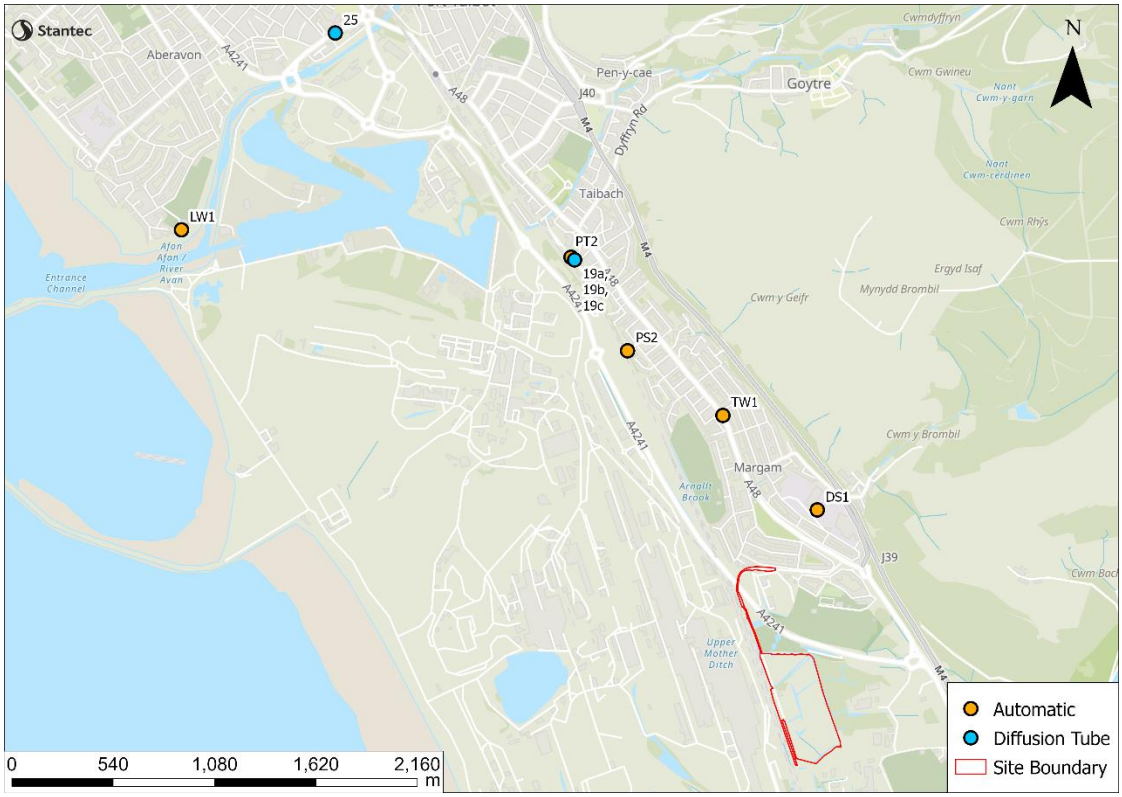

Figure 4-1 Monitoring Locations in the vicinity of the Site. Contains OS Data © Crown Copyright and Database rights 2023. Contains data from OS Zoomstack.

Table 4-1 Measured Annual Mean NO_2 Concentrations 2018-2022

Site ID	Site Type	Within AQMA	Annual Mean NO_2 ($\mu g/m^3$)				
			2018	2019	2020	2021	2022
Automatic Monitors							
PT2	Industrial	Y	15.0	15.0	12.0	13.0	12.0
Diffusion Tubes							
19a, 19b, 19c	Roadside	N	13.7	15.7	13.4	15.2	11.8
25	Roadside	N	24.1	27.7	21.5	26.6	21.2
NAQO		**40**					

2018 - 2022 data taken from the NPTC 2023 Air Quality Annual Status Reports (NPTC, 2023)

4.3.4 There have been no measured exceedances of the annual mean NO_2 NAQO between 2018-2022 at any of the closest and most representative monitoring locations to the Site. At all of monitoring locations described in **Table 4-1**, there is a generally decreasing trend in measured concentrations over time which reflects the national trend (Air Quality Consultants, 2022).

Table 4-2 Measured Exceedances of the Hourly Mean NO_2 NAQO 2018-2022

Site ID	Number of Hours >200µg/m³				
	2018	2019	2020	2021	2022
PT2		0	0	0	0
NAQO	**18 (hours >200µg/m³)**				

2018-2022 data taken from the NPTC 2023 Air Quality Annual Status Reports (NPTC, 2023)

4.3.5 **Table 4-2** shows that there have been no exceedances of the hourly mean NO_2 NAQO between 2018-2022.

PM_{10}

4.3.6 The results of PM_{10} monitoring at the closest and most representative NPTC automatic monitoring locations to the Site are shown in **Table 4-3** and **Table 4-4** and their locations are shown in **Figure 4-1**.

Table 4-3 Measured Annual Mean PM_{10} Concentrations 2018-2022.

Site ID	Annual Mean PM_{10} (µg/m³)				
	2018	2019	2020	2021	2022
PT2	23	21	21	25	26
DS1	-	22	23	25	17
TW1	21	21	20	20	-
LW1	21	20	21	18	19
PS2	23	20	24	20	27
NAQO	**40**				

2018 - 2022 data taken from the NPTC 2023 Air Quality Annual Status Reports (NPTC, 2023)

Table 4-4 Measured Exceedances of the 24-hour Mean PM_{10} NAQO 2018-2022.

Site ID	PM_{10} Number of Days >50µg/m³				
	2018	2019	2020	2021	2022
PT2	11	12	11	33	23
DS1	-	2	0	0	2 (30)
TW1	9	10	7	0	-
LW1	9	9	15	7	6 (33)
PS2	12	8	16	3	20 (47)
NAQO	**35 (days >50 µg/m³)**				

2018 - 2022 data taken from the NPTC 2023 Air Quality Annual Status Reports (NPTC, 2023)

4.3.7 Measured PM_{10} concentrations have been below the relevant NAQOs for the duration of the 2018-2022 monitoring period.

$PM_{2.5}$

Table 4-5 Measured $PM_{2.5}$ Concentrations 2018-2022.

Site ID	Annual Mean $PM_{2.5}$ (µg/m^3)				
	2018	2019	2020	2021	2022
PT2	10	11	11	9	8
DS1	-	-	-	-	6
TW1	-	-	-	-	-
LW1	-	-	-	-	7
PS2	10	9	9	9	10
NAQO	**20**				

2018 - 2022 data taken from the NPTC 2023 Air Quality Annual Status Reports (NPTC, 2023)

4.3.8 Measured $PM_{2.5}$ concentrations have been below the relevant NAQO for the duration of the 2018-2022 monitoring period.

Predicted Background Concentrations

4.3.9 Estimated background concentrations for the Site have been obtained from the latest 2021-based national maps provided by DEFRA (DEFRA, 2024) and are provided in **Table 4-6** for the 'existing' year and anticipated opening year of the Proposed Development.

4.3.10 The background concentrations are all well below the relevant NAQOs.

Table 4-6 Estimated Annual Mean Background Concentrations

Year	Location	Annual Mean (µg/m^3)		
		NO_2	PM_{10}	$PM_{2.5}$
2024	277_185	4.9	10.2	5.6
	278_186	10.8	11.7	6.4
	278_185	5.9	10.3	5.7
	279_185	7.0	10.9	5.8
NAQOs		**40**	**40**	**20**

5 Predicted Impacts

5.1 Construction Dust Impacts

Screening Assessment

5.1.1 There are a number of existing sensitive human receptors (including residential properties) located within 250 m of the site boundary and within 50 m of the routes that will be used by demolition and construction vehicles. As such, further assessment of the risk of dust soiling and PM_{10} emissions is required.

5.1.2 There is one sensitive ecological receptor within 50 m of the site boundary. This receptor is the Junction 38 Wetland Complex which is a Site of Importance for Nature Conservation (SINC) and is located partially within the boundary of the Site. As such, the potential for ecological impacts as a result of dust soiling cannot be screened out of further assessment and has been considered below.

Further Assessment

Dust Emission Magnitude

5.1.3 The dust emissions magnitude of demolition, earthworks and construction activities and as a result of trackout have been determined in **Table 5-1** below based the criteria shown in **Table B-1**, **Appendix B** .

Table 5-1 Dust Emission Magnitudes

Activity	Magnitude	Justification
Demolition	Small	The Site currently includes the existing substation and the associated ancillary buildings to the north which will be demolished for the new welfare building. Demolition activities are not expected to occur more than 6 m above ground and do not have the potential to exceed 12,000 m^3 of material. Therefore, the dust emission magnitude of demolition activities is judged to be 'small'.
Earthworks	Large	Proposed earthworks activities comprise clearance of vegetation, soil preparation and landscaping across an area that could potentially be greater than 110,000 m^2 however, earthworks activities are not expected to be carried out across the whole site area. The soil at the Site is largely classified as loamy and clayey soils of coastal flats with naturally high groundwater (Cranfield University, 2024) which are considered to be moderately dusty, particularly during periods of dry weather. Based on this, the dust emission magnitude of earthworks activities is judged to be 'large' as a precautionary measure.
Construction	Medium	The total building volume to be constructed is expected to be between 18,000 m^3 and 110,000 m^3. Construction materials will comprise a mixture of masonry material including those with a high potential for dust release, such as concrete, as well as those with a lower dust potential such as metals and timber. Based on this, the dust emission magnitude of construction activities is judged to be 'medium'.
Trackout	Large	The number of HDVs that will exit the Site will vary depending upon the processes occurring at any one time. There are unlikely to be more than 50 outward HDV movements in any one day.

		Due to the nature of the Site, there could be an unpaved road length greater than 100 m in length comprising moderately dusty surface material. Based on this, the dust emission magnitude of trackout is judged to be 'large'.

Area Sensitivity

5.1.4 The area sensitivity to dust soiling, human health and ecological impacts has been determined based on the criteria shown in **Table B-3,**

5.1.6 Table B-4**, Table B-5, Appendix B** IAQM demolition and construction band criteria used to determine the sensitivity of the local area is shown in **Figure 5-1** below.

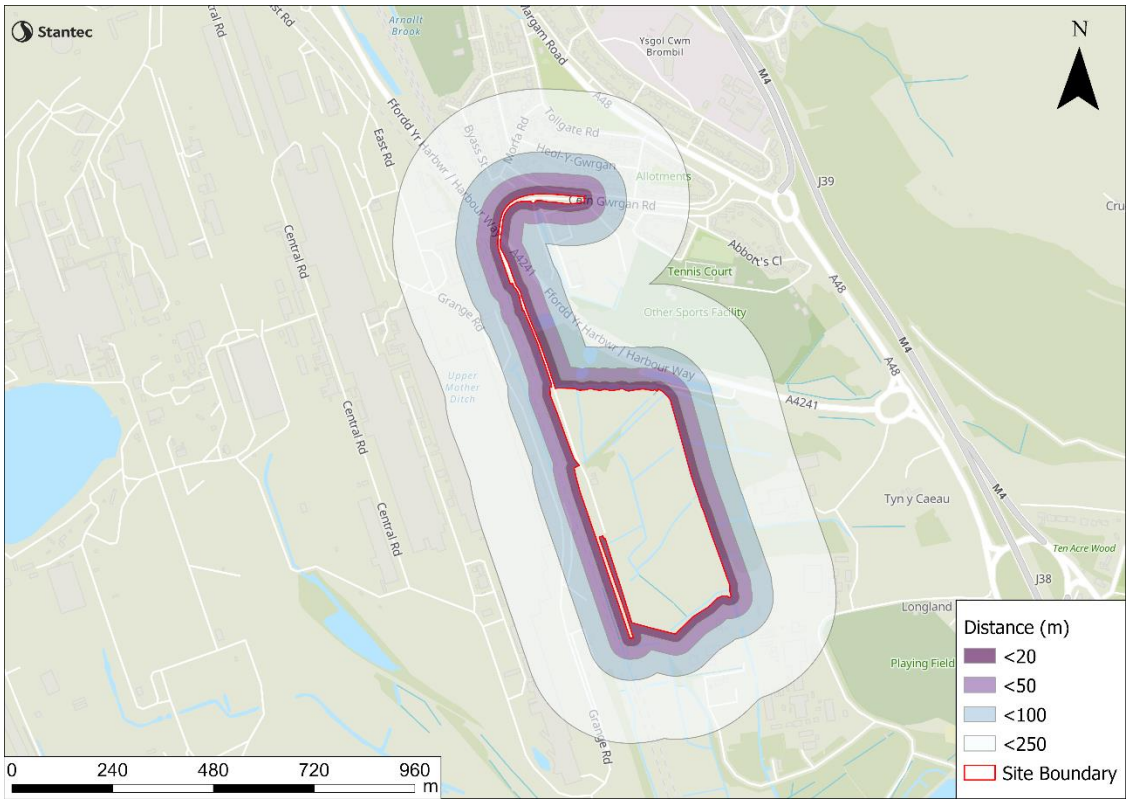

Figure 5-1: IAQM Demolition and Construction Dust band Criteria from the Site boundary. Contains OS Data © Crown Copyright and Database rights 2024. Contains data from OS Zoomstack.

5.1.7 Residential properties are classed as being 'high sensitivity' receptors to dust soiling, based on the IAQM guidance (IAQM, 2024) (see **Table B-3**, **Appendix B**). Industrial uses are classed as being classed as 'low sensitivity' receptors to dust soiling. There are over ten residential properties located within 20 m of the site boundary, with the closest residential properties being approximately 7 m to the north of the Site and there are industrial uses within 20 m of the Site. As such, the sensitivity of the area surrounding the Site to dust soiling is judged to be 'high'.

5.1.8 The IAQM guidance indicates that potential impacts of trackout should be considered for sensitive receptors within 50 m of the route used by demolition and construction vehicles within a distance of up to 250 m from the site entrance. The construction traffic will access the Site from the north via the A48 leading to Cefn Gwrgan Road. There over 10 existing receptors located within 20 m of roads extending up to 250 m of the Site. As such, the sensitivity to dust soiling of the area surrounding roads along which material may be tracked is judged to be 'high'.

5.1.9 The IAQM also defines residential properties as being 'high sensitivity' receptors to human health impacts (see

5.1.11 Table B-4, **Appendix B**). PM_{10} concentrations at existing residential properties within the study area are anticipated to be similar to the 2022 measured background concentration at NPTC monitoring location 'PT2' (i.e. 23 µg/m^3). Based on the existing PM_{10} concentrations and the number of sensitive receptors within 20 m of the site boundary and roads along which material may be tracked, the sensitivity to human health impacts of the areas surrounding the Site and the area surrounding roads along which material may be tracked are judged to be 'low'.

5.1.12 SINCs with dust sensitive features are classed as being 'low sensitivity' receptors to dust deposition, based on the IAQM guidance (IAQM, 2024) (see **Table B-5, Appendix B**). There is one SINC (Junction 38 Wetland Complex) located partially within the site boundary. As such, the sensitivity of the area surrounding the Site to dust soiling is judged to be 'low'.

Risk of Impacts

5.1.13 The risk of construction dust impacts, without mitigation, have been defined based on the criterion shown in **Table B-6, Appendix B** and are presented in **Table 5-2**.

Table 5-2 Risk of Construction Dust Impacts without Mitigation

Potential Impact	Risk			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Soiling	Medium Risk	High Risk	Medium Risk	High Risk
Human Health	Negligible Risk	Low Risk	Low Risk	Low Risk

5.2 Decommission Dust Impacts

5.2.1 During decommission, there will be the risk of dust impacts from both demolition and trackout. The magnitude of the demolition is likely to be judged to be 'medium' as the total building volume to be constructed is expected to be between 18,000 m^3 and 110,000 m^3. The magnitude of the trackout is likely to be judged to be 'large' as per the construction phase of the Proposed Development. Therefore, the risk of demolition is likely to be classed as 'medium risk', the risk of trackout likely to be classed as 'high risk' and the mitigation recommended in **Table 6-1** will also be applicable to the decommissioning phase.

5.3 Demolition, Construction and Decommission Road Traffic Emission Impacts

Human Receptors

5.3.1 During the demolition and construction periods, there will be an increase of 20 AADT on the road network which includes both LDVs and HDVs. The exact split has not been confirmed but it is expected that the majority of these will be HDVs. Therefore, the increase in LDV traffic flow will be below the threshold of 500 AADT outside an AQMA and of 100 AADT inside the Neath Port Talbot Taibach/Margam AQMA for a detailed assessment to be necessary according to EPUK and IAQM guidance (Environmental Protection UK and the Institute of Air Quality Management (EPUK / IAQM), 2017). Also, the increase in HDV traffic flow will be below the threshold of 100 AADT outside an AQMA and of 25 AADT inside the AQMA for a detailed assessment to be necessary.

5.3.2 The impacts of emissions associated with demolition and construction road traffic on air quality in the local area are considered to be 'not significant'.

5.3.3 Similarly, the number of vehicle movements associated with the decommissioning phase is not anticipated to exceed that set out for the construction phase. Therefore, the impacts of emissions associated with road traffic associated with the decommissioning phase on air quality in the local area are considered to be 'not significant'

Ecological Receptors

5.3.4 Junction 38 Wetland Complex SINC is located within 200 m of a road with a maximum increase in traffic of 20 AADT resulting from the construction of the Proposed Development. Therefore, the increase in traffic flows resulting from the Proposed Development during its construction are well below the 1,000 LDV AADT and 200 HDV AADT criteria set out in Paragraph 3.4.3 for requiring a more detailed assessment of air quality impacts on the SINC. As well as this, all other roads adjacent to designated sites in the in the wider study area fall below the screening criteria of 1,000 LDV AADT and 200 HDV AADT.

5.3.5 Therefore, the impacts of emissions associated with construction road traffic on ecological receptors are considered to be 'not significant'.

5.3.6 Similarly, the number of vehicle movements associated with the decommissioning phase is not anticipated to exceed that set out for the construction phase. Therefore, the impacts of emissions associated road traffic associated with the decommissioning phase on ecological receptors are considered to be 'not significant'.

5.4 Demolition, Construction and Decommission Non-Road Mobile Machinery Emission Impacts

5.4.1 The Site is located approximately 10 m from the closest residential receptors and the background concentrations (DEFRA, 2024) of NO_2 and PM_{10} are well below the relevant NAQOs. No specific information regarding the duration of works, site operating hours or the type/number of NRMM is currently available.

5.4.2 In accordance with Part 4 of the IAQM construction dust guidance, all Non-Road Mobile Machinery (NRMM) will need to adhere to the NRMM emissions standards for NO_2 and PM_{10} outlined in European Directive 2016/1628 (European Parliament, Council of the European Union, 2016).

5.4.3 Considering the above, the impacts of emissions associated with NRMM during the construction and decommissioning phases of the Proposed Development are considered to be 'not significant'.

6 Mitigation

6.1 Construction and Decommission

6.1.1 **Table 6-1** presents the standard mitigation measures recommended from the IAQM guidance (IAQM, 2024), taking into account the outcomes of the construction dust risk assessment which is presented in **Table 5-2**. These measures should be included in a Construction Environmental Management Plan (CEMP) for the Proposed Development and secured by planning condition. With appropriate mitigation in place, the IAQM guidance indicates that the residual effect of dust emissions associated with the demolition, construction and decommission of the Proposed Development can be classified as being 'not significant'.

Table 6-1 Construction and Decommission Phase Mitigation Measures

Category	Mitigation Measure
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
Management	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, real time PM_{10} continuous monitoring and/or visual inspections.
	Record all dust and air quality complaints, identify cause(s) and take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
	Make the complaints log available to the local authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- of off-site, and the action taken to resolve the situation in the log book.
	Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
Monitoring	Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of the site boundary, with cleaning to be provided if necessary.
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
	Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the local authority. Where possible, commence baseline monitoring at least three months before work on a phase commences.

Category	Mitigation Measure
Preparing and maintaining the site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as a high as any stockpiles on site.
	Fully enclose site or specific operations where there is a high potential for dust productions and the site is active for an extensive period.
	Avoid site runoff of water of mud.
	Keep site fencing, barriers and scaffolding clean using wet methods.
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site, cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicle/machinery and sustainable travel	Ensure all vehicles switch off engines when stationary – no idling vehicles.
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
	Impose and signpost a maximum speed limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car sharing).
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
	Use enclosed chutes and conveyors and covered skips.
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste management	Avoid bonfires and burning of waste materials.
Demolition	Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
	Ensure effective water suppression is used during demolition operations. Hadn held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
	Avoid explosive blasting, using appropriate manual or mechanical alternatives.

Category	Mitigation Measure
	Bag and remove any biological debris or damp down such material before demolition.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
	Only remove the cover in small areas during work and not all at once.
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
	For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
Trackout	Use water assisted dust sweepers on the site access and local roads, to remove, as necessary, any material trackout out of the site. This may require the sweeper being continuously in use.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving the site are covered to prevent escape of materials during transport.
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
	Record all inspections of haul routes and any subsequent action in a site log book.
	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
	Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
	Access gates to be located at least 10 m from receptors where possible.

7 Summary and Conclusions

7.1.1 The air quality impacts associated with the proposed upgrade/expansion of the Margam substation have been assessed. The Site is located within the administrative boundary of Neath Port Talbot County Borough Council (NPTC).

7.1.2 NPTC has investigated air quality within its area as part of its responsibilities under the Local Air Quality Management) regime. An Air Quality Management Area (AQMA) has been declared in Neath Port Talbot covering an area covering the majority of land and properties between the Corus Steel Works and the M4 Motorway for exceedances of the 24-hour mean PM_{10} NAQO, however there has been a reduction in measured PM_{10} levels since the AQMA was declared in July 2000.

7.1.3 The construction and decommissioning activities have the potential to create dust. During construction and decommission, it is recommended that in accordance with the Institute of Air Quality Management (IAQM) guidance a package of mitigation measures should be included in a Construction Environmental Management Plan (CEMP) to minimise the risk of elevated PM_{10} concentrations and dust soiling in the surrounding area. With mitigation in place the construction and decommissioning impacts are judged as being 'not significant'.

7.1.4 The increase in road traffic resulting from the construction of the Proposed Development is below the Environmental Protection UK / IAQM screening criteria therefore the air quality impacts of the Proposed Development, with regards to construction traffic, are considered to be 'not significant' and additional mitigation is not required. The increase in road traffic is also below the screening criteria for a detailed ecological assessment to be required therefore, the impacts of emissions associated with construction road traffic on ecological receptors are considered to be 'not significant'.

7.1.5 The increase in road traffic resulting from the decommissioning of the Proposed Development is unknown however, it is not expected to exceed that in the construction phase therefore, the air quality impacts of the Proposed Development on human and ecological receptors, with regards to decommissioning traffic, are considered to be 'not significant' and additional mitigation is not required.

7.1.6 For these reasons, the Proposed Development is accordance with both Planning Policy Wales and the NPTC Local Development Plan. The Proposed Development is not considered to create an area of poor air quality, seeks to incorporate measures which reduce overall exposure to air pollution (Welsh Government, 2024b) and does not result in an unacceptable adverse effect on health, biodiversity and/or local amenity or expose people to an unacceptable risk (NPTC, 2016) from an air quality perspective. The Proposed Development is therefore considered to be in accordance with the requirements of the planning policy, and relevant local and national guidance regarding air quality.

8 References

Cranfield University. (2024). *Soilscapes Viewer*. Retrieved October 02, 2024, from https://www.landis.org.uk/soilscapes/

Department for Environment, Food and Rural Affairs (DEFRA). (2018). *UK Plan for tackling Roadside Nitrogen Dioxide Concentrations: Detailed Plan*. Retrieved October 02, 2024, from https://www.gov.uk/government/publications/air-quality-plan-for-nitrogen-dioxide-no2-in-uk-2017

DEFRA. (2019). *Clean Air Strategy 2019.*

DEFRA. (2020). *2020 NO2 and PM Projections Data (2018 Reference Year)*. Retrieved October 02, 2024, from https://uk-air.defra.gov.uk/library/no2ten/2020-no2-pm-projections-from-2018-data

DEFRA. (2024). *2021 Based Background Maps*. Retrieved October 02, 2024, from https://uk-air.defra.gov.uk/data/laqm-background-home

DEFRA. (2025). *Local Air Quality Management Technical Guidance (TG22).*

DEFRA in partnership with the Scottish Executive, The National Assembly for Wales and the Department of the Environment for Northern Ireland. (2007). *The Air Quality Strategy for England, Scotland, Wales, Northern Ireland.* London: HMSO.

Environmental Protection UK and the Institute of Air Quality Management (EPUK / IAQM). (2017). *Land-use Planning & Development Control: Planning for Air Quality, V1.2.* The Institute for Air Quality Management, London.

European Parliament, Council of the European Union. (2016). *Regulation (EU) 2016/1628 of the European Parliament and of the Council of 14 September 2016 on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery.*

IAQM. (2024). *Guidance on the Assessment of Dust from Demolition and Construction, version 2.2.* London: IAQM.

Natural Resources Wales. (2025). *Assessing air quality impacts as part of your planning application.*

NPTC. (2013). *Air Quality Strategy*. Retrieved October 03, 2024, from https://beta.npt.gov.uk/environmental-health/air-land-and-water-quality/npt-air-quality-strategy/

NPTC. (2016). *Local Development Plan (2011-2026)*. Retrieved October 03, 2024, from https://media.npt.gov.uk/media/ca2fbumd/ldp_written_statement_jan16.pdf?v=20240823155047

NPTC. (2023). *2023 Air Quality Progress Report*. Retrieved January 14, 2025, from https://www.npt.gov.uk/environmental-health/pollution/pollution-monitoring-reports/7

NPTC. (2024). *Neath Port Talbot Council Air Quality Action Plan*. Retrieved October 03, 2024, from https://democracy.npt.gov.uk/documents/s101664/Appendix%202%20DRAFT%20Air%20Quality%20Action%20Plan%202024-29.pdf

Statutory Instrument. (1995). c. 25, 'Environment Act 1995'. London: HMSO.

Statutory Instrument. (2010), No. 1001, '*The Air Quality Standards Regulations 2010'* HMSO, London.

Statutory Instrument. (2016). No. 1184, '*The Air Quality Standards (Amendment) Regulations 2016*' HMSO, London.

Statutory Instruments. (2019). No. 74, ‘The Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019’ HMSO, London

Statutory Instruments. (2020). No. 131, ‘The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020’ HMSO, London

Statutory Instrument. (2021). c. 30, ‘Environment Act 2021'. London: HMSO.

Welsh Government. (2007). *Planning Policy Wales Technical Advice Note 18: Transport.*

Welsh Government. (2012). *Clean Air for Port Talbot Short Term Action Plan 2012.*

Welsh Government. (2018). *Tackling Roadside Nitrogen Dioxide Concentrations in Wales.*

Welsh Government. (2020). *The Clean Air Plan for Wales.*

Welsh Government. (2021). *Future Wales: The National Plan 2040.*

Welsh Government. (2024a). *Environment (Air Quality and Soundscapes) (Wales) Act 2024.*

Welsh Government. (2024b). *Planning Policy Wales Edition 12.*

Appendix A Glossary

Abbreviations	Meaning
AADT	Annual Average Daily Traffic
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AURN	Automatic Urban and Rural Network
CEMP	Construction Environmental Management Plan
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
Diffusion Tube	A passive sampler used for collecting NO_2 in the air
EFT	Emission Factor Toolkit
EPUK	Environmental Protection UK
HDV	Heavy Duty Vehicle; a vehicle with a gross vehicle weight greater than 3.5 tonnes. Includes Heavy Goods Vehicles and buses
IAQM	Institute of Air Quality Management
LA	Local Authority
LAQM	Local Air Quality Management
NAQO	National Air Quality Objective as set out in the Air Quality Strategy and the Air Quality Regulations
NGET	National Grid Electricity Transmission
NPTC	Neath Port Talbot County Borough Council
NO_2	Nitrogen Dioxide
NOx	Oxides of nitrogen generally considered to be nitric oxide and NO_2. Its main source is from combustion of fossil fuels, including petrol and diesel used in road vehicles
$PM_{10}/PM_{2.5}$	Small airborne particles less than 10/2.5 µm in diameter
Receptor	A location where the effects of pollution may occur
WelTAG	Welsh Transport Appraisal Guidance

Appendix B IAQM Dust Guidance (2024) Approach

Table B-1 Dust Emission Magnitude Classification

Activity	Dust Emission Magnitude		
	Large	**Medium**	**Small**
Demolition	Total building volume of >75,000 m^3, potentially dusty construction material, on-site crushing and screening, demolition activities >12 m above ground	Total building volume of 12,000 – 75,000 m^3, potentially dusty construction material, demolition activities 6 – 12 m above ground level	Total building volume of <12,000 m^3, construction material with low potential for dust release, demolition activities <6 m above ground, demolition during wetter months
Earthworks	Total site area of >110,000 m^2, potentially dusty soil type, >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height	Total site area of 18,000 – 110,000 m^2, moderately dusty soil type, 5 - 10 heavy earth moving vehicles active at any one time, formation of bunds 3 - 6 m in height	Total site area of <18,000 m^2, soil type with large grain size, <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height
Construction	Total building volume >75,000 m^3, on-site concrete batching, sandblasting	Total building volume 12,000 - 75,000 m^3, potentially dusty construction material, on-site concrete batching	Total building volume <12,000 m^3, construction material with low potential for dust release
Trackout	>50 HDV outwards movements in any one day, potentially dusty surface material, unpaved road length >100 m	20 - 50 HDV outwards movements in any one day, moderately dusty surface material, unpaved road length 50 - 100 m	<20 HDV outwards movements in any one day, surface material with low potential for dust release, unpaved road length <50 m

Table B-2 Receptor Sensitivity

Receptor Sensitivity	Impact		
	Dust Soiling	**Health Effects of PM_{10}**	**Ecological Impacts**
High	An area where: • Users can reasonably expect 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. 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 objective, a relevant location would be one where individuals may be exposed for eight hours or more per day). 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; OR Locations where there is a community of particularly dust sensitive species such as vascular species included in the Red Data List for Great Britain. Indicative examples include a SAC designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.

Medium	An area where: • Users would expect to enjoy of a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; • The appearance, aesthetics or value of their property could be diminished by soiling; • The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods, as part of the normal pattern of use of the land. Examples include parks and places of work.	Locations where 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 objective, a relevant location would be one where individuals may be exposed for eight hours or more per day). Examples include office and shop workers, but will generally not include workers occupationally exposed to for 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 SSSI with dust sensitive features.
Low	An area where: • The enjoyment of amenity would not reasonably be expected; • Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; • There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. Examples include playing fields, farmland (unless commercially sensitive horticultural), footpaths, short-term car parks and roads.	Locations where human exposure is transient. Examples include public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition. Indicative example is a LNR with dust sensitive features.

Table B-3 Sensitivity of an Area to Dust Soiling Effects

Receptor Sensitivity	**Number of Receptors**	**Distance from Source (m)**			
		<20	**<50**	**<100**	**<250**
High	>100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	1 – 10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table B-4 Sensitivity of an Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32 µg/m^3	>100	High	High	High	Medium
		10 – 100	High	High	Medium	Low
		1 - 10	High	Medium	Low	Low
	28 - 32 µg/m^3	>100	High	High	Medium	Low
		10 – 100	High	Medium	Low	Low
		1 - 10	High	Medium	Low	Low
	24 - 28 µg/m^3	>100	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	<24 µg/m^3	>100	Medium	Low	Low	Low
		10 – 100	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Medium	>32 µg/m^3	>10	High	Medium	Low	Low
		1 - 10	Medium	Low	Low	Low
	28 - 32 µg/m^3	>10	Medium	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	24 - 28 µg/m^3	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
	<24 µg/m^3	>10	Low	Low	Low	Low
		1 - 10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

Table B-5 Sensitivity of an Area to Ecological Impacts

Receptor Sensitivity	Distance from Source (m)	
	<20	<50
High	High Risk	Medium Risk
Medium	Medium Risk	Low Risk
Low	Low Risk	Low Risk

Table B-6 Risk of Dust Impacts Calculation Matrix

Sensitivity of Area		Dust Emission Magnitude		
		Large	Medium	Small
Demolition	High	High Risk	Medium Risk	Medium Risk
	Medium	High Risk	Medium Risk	Low Risk
	Low	Medium Risk	Low Risk	Negligible Risk
Earthworks	High	High Risk	Medium Risk	Low Risk
	Medium	Medium Risk	Medium Risk	Low Risk

	Low	Low Risk	Low Risk	Negligible Risk
Construction	High	High Risk	Medium Risk	Low Risk
	Medium	Medium Risk	Medium Risk	Low Risk
	Low	Low Risk	Low Risk	Negligible Risk
Trackout	High	High Risk	Medium Risk	Low Risk
	Medium	Medium Risk	Medium Risk	Low Risk
	Low	Low Risk	Low Risk	Negligible Risk

Appendix C EPUK & IAQM Guidance (2017) Screening Criteria

The Development Will:	Indicative Criteria to Proceed to an Air Quality Assessment
Cause a significant change in LDV traffic flows on local roads with relevant receptors.	A change of LDV flow of: • >100 AADT within or adjacent to an AQMA; and • >500 AADT elsewhere.
Cause a significant change in HDV flows on local roads with relevant receptors.	A change of HDV flow of: • >25 AADT within or adjacent to an AQMA; and • >100 AADT elsewhere.
Realign roads i.e. changing the proximity of receptors to traffic lanes.	Where the change is 5 m or more and the road is within an AQMA.
Introduce a new junction or remove an existing junction near to relevant receptors.	Applies to junctions that cause traffic to significantly change vehicle acceleration / deceleration, e.g. traffic lights, or roundabouts.
Introduce or change a bus station.	A change of bus flows of: • >25 AADT within or adjacent to an AQMA; and • >100 AADT elsewhere.
Have an underground car park with extraction system.	The ventilation extract for the car park will be located within 20 m of a relevant receptor; and The car park will have >100 movements per day (total in and out).
Have one or more substantial combustion processes, where there is a risk of impacts at relevant receptors. NB. this includes combustion plant associated with standby emergency generators (typically associated with centralised energy centres) and shipping.	Typically, any combustion plant where the single or combined NOx emission rate is less than 5 mg/sec [a] is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates. Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable.

The screening criteria presented is amended from Table 6.2 of the EPUK / IAQM guidance (EPUK / IAQM, 2017).
[a] As a guide, the 5 mg/s criterion equates to a 450 kW ultra low NOx gas boiler or a 30kW CHP unit operating at <95mg/Nm3. Users of this guidance should quantify the NOx mass emission rate from the proposed plant, based on manufacturers' specifications and operational conditions.