



CAS-03463-R2W9C2 - Kronospan Low Carbon CHP Facility

Environmental Statement

Vol2: Chapter 6.0 – Air Quality and Odour

Prepared for



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6.0 AIR QUALITY AND ODOUR

6.1 Introduction

Introduction

- 6.1.1 This chapter of the Environmental Statement (ES), along with the accompanying Figures and Appendices, addresses the potential air quality and odour effects during the construction, operation, and decommissioning of the Proposed Development. A description of the Proposed Development is provided in **ES Chapter 4.0 (Description of the Proposed Development)**.

Competence

- 6.1.2 This chapter and supporting technical appendices have been prepared by Rosalind Flavell (CSci, CEnv, MEnvSc, MIAQM, PIEMA) of Fichtner Consulting Engineers Ltd. Rosalind is a Chartered Scientist and Environmentalist and member of the Institute of Air Quality Management (IAQM) and Institute of Environmental Sciences (IES), and a practitioner member of the Institute of Environmental Management and Assessment (IEMA) and has over fifteen years of experience undertaking air quality assessments for Environmental Impact Assessments (EIAs) and permitting purposes for a wide range of developments, including energy from waste plants across the UK.
- 6.1.3 The chapter and supporting technical appendices have been reviewed by Stuart Nock CSci, MEnvSc, MIAQM) of Fichtner Consulting Engineers Ltd. Stuart is a Chartered Environmental Scientist with 15 years' consultancy experience in environmental disciplines. Stuart has worked producing environmental assessments for a wide range of clients and sectors, focusing on detailed air dispersion modelling for both road traffic and point sources. He is well-versed in environmental legislation and guidance.

6.2 Planning Policy, Legislation and Guidance

National Planning Policy

- 6.2.1 Planning Policy Wales (PPW), edition 12 was published in February 2024. This sets out the land use planning policies of the Welsh Government and is supported 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. PPW, the TANS, Minerals TANS (MTANS) and policy clarification letters comprise national planning policy. 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.

6.2.2 PPW states that:

“The planning system should not be used to secure objectives which are more appropriately achieved under other legislation. The aim should be to maintain the principle of non-duplication, wherever possible, even where powers and duties resulting from other legislation may also be the concern of local authorities. This does not mean failing to address issues which the planning system should be properly concerned with. In practice issues will often overlap and in such circumstances the planning system will have a preventative and early role to play and is capable of both avoiding the creation of problems and securing multiple benefits through positive and proactive planning approaches. Where appropriate it will be advantageous to address issues in parallel. The grant of planning permission does not remove the need to obtain any consent that may be necessary, nor does it imply that such consents will be forthcoming, and similarly, the granting of other consents should not be used to justify the granting of planning permission”

6.2.3 With reference to Air Quality, PPW states:

“The planning system should maximise its contribution to achieving the well-being goals, and in particular a healthier Wales, by aiming to reduce average population exposure to air and noise pollution alongside action to tackle high pollution hotspots. In doing so, it should consider the long-term effects of current and predicted levels of air and noise pollution on individuals, society and the environment and identify and pursue any opportunities to reduce, or at least, minimise population exposure to air and noise pollution, and improve soundscapes, where it is practical and feasible to do so.

In taking forward these broad objectives the key planning policy principle is to consider the effects which proposed developments may have on air or soundscape quality and the effects which existing air or soundscape quality may have on



proposed developments. Air Quality and soundscape influence choice of location and distribution of development and it will be important to consider the relationship of proposed development to existing development and its surrounding area and its potential to exacerbate or create poor air quality or inappropriate soundscapes...”

“... 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, noise action planning priority areas or areas where there are sensitive receptors;*
- not create areas of poor air quality or inappropriate soundscape; and*
- seek to incorporate measures which reduce overall exposure to air and noise pollution and create appropriate soundscapes.”*

6.2.4 *“To assist decision making it will be important that the most appropriate level of information is provided and it may be necessary for a technical air quality and noise assessment to be undertaken by a suitably qualified and competent person on behalf of the developer.”*

6.2.5 *“Regard should be paid to current air quality and noise levels and the quality of the existing soundscape and account taken of any relevant local air quality action plan, noise action plan and/or local or regional air quality strategy as part of development strategies and proposals in development plans and before determining planning applications.”*

6.2.6 There is no TAN relating to air quality. However, TAN 5 (Nature Conservation and Planning) is detailed in the Biodiversity Assessment Report (BAR) (**DNS4-007**).

6.2.7 In line with PPW this assessment has been produced by a suitably qualified and competent person to demonstrate that the Proposed Development is suitable for the proposed location taking into account the potential to exacerbate or create poor air quality.

6.2.8 The proposed Low Carbon CHP Facility would be a regulated process subject to control via the environmental permitting regime. Therefore, in accordance with PPW,



it has been assumed that the permitting regime will operate effectively, and the proposed Low Carbon CHP Facility will comply with the relevant legislation.

Local Planning Policy

- 6.2.9 The adopted local development plan for Wrexham County Borough Council (WCBC) comprises the Wrexham Unitary Development Plan 1996-2011 (the UDP) which was adopted in February 2005. However, the local development plan has been through significant upheaval in recent years. WCBC adopted the Local Development Plan 2013-2028 (the LDP) on 20 December 2023, however, the decision to adopt the LDP has subsequently been quashed by a High Court Order issued on 12 June 2025. The LDP has therefore been returned to unadopted status and the UDP has been returned to being the adopted development plan. Further information regarding the status of the UDP and LDP is provided in the Planning Statement (**DNS4-001**).
- 6.2.10 In the above context, relevant policies from the UDP and LDP are set out below.

LDP Policy DM1: Development Management Considerations

“Development proposals, where relevant must: ...

iii) Safeguard the environment from the adverse effects of pollution of water, land, noise, light or air, or land instability arising from development”

- 6.2.11 This chapter has been produced to demonstrate that the Proposed Development does not have a significant adverse effect on air pollution and therefore complies with relevant policy with the Wrexham LDP.

Legislation and Guidance

Air Quality Legislation

- 6.2.12 European air quality legislation is consolidated under the Ambient Air Quality Directive (Directive 2008/50/EC), which came into force on 11 June 2008. This Directive consolidates previous legislation which was designed to deal with specific pollutants in a consistent manner and provides Ambient Air Directive (AAD) Limit Values for sulphur dioxide, nitrogen dioxide, benzene, carbon monoxide, lead and particulate matter with a diameter of less than 10 µm (PM₁₀) and a new AAD Target Value and Limit Value for fine particulates (those with a diameter of less than 2.5 µm



(PM_{2.5}). The fourth daughter Directive - 2004/107/EC - was not included within the consolidation. It sets health-based Target Values for polycyclic aromatic hydrocarbons (PAHs), cadmium, arsenic, nickel and mercury, for which there is a requirement to reduce exposure to as low as reasonably achievable. Directives 2008/50/EC and 2004/107/EC are transposed into UK Law into the Air Quality Standards (Wales) Regulations (2010) and subsequent amendments.

- 6.2.13 The UK Government and the devolved administrations are required under the Environment Act (1995) to produce a national air quality strategy. The Air Quality Strategy (AQS) sets out the UK's air quality objectives and recognises that action at national, regional and local level may be needed, depending on the scale and nature of the air quality problem. This includes targets and limits for 15-minute sulphur dioxide and 1,3-butadiene and more stringent requirements for benzene and PAHs, known as AQS Objectives. Environmental Assessment Levels (EALs) for other pollutants are presented on the gov.uk website as part of the Environment Agency's (EA) Environmental Management Guidance (Air Emissions Risk Assessment for your Environmental Permit (EP)), which was last updated on 07 January 2025 and is referred to here as the Air Emissions Guidance. AAD Target and Limit Values, AQS Objectives, and EALs are set at levels well below those at which significant adverse health effects have been observed in the general population and in particularly sensitive groups. For the remainder of this chapter these are collectively referred to as Air Quality Assessment Levels (AQALs).
- 6.2.14 The UK Government published the Clean Air Strategy (CAS) in January 2019. This sets out the methods by which air pollution from all sectors will be reduced. The CAS has not introduced any new air quality limits. However, the CAS sets out the actions required across all parts of the government to meet legally binding targets to reduce five key pollutants (fine particulate matter (PM_{2.5}), ammonia, oxides of nitrogen, sulphur dioxide and non-methane volatile organic compounds (NMVOCs)) by 2020 and 2030 and secure public health benefits. The CAS also makes a commitment to bring forward primary legislation on clean air as detailed in the Environment Act (2021).
- 6.2.15 The Environment (Air Quality and Soundscapes) (Wales) Act (2024) alters the way the LAQM regime operates in Wales. In summary the Bill:
- Provides a framework for setting national air quality targets.



- Amends existing legislation relating to:
 - the national air quality strategy,
 - local air quality management,
 - smoke control,
 - clean air zones/low emission zones; and
 - vehicle idling;
- Places a duty on Welsh Ministers to promote awareness of air pollution.

6.2.16 To date no Welsh specific air quality targets have been set. As such those set for the UK as a whole have been applied in this assessment.

6.2.17 **Table 6.1** and **Table 6.2** summarise the AQALs used in this assessment.

Table 6.1 – Air Quality Assessment Levels (AQALs)

Substance	AQAL ($\mu\text{g}/\text{m}^3$)	Averaging Period	Frequency of Exceedance	Source
Nitrogen dioxide (NO_2)	200	1 hour	18 times per year (99.79 th percentile)	AAD Limit Value
	40	Annual	-	AAD Limit Value
Sulphur dioxide (SO_2)	266	15 minutes	35 times per year (99.9 th percentile)	AQS Objective
	350	1 hour	24 times per year (99.73 rd percentile)	AAD Limit Value
	125	24 hours	3 times per year (99.18 th percentile)	AAD Limit Value
Particulate matter (PM_{10})	50	24 hours	35 times per year (90.41 st percentile)	AQS Objective
	40	Annual	-	AQS Objective
Particulate matter ($\text{PM}_{2.5}$)	20	Annual	-	Air Emissions Guidance (noting the Air Quality Standards Wales is $25 \mu\text{g}/\text{m}^3$)
Carbon monoxide (CO)	10,000	8 hours, running	-	AAD Limit Value
	30,000	1 hour	-	Air Emissions Guidance

Substance	AQAL ($\mu\text{g}/\text{m}^3$)	Averaging Period	Frequency of Exceedance	Source
Hydrogen chloride (HCl)	750	1 hour		Air Emissions Guidance
Hydrogen fluoride (HF)	160	1 hour	-	Air Emissions Guidance
	16	Monthly	-	Air Emissions Guidance
Ammonia (NH ₃)	2,500	1 hour	-	Air Emissions Guidance
	180	Annual	-	Air Emissions Guidance
Benzene (C ₆ H ₆)	5	Annual	-	Air Emissions Guidance
	30	24 hours	-	Air Emissions Guidance
Polychlorinated biphenyls (PCBs)	6	1-hour	-	Air Emissions Guidance
	0.2	Annual	-	Air Emissions Guidance

Table 6.2 – Air Quality Assessment Levels for Metals

Metal	AAD Limit/Target (ng/m^3) (annual mean)	EALs (ng/m^3) – EA 2024		
		Annual Mean	24-hour Mean	1-hour Mean
Arsenic (As)	6	6	-	-
Antimony (Sb)	-	5,000	-	150,000
Cadmium (Cd)	5	-	30	-
Chromium (II & III) (Cr)	-	-	2,000	-
Chromium (VI) (Cr (VI))	-	0.25	-	-
Cobalt (Co)	-	-	-	-
Copper (Cu)	-	-	50	-
Lead (Pb)	500 (250 AQS Target)	250		-

Metal	AAD Limit/Target (ng/m ³) (annual mean)	EALs (ng/m ³) – EA 2024		
		Annual Mean	24-hour Mean	1-hour Mean
Manganese (Mn)	-	150	-	1,500,000
Mercury (Hg)	-	-	60	600
Nickel (Ni)	20	-	-	700

6.2.18 There are no AQALs for dioxins or dioxin-like PCBs. As there are other intake pathways besides inhalation for these substances, a separate assessment has been undertaken in which the total intake via inhalation and ingestion has been compared to the Tolerable Daily Intake (TDI). This assessment is presented in the Dioxin Pathway Intake Assessment which is provided as **Appendix 6F**.

6.2.19 The AQALs apply only at areas of exposure relevant to the assessment level. **Table 6.3** below extracted from Local Authority Air Quality Technical Guidance (2022) (LAQM.TG(22)) explains where the AQALs apply.

Table 6.3 – Guidance on where AQALs apply

Averaging Period	AQALs should apply at:	AQALs should generally not apply at:
Annual mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or 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 AQAL would apply, together with hotels and gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short-term.

Averaging Period	AQALs should apply at:	AQALs should generally not apply at:
1-hour mean	All locations where the annual mean and 24 and 8-hour mean AQALs apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably be expected to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.
15-minute mean	All locations where members of the public might reasonably be exposed for a period of 15-minutes or longer.	

6.2.20 Standards and objectives for the protection of sensitive ecosystems and habitats are contained within the AAD, Air Emissions Guidance and the Air Pollution Information System (APIS). **Table 6.4** sets out the Critical Levels applicable.

Table 6.4 – Critical Levels for the Protection of Vegetation and Ecosystems

Substance	Concentration ($\mu\text{g}/\text{m}^3$)	Measured as	Source
Nitrogen oxides (NO _x , as NO ₂)	75/200*	Daily mean	APIS
	30	Annual mean	AAD Critical Level
Sulphur dioxide (SO ₂)	10	Annual mean where lichens and bryophytes are an important part of the ecosystem's integrity	Air Emissions Guidance/APIS
	20	Annual mean for all higher plants	AAD Critical Level
Hydrogen fluoride (HF)	5	Daily mean	Air Emissions Guidance/APIS

Substance	Concentration ($\mu\text{g}/\text{m}^3$)	Measured as	Source
	0.5	Weekly mean	Air Emissions Guidance/APIS
Ammonia (NH_3)	1	where lichens and bryophytes are an important part of the ecosystem's integrity	APIS
	3	Annual mean for all higher plants	APIS
<p>Notes: <i>* only for detailed assessments where the ozone is below the AOT40 Critical Level and sulphur dioxide is below the lower Critical Level of $10 \mu\text{g}/\text{m}^3$.</i> <i>The AOT40 for ozone is 3,000 ppb.h ($6,000 \mu\text{g}/\text{m}^3\cdot\text{h}$) calculated from accumulated hourly ozone concentrations – AOT40 means the sum of the difference between each hourly daytime (08:00 to 20:00 Central European Time, CET) ozone concentration greater than $80 \mu\text{g}/\text{m}^3$ (40 ppb) and $80 \mu\text{g}/\text{m}^3$, for the period between 01 May and 31 July.</i></p>			

- 6.2.21 In addition to the Critical Levels set out in **Table 6.4**, APIS provides habitat specific Critical Loads for nitrogen and habitat and location specific Critical Loads for acid deposition. The Critical Loads used as part of this assessment are set out in **Appendix 6E**.

Industrial Pollution Regulation

- 6.2.22 Atmospheric emissions from industrial processes are controlled in the UK through the Environmental Permitting (England and Wales) Regulations (2016), and subsequent amendments. The existing Kronospan Facility is regulated by Natural Resources Wales (NRW) and has an EP to operate (ref: EPR/BW9999IG/V008). The EP includes conditions to prevent fugitive emissions of dust and odour beyond the boundary of the installation. The EP also include limits on emissions to air. This includes a set of limits on the existing K8 Biomass Plant applicable up to 02/12/2023 in line with the requirements of the Industrial Emissions Directive (IED) (Directive 2010/75/EU) and a second more stringent set of limits for certain pollutants from 03/12/2023. These more stringent limits implement the requirements of the Reference Document on Best Available Techniques (known as the BREF) on the operation of the existing K8 Biomass Plant.

Local Air Quality Management

- 6.2.23 Under Section 82 of the Environment Act (1995) (Part IV), local authorities are required to periodically review and assess air quality within their area of jurisdiction, under the system of Local Air Quality Management (LAQM). The Welsh Government issues statutory guidance (Local Air Quality Management in Wales (Policy Guidance)) to Local Authorities under Section 88 of the Environment Act (1995) to bring the local air quality management system in Wales into line with the sustainable development principle outlined in Welsh Government's Well-being for Future Generations Act (2015).
- 6.2.24 This review and assessment of air quality involves assessing present and likely future ambient pollutant concentrations against AQALs. If it is predicted that levels at the façade of buildings where members of the public are regularly present (normally residential properties) are likely to be exceeded, then the local authority is required to declare an Air Quality Management Area (AQMA). For each AQMA, the local authority is required to produce an Air Quality Action Plan (AQAP), the objective of which is to reduce pollutant levels to below the relevant AQALs.

Additional Guidance

- 6.2.25 The following additional guidance documents have been used in undertaking this assessment:
- Institute of Air Quality management (IAQM) Guidance assessment of dust from demolition and construction (2024) - referred to as the 'IAQM (2024) Construction Dust Guidance'.
 - IAQM Guidance Land-Use Planning and Development Control: Planning for Air Quality (2017) - referred to as the 'IAQM (2017) Air Quality Guidance'.
 - IAQM Guidance: A guide to the assessment of air quality impacts on designated nature conservation sites (2020) – referred to as the 'IAQM (2020) Air Impacts on Ecology Guidance'.
 - IAQM Guidance in the assessment of odour for planning (2018) - referred to as the 'IAQM (2018) Odour Guidance'.
 - Guidance on assessing group 3 metal stack emissions from incinerators (2016) - referred to as the 'Environment Agency's Metals Guidance'.
 - LAQM technical management guidance (LAQM.TG) (2022).

6.3 Consultation

EIA Scoping Direction

- 6.3.1 In accordance with Regulation 14 of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (The EIA Regulations), a formal request for a Scoping Direction was submitted to Planning and Environment Decisions Wales (PEDW) on 30 May 2024 and was accompanied by a Scoping Report (**Appendix 1C**) which set out the proposed EIA scope of the Proposed Development.
- 6.3.2 A formal Scoping Direction (**Appendix 1D**) was issued by PEDW on 31 July 2024 which confirmed that the Proposed Development would fall under Schedule 1, Part 10 of the EIA Regulations (and would therefore require EIA) and provided PEDW's opinion regarding the proposed EIA scope of the Proposed Development.
- 6.3.3 A response to the Scoping Direction setting out how each matter is addressed in the ES and details of where areas of disagreement are clarified and/or resolved is provided at **Appendix 1G**.
- 6.3.4 A summary of the Scoping Direction responses (and the Applicant's response) relevant to air quality and odour is provided at **Table 6.5** below.

Table 6.5 – Summary of (Air Quality and Odour) Scoping Direction Responses

Consultee	Summary of Consultee Response	How Response has been Addressed in the ES
PEDW	The baseline should reflect current conditions at the time	A review of existing baseline concentrations has been carried out. However, given the spatial distribution of concentrations a baseline of the emissions from the existing Kronospan Facility has been modelled and the change in impact from this baseline quantified.
WCBC	The application should be accompanied by a Construction Environmental Management Plan (CEMP) setting out the measures that will be put in place to minimise/manage the impacts arising from construction.	This chapter considers the impact of construction phase dust generating activities on local air quality. A Framework CEMP (DNS4-003) has been prepared by the

Consultee	Summary of Consultee Response	How Response has been Addressed in the ES
		Applicant and presents the approach and application of environmental management and mitigation for the construction of the Proposed Development. At the post-consent stage, and upon the appointment of a Principal Contractor (PC), detailed management plans will be produced by the PC and will form part of the suite of CEMP documents. The CEMP will be a live document, updated by the PC prior to commencement of and during the construction works as required.
NRW	<p>Designated Biodiversity Sites</p> <p>We advise that the ES should fully assess impacts of air pollution and dust on the protected sites. The ES will need to identify impact pathways for the protected sites, clearly assess the possible levels of impact and, where impacts are likely, provide full details of appropriate mitigation measures to address those impacts. The ES should include an assessment of the amount of predicted pollution from the proposal against the relevant critical loads and critical levels for any protected sites that may be affected.</p>	<p>The impact on the relevant ecological sensitive sites has been included in the assessment.</p> <p>Table 6.12, the BAR (DNS4-007), and Appendix 6G set out the ecological sensitive sites considered; Appendix 6H provides further information of the ecological interpretation of the air quality impacts.</p>
NRW	Agree with the proposed modelling approach and assessment methodology.	Commentary, that NRW agree with the proposed approach.
NRW	Consideration of other relevant projects may be required to ascertain whether there are possible in-combination effects even when the Process Contribution is less than 1%	A review of other projects has been included (see Section 6.11), which has identified that only the other Kronospan projects have the potential for in combination impacts.
Canal and River Trust in Wales	Note that the impact on ecology receptors are considered in the chapter but advise that the waterway potentially supports rich biodiversity,	This has been addressed in the BAR (DNS4-007).

Consultee	Summary of Consultee Response	How Response has been Addressed in the ES
(Glandŵr Cymru)	and the development could have an adverse impact on the ecology of the waterway. Of particular concern would be the generation of dust on the site, which may be windblown towards the canal and have an adverse impact on the waterway corridor, biodiversity and water quality. Much will depend on the dispersion modelling to be undertaken and the associated mitigation.	

EIA Scoping Direction Addendum

6.3.5 Following receipt of the Scoping Direction (**Appendix 1D**), formal pre-application advice from PEDW (received 19 June 2024), further informal discussions with PEDW and informal pre-application discussions with WCBC, the Applicant issued (on 15 October 2024) a document to PEDW entitled 'EIA Scoping Direction Clarification and Update to the Proposed Development Design' (**Appendix 1E**). This document provided details of the proposed changes to the Proposed Development which arose since the initial pre-application advice was sought, as well as setting out broad areas of agreement and disagreement/clarification with the EIA Scoping Direction referred to above. A summary of the main Proposed Development design changes made at this point is provided below:

- The status of the existing K7 Biomass Plant would change from 'remaining in operation' to 'remain in situ but be used as a back-up biomass plant only' – as a result, the existing K7 Biomass Plant feedstock would be re-directed for use in the proposed Low Carbon CHP Facility.
- A detailed review of CHP Facility feedstock generated on-site was undertaken to understand the maximum wood residue feedstock that would be generated from existing and planned manufacturing operations.
- The proposed use of Refuse Derived Fuel (RDF) was removed.

6.3.6 The proposed change to the Proposed Development design also confirmed that the proposed electrical generating capacity of the proposed Low Carbon CHP Facility would increase from 30 megawatts (MW) to 40MW.

- 6.3.7 An EIA Scoping Direction Addendum (see **Appendix 1F**) was issued by PEDW on 14 January 2025 and provides PEDW's updated opinion regarding the proposed EIA scope of the Proposed Development.
- 6.3.8 A response to the Scoping Direction Addendum setting out how each matter is addressed in the ES and details of resolution of areas of disagreement is provided at **Appendix 1G**. The Scoping Direction Addendum provided no additional comments in relation to air quality and odour.

Other Engagement with Stakeholders

- 6.3.9 No further engagement with stakeholders with regards air quality and odour has been carried out.

Statutory Pre-Application Consultation

- 6.3.10 Sections 7, 8, 9, and 11 of the Developments of National Significance (Procedure) (Wales) Order 2016 (as amended) (the DNSPWO) and Section 61Z of the Town and Country Planning Act 1990 require the Applicant to undertake statutory consultation prior to submitting a DNS application. The statutory pre-application consultation period was between (insert date) and (insert date). THIS PARAGRAPH IS A PLACEHOLDER AND WILL BE FINALISED UPON COMPLETION OF PRE-APPLICATION CONSULTATION – THE PAC REPORT IS NOT YET AVAILABLE.
- 6.3.11 A series of responses from consultees received in month 2025 identified issues relating to air quality and odour matters, as set out in **Table 6.6** below. Full consultee responses (and how each has been addressed) is provided in the Pre-Application Consultation (PAC) Report (**DNS4-009**). THIS PARAGRAPH IS A PLACEHOLDER AND WILL BE FINALISED UPON COMPLETION OF PRE-APPLICATION CONSULTATION – THE PAC REPORT IS NOT YET AVAILABLE.

Table 6.6 – Summary of (Air Quality and Odour) Pre-Application Consultation Responses

Consultee	Summary of Consultee Response	How Response has been Addressed in the ES

Consultee	Summary of Consultee Response	How Response has been Addressed in the ES

6.4 Assessment Methodology

6.4.1 This section provides details of the proposed EIA methodology to be adopted relevant to this topic. Where deviation is proposed from the generic significance matrix shown chapter 2, this is clearly described within the following subsections for each of the potential effects identified.

Generation of Construction Phase Dust Emissions

6.4.2 There is the potential for dust to be released into the atmosphere as a result of construction and demolition phase activities. These fugitive dust emissions have been assessed on a qualitative basis in accordance with the methodology outlined within the IAQM (2024) Construction Dust Guidance. This guidance sets out the methodology for assessing the air quality impacts of construction and demolition and identifies good practice for mitigating and managing air quality impacts. It is noted that the quantity of dust emitted will be related to the area of land being worked and the nature, magnitude and duration of construction activities.

6.4.3 The assessment methodology is based on the risk of a construction site giving rise to dust impacts and the sensitivity of the surrounding area. Activities are divided into four types to reflect their different potential impacts. These are:

- demolition;
- earthworks;
- construction; and
- trackout.

6.4.4 Trackout is a less well-known term. It is defined by the IAQM as: "*the transportation of dust and materials on the wheels of vehicles*".

6.4.5 The assessment methodology considers three separate dust effects:

- annoyance due to dust soiling;
- harm to ecological receptors; and
- the risk of health effects due to significant increase in exposure to PM₁₀ (particulate matter with a diameter less than 10 µm).

6.4.6 Full details of the construction phase assessment methodology are presented in **Appendix 6A** (Construction Dust Assessment Methodology).

Vehicle Movements

6.4.7 The IAQM (2017) Air Quality Guidance states an air quality assessment is required where a development would cause a 'significant change' in light duty vehicles <3.5t (LDVs) or heavy duty vehicles >3.5t (HDVs). The indicative criteria to process to an assessment are:

- A change in LDV flows of:
 - more than 100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA; or
 - more than 500 AADT elsewhere.
- A change in HDV flows of:
 - more than 25 AADT within or adjacent to an AQMA; or
 - more than 100 AADT elsewhere.

6.4.8 The change in vehicle movements associated with the Proposed Development has been qualitatively assessed taking into the above criteria.

Combustion Process Emissions

6.4.9 The existing EP for the Kronospan Facility will be varied to allow the operation of the proposed CHP Facility. The EP will include both long and short-term limits on emissions to atmosphere (referred to as emission limit values (ELVs)) for the proposed CHP Facility for the following substances:



- oxides of nitrogen ('NOx', as NO₂);
- sulphur dioxide;
- particulate matter;
- carbon monoxide;
- hydrogen chloride;
- hydrogen fluoride;
- volatile organic compounds (VOCs);
- ammonia;
- mercury compounds;
- cadmium and thallium compounds;
- other metals and their compounds (antimony, arsenic, cobalt, copper, chromium, lead, manganese, nickel and vanadium);
- dioxins/furans; and
- polychlorinated biphenyls (PCBs).

6.4.10 Detailed dispersion modelling has been undertaken using the model ADMS 6, developed and supplied by Cambridge Environmental Research Consultants (CERC). ADMS is routinely used for modelling of emissions for planning and environmental permitting purposes to the satisfaction of the Natural Resources Wales (NRW), the EA and local authorities. The modelling methodology is provided in **Appendix 6C** (Dispersion Modelling Methodology), and the detailed results with reference to the AQALs for the protection of human health are contained in **Appendix 6D** (Detailed Results – Human Health) and the detailed results with reference to the Critical Levels and Critical Loads for the protection of ecosystems are contained in **Appendix 6F** (Detailed Results – Ecology) and an interpretation of these results is contained in **Appendix 6H** (Ecological Interpretation of Air Quality Impacts).

6.4.11 The dispersion modelling takes into account existing (and any known proposed) buildings and uses five years of hourly sequential meteorological ('met') data from RAF Shawbury which is the closest and most representative meteorological station and was used in the previous dispersion modelling for the existing Kronospan Facility. The dispersion modelling has been undertaken using the discharge stack

gas flow parameters to be provided by the technology supplier for the proposed Low Carbon CHP Facility and the associated proposed ELVs.

- 6.4.12 The dispersion model has been used to predict the short-term and long-term process contributions ('PCs') for the each of the substances released from the proposed Low Carbon CHP Facility at the appropriate averaging periods and percentiles.
- 6.4.13 The dispersion modelling results have been used to determine a suitable stack height for the proposed Low Carbon CHP Facility to minimise the impact upon the local environment whilst ensuring any limitations of the site are considered. However, this stack would only be used in the event that the exhaust gases were not used within the driers which would be the 'normal' mode of operation. In addition, a sensitivity analysis has been included which will consider the effect that varying model assumptions has on the predicted impacts. This has been carried out to ensure the most appropriate model assumptions have been used.
- 6.4.14 The exhaust gases from the proposed Low Carbon CHP Facility under normal operations will be used in the MDF 2 drier replacing the operation of the K7 Biomass Plant (which would remain in situ but be used as a back-up boiler only). As such it is appropriate to consider the change in impact associated with the Proposed Development rather than adding on the contribution from the proposed Low Carbon CHP Facility to the existing baseline. Therefore, all sources on the existing Kronospan Facility have been included in the dispersion modelling. In the event that the MDF 2 drier is offline the emissions from the proposed Low Carbon CHP Facility can be ducted to the MDF 1 drier so the heat can still be used in the process maximising energy efficiency.
- 6.4.15 The existing K8 Biomass Plant can also act in a similar way with emissions normally being used in the MDF 1 drier but in the event that the MDF 1 drier is offline the emissions from the existing K8 Biomass Plant would be used in the MDF 2 drier. As such the assessment has considered the following operational scenarios:
- i) Normal operations;
 - ii) MDF 1 drier offline;
 - iii) MDF 2 drier offline; and
 - iv) Proposed Low Carbon CHP Facility only.

- 6.4.16 The predicted impacts have been compared with the relevant AQALs. This has focussed on the maximum impact outside the site boundary. However, receptors have also been selected to represent the locations most likely to experience a significant effect because of emissions from the existing Kronospan Facility. For those pollutants which have a short-term ELV, the impact operating at the short-term ELVs has also been compared with the relevant short-term AQALs.
- 6.4.17 As set out in **ES Chapter 2.0 (EIA Methodology)**, the oriented strand board (OSB) facility is currently in development but not yet operational. Although this benefits from planning permission it does not yet have an EP to operate. The EP application was submitted to NRW at the end of 2023 and is currently being determined. As such the assessment considers the following development scenarios:
- Existing baseline – existing operations – the permitted Kronospan Facility;
 - Future baseline – or do-minimum – existing operations plus the OSB facility; and
 - Do something – do minimum plus the operation of the proposed Low Carbon CHP Facility.
- 6.4.18 In line with the IAQM (2017) Air Quality Guidance, the impact from the existing baseline has been considered. In addition, the change in impact from the future baseline has also been considered where appropriate.
- 6.4.19 The significance of effects has been determined using the methodology outlined in the IAQM (2017) Air Quality Guidance. This includes the following matrix (**Table 6.7**) which has been used to describe the impact based on the change in concentration relative to the AQAL and the overall predicted concentration with the scheme - i.e. the future baseline plus the process contribution.

Table 6.7 – Magnitude of Change Descriptors

Long Term Average Concentration at Receptor in Assessment Year	% Change in Concentration relative to AQAL			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76 – 94% of AQAL	Negligible	Slight	Moderate	Moderate
95 – 102% of AQAL	Slight	Moderate	Moderate	Substantial
103 – 109% of AQAL	Moderate	Moderate	Substantial	Substantial

Long Term Average Concentration at Receptor in Assessment Year	% Change in Concentration relative to AQAL			
	1	2-5	6-10	>10
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

6.4.20 It is intended that the change in concentration relative to the AQAL (the process contribution) is rounded to the nearest whole number. Therefore, any impact which is between 0.5% and 1.5% would be classified as a 1% change in concentration. An impact of less than 0.5% is described as negligible, irrespective of the total concentration.

6.4.21 The above matrix is only designed to be used with annual mean concentrations. The approach for assessing the impact of short-term emissions has been carried out in line with the IAQM (2017) Air Quality Guidance. This does not take into account the background concentrations as it is noted that background concentrations are less important in determining the severity of impact for short-term concentrations.

6.4.22 Consequently, for short-term concentrations (i.e., those averaged over a period of an hour or less), the following descriptors of change have been used to describe the impact:

- < 10% - negligible;
- 10 - 20% - slight;
- 20 - 50% - moderate; and
- 50% - substantial.

6.4.23 Following quantification of the magnitude of change, the IAQM recommend that the assessor should determine the significance of effect using professional judgement and should take into account such factors as:

- the existing and future air quality in the absence of the development;
- the extent of current and future population exposure to the impacts; and
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

6.4.24 The IAQM (2017) Air Quality Guidance states that, in relation to the significance of short-term impacts:

"In most cases, the assessment of impact severity for a proposed development will be governed by the long-term exposure experienced by receptors and it will not be a necessity to define the significance of effects by reference to short-term impacts. The severity of the impact will be substantial when there is a risk that the relevant AQAL for short-term concentrations is approached through the presence of the new source, taking into account the contribution of other prominent local sources."

6.4.25 Therefore, if a short-term impact cannot be screened out as 'negligible', consideration will be given to the risk of exceeding the short-term AQAL when determining the significance of effect.

6.4.26 The IAQM (2017) Air Quality Guidance does not provide any descriptors for averaging periods of between 1 hour and a year. Therefore, for these periods, the EA's Air Emissions Guidance criteria have been used, which state that process contributions can be considered 'insignificant' if:

- the long-term process contribution is <1% of the long-term environmental standard; and
- the short-term process contribution is <10% of the short-term environmental standard.

6.4.27 Where an impact cannot be screened out as 'negligible' or 'insignificant' based on the outputs of the initial screening and modelling, the significance of the effect has been determined based on professional scientific judgement of the likelihood of emissions causing an exceedance of an AQAL. This is a standard approach which allows the risk and likelihood of exceedance to be investigated and assessed in detail, following the first stage assessment.

Dioxin Pathway Intake Assessment

6.4.28 The EP will include ELVs for dioxins and dioxin-like PCBs from the proposed Low Carbon CHP Facility. These have the potential to accumulate within the food chain. The impact has been assessed in a Dioxin Pathway Intake Assessment (DPIA) which considers the potential pathways for the pollutants to move through soil, plants and animals to humans using specialised software called IRAP.



- 6.4.29 IRAP implements the US Environmental Protection Agency's Human Health Risk Assessment Protocol (HHRAP) for pathway assessment. The results have been taken from IRAP and the UK specific health criteria has been applied to assess the impact (this is the EA's preferred approach). This approach is explained in the EA's document 'Human Health Toxicological Assessment of Contaminants in Soil', ref SC050021.
- 6.4.30 For dioxins and dioxin-like PCBs, a Tolerable Daily Intake (TDI) is defined as "*an estimate of the amount of a contaminant, expressed on a bodyweight basis, which can be ingested daily over a lifetime without appreciable health risk.*" A Mean Daily Intake (MDI) is also defined, which is the typical intake from background sources (including dietary intake) across the UK. To assess the impact of the Proposed Development, the predicted intake of a substance due to emissions from the Proposed Development and other identified sources on the site (namely the existing K8 Biomass Plant) and have been added to the MDI and compared with the TDI. No other significant sources of dioxins have been identified in the local area.

Ecological Effects

- 6.4.31 The IAQM (2020) Air Impacts on Ecology Guidance draws on the EA's Air Emissions Guidance, which states that to screen out impacts as 'insignificant' at European and UK statutory designated sites:
- the long-term process contribution must be less than 1% of the long-term environmental standard (i.e., the Critical Level or Load); and
 - the short-term process contribution must be less than 10% of the short-term environmental standard.
- 6.4.32 In accordance with the EA's Air Emissions Guidance, calculation of the PEC for local nature sites is not required. However, with regard to local nature sites, the IAQM (2020) Air Impacts on Ecology Guidance states:

"For local wildlife sites and ancient woodlands, the Environment Agency uses less stringent criteria in its permitting decisions. Environment Agency policy for its permitting process is that if either the short-term or long-term PC is less than 100% of the critical level or load, they do not require further assessment to support a permit application. In ecological impact assessments of projects and plans, it is, however,



normal practice to treat such sites in the same manner as SSSIs and European Sites, although the determination of the significance of an effect may be different. It is difficult to understand how the Environment Agency's approach can provide adequate protection."

- 6.4.33 As such, it is considered appropriate to apply the screening criteria for European and UK designated sites to local nature sites to screen out the requirement for further consideration of the significance of effect. Where an impact cannot be screened out as 'insignificant', further assessment (see **Appendix 6H**) has been undertaken by a qualified ecologist to determine the significance of effect.

Fugitive Odour and Dust

- 6.4.34 A qualitative assessment of fugitive odour has been undertaken using the IAQM (2018) Odour Guidance. The methodology is based on the risk of odour exposure and receptor sensitivity, which have been used to assess the magnitude of impact.
- 6.4.35 The sensitivity of a receptor is defined using the following principles:

Table 6.8 – Fugitive Odour – Sensitivity of Receptor

Sensitivity	Description
High	<p>Surrounding land where:</p> <ul style="list-style-type: none"> • users can reasonably expect enjoyment of a high level of amenity; and • people would reasonably be expected to be present here continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. <p>Examples may include residential dwellings, hospitals, schools/education and tourist/cultural.</p>
Medium	<p>Surrounding land where:</p> <ul style="list-style-type: none"> • users would expect to enjoy a reasonable level of amenity, but wouldn't reasonably expect to enjoy the same level of amenity as in their home; or • people 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. <p>Examples may include places of work, commercial/retail premises and playing/recreation fields.</p>
Low	<p>Surrounding land where:</p> <ul style="list-style-type: none"> • the enjoyment of amenity would not reasonably be expected; or

Sensitivity	Description
	<ul style="list-style-type: none"> there is transient exposure, where the people would reasonably be expected to be present only for limited periods of time as part of the normal pattern <p>Examples may include industrial use, farms, footpaths and roads.</p>

6.4.36 The magnitude of odour effects is then determined using the following matrix.

Table 6.9 – Magnitude of Odour Effects

Relative Odour Exposure (impacts)	Receptor Sensitivity		
	Low	Medium	High
Very Large	Moderate adverse	Substantial adverse	Substantial adverse
Large	Slight adverse	Moderate adverse	Substantial adverse
Medium	Negligible	Slight adverse	Moderate adverse
Small	Negligible	Negligible	Slight adverse
Negligible	Negligible	Negligible	Negligible

6.4.37 Where an overall effect is 'slight adverse', the effect is likely to be considered significant.

6.4.38 A qualitative odour assessment has been carried out given the nature of the fuel to be used and the risk of odour impacts.

6.4.39 There is no specific guidance relevant to the assessment of the significance of fugitive dust from industrial processes. As such, a qualitative assessment has been carried out using the principles of the IAQM (2018) Odour Guidance.

6.5 Baseline Environment

Overview

6.5.1 A detailed review of baseline conditions is provided in **Appendix 6B** (Baseline Air Quality Analysis). This has included a review of local and national monitoring networks.

- 6.5.2 Local monitoring has been used to determine background pollutant concentrations where this available and is representative of concentrations in the vicinity of the existing Kronospan Facility. For certain pollutants there is no local monitoring data available. In lieu of representative location monitoring, concentrations obtained from national monitoring datasets or Defra mapped background datasets have been used as the background concentrations in the assessment. Background concentrations in the vicinity of the existing Kronospan Facility do not exceed the AQAL for any pollutants.
- 6.5.3 Generally, in the UK atmospheric pollutant concentrations are either remaining constant or decreasing with time. Whilst not a 'natural change', government projections indicate that atmospheric pollutant concentrations are likely to reduce in future as a result of national policies to reduce emissions over time, with the possible exception of ammonia for which the trend is uncertain but may be slightly increasing. There is considerable uncertainty as to how background pollutant concentrations will change in the future and the main contributor in this case is the existing operations at the Kronospan Facility. Therefore, the concentrations identified in the analysis have been assumed to be constant in future years, which is a conservative assumption for most pollutants.
- 6.5.4 Given the existing activities at the existing Kronospan Facility are the main contributor, the dispersion modelling has been used to model the baseline contribution from the existing Kronospan Facility. This has also demonstrated that baseline concentrations do not exceed the AQAL for any pollutant.
- 6.5.5 Baseline odour in the local area is dominated by existing operations at the Kronospan Facility and the neighbouring Mondelez site. The odours from the existing operations are described as 'woody' and there are periods when complaints have been made relating to 'chemical' smells. Where 'chemical' smells have been substantiated this has been related to the formalin process and press abatement system. These are not expected to be affected by the proposed Low Carbon CHP Facility. The odours from the Mondelez site are associated with the cocoa bean processing and roasting.

Sensitive Receptors

Dust Sensitive Receptors

- 6.5.6 It is anticipated that dust generating construction activities would be focused on the area where the proposed Low Carbon CHP Facility is to be constructed i.e. the proposed Low Carbon CHP Facility Site Boundary.
- 6.5.7 The IAQM (2024) Construction Dust Guidance states that an assessment is normally required where there is:
- A human receptor within:
 - 250m of the boundary of the site; and/or
 - 50m of the routes(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).
 - An ecological receptor within:
 - 50m of the boundary of the site; and/or
 - 50m of the routes(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).
- 6.5.8 **Figure 6.1** illustrates the screening distances for dust sensitive receptors from the location of the proposed Low Carbon CHP Facility Site Boundary.
- 6.5.9 The IAQM dust assessment methodology is based on:
- the dust emission magnitude for each activity undertaken at the Site – which is based on the scale of each activity; and
 - the sensitivity of the area – which is based on the number of properties within certain distances of the boundary of the works.
- 6.5.10 There are no residential properties within 250m of the proposed Low Carbon CHP Facility Site Boundary. The closest residential properties are over 350m to the east along Holyhead Road. These are distanced from the area of works and there is a physical barrier (the existing Kronospan buildings and vegetation) to minimise dust propagation. There are several industrial and commercial units to the west of the area used for construction. However, these are over 50m from the proposed Low Carbon CHP Facility Site Boundary. In addition, the Mondelez site is over 200m

from the proposed Low Carbon CHP Facility Site Boundary. These industrial and commercial units have conservatively been considered to be of medium sensitivity to dust soiling and human health effects.

6.5.11 The Coed-Y-Canal (Canal Wood) Local Wildlife Site (LWS) lies just beyond the railway which forms the western boundary of the existing Kronospan Facility. This is just over 25m from the proposed Low Carbon CHP Facility Site Boundary. Due to its local designation is considered to be of low sensitivity.

6.5.12 The Llangollen Branch of the Shropshire Union Canal is further from the proposed Low Carbon CHP Facility Site Boundary than the LWS as such any measures to minimise impact on the LWS will also mitigate impacts on the canal.

Table 6.10 – Dust Sensitive Receptors – From Area Used for Construction

Name	Distance from Source (m)			
	<20	<50	<100	<250
Number of Human Sensitive Receptors				
High	0	0	0	0
Medium	0	0	1	2
Low (footpaths, playing fields etc)	0	1	1	2
Number of Ecological Sensitive Receptors				
High	0	0	n/a	n/a
Medium	0	0	n/a	n/a
Low	0	1	n/a	n/a

Emission Sensitive Receptors

6.5.13 The general approach to the assessment is to evaluate the highest predicted process contribution to ground level concentrations outside the Site Boundary. In addition, the predicted process contribution at several sensitive receptor locations has been evaluated for key pollutants. The receptor locations are displayed in **Figure 6.2** and listed in **Table 6.11** below.

Table 6.11 – Human Sensitive Receptors

ID	Name	Location		Distance from Site Boundary (m)
		X (m)	Y (m)	
R1	Afron Bradley Farm	328394	339485	550
R2	Lodge Farm	329168	339548	670
R3	Lodgefield Park	329049	339262	360
R4	Rhosywaun	328993	338676	85
R5	Chirk Community Hospital	329358	338975	460
R6	Chirk Infant School	329158	338426	160
R7	Highfield Farm	329747	338667	760
R8	Maes-y-Waun	329074	338157	53
R9	Colliery Road	329069	337877	290
R10	St Mary's Church	330303	337785	1,300
R11	Station Avenue	328876	337733	390
R12	Llwyn-y-cil	327984	338086	430
R13	New Hall	327596	338890	890
R14	Chirk Court	329045	338274	30

6.5.14 With regard to ecological sensitive receptors, the EA's Air Emissions Guidance states that the following sites of ecological importance should be considered:

- Special Protection Areas (SPAs), Special Areas of Conservation (SACs), or Ramsar sites within 10km of the site.
- Sites of Special Scientific Interest (SSSIs) within 2km of the site.
- National Nature Reserves (NNR), Local Nature Reserves (LNRs), Local Wildlife Sites (LWSs) and ancient woodlands (collectively referred to as local nature sites) within 2km of the site.

6.5.15 The sensitive ecological receptors identified are stated in **Table 6.12** below and presented in **Figure 6.3** and **Figure 6.4**. A review of the citation for ecological receptor has been undertaken to determine if lichens are an important part of the ecosystem's integrity for the purposes of determining the relevant Critical Level for the habitat.

Table 6.12 – Sensitive Ecological Receptors

ID	Name	Location		Distance from Site Boundary at Closest Point (m)	Lichens identified as present within Citation
		X (m)	Y (m)		
European and UK designated sites					
E1	River Dee and Bala Lake SAC, SSSI	Various points		1.0	No
E2	Johnstown Newt Sites SAC	330614	345069	6.3	No
E3	Berwyn and South Clwyd Mountains SAC	324820	342829	5.4	Yes
E4	Berwyn SPA	319590	339130	8.4	Yes
E5	Chirk Castle SSSI	Various points		0.5	Yes
E6	Nant-y-Belan & Prynella Woods	Various points		2.4	Yes
Locally designated sites					
E7	Barracks Field	Various points		1.1	Yes
E8	Canal Wood	Various points		<0.05	Yes
E9	Pentre Wood	Various points		1.6	Yes
E10	Various Ancient Woodlands	Various points		-	Yes

- 6.5.16 It has been assumed that lichens or bryophytes are contained in each of the locally designated sites as a precautionary approach. Full details of the habitats present at each ecological receptor and the habitat-specific Critical Loads are set out in **Appendix 6G**.

Fugitive Odour and Dust Emissions Sensitive Receptors

- 6.5.17 There are no residential properties within 250m of the proposed Low Carbon CHP Facility Site Boundary. The closest residential properties are over 350m to the east along Holyhead Road. These are distanced from the area where unloading would take place and there is a physical barrier (the existing Kronospan buildings and vegetation) to minimise dust propagation. There are several industrial and commercial units to the west. However, these are over 100m from the proposed Low Carbon CHP Facility Site Boundary. In addition, the Mondelez site is over 200m from the proposed Low Carbon CHP Facility Site Boundary. These industrial and commercial units have conservatively been considered to be of medium sensitivity

to dust soiling and odour effects. The playing fields to the south of the existing Kronospan Facility are over 200m from the proposed CHP Facility Site Boundary. These have conservatively been considered to be of medium sensitivity to dust soiling and odour effects.

- 6.5.18 Canal Wood LWS lies just beyond the railway which forms the western boundary of the existing Kronospan Facility. However, this is just over 50m from the proposed Low Carbon CHP Facility Site Boundary. Due to its local designation is considered to be of low sensitivity.

6.6 Initial Development Design and Impact Avoidance/Reduction Measures

Overview

- 6.6.1 General design measures to avoid or minimise the potential for significant effects are described in **ES Chapter 4.0 (Description of the Proposed Development)**.
- 6.6.2 Design measures to avoid or minimise the potential for significant air quality and odour effects are summarised below.

Construction and Decommissioning

- 6.6.3 Best practice measures for the minimisation of dust during construction will be implemented during the construction period. A Framework CEMP (**DNS4-003**) is provided with this DNS application and presents the approach to and the application of environmental management and mitigation for the construction of the Proposed Development. A series of phase specific CEMP documents (as required) which define specific measures to be adopted during the construction of the various components of the Proposed Development would be produced (post-consent) by the Principal Contractor (PC).
- 6.6.4 The Framework CEMP includes the following measures which have been identified for a 'low risk' site:

Communications:

- 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.

Site Management:

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.

Monitoring:

- 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.

Preparing and Maintaining the Site:

- Plan site layout so that machinery and dust causing activities are 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 high as any stockpiles on site.
- Avoid site runoff of water or mud.

Operating Vehicles/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.

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.

Waste Management:



- Avoid bonfires and burning of waste materials.

Demolition Measures:

- Ensure effective water suppression is used during demolition operations. Handheld 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.
- Bag and remove any biological debris or damp down such material before demolition.

- 6.6.5 The decommissioning phase will be supported by a Decommissioning Environmental Management Plan (DEMP) which will include measures similar to those proposed as part of the CEMP.

Operation

- 6.6.6 To operate the proposed Low Carbon CHP Facility, the existing EP for the Kronospan Facility will need to be varied. This will include ELVs for the proposed Low Carbon CHP Facility. For the purpose of this assessment, in line with PPW, it has been assumed that the proposed Low Carbon CHP Facility will comply with the requirements of the EP.
- 6.6.7 As part of the EP, all emissions, including fugitive dust and odour, are required to be controlled to ensure there is no impact beyond the installation site boundary. To comply with this, the design of the proposed Low Carbon CHP Facility includes several embedded mitigation measures, including that fuel will be transferred to the proposed Low Carbon CHP Facility using walking floor trailers, and the opening of the building will include a mist air system and curtains. This prevents the release of odours and dust from the proposed Low Carbon CHP Facility.
- 6.6.8 The Odour Mitigation Plan for the existing Kronospan Facility includes measures to manage incoming fuel if identified as being particularly odorous. The Odour Mitigation Plan will be extended to include the proposed Low Carbon CHP Facility although it is not expected that the measures will change as those already contained will be suitable to also control odour from the proposed Low Carbon CHP Facility.

- 6.6.9 The existing Dust Management Plan for the existing Kronospan Facility will also be extended to include the proposed Low Carbon CHP Facility.

6.7 Assessment of Potential Effects

Introduction

- 6.7.1 The following section sets out the assessment of effects taking into consideration the initial development design and impact avoidance/reduction measures detailed in **Section 6.6** above.

Construction Phase

Overview

- 6.7.2 Potential air quality impacts during the construction phase have been identified as:
- generation of dust from construction activities, which has been assessed on a qualitative basis; and
 - generation of exhaust pollutants from construction phase traffic, which has been assessed on a qualitative basis.

Generation of Dust from Construction Activities

- 6.7.3 The risk of dust emissions from a construction site causing loss of amenity and/or health or ecological effects is related to:
- The activities being undertaken (demolition, number of vehicles and plant etc.).
 - The duration of these activities.
 - The size of the Site.
 - The meteorological conditions (wind speed and direction, and rainfall).
 - The proximity of receptors to the activity.
 - The adequacy of the mitigation measures applied to reduce or eliminate dust.
 - The sensitivity of the receptors to dust.
- 6.7.4 The quantity of dust emitted is related to the area of land being worked and the level of construction activities, in terms of the nature, magnitude and duration of those activities. The wind direction, wind speed and rainfall at the time when a construction activity is taking place will also influence whether there is likely to be any dust

impacts. Atmospheric conditions which promote adverse impacts can occur in any direction. However, adverse impacts are more likely to occur downwind of the prevailing wind direction and/or close to the worked areas. Impacts are also more likely to occur during drier periods as rainfall acts as a natural dust suppressant.

6.7.5 An assessment of dust emissions during the construction phase has been undertaken in accordance with the methodology detailed in **Appendix 6A** (Construction Dust Assessment Methodology).

6.7.6 The dust emission magnitude for each construction phase activity has been classified using the criteria outlined in Table 3.1 of **Appendix 6A**:

- Demolition – There are limited demolition works required but some of the existing infrastructure would be relocated to construct the proposed Low Carbon CHP Facility. Therefore, the dust emission magnitude is deemed to be 'small'.
- Earthworks – There are limited (if any) earthworks required to construct the proposed Low Carbon CHP Facility this will integrate into the existing Site. Therefore, the dust emission magnitude is deemed to be 'small'.
- Construction - The total building volume is likely to be 12,000 – 75,000m³ and construction material with low potential for dust release such as metal cladding. The dust emission magnitude is deemed to be 'medium'.
- Trackout - During construction the peak levels of outward HGV movements will be seven per day (i.e. 14 two-way movements), and typical levels will be lower. These would be within the trip movements for the existing operations on site. Based on the number of HGV movements, the dust emission magnitude from trackout is deemed to be 'small'.

6.7.7 The sensitivity of the area to dust effects is defined in **Table 6.13** below, taking into account the number of receptors and proximity to the source of potential dust emissions using the criteria outlined in Tables 3.2 - 3.7 of **Appendix 6A**.

Table 6.13 – Sensitivity of the Surrounding Area to Dust Emissions

Potential impact	Demolition	Earthworks	Construction	Trackout
Dust soiling	Low	Low	Low	Low
Human health	Low	Low	Low	Low
Ecology	Low	Low	Low	Low

- 6.7.8 The sensitivity of the surrounding area has been determined based on the following factors.

Dust Soiling Impacts

- 6.7.9 There are no high sensitivity receptors within 250m of the proposed Low Carbon CHP Facility Site Boundary. However, as shown on **Figure 6.1** and **Table 6.10**, there is at least one medium sensitivity (e.g. workplace) receptor within 250m of the proposed Low Carbon CHP Facility Site Boundary. Therefore, the sensitivity of the area to dust soiling from earthworks and construction activities is assessed as 'low'.
- 6.7.10 There are no receptors within 50m of the roads where trackout may occur taking into account the location of the proposed Low Carbon CHP Facility Site Boundary. Therefore, the risk of dust soiling as a result of track is 'negligible'.

Human Health Impacts

- 6.7.11 There are no high sensitivity receptors within 250m of the proposed Low Carbon CHP Facility Site Boundary. However, as shown on **Figure 6.1** and **Table 6.10**, there is at least one medium sensitivity (e.g. workplace) receptor within 250m of the proposed Low Carbon CHP Facility Site Boundary. Given the location of the receptors from the areas to be worked, the sensitivity is 'low' irrespective of the baseline PM₁₀ concentration.
- 6.7.12 There are no receptors within 50m of the roads where trackout may occur taking into account the location of the construction site and laydown areas. Therefore, the risk of dust soiling as a result of track is 'negligible'.

Ecological Impacts

- 6.7.13 One ecological receptor has been identified within 50m of the proposed Low Carbon CHP Facility Site Boundary (Canal Wood LWS). Therefore, the sensitivity of the area to ecological impacts is 'low'.
- 6.7.14 The risk of dust impacts as a result of construction activities is summarised in the following table using the criteria outlined in Table 3.8 of **Appendix 6A**. This is based on the dust emission magnitude and the sensitivity of the area.



Table 6.14 – Summary of Dust Risk to Define Site Specific Mitigation

Potential impact	Demolition	Earthworks	Construction	Trackout
Dust soiling	Negligible	Negligible	Low risk	Negligible
Human health	Negligible	Negligible	Low risk	Negligible
Ecology	Negligible	Negligible	Low risk	Negligible

6.7.15 In summary, the proposed Low Carbon CHP Facility has been assessed to be 'low risk' for construction activities and 'negligible' for demolition, earthworks and trackout. Any impacts would be temporary, short-term in duration and would only occur during the construction period. Suitable mitigation measures to reduce the impact of dust emissions during the construction phase are described in **Section 6.6**; with the implementation of these mitigation measures, effects would be 'not significant'.

Generation of Exhaust Pollutants from Construction Phase Traffic

6.7.16 The maximum number of vehicle movements during the construction phase is expected to be lower than that of the operational phase and as such the associated impacts would be less than the operational phase. The effect of operational phase traffic has been assessed (refer to the section on operational phase impacts) and found to be 'negligible'. Therefore, the effect of construction phase vehicle emissions will also be 'negligible' and 'not significant'.

Operational Phase

Overview

6.7.17 Potential air quality impacts during the operational phase have been identified as:

- Generation of exhaust pollutants from operational phase traffic, which has been assessed on a qualitative basis;
- Operational phase process emissions, which have been assessed on a quantitative basis; and
- Operational phase fugitive dust and odour emissions, which have been assessed on a qualitative basis.

Vehicle Emissions - Human Health

- 6.7.18 The maximum additional number of vehicle movements during the operational phase is expected to be seven HGVs per day (i.e. 14 two-way movements per operational day), and only a small number of staff would be needed, which would likely compromise existing staff members. The change in HGV movements is less than the IAQM screening criteria for progressing with an assessment. As such the effect of operational phase traffic is considered to be 'negligible' and 'not significant'.

Process Emissions - Human Health

- 6.7.19 The proposed Low Carbon CHP Facility would be an additional source of emissions to air from the existing Kronospan Facility. However, under normal operations the emissions would be used within the MDF 1 drier and would vent to atmosphere via the MDF 1 cyclones. This would replace the operation of the existing K7 Biomass Plant which would be remain and be used as a standby.
- 6.7.20 To operate the proposed Low Carbon CHP Facility, the existing EP will need to be varied. NRW will impose ELVs on the exhaust emissions. Detailed modelling has been carried out; full details of the model inputs and assumptions can be found in **Appendix 6C** and detailed results of the impacts on human health are contained in **Appendix 6D**.
- 6.7.21 The analysis in **Appendix 6D** shows that the maximum impact of those substances which the driers have ELVs for (NO_x, TVOC and PM), the greatest impact is either during normal operations or when the MDF 1 drier is offline. However, for all other substances, the maximum impact is predicted to occur when the MDF 2 drier is offline. This is expected as the emissions from the existing K8 Biomass Plant and K7 Biomass Plant or proposed Low Carbon CHP Facility (depending upon the development scenario being considered – see below) are both ducted to the MDF 1 drier which has a lower stack height than the MDF 2 drier.
- For normal operations the magnitude of change can be described as negligible for all substances and averaging periods.
 - For the MDF 1 offline scenario the magnitude of change can be described as negligible for all substances and averaging periods.
 - For the MDF 2 offline scenario the magnitude of change can be described as negligible for all substances and averaging periods.

- When only the proposed Low Carbon CHP Facility is operating the magnitude of change can be described as negligible for all substances and averaging periods.
- 6.7.22 This conservatively assumes that the existing K8 Biomass Plant and proposed Low Carbon CHP Facility operate continually at the ELVs and that metals are not removed in the dryer process or the cyclone which is specifically designed to remove particulate matter (many of the metals will be in the particulate phase) from the exhaust gases from the MDF driers. As such actual impacts are likely to be significantly lower than predicted.
- 6.7.23 A dioxin pathway intake assessment has been carried out based on the normal operations. It is considered appropriate to only consider the normal operations as the dioxin pathway intake assessment considers the long-term intake of these substances. This is provided in **Appendix 6E**. This analysis has included the contribution from the existing K8 Biomass Plant as the only other source of dioxins from the Kronospan Facility. The analysis has assumed that:
- both the existing K8 Biomass Plant and the proposed Low Carbon CHP Facility will operate continually at the ELV for dioxins, i.e., at the maximum concentrations which it is expected that the plant will operate at; and
 - the hypothetical maximum impacted receptor (an agricultural receptor at the point of maximum impact) only ingests food and drink sourced from the area with the maximum contribution from the Kronospan Facility.
- 6.7.24 The results of the assessment show that, for the hypothetical maximum impacted receptor (an agricultural child receptor at the point of maximum impact of emissions from the Facility), the combined intake from the Kronospan Facility and the existing MDI intake of dioxins and dioxin-like PBCs via inhalation and ingestion is below the TDI. In addition, the ingestion of dioxins by an infant being breast fed by an agricultural receptor at the point of maximum impact of emissions from the Kronospan Facility is less than the TDI. The impact at identified receptor locations is lower. Therefore, there would not be an appreciable health risk based on the emission of dioxins and dioxin-like PCBs. In conclusion, the impact of emissions of dioxins and dioxin-like PCBs from the Kronospan Facility following the installation of the proposed Low Carbon CHP Facility is predicted to be 'negligible'.

Significance of Effect - Human Health

- 6.7.25 The magnitude of change of concentrations at discrete receptor locations and other areas of relevant exposure has been assessed for all pollutants that will be released as process during the operational phase. The maximum magnitude of change in concentrations at any area of relevant exposure is 'negligible'. Therefore, it has been concluded that the effect is 'not significant'.

Process Emissions - Ecology

- 6.7.26 Detailed results tables of the predicted impact at each designated site are presented in **Appendix 6F**. The results show the maximum impact of emissions for each operational scenario at all European, UK and local nature sites. Further analysis of these impacts has been undertaken by Argus Ecology and is provided in **Appendix 6H**. Within this analysis, the sensitivity of each of the identified ecological receptors has been discussed with reference to the qualifying features and the field study. The air quality impacts presented in **Appendix 6F** have been interpreted to determine the significance of effect. This has concluded that:

- No likely significant effect is predicted at European designated sites.
- At the Chirk Castle SSSI, a small magnitude exceedance of the screening thresholds is predicted, but this is not predicted to result in a measurable ecological effect of constitute an operation likely to damage the special interest of the SSSI. However, it would be an appropriate focus of mitigation measures.
- Predicted impacts on Canal Wood LWS are not considered to result in unacceptable level of harm. However, it would be a suitable site for mitigation and enhancement measures aimed at achieving a higher level of resilience (further details set out in the BAR (**DNS4-007**)).

Dust and Odour Emissions

- 6.7.27 The main requirement with respect to dust and odour control from industrial activities is the Environmental Permitting Regulations. The EP includes a condition to ensure that:

"emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not



limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour."

- 6.7.28 A Dust Management Plan and Odour Management Plan are in place for the existing Kronospan Facility. These have been developed in line with the requirements of NRW and include details of the management procedures, mitigation measures, monitoring, reporting, actions and identified improvements and a timeline for implementation. These management plans will be revised to include the proposed Low Carbon CHP Facility as part of the EP application.
- 6.7.29 The proposed Low Carbon CHP Facility would not significantly change the odour generating potential of activities at the existing Kronospan Facility. The feedstocks to be delivered to Site will continue to be Grade C waste wood (as currently used in the existing K8 Biomass Plant). The potential for dust and odour emissions is greatest when material is aggregated, such as during unloading.
- 6.7.30 The meteorological conditions at the existing Kronospan Facility are such that the prevailing wind direction is from the south-west, as such it is more likely for any odour impacts to occur to the northeast. However, it is noted that dust and odour impacts could occur in any wind direction.
- 6.7.31 The area of unloading into the proposed Low Carbon CHP Facility is over 350m from any residential properties and there is a physical barrier (the existing Kronospan buildings and vegetation) between the unloading area and the residential receptors. There are industrial properties to the south-west of the proposed Low Carbon CHP Facility but again there are physical barriers between the proposed Low Carbon CHP Facility and these receptors.
- 6.7.32 The mitigation measures included in the Dust Management Plan and Odour Management Plan for the existing Kronospan Facility which will be updated to include for the proposed Low Carbon CHP Facility will be suitable to minimise the potential for fugitive dust and odour emissions; as such the dust and odour potential associated with the proposed Low Carbon CHP Facility is considered to be 'negligible'. The sensitivity of the local residential receptors is high and local industrial properties is medium. Therefore, the overall magnitude of odour and dust effects is 'negligible' and 'not significant'.

6.8 Inter-Relationship of Potential Effects

- 6.8.1 This chapter considers the effect of air quality on biodiversity as an inherent part of the assessment. No further inter-related effects have been identified.

6.9 Further Mitigation and Monitoring

- 6.9.1 A series of mitigation measures will be implemented to increase the resilience of the ecological habitats to air quality impacts. Further details of the proposals are contained in the BAR (**DNS4-007**).
- 6.9.2 No further mitigation measures are required other than those contained within the initial design of the proposed Low Carbon CHP Facility including those identified by the IAQM as suitable for a low-risk site (see **Section 6.6**). These mitigation measures have been incorporated into the Framework CEMP (**DNS4-003**).

6.10 Summary of Potential Residual Effects

- 6.10.1 With the implementation of the mitigation measures recommended in the BAR (**DNS4-007**), the residual effects on ecological habitats are not expected to be significant.
- 6.10.2 In the absence of any further mitigation measures (as set out in **Section 6.9**), all other residual effects would remain as described in **Section 6.7**.

6.11 Cumulative Effects

- 6.11.1 There is the potential for the effects of the Proposed Development to interact with the effects of other projects or activities in the surrounding area. These are 'inter-project' cumulative effects and includes projects that are under construction, projects that are approved but awaiting implementation, and projects awaiting determination within the planning process with design information in the public domain. Such projects are required to be within a geographical scope where environmental impacts could act together to create a more significant overall effect on a receptor and where sufficient environmental information is available.
- 6.11.2 The method for identifying other projects and activities is provided within **ES Chapter 2.0 (EIA Methodology)**; this includes a list of the specific projects and activities identified, which also takes into consideration the other Kronospan development

proposals that are being progressed separately by the Applicant. The cumulative effects Study Area and the locations of the other projects and activities are illustrated on **Figure 2.1** and **Figure 2.2** respectively.

6.11.3 All the Kronospan projects listed in **Table 2.4** within **ES Chapter 2.0 (EIA Methodology) (EIA Methodology)** have been considered in the preceding assessment, as set out in **Table 6.15** below.

Table 6.15 – Cumulative Developments – Air Quality Analysis

ID Ref	Description
1.1	The buildings have been included in the modelling where these have the potential to impact upon the dispersion of emissions.
1.2	The OSB facility has been included as a separate scenario and the cumulative impact of the OSB facility and the proposed Low Carbon CHP Facility used as the basis of the assessment.
1.3	The buildings have been included in the modelling where these have the potential to impact upon the dispersion of emissions.
1.4	The buildings have been included in the modelling where these have the potential to impact upon the dispersion of emissions.
1.5	The buildings have been included in the modelling where these have the potential to impact upon the dispersion of emissions.
1.6	Once constructed this would mean that HGVs would no longer access the Site from the existing main entrance but via the new North Access. The trip generation rate for the proposed Low Carbon CHP Facility is predicted to be less than the IAQM screening criteria as such the impact was considered to be negligible. With the implementation of the North Access road HGVs would no longer travel along Holyhead Road resulting in an improvement in air quality.

6.11.4 The following cumulative developments listed in **Table 2.4** within **ES Chapter 2.0 (EIA Methodology)** would introduce new residential receptors:

- ID Ref 1.7 – Extension of existing caravan site, Lady Margarets Park.
- ID Ref 1.8 – LDP housing allocation (180 units) off Holyhead Road, Chirk.
- ID Ref 2.1 – 61 dwellings, The Sawmills, Weston Rhyn, Oswestry.
- ID Ref 2.3 – 40 dwellings, land south of Aspen Grange, Weston Rhyn.

6.11.5 As the assessment has considered the maximum impact of emissions outside of the existing Kronospan Facility, the inclusion of additional receptors would not change its conclusions.

6.11.6 Although traffic would be generated by these other projects, there is limited interaction with Proposed Development traffic for the following reasons:

- ID Ref 1.7 – Based on an operational phase assumption of four vehicle movements per permanent residential plot (15), this would equate to 60 movements per day. Assuming half of these would travel north through Chirk via the B5070, this would result in 30 movements per day in the area of potential interaction with Proposed Development traffic.
- ID Ref 1.8 - Based on an operational phase assumption of four vehicle movements per residential unit, this would equate to 720 movements per day. Assuming half of these would travel north through Chirk via the B5070, this would result in 360 movements per day in the area of potential interaction with Proposed Development traffic.
- ID Ref 2.1 – construction and operational phase traffic from this development would only likely interact with Proposed Development traffic along the main A roads (notably the A5), away from any receptors.
- ID Ref 2.3 – construction and operational phase traffic from this development would only likely interact with Proposed Development traffic along the main A roads (notably the A5), away from any receptors.

6.11.7 As such there is estimated to be an additional 390 vehicle movements per day in the area of potential interaction with Proposed Development traffic. This is below the IAQM screening criteria for progressing with a detailed assessment and as such the air quality impact is expected to be negligible.

6.11.8 If these cumulative developments were to be constructed at the same time as the Proposed Development, it is unlikely that significant dust impacts would occur as each cumulative project would be required to control dust to ensure dust arisings have a negligible impact on the local area. Any traffic generated during the construction period is expected to be short term and not at a level which would result in significant cumulative impacts with the Proposed Development.

6.11.9 The proposed solar development (ID Ref 2.2) is sufficiently distanced from the existing Kronospan Facility that construction dust soiling would not be an issue. In addition, it is not considered to be sensitive to the predicted impacts of the proposed Low Carbon CHP Facility. Construction phase traffic from this development is only



likely to interact with Proposed Development traffic along the main A roads, away from any receptors.

- 6.11.10 Therefore, there are not expected to be any significant cumulative impacts associated with any of the identified projects.

6.12 Enhancement Measures

- 6.12.1 No enhancement measures are necessary.

6.13 Conclusions

- 6.13.1 The proposed Low Carbon CHP Facility has the potential to impact upon local air quality during the construction and operational phases. The main air quality impact would be as a result of the emissions from the proposed Low Carbon CHP Facility, however, there would also be dust impacts as a result of construction phase activities, and the potential for fugitive dust and odour impacts from operational phase activities.
- 6.13.2 The construction of the proposed Low Carbon CHP Facility has been assessed to have a negligible to low risk of dust impacts. A Framework CEMP (**DNS4-003**) has been prepared by the Applicant and presents the approach and application of environmental management and mitigation for the construction of the Proposed Development. At the post-consent stage, and upon the appointment of a PC, detailed management plans will be produced by the PC and will form part of the suite of CEMP documents. With the implementation of these mitigation measures, no significant effects are expected.
- 6.13.3 The emissions from the proposed Low Carbon CHP Facility would be used within the drying process and replace the normal operation of the K7 Biomass Boiler; this would mean that two of the gas engines (Gas Engines 4 and 5 which have planning permission, but have not been installed), would no longer be needed and would not be installed (**see ES Chapter 4.0 (Description of the Proposed Development)**). Detailed dispersion modelling of emissions from all sources within the existing Kronospan Facility has been undertaken using conservative assumptions. This has included the cumulative developments detailed in **ES Chapter 2.0 (EIA Methodology)** and assessed in **Section 6.11** above. This has been used to

establish a baseline and the impact and effect of the proposed Low Carbon CHP Facility then calculated.

- 6.13.4 The analysis has shown the magnitude of change in impact can be described as negligible and therefore the effect on human health is predicted to be ‘not significant’.
- 6.13.5 A detailed ecological interpretation of air quality impacts has been carried out (**Appendix 6H**). This has concluded that the impacts are not predicted to result in a measurable ecological effect or constitute an operation likely to damage the special interest of the identified ecological sites. However, a series of proposals will be implemented to increase the resilience of the ecological habitats within the Chirk Castle SSSI and Canal Wood LWS to changes in air quality as a result of the Proposed Development.
- 6.13.6 The proposed Low Carbon CHP Facility also has the potential to cause impacts associated with the release of fugitive emissions of dust and odour. A qualitative analysis has been undertaken, which takes into account the control measures in place and the distance to sensitive receptors. This has concluded that the effect of the operation of the proposed Low Carbon CHP Facility on amenity due to dust and odour emissions will be ‘not significant’. The existing Odour Management Plan and Dust Management Plan for the existing Kronospan Facility will be updated to include the proposed Low Carbon CHP Facility as part of the EP application process.
- 6.13.7 The dispersion modelling included the cumulative developments detailed in **ES Chapter 2.0 (EIA Methodology)** and assessed in **Section 6.11** and has not identified any risk of significant cumulative effects.
- 6.13.8 In conclusion, the proposed Low Carbon CHP Facility is not predicted to give rise to significant environmental effects on air quality and odour either in isolation or in combination with other projects both on the existing Kronospan Facility or the wider area.

Appendix 6A – Construction Dust Assessment Methodology



Appendix 6B – Baseline Air Quality



Appendix 6C – Dispersion Modelling Methodology



Appendix 6D – Dispersion Modelling Results (Human Health)



Appendix 6E – Dioxin Pathway Intake Assessment



Appendix 6F – Dispersion Modelling Results (Ecology)



Appendix 6G – Baseline Habitat Condition Survey



Appendix 6H – Ecological Interpretation of Air Quality Impacts

