



Kronospan Low Carbon Combined Heat and Power Facility

EIA Scoping Report

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1.0 INTRODUCTION AND BACKGROUND TO THE PROPOSED DEVELOPMENT

1.1 Introduction

- 1.1.1 This document has been prepared to aid a formal request, under Regulation 14 of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (hereafter referred to as the EIA Regulations), to agree the scope of the Environmental Impact Assessment (EIA) that would be prepared to accompany the application for the development of a Low Carbon Combined Heat and Power (CHP) Facility on land at the existing Kronospan Facility, Chirk, North Wales, LL14 5NT ('the Proposed Development').
- 1.1.2 The Proposed Development would have the capacity to generate up to 30 megawatts (MW) of electricity and 125 MW of thermal energy for use in the existing manufacturing processes at the existing Kronospan Facility. The fuel for the Proposed Development would predominately comprise on-site process wood residues and Grade C waste wood but would also be capable of using forestry residues and/or Refuse Derived Fuel (RDF). The total maximum throughput of the proposed facility would be 293,000 tonnes per annum, with up to 30,000 tonnes per annum comprising forestry residues and/or RDF. As such, the vast majority of the heat and power generated by the facility would be renewable energy, helping the operations at the existing facility to decarbonise and also making a valuable contribution to meeting the Welsh Government's Net Zero commitments.
- 1.1.3 The fact that the Proposed Development would utilise both heat and power will mean that the plant will be highly efficient. This is unlike many other similar facilities which only generate electricity and do not utilise heat generated by the process.
- 1.1.4 Two CHP biomass plants already operate at the existing Kronospan Facility, these are referred to as K7 and K8. The existing biomass CHP plants have a combined capacity of 140,000 tonnes (spread equally between K7 and K8 – 70,000 tonnes each). The feedstock for the existing biomass CHP plants is unsuitable material arising from the core on-site business of board production and imported Grade C waste wood that is not suitable for board production. It is proposed that K7 and K8 remain operational.
- 1.1.5 The Proposed Development would generate more heat and power than the existing K7 and K8 biomass plants. As such it would enable Kronospan to reduce its reliance



on the on-site gas engines that are currently used to provide additional heat and power to the existing Kronospan Facility.

- 1.1.6 Should the Proposed Development be consented, there would be a shift in the way that Kronospan generates energy (electricity and heat) to power its existing operations. Currently, the existing Kronospan Facility makes up 7.7% and 3.2% of the non-domestic gas consumption and total gas consumption (respectively) in Wales, and 48.4% and 35.7% of the non-domestic gas consumption and total gas consumption (respectively) in the County of Wrexham. The proposed energy shift would provide significant environmental benefits due to the reduction in the burning of fossil fuels (gas) and an increase in the use of renewable biomass material (Grade C waste wood), which would help to decarbonise Kronospan's wood product manufacturing processes. The proposed shift in energy generation/use is summarised in **Section 3.3** of this document.
- 1.1.7 With the addition of the proposed CHP, the Applicant would be able to extract the smaller fractions of recycled timber or fines in the Particleboard (PB) process. This fraction often contains the most impurities in the form of grits, absorbs additional resin, and gives the board no structural properties. Removing it adds significant quality improvements to the PB, whilst creating additional on-site process residues for use in the Proposed Development (see **Section 3.4** of this document for further details).
- 1.1.8 The heat and electricity generated by the Proposed Development would be used on-site. Electricity would only be exported to the grid where on-site electricity demand is lower than electrical output (similar to how the existing gas engines operate) and is expected to be infrequent. Any electricity export would be distributed via the proposed 132kV substation to the north of the existing Kronospan Facility, which is currently part of a wider planning application made to Wrexham County Borough Council (WCBC) under reference P/2022/108 (Decision Notice is pending subject to confirmation of legal agreements for off-site enhancements).
- 1.1.9 This document provides all the information necessary to enable the Planning and Environment Decisions Wales (PEDW) to adopt a Scoping Opinion in respect of the information to be included within the EIA for the Proposed Development.



- 1.1.10 As the Proposed Development is for an energy generating facility which exceeds 10 MWe, the application is classed as a Development of National Significance (DNS). As such the application would be submitted to PEDW and determined directly by the Welsh Government.

1.2 The Applicant

- 1.2.1 The Applicant is Kronospan Limited. Kronospan has been operating for 53 years (manufacturing for 50 years) at its site in Chirk, Wales. It is the world's leading manufacturer of wood-based panels using advanced technology and has pioneered many of the industry's key advances. The products produced have a wide application across the flooring, furniture, and refurbishment industries.
- 1.2.2 Kronospan is the UK's leading manufacturer of high-quality wood-based panels and associated products and has been operating in the UK since 1970, and the operation in Chirk was the first outside of Austria. The primary products manufactured by Kronospan at the Chirk site are Medium Density Fireboard (MDF) and PB, from which several secondary products are produced such as laminate flooring, worktops and melamine faced boards.
- 1.2.3 The Kronospan manufacturing facility is a major local employer within WCBC with the site at Chirk employing over 600 staff. It is estimated that the facility also provides indirect employment to 6,000 people in industries relating to the manufacturing and supply chains associated with the operations at the site.

1.3 Environmental Permit

- 1.3.1 The existing Kronospan Facility (and the associated relevant activities) is controlled by a consolidated Environmental Permit (EPR/BW9999IG) issued by Natural Resources Wales (NRW) on 04 October 2022 under the Environmental Permitting (England and Wales) Regulations 2016 (the EP Regulations). The permitting system aims to protect the environment, encourage best practice in the operation of regulated facilities, minimise the regulatory administrative burden to operators while fully implementing the requirements of European Union (EU) legislation. The Environmental Permit held by the Applicant sets out pollution limits and measures required to prevent and control pollution at the site.



1.3.2 The Environmental Permit would be amended to include the Proposed Development. This will include limits on emissions to air from the Proposed Development based on the requirements of the EP Regulations, the Industrial Emissions Directive ("IED") (Directive 2010/75/EU) and the Best Available Techniques (BAT) Reference document (the "BREF") for the incineration of waste. The Environmental Permit application will demonstrate that the Proposed Development represents BAT. The management plans which support the Environmental Permit will be modified to include the Proposed Development.

1.3.3 An Environmental Permit application was submitted to NRW in December 2023 to allow the operation of the oriented strand board (OSB) facility which obtained planning permission via appeal in 2019. This is currently being determined by NRW.

1.4 Requirement for EIA

1.4.1 The requirement for EIA was prescribed by European law under Council Directive 85/337/EEC. This Directive has been amended four times, with the latest amendment, the Environmental Impact Assessment (EIA) Directive (2014/52/EU) entering into force on 15 May 2014.

1.4.2 In Wales, the Directive has been transposed most recently into law via the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017, hereafter referred to as 'the EIA Regulations'.

1.4.3 The Environmental Assessment of Plans and Programmes and the Environmental Impact Assessment (Miscellaneous Amendments) (Wales) (EU Exit) Regulations 2019 made on 13 February 2019 ensure that the EIA Regulations continue to apply in Wales following Brexit.

1.4.4 Schedule 1 of the EIA Regulations lists those developments for which EIA is mandatory, whilst Schedule 2 describes projects for which the need for EIA is judged on an individual basis through a screening process. The Proposed Development is for the construction and operation of a 30 MWe CHP facility that would process approximately 293,000 tonnes of feedstock per annum. This is consistent with Schedule 1, Part 10 '*Waste disposal installations for the incineration or chemical treatment (as defined in Annex IIA to Council Directive [75/442/EEC](#) under heading D9) of non-hazardous waste with a capacity exceeding 100 tonnes per day*' of the



EIA Regulations; therefore, the Proposed Development falls under the requirements of the EIA Regulations and EIA is required.

1.5 Purpose of Scoping

1.5.1 The objective of the EIA process is to identify and evaluate all significant, direct and indirect environmental effects of the Proposed Development, during both construction, operation, and decommissioning on the environment. The EIA process culminates in the production of an Environmental Statement (ES).

1.5.2 Scoping is the part of the EIA process through which the content and extent of matters to be covered by the EIA are identified by considering the potential significant impacts that could arise from the construction, operation and decommissioning of the Proposed Development.

1.5.3 Only the significant environmental effects of the development should be subject to full environmental assessment within the ES. Paragraph 3.9 of DNS Guidance Appendix 3 (Environmental Impact Assessment) states:

“applicants should ensure that all aspects of the environmental likely to be significantly affected by the development are addressed.”

1.5.4 In light of the above, environmental topics have been identified as ‘scoped in’ to the EIA process are summarised at **Section 4.2** and described in more detail at **Sections 6.0 – 10.0** of this document. **Section 4.3** of this document also provides details of the environmental topics proposed to be ‘scoped out’ of the EIA process together with supporting justification.

1.5.5 The scoping process ensures that mitigation and enhancement measures are considered at an early stage of the design process. It also provides opportunities for PEDW and other stakeholders to ensure areas of the environment that have the potential to be significantly affected by the Proposed Development are fully considered within the ES.

1.5.6 The scoping process also helps to identify potential design constraints at the start of the project evolution. This helps to ensure that environmental protection and sustainability are key factors in the final proposed solution.



- 1.5.7 Although the scoping process is often regarded as a discrete stage, it should continue throughout the development of the EIA. It may be necessary to alter the extent of research required for a particular discipline as the understanding of the magnitude and significance of an impact is established. This is vital to ensure that resources and efforts are focused on the issues that have the potential to cause the most impact. Where a variation of any agreed scope is required, this will be confirmed in writing with PEDW.
- 1.5.8 This EIA Scoping Report will be issued by PEDW to several consultees who will be invited to comment on:
- i) The development proposals.
 - ii) The proposed scope of assessment.
 - iii) Relevant issues for consideration during the EIA process.
 - iv) The scoping out of environmental matters that are considered unlikely to be significant.

1.6 The EIA Team

- 1.6.1 Axis is an independent planning and environmental consultancy specialising in environmental impact assessment of major infrastructure projects. Axis has been appointed as lead EIA consultant for the Proposed Development and will undertake planning, and landscape and visual assessments for the project using its own in-house specialists. The Axis project team will work alongside a team of specialist consultants who will assess the potential impacts of the Proposed Development upon their specific areas of expertise. The preliminary team comprises:
- i) Noise & Vibration: NVC Noise Consultants
 - ii) Air Quality and Odour: Fitchner
 - a. Ecological Interpretation of Air Quality Assessment to be provided as a Technical Appendix to the Air Quality and Odour ES chapter: Argus Ecology
 - iii) Historic Environment: Heritage Archaeology
 - iv) Climate Change: Fichtner.



1.7 Content of this Scoping Report

1.7.1 Following on from this Introduction, the remainder of this document is organised to the following structure:

- i) Section 2.0 briefly describes the location of the Proposed Development Site (the Site) and its surroundings.
- ii) Section 3.0 provides a description of the Proposed Development.
- iii) Section 4.0 provides a summary of the proposed EIA scope, including details of environmental topics proposed to be scoped out of the EIA process.
- iv) Section 5.0 outlines the broad principles of the proposed EIA methodology.
- v) Sections 6.0 to 10.0 describe what the Applicant considers to be the main environmental issues that could arise through the construction, operation and decommissioning of the Proposed Development and how they will be assessed.
- vi) Section 11.0 sets out the proposed structure of the ES.
- vii) Section 12.0 provides an overview of other (non-EIA) assessments that will support the DNS application.



2.0 THE SITE AND SURROUNDINGS

2.1 The Existing Kronospan Facility

- 2.1.1 The entirety of the existing Kronospan Facility covers an area of approximately 40ha, with approximately 14ha of this developed with industrial buildings and plant. Several industrial process facilities in the western half of the Facility which are used to process, sort and dry the raw wood materials used in the manufacture of MDF and PB. These include several tall structures, including stacks, that emit abated process emissions to the atmosphere. The tallest structures within the Facility are the combined heat and power (CHP) biomass plant stack which is 70m in height, the SEKA wet electrostatic precipitator (WESP) filter which has a stack height of 65.5m and stack width of approximately 5m, the MDF cyclones (57m high), and the dryer exhaust stack at the WESP Chip Dryer (50m high).
- 2.1.2 Several process buildings are in the northern half of the existing Kronospan Facility including: a sawmill, formalin plant and the secondary product manufacturing facility (*Kronoplus*) which produces laminate flooring and worktops.
- 2.1.3 The development of the existing Kronospan Facility is ongoing, reflecting changes in industrial processes and in market conditions. Planning permission has been granted for the following developments which are either recently completed, under construction, or planned to be constructed in the near future:
- i) An OSB facility (granted 14 August 2019 under appeal reference APP/H6955/A/19/3227571) at the western extent of the existing Kronospan Facility; the OSB facility is currently under construction.
 - ii) A new warehouse building (granted 13 April 2022 under planning reference P/2021/0725) in the north-east part of the existing Kronospan Facility, which will deliver 15,029 sq.m. of floorspace (GEA). This planning permission also includes a new sprinkler tank between the northern extent of *Kronoplus* and the existing Kronospan Facility's northern boundary.
 - iii) An extension to the existing main warehouse building to create a covered loading yard and storage area to facilitate site operations (granted 04 July 2022 under planning reference P/2022/0336).



- iv) The erection of a new building to form engineering stores, a dedicated apprentice workshop, an access track around the new structure and ancillary works (granted 07 November 2022 under planning reference P/2022/0615).
 - v) The erection of two raw material silos, extension to the existing chip preparation building, and the erection of three silos and associated works (granted 09 January 2023 under planning reference P/2022/0765).
 - vi) A proposed new access road (North Access Road), lorry park, weighbridge, 132kV substation and associated infrastructure on land immediately north of the existing Kronospan Facility (Decision Notice is pending (under planning reference P/2022/1080) subject to confirmation of legal agreements for off-site enhancements).
- 2.1.4 Surface water for most of the manufacturing site currently drains to two lagoons on the northern boundary of the manufacturing facility, each of 2,033sqm in volume. A third lagoon was constructed to take surface water from the log yard.
- 2.1.5 An overview of the Proposed Development and existing site operations is provided at **Figure 2.1**.
- 2.2 Wider Site Context**
- 2.2.1 Chirk is a small town off the A5 and just north of the England-Wales border (within Wales). The residential areas of the town mostly lie east of the B5070, with the existing Kronospan Facility to the west of this road. On the western side of the B5070, to the south-east of the existing Kronospan Facility is an area of greenspace comprising a private sports club (immediately south of the Kronospan car park) and Chirk Recreation Ground. The larger structures within the existing Kronospan Facility are visible from the recreation ground, but other structures are very well screened from view by intervening vegetation cover. Chirk town centre lies south-east of the existing Kronospan Facility and includes various commercial and community buildings and areas of public open space.
- 2.2.2 The wider area is rural. The landform falls steeply, from the hills to the west towards the much lower-lying Shropshire Plain to the east. Local variations in topography are evident, with a marked rise to a ridge east of the town.



- 2.2.3 The western perimeter of the existing Kronospan Facility is formed by the Shrewsbury to Chester railway. Further west, the land rises towards the foothills of the Welsh mountains. The Llangollen Canal forms part of the Pontcysyllte Aqueduct and Canal World Heritage Site (WHS). In addition to recognised heritage value, the canal corridor is an important recreational route; water is also abstracted from the canal for use in the Applicant's manufacturing process. Beyond the canal, settlement is sparse and land cover comprises a mixture of pasture and small woodlands. Chirk Castle and its associated grounds (Grade 1 registered) are a notable feature within the landscape. The Castle is owned by the National Trust and is a well-known and well-frequented visitor destination. The Offa's Dyke Path National Trail runs in a broadly north-south direction further to the west, with views available east over the lower ground. Much of this area falls within the boundary of the Clwydian Range and Dee Valley Area of Outstanding Natural Beauty (AONB).
- 2.2.4 A sewerage pumping station and one property, owned by the Applicant, are to the immediate north of the existing Kronospan Facility; immediately north of this is the site of the proposed North Access Road and associated development referred to above. Further north, the land undulates before falling into the steep valley of the River Dee approximately 1.6km north of the existing Kronospan Facility. The canal (WHS) runs due north before turning westwards along the southern lip of the valley. The northern side of the valley is urbanised, with a string of contiguous small villages at Cefn.
- 2.2.5 The eastern perimeter of the existing Kronospan Facility is formed by Holyhead Road (B5070). An earth bund, planted with trees, has been developed along the eastern perimeter of the facility to reduce the visibility of Kronospan operations from neighbouring properties on Holyhead Road (B5070). An undulating agricultural landscape extends east of Chirk. The A5 corridor runs north-south in what is almost a straight line along the eastern edge of a ridge approximately 1km east of the existing Kronospan Facility. The Brynkinallt estate (registered park and garden) is bisected by the road. The wholly separate Brynkinallt Park lies west of the road, at the eastern edge of Chirk, on reclaimed colliery land.
- 2.2.6 To the immediate south of the existing Kronospan Facility is the Cadbury's (Mondelez) factory, the Chirk AAA sports ground and the Chirk recreational ground. Further south, the steep sided valley of the River Ceiriog cuts through the



surrounding hills 1.8km to the south of the existing Kronospan Facility. Parts of the valley slopes are well wooded. The Llangollen Canal crosses the valley via the Chirk Aqueduct, which forms part of the WHS. The Ceiriog Trail recreational route runs along the southern lip of the valley.

- 2.2.7 An overview of the Proposed Development Site and key features in the locality is provided at **Figures 2.2 – 2.3**.

2.3 Previous Landscape Strategy

- 2.3.1 A condition was attached to several planning permissions for development at Kronospan which required the development of a landscape strategy to mitigate the visual impact of the wider Kronospan site from public viewpoints. As such, the Applicant submitted a landscape strategy for the area surrounding the wider Kronospan site to WCBC in 2017. The landscape strategy was approved in 2019, and planting has subsequently been carried out within land owned by the Applicant.
- 2.3.2 Further on-site and off-site planting will be undertaken (some planting has already been implemented, other planting will be undertaken in the near future) in relation to the planning permissions for the warehouse building, the engineering stores, and North Access Road.

2.4 Access

- 2.4.1 The existing main site entrance is a T-junction with Holyhead Road (B5070) which runs in a north south direction to the east of the existing Kronospan Facility. The B5070 meets the A5 approximately 1.5km to the north of the existing Kronospan Facility via a roundabout junction, known as Whitehurst Roundabout. Approximately 1km to the east of this roundabout the A5 forms a junction with the A483. The A483/A5 provide links north to Chester, west to Llangollen and south to Shrewsbury. To the south of the manufacturing site, access via the B5070 leads to the A5 via Chirk town centre, this route is restricted to non-HGV traffic (Heavy Goods Vehicle).
- 2.4.2 Once constructed, the North Access Road would be used as the main access to the existing Kronospan Facility; the current access would no longer be used for the access and egress of all heavy goods vehicles (HGV) except in exceptional circumstances.



- 2.4.3 The existing railhead and sidings within the existing Kronospan Facility are used to import timber for the manufacturing process (as well as import via HGV). Improved railway siding facilities have been constructed to enable an increased volume of timber to be imported by rail.



3.0 THE PROPOSED DEVELOPMENT

3.1 Introduction

- 3.1.1 The Proposed Development is a Low Carbon CHP Facility with the capacity to generate up to 30 megawatts (MW) of electricity and 125 MW of thermal energy for use in the existing manufacturing processes at the existing Kronospan Facility. The Proposed Development would be capable of processing approximately 293,000 tonnes of feedstock per annum; to do so, it would predominately use on-site process wood residues and Grade C waste wood but would also be capable of using forestry residues and/or RDF (up to 30,000 tonnes per annum).

3.2 Key Components

- 3.2.1 The Proposed Development would comprise the following key components:

- i) Feedstock storage and handling
- ii) Boiler building
- iii) Turbine building
- iv) Service building
- v) Air Cooled Condenser (ACC)
- vi) Flue gas treatment facility
- vii) Air Pollution Control (APC)
- viii) Regent silos and residue silos
- ix) Ash storage
- x) Water treatment
- xi) Stack

- 3.2.2 An indicative design of the Proposed Development is provided at **Figure 3.1** which provides details of approximate dimensions of the key components and how the Proposed Development would be integrated into the other existing site operations. The tallest component (all heights taken from ground level) would be the stack (95m) which has been determined by way of an air quality stack height assessment (for ecological reasons); the boiler building would be approximately 44m high. All other components would be below the height of the boiler building.



- 3.2.3 An indicative 3D visualisation of the Proposed Development is also provided at **Figure 3.2**.
- 3.2.4 Whilst the proposed stack would be the tallest structure on the wider Kronospan Facility, there are already several stacks (close to the Proposed Development) which vary in height between 50m and 70m – this is described in more detail in **Section 2.1** of this document. The careful placement of the Proposed Development, away from residential receptors and close to existing energy-related components (and the existing stacks) would serve to minimise the visual impact of the Proposed Development.
- 3.2.5 To enable the Proposed Development, the existing chip conveyor system (which is currently within the footprint of the proposed boiler building) would be realigned at the eastern extent of the Proposed Development Site.

3.3 Site Wide Energy Generating Implications

- 3.3.1 Should the Proposed Development be consented, there would be a shift in the way that Kronospan generates energy (electricity and heat) to power its existing operations. Currently, the existing Kronospan Facility makes up 7.7% and 3.2% of the non-domestic gas consumption and total gas consumption (respectively) in Wales, and 48.4% and 35.7% of the non-domestic gas consumption and total gas consumption (respectively) in the County of Wrexham. The proposed energy shift would provide significant environmental benefits due to the reduction in the burning of fossil fuels (gas) (the Proposed Development would save over 43,000 CO₂e (carbon dioxide equivalent) per annum – based on 90% availability of the plant) and an increase in the use of renewable biomass material and low carbon fuel (Grade C waste wood); this would help to decarbonise Kronospan's wood product manufacturing processes.
- 3.3.2 The proposed shift in energy generation/use is summarised in **Table 3.1** below.



Table 3.1 – Proposed Energy Generation Shift

Component	Current Status	Proposed Status
K7 Biomass Boiler	<p>Processes 70,000 tonnes of waste biomass per annum – all sourced on-site.</p> <p>Accepts Chapter IV and Annex VI exempt waste biomass (as per the Industrial Emissions Directive (2010/75/EU) (IED)</p> <p>Provides heat for thermal oil for PB, MDF 1 & 2, plastics and impregnation lines as well as process steam via the thermal oil to steam generation.</p> <p>Combustion gases are used in MDF dryers for direct drying purposes; combustion gases released through MDF cyclones.</p>	K7 will remain in operation.
K8 Biomass Boiler	<p>Environmental Permit allows the acceptance of waste biomass that is not exempt from IED Chapter IV, specifically Waste code 19 12 07 which includes wood from waste management facilities and waste code 20 01 38 which includes municipal waste wood.</p> <p>Provides heat for thermal oil for PB, MDF 1 & 2, plastics and impregnation lines as well as process steam via the thermal oil to steam generation.</p> <p>Combustion gases are used in MDF1 or MDF2 dryer for direct drying purposes; combustion gases released through MDF1 or MDF2 cyclone.</p>	K8 will remain in operation.
Gas Turbines 1 and 2	<p><u>Gas Turbine 1</u></p> <p>Generate electricity used to power site operations.</p>	Both gas turbines will be decommissioned and removed as they are within



Component	Current Status	Proposed Status
	<p>Waste heat is used for the direct drying of product from the primary manufacturing process via MDF1 dryer.</p> <p><u>Gas Turbine 2</u></p> <p>On standby for engine shutdowns. Generates electricity used to power site operations.</p> <p>Waste heat is used for the direct drying of product from the primary manufacturing process via MDF2 dryer.</p>	<p>the footprint of the Proposed Development.</p> <p>Waste heat from the Proposed Development will replace the waste heat from gas turbines 1 and 2 (with respect to subsequent drying of product via MDF1 and MDF2 dryers).</p>
Gas Engines 1 - 3	<p>Gas engines 1 – 3 are installed and generate electricity used to power site operations.</p> <p>Waste steam is used for MDF1 and MDF2 manufacturing processes and waste heat is used for the direct drying of product from the primary manufacturing process via the MDF dryers.</p>	<p>Gas engines 1 – 3 will remain in situ and will provide peak and standby generating capacity.</p> <p>The gas engines may be used in tandem with the other energy generating facilities (including the Proposed Development) depending on comparative imported gas and electricity costs; the running of the gas engines is expected to be infrequent.</p>
Gas Engines 4 and 5	Consented but not yet installed.	Gas engines 4 and 5 will not be installed.
OSB Facility	Consented but only part constructed.	Once operational, the OSB facility would produce approximately 40,000 tonnes of waste wood per annum which would be directly used



Component	Current Status	Proposed Status
		as source fuel for the Proposed Development.

3.4 Feedstock

Source

- 3.4.1 Currently, 65,000 tonnes of on-site generated process residues are sold and transported off-site per annum; this consists of 41,000 tonnes of bark from the MDF chipper and sawmill debarking process and 24,000 tonnes of MDF process residues. It is proposed to retain the 65,000 tonnes of on-site generated process residues and use as a feedstock for the Proposed Development.
- 3.4.2 By using the finer fraction recycled timber for PB (as referenced in **Section 1.1** of this document), this would generate an additional 75,000 tonnes per annum of feedstock for the Proposed Development.
- 3.4.3 Therefore, the feedstock that would be generated on-site for the Proposed Development would be as follows:
- i) Including consented OSB Facility – 180,000 tonnes per annum (61% of total feedstock capacity of the Proposed Development).
 - ii) Excluding consented OSB facility – 140,000 tonnes per annum (48% of total feedstock capacity of the Proposed Development).

Delivery, Storage and Handling

- 3.4.4 Between 48% and 61% of the feedstock would be generated on-site (via the use of on-site process residues, and the OSB facility coming online); the remainder would be imported via HGV which would access the Proposed Development Site using the North Access Road to be constructed north of the Proposed Development. After weighing (using the new weighbridges proposed as part of the North Access Road planning application), the HGVs would proceed on the internal road network towards the Proposed Development Site. After unloading, the HGVs would then exit the



Proposed Development Site in a similar (but reverse) manner to the means of access, through the new weighbridges and back onto Holyhead Road (B5070) via the North Access Road.

- 3.4.5 The feedstock would be unloaded into dedicated screening facilities which would remove materials in the feedstock unsuitable for combustion (such as metals). The screened feedstock would then be transported to storage facilities via overhead conveyor systems; the forestry residues/RDF feedstock storage facility would be at the northeastern extent of the Proposed Development Site whilst the Grade C waste wood would be stored in two of the new silos granted planning permission under planning reference P/2022/0615. The feedstock would then be transferred to the proposed boiler building via an overhead conveyer system.

3.5 Combustion Process

- 3.5.1 The feedstock would be fed into the combustion chamber which would be equipped with a dosing bin, rotary valves, spreader stokers and a travelling grate which would form the basis for a highly effective and efficient combustion process. The travelling grate movement turns and mixes the feedstock along the surface of the grate to ensure that all biomass is exposed to the combustion process.
- 3.5.2 A start up and support burner would be positioned on one of the sidewalls in the lower part of the furnace and used during start up. This would also be used as an auxiliary combustion system if required. The start-up burners (which typically operate for 10 - 20 hours during a start-up event) are likely to be fuelled by diesel or low sulphur gas oil. There should be only two start-ups per year after planned maintenance activities. After the start-up period, the feedstock would continually combust without any auxiliary fuel.
- 3.5.3 A control system would optimise the quantity of biomass added to the furnace and the combustion rate. The temperature in the furnace would be continuously monitored and recorded to ensure the flue gasses are retained at a minimum temperature of 850 degrees Celsius for a minimum of two seconds to meet the requirements set down in the Industrial Emissions Directive (IED), which would be reflected in the Environmental Permit for the facility.



3.6 Energy Recovery

- 3.6.1 The proposed boiler would be a single drum steam boiler. The hot flue gases from the furnace would be piped to the boiler where they would convert water into steam. The superheated steam would then drive the high-efficiency reaction steam turbine generator (STG) to produce electricity.
- 3.6.2 Similar to existing K7 and K8, the superheated steam would also be used for MDF1 and MDF2 manufacturing processes and re-directed to the MDF facilities to the south of the Proposed Development. Combustion gases would be used in the MDF2 dryer for direct drying purposes; the combustion gases would be released through the MDF2 cyclones.
- 3.6.3 The exhaust steam from the STG would be condensed in the ACC equipped with several variable speed fans for air flow control. The condensate would be recirculated and reused in the boiler.

3.7 Flue Gas Treatment

- 3.7.1 Having passed through the boiler system, the flue gases generated during the combustion process would be cleaned before being released into the atmosphere via the ID fan and the stack. The following flue gas cleaning systems will be included as part of the proposed design:
- i) Selective Catalytic Reduction (SCR) system for nitrogen oxide reduction.
 - ii) Bag filter for particulate reduction.
 - iii) Adsorbent injection (before filter) for acid gas reduction.
- 3.7.2 Flue Gas Treatment (FGT) residues comprise fine particles of ash and residue from the flue gas treatment process. Due to the alkaline nature of the FGT residues, they are classified as hazardous waste (in much the same way as cement). The FGT residues would be temporarily stored on site within sealed silos. They would periodically be transported for off-site (licensed) disposal at Whitemoss Landfill, Skelmersdale (Operated by Veolia) as are FGT residues from the existing operational CHP biomass boilers K7 and K8.



3.8 Bottom Ash

- 3.8.1 Bottom ash is the burnt-out residue from the combustion process. The ash would be quenched with water as it leaves the combustion chamber to both cool the ash and reduce the potential for fugitive dust to be released. Any water not vapourised in the quenching process would be collected and recycled for continued use in the quenching process.
- 3.8.2 The bottom ash would be stored in an ash pit positioned behind the proposed boiler building (on its north elevation). The bottom ash would then be transported to the off-site (licensed) disposal at Whitemoss Landfill, Skelmersdale (Operated by Veolia).

3.9 Stack

- 3.9.1 As stated above, the flue gases generated during the combustion process would be cleaned before being released into the atmosphere via the stack.
- 3.9.2 Emissions from the stack would be continuously monitored by an automatic computerised system and reported in accordance with Natural Resources Wales (NRW) requirements for the operation of the Proposed Development (via a variation to Kronospan's existing Environmental Permit).
- 3.9.3 The height of the stack (approximately 95m from ground level) is determined by air dispersion modelling and the need to avoid significant adverse effects on ecological receptors, namely Chirks Castle and Parkland Site of Special Scientific Interest (SSSI), Nant y Belan and Prynella Woods SSSI, Canal Wood Local Wildlife Site (LWS), and Barracks Fields LWS. Further detail of this is provided at **Section 7.0** of this document.

3.10 Heat and Power Use

- 3.10.1 The Proposed Development would have an electricity generating capacity of 30 MW. The proposed electrical system of the Proposed Development would include 11kV switchgear and transformers to enable it to connect to Kronospan's existing 11kV network.
- 3.10.2 It is proposed that electricity generated by the Proposed Development would be used to power on-site operations (the OSB Facility alone would have an electrical



requirement of 45 MW). Electricity would only be exported to the grid where on-site electricity demand is lower than electrical output (similar to how the existing gas engines operate) and is expected to be infrequent.

- 3.10.3 As set out above, the Proposed Development would provide heat to the manufacturing process both in terms of superheated steam and the waste combustion gasses. In this regard the facility would be highly efficient, unlike the majority of other large-scale biomass and waste combustion facilities which do not have heat users connected and therefore only generate electricity, with the excess heat lost to the atmosphere.

3.11 Access

- 3.11.1 The North Access Road would be used as the main access to the existing Kronospan Facility and the Proposed Development; the current access would no longer be used for the access and egress by HGVs except in exceptional circumstances.
- 3.11.2 During the construction phase of the Proposed Development, the existing T-junction access off Holyhead Road (B5070) would be used.

3.12 Operating Hours

- 3.12.1 It is proposed that the Low Carbon CHP Facility would operate on a 24-hour basis. The feedstock would be brought to site primarily between the hours of 07.00 and 19.00 seven days a week, including Bank Holidays but excluding Christmas Day, Boxing Day and New Years Day. Deliveries outside of those hours would be infrequent and will be accounted for in the various EIA topic assessments.

3.13 Lighting

- 3.13.1 Given its position in the middle of the existing Kronospan Facility, the Proposed Development Site would be lit by existing site lighting with no requirement anticipated for additional site lighting. It is not proposed to light the stack as it would not exceed 150m, the height at which aviation warning lights are a statutory requirement.

3.14 Construction Compound

- 3.14.1 The ES will set out the details of the proposed construction compound and will consider the effects of the construction works within the relevant environmental



assessment topics. However, it should be noted that construction compounds are permitted development under Schedule 2, Part 4, Class A (Temporary Buildings and Uses) of the Town and Country Planning (General Permitted Development) Order 1995 (as amended) and therefore do not require planning permission in their own right. For this reason, the construction compound would not form part of the DNS application; however, construction phase impacts will be included in the ES.

- 3.14.2 The existing Kronospan heavy goods vehicle (HGV) and car parking area at the southern extent of the existing Kronospan Facility would be used as a temporary construction compound area for the Proposed Development. Further details of the indicative footprint of the construction compound will be included in the ES. It is expected that the existing Kronospan Facility would be able to remain fully operational, with no adverse effects on the access and egress of HGVs and cars during the construction phase; this has been proven for previous developments (including major planning applications) within the existing Kronospan Facility.



4.0 EIA SCOPING SUMMARY

4.1 Introduction

- 4.1.1 This section provides a list of the environmental topics to be ‘scoped in’ to the EIA process for the Proposed Development together with details of the topics proposed to be scoped out of the EIA process and the reasons why.

4.2 Environmental Topics Scoped into the EIA Process

- 4.2.1 The following environmental topics are scoped into the EIA process; further information regarding the proposed scope for these environmental topics is provided at **Sections 6.0 – 11.0** of this document.

Table 4.1 – Environmental Topics Scoped Into the EIA Process

Topic	Further Information in this Document
Noise	Section 6.0
Air Quality and Odour	Section 7.0
Landscape and Visual Assessment	Section 8.0
Historic Environment	Section 9.0
Climate Change	Section 10.0

4.3 Environmental Topics Scoped Out

- 4.3.1 The following environmental topics (with supporting justification) are scoped out of the EIA process:



Table 4.2 – Environmental Topics Scoped Out of the EIA Process

Topic	Reason for Scoping Out
Biodiversity	<p>The Proposed Development will be undertaken entirely within the existing hardstanding areas within the existing Kronospan Facility. As such there would be no direct impacts on any ecological receptors from the physical construction of the Proposed Development.</p> <p>There is the potential for air quality impacts on off-site ecological receptors; it is proposed that these impacts would be considered as an inherent part of the Air Quality ES chapter. To this end, a baseline habitat condition survey of habitats at statutory and locally designated sites (in the vicinity of the existing Kronospan Facility) has been undertaken to assess sensitivity of habitats to air quality impacts, through identification of plant communities, and investigating any indications of existing air quality impacts on vegetation. Data collected from this survey would then be utilised in the ecological interpretation of the air quality assessment and provided as a technical appendix to the Air Quality and Odour ES chapter.</p>
Water Resources and Flood Risk	<p>The Proposed Development would be within Flood Zone 1 and would not result in an increase in impermeable areas. As such there would be no significant impacts during operation in relation to flooding and drainage. Discharges from the facility would enter the existing process water system and would be treated within the on-site water treatment facility and would be discharged from site in line with the requirements of the facility's Environmental Permit. No direct effects on water resources with water quality impacts are anticipated during construction subject to implementation of a Construction Environmental Management Plan (CEMP) (to be subject to planning condition).</p> <p>A surface water and foul water drainage strategy and drainage strategy report will be provided (see also Table 12.1) as supporting documents to the DNS application which will demonstrate that the current systems are able to effectively manage the surface water, foul and trade effluent flows in accordance with the relevant standards.</p>
Geology, Hydrogeology, and Contaminated Land	<p>The existing Kronospan Facility is a large well-established hardstanding site with different processes being undertaken relating to the production of wood-based panels and associated products. The existing industrial and manufacturing processes undertaken on site are well controlled through the continued implementation of best practice measures (including pollution prevention measures). It is envisaged that a CEMP would be required by planning condition and would be adhered to during construction works.</p> <p>The existing Kronospan Facility (and the associated relevant activities) is also controlled by a consolidated Environmental Permit (EPR/BW9999IG) issued by Natural Resources Wales (NRW); this Environmental Permit would be amended to include the Proposed Development and includes best practice measures and implementation of BAT.</p> <p>There are frequent redevelopment projects across the Site which are supported by ground investigations which include the results of geochemical testing (soil, groundwater and ground gas). According to these ground investigations, the Site has been shown to not contain any significant contamination. Standard contaminated land best practice measures will be adopted during construction works.</p>



Topic	Reason for Scoping Out
	<p>Therefore, significant geology, hydrogeology and contaminated land effects are not anticipated to arise from the Proposed Development.</p> <p>A Phase 1 Geo-Environmental Assessment Report will be provided as a supporting document to the DNS application to include a qualitative risk assessment with respect to contamination and ground conditions/land stability and recommendations for a Phase 2 intrusive investigations and quantitative risk assessment if required (see Table 12.1 for further details). Should the Phase 1 Report identify potential for significant effects, an ES chapter on this environmental topic will be scoped into the EIA process.</p>
Vibration	<p>The Proposed Development is sufficiently distant from sensitive receptors to the extent that significant vibration effects are not anticipated.</p>
Major Accidents and Disasters	<p>The Proposed Development is within a politically, geologically, and meteorologically stable part of Europe. Accordingly, the Proposed Development is not at material risk from, for example, civil unrest, war, earthquakes or extreme weather conditions (hurricanes etc.).</p> <p>The DNS application is for a type of development and technology that has been successfully deployed throughout the UK and Europe. The technology is therefore proven and well understood.</p> <p>A series of regulatory consents would be required to build and operate the Proposed Development, perhaps the most significant of which is the Applicant's existing Environmental Permit which would require an amendment to take into account the Proposed Development. The legislation that governs the Environmental Permitting regime is in place to protect human health and the environment. To successfully amend the Environmental Permit, sufficient information must be provided to NRW to satisfy them that the Proposed Development can be operated within the regulatory requirements established by UK and European legislation. It also requires a Fire Prevention Plan. The Proposed Development would be required to operate within the limits and conditions set out in the amended Environmental Permit; failure to do so may result in the Proposed Development being closed and could lead to prosecution of the operator.</p> <p>There are no known localised environmental vulnerabilities (such as flood risk) specific to the location of the Proposed Development in relation to the potential for major accidents and disasters. A surface water and foul water drainage strategy and drainage strategy report will be provided (see also Table 12.1) as supporting documents to the DNS application which will demonstrate that the current systems are able to effectively manage the surface water, foul and trade effluent flows in accordance with the relevant standards. Climate change is scoped into the EIA process and is set out at Section 10.0 of this document. The Proposed Development is not considered to be vulnerable to any other potential 'natural' events that could result in significant environmental effects.</p>
Population and Human Health	<p>As described above, the Applicant's existing Environmental Permit would be required to be amended to take account of the Proposed Development. The Environmental Permitting regime is in place to protect human health and the environment. As described above, no significant effects are anticipated with respect human health impacts associated with the environmental topics of geology, hydrogeology,</p>



Topic	Reason for Scoping Out
	contaminated land, water resources and flood risk. Human health impacts associated with the environmental topics of noise, air quality and odour, and climate change would be addressed by these assessments which are described further in Sections 6.0, 7.0, and 10.0 of this document respectively. Traffic and Transport is proposed to be scoped out of the EIA process (see last column of this table and Annex A of this document for further details); a Transport Assessment will be included as a supporting document to the DNS application.
Material Assets and Waste	<p>The Institute of Environmental Management and Assessment (IEMA) guide to: Materials and Waste in Environment Assessment, Guidance for a Proportionate Approach defines materials as <i>“physical resources that are used across the lifecycle of a development. Examples include key construction materials such as concrete, aggregate, asphalt and steel.”</i></p> <p>Other material assets considered include built assets such as landfill capacity and allocated/safeguarded mineral and waste sites. Waste is defined as per the Waste Framework Directive (E Waste FD) (Error! Reference source not found.) as <i>“any substance or object which the holder discards or intends or is required to discard”</i>.</p> <p>The construction of the Proposed Development would be bespoke to the Applicant's requirements and the space available within the existing Kronospan Facility. The proposed site is already established hardstanding within the existing Kronospan Facility. Therefore, construction waste generated on site is anticipated to be minimised with no significant effects on local or regional landfill capacity. There are no mineral safeguarding areas on or close to the proposed site.</p> <p>One of the primary benefits of the Proposed Development is that the use of Grade C waste wood and forestry residue/RDF material for the proposed CHP plant would be a highly sustainable, efficient, and effective source fuel and would reduce the amount of residual waste going to landfill; this would provide a substantial beneficial effect and would be covered in more detail in the 'Description of the Proposed Development' ES Chapter (including information about the need case and availability of the proposed source fuel), the 'Alternatives Considered' ES chapter, and the Planning Statement.</p>
Lighting	The Proposed Development is to be sited in the middle of the existing Kronospan Facility which is already appropriately lit with low level and low glare lighting. It is expected that the Proposed Development would have relatively minimal additional lighting requirements resulting in a negligible change to the lighting arrangement and lighting impacts of the Kronospan Facility.
Construction Environmental Management Plan	As described above, the Proposed Development would be positioned in the middle of the existing and well established Kronospan Facility. The existing industrial and manufacturing processes undertaken on site are well controlled through the continued implementation of best practice measures (including pollution prevention measures). The existing Kronospan Facility (and the associated relevant activities) is also controlled by a consolidated Environmental Permit (EPR/BW9999IG) issued by Natural Resources Wales (NRW) which would be amended to include the Proposed Development and includes best practice measures and implementation of BAT.



Topic	Reason for Scoping Out
	<p>Significant effects (including during construction) associated with the Proposed Development are not anticipated for the environmental topics detailed above in this table. Construction mitigation measures associated with the scoped in environmental topics (see Table 4.1 of this document) will be described in those environmental topic ES chapters and adhered to during the construction works.</p> <p>It is envisaged that a CEMP would be required by planning condition and would be adhered to during construction works. The CEMP would include construction mitigation measures for all relevant scoped in and scoped out environmental topics to ensure all relevant best practice and site-specific mitigation measures are included and implemented during the construction phase.</p>
Traffic and Transport	<p>An appraisal of the Proposed Development construction and operational phase vehicle movements has been undertaken in accordance with the IEMA guidance document 'Environmental Assessment of Traffic and Movement' (July 2023).</p> <p>For both construction and operational phases, the total vehicles and total HGV movements would be below the thresholds set out in the IEMA guidance and are therefore scoped out of the EIA process. Further detail is provided at Annex A of this document.</p>

4.3.2 **Section 12.0** of this document provides summary details of other (non-EIA) environmental assessment work that will be undertaken and provided as supporting information to the DNS application.



5.0 OVERARCHING EIA METHODOLOGY

5.1 Introduction

5.1.1 This section provides a brief description of the approach to the environmental assessment process and describes the broad principles that will be applied within each technical assessment. Each technical assessment will follow a similar approach as follows:

- i) An **introduction** describing the basic scope and approach undertaken to the assessment.
- ii) A description of the relevant **planning policy, legislation and guidance** used to inform the assessment.
- iii) A description of the **methodology** applied to the assessment including but not limited to the scope of surveys undertaken, the Study Area, the criteria used in the impact assessment (noting that the topic-specific significance matrix may differ slightly to that presented in **Table 5.1** below as required by topic specific guidance); any limitations and assumptions made would also be described.
- iv) A presentation of the **baseline conditions** relevant to that discipline, including the future do-nothing baseline.
- v) A description of the **development design and impact avoidance measures** incorporated into the earlier development/design stages to avoid or minimise the potential for significant environmental effects.
- vi) An **impact assessment** that describes the effects that are likely to arise from the Proposed Development. The assessment will include a description of the nature, extent and significance of these effects. The assessment will consider the development design and impact avoidance measures described above.
- vii) Where not considered (and clearly identified as such) as an inherent part of the impact assessment, a description of the **inter-relationship of potential effects** (where other environmental topic effects could have a subsequent direct or indirect effect on the topic e.g. lighting and noise impacts on biodiversity) will be provided.
- viii) A description of **mitigation measures** will be provided as well as any compensation measures proposed to either further reduce the negative effects of the Proposed Development or to provide benefits to the local environment. Enhancement measures will be described separately as required.



- ix) Each ES topic chapter will include a section on the **residual impacts and conclusions** of the assessment. This section will describe the residual effects of the Proposed Development following the implementation of any additional mitigation measures (enhancement measures will be excluded from the summary of residual effects) and will summarise the findings of the assessment.

5.2 Baseline Environment

- 5.2.1 A description of the environmental baseline (as this relates to the respective topic being assessed) will be provided. Baseline conditions will be established through consultation, collation and analysis of existing datasets and reports, and gathering of site-specific field data. The baseline assessment will identify any sensitive receptors that will need to be considered in the assessment.
- 5.2.2 In accordance with the EIA Regulations, an outline of the likely evolution of the environment will be set out by predicting future natural change in the baseline conditions in the absence of the Proposed Development. The future baseline will then be considered when assessing the likely effects of the Proposed Development over its operational lifetime.

5.3 Determining Impact Significance

- 5.3.1 Each of the technical disciplines will describe the predicted environmental effects of the Proposed Development on the baseline conditions of the Site. The assessment will include a description of the nature, extent and significance of these effects. The assessment will consider any primary mitigation measures that have been specifically incorporated to reduce the environmental effects of the Proposed Development.
- 5.3.2 The EIA regulations do not provide definitive methods for the assessment of significance and a variety of methods are employed within EIAs. The method used to assess the effects will be specific to each discipline. Where available and appropriate the assessments will follow impact assessment criteria and methodology set out by relevant professional institutions e.g. Institute of Ecology and Environmental Management, Landscape Institute etc. Where such guidance is not available or prescriptive methods are not set out by the relevant professional body



then assessment criteria have been developed by the technical specialists to enable a clear and structured assessment to be undertaken.

- 5.3.3 The significance of the effects of the Proposed Development will, in general, be derived by considering the magnitude of the impact and the sensitivity of the receptor to a change (or changes) resulting from the Proposed Development.
- 5.3.4 Depending on the discipline there will be several factors that will need to be considered when establishing the nature and magnitude of impact, including:
- i) The scale/degree of change from baseline.
 - ii) Whether the impact is adverse or beneficial.
 - iii) Whether it is temporary or permanent, and if temporary the likely duration (i.e. short-term, medium-term or long-term).
 - iv) Whether it is direct or indirect.
 - v) Extent or spatial scale of the impact.
 - vi) Duration of the impact.
 - vii) Whether the impact is reversible.
 - viii) Probability/likelihood of the impact.
- 5.3.5 Similarly, the sensitivity of a receptor will be the function of several elements dependent on the discipline and impact being assessed, these could include:
- i) Designation and legal status.
 - ii) Quality.
 - iii) Rarity.
 - iv) Ability to change.
- 5.3.6 In general, the classification of an effect is based on the magnitude of the impact and sensitivity or importance of the receptor, using the matrix shown in **Table 5.1** below. Where there are deviations away from this matrix (due to the technical guidance for a specific assessment topic), this will be highlighted within the relevant ES topic chapter and the reason for the variation explained.



Table 5.1 – Example Level of Effect Matrix

Magnitude of Impact	Sensitivity/Importance of Receptor			
	High	Medium	Low	Negligible
High	Major	Moderate to Major	Minor to Moderate	Negligible to Minor
Medium	Moderate to Major	Minor to Moderate	Minor	Negligible
Low	Minor to Moderate	Minor	Negligible to Minor	Negligible
Negligible	Negligible to Minor	Negligible	Negligible	Negligible

5.3.7 There is no statutory definition of what constitutes a significant effect and there is often not a single, definitive, correct answer as to whether an effect is significant or not. However, it is considered that a significant effect is one which is likely to be a key material factor in the decision-making process. A significant effect does not necessarily mean that such an effect is unacceptable to decision-makers. This is a matter to be weighed in the planning balance alongside other factors. What is important is that the likely effects of any Proposed Development are transparently assessed and described in order that the relevant determining authority can bring a balanced and well-informed judgement to bear as part of the decision-making process.

5.3.8 Where the findings of an assessment are set out as different levels of effect (e.g. major, moderate, minor, etc.) the assessment will clearly set out where an effect is significant. This approach will be used to assist the decision maker, consultees and other interested parties in establishing the most critical environmental effects of the project.

5.3.9 Where a matrix is not used, the magnitude of change and the sensitivity of the receptor will be used to make a reasoned judgement to establish when an effect is significant or not significant.

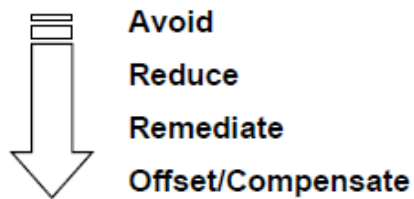


- 5.3.10 In all instances the assessment will set out the basis of the judgements made so that the readers of the ES can see the weight attached to the different factors and can understand the rationale of the assessment. In this sense the ES will clearly explain how the impact significance has been derived.
- 5.3.11 Where it is possible to quantify effects, qualitative assessments will be undertaken based on available knowledge and professional judgment. Where any uncertainty exists, this will be noted in the relevant ES topic chapter.
- 5.3.12 To enable comparison between technical topics and aid understanding of the EIA findings, standard terms will be used wherever possible to classify effects throughout the ES (major, moderate, minor and negligible), and effects will be described as being adverse, neutral or beneficial. Where the guidance for each discipline requires any deviation from these terms, this will be described in the relevant ES topic chapters.
- 5.3.13 Definitions of the standard terms are provided indicatively below, recognising that how these relate to different topics or to the specific effects experienced by individual receptors may vary to a greater or lesser degree. The specific circumstances of the change experienced by an individual receptor is the ultimate determining factor in the level of effect that would occur:
- i) Negligible – imperceptible effect to an environmental resource or receptor.
 - ii) Minor – slight, very short or highly localised effect.
 - iii) Moderate – limited effect (by extent, duration or magnitude).
 - iv) Major – considerable effect (by extent, duration or magnitude) of more than a local scale or in breach of recognised acceptability, legislation, policy or standards.
 - v) Adverse – detrimental or negative effects upon an environmental resource or receptor.
 - vi) Neutral – effects to an environmental resource or receptor that are neither advantageous nor detrimental.
 - vii) Beneficial – advantageous or positive effect upon an environmental resource or receptor.



5.4 Mitigation

- 5.4.1 It is a requirement of the EIA regulations to describe the measures envisaged to prevent, reduce and where possible offset any significant effects on the environment. Mitigation can be achieved in several ways as listed below; this approach is often referred to as the mitigation hierarchy with mitigation being selected as high up the hierarchy as possible.



- 5.4.2 Some mitigation measures (development design and impact avoidance measures as described above) are embedded into the Proposed Development because of decisions made during the design stage. These include any measures required for legal compliance, as well as any measures that implement the requirements of best practice guidance documents. Specific to the Proposed Development, examples of design-led impact avoidance mitigation include requirement to adhere to the limits within the Environmental Permit (which will need to be BAT for the process), stack height determined by an air quality assessment to minimise biodiversity impacts, and careful siting within the part of the existing Kronospan Facility already dedicated to on-site energy generation. On the basis that these mitigation measures are embedded into the Proposed Development, they will be taken into account when coming to a judgement of the likely significance of the effects of the Proposed Development.
- 5.4.3 Secondary (or reactionary) mitigation (and compensation if required) will then be identified where practicable and where environmental assessments identify that additional measures are required to further reduce impacts to an acceptable level.
- 5.4.4 This mitigation section of each ES topic chapter will provide a description of additional mitigation measures proposed to prevent, reduce or offset adverse effects unavoidable through design, or to provide benefits to the Proposed Development/local environment. An explanation will be provided of how these measures will mitigate/reduce the identified effects of the Proposed Development.



- 5.4.5 Enhancement measures will be identified where practicable and will be discussed with the relevant stakeholder(s).

5.5 Residual Effects and Conclusions

- 5.5.1 This section will provide a textual description of the residual effects of the Proposed Development following the implementation of any additional mitigation measures. Enhancement measures would not be required in EIA and planning terms i.e. not necessary to ensure the Proposed Development is acceptable and would therefore not be considered when describing the residual effects.
- 5.5.2 The conclusions will summarise the key elements of the assessment and include a statement on whether the development will result in any significant environmental effects.

5.6 Cumulative Effects

- 5.6.1 The EIA Regulations require that a description of the likely significant effects of the Proposed Development on the environment should be included in the ES, including cumulative effects. The EIA Regulations do not define cumulative effects; however, a commonly accepted description is:

“Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project” (European Commission, 1999)

- 5.6.2 Paragraph 3.15 of DNS Guidance Appendix 3 (Environmental Impact Assessment) states that the Scoping Report should contain information setting out how applicants intend to assess impacts from consequential or cumulative development, for example, a high-level assessment of the grid connection where this does not form part of the proposed development for a power station);
- 5.6.3 There is no defined methodology in the UK as to how cumulative effects should be assessed. In determining the approach to be adopted to this element of the assessment reference will be made to the following guidance:
- i) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (European Commission 1999).



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- ii) Cumulative Effects Assessment Practitioners Guide (Canadian Environmental Assessment Agency 1999).
 - iii) Guidelines for Environmental Impact Assessment (Institute of Environmental Management and Assessment 2006).
 - iv) The State of Environmental Impact Assessment Practice in the UK (Institute of Environmental Management and Assessment 2011).
 - v) DNS Guidance Appendix 3 (Environmental Impact Assessment).
- 5.6.4 The regulations are specific about the projects that should be considered to result in cumulative effects i.e., existing and/or approved projects. However, it is also considered relevant to include projects that are currently awaiting determination within the cumulative assessment, as there is a possibility that these projects could be approved whilst the application for the Proposed Development is being determined. Accordingly, the assessment of cumulative impacts will encompass the effects of the Proposed Development in combination with:
- i) Approved development under construction.
 - ii) Approved development, awaiting implementation.
 - iii) Proposals awaiting determination within the planning process with design information in the public domain.
- 5.6.5 The presence of existing operational schemes (and for some disciplines, schemes that are under construction, but not yet operational) is an established influence upon the environment. Such impacts will be accounted for when determining the baseline for the non-cumulative assessment for each ES topic chapter. The assessment of effects section of each ES topic chapter will have full regard to the presence of such schemes when arriving at any conclusions.
- 5.6.6 Whilst not always the case, the likelihood of cumulative significant effects arising from minor/small scale development is low. As such when considering the potential for significant cumulative effects to occur the following approach has been taking in identifying cumulative schemes.
- 5.6.7 Outside of the existing Kronospan Facility, only 'major projects' will be identified. In this context, major projects are developments of 10,000m² in size or greater and/or



projects that have been subject to EIA. Projects that fall outside these criteria are only included in the assessment if specifically identified by stakeholders and agreed as material to the ES.

- 5.6.8 Each topic will have a different spatial zone where potential cumulative significant effects could occur. It is considered unlikely that there would be any significant cumulative effects beyond 2.5km for any topic. As such this will be the extent of the search area for major projects.
- 5.6.9 Information on the scale, type and nature of the projects included within the cumulative assessment will be obtained from the relevant planning authority (either via online data on their website or directly provided). Where available this information will be sourced from a project EIA. If environmental information is not available, reasonable assumptions will be made on the likely environmental effects of the project. Each technical discipline will consider the likelihood of significant cumulative effects initially through a qualitative assessment and if necessary, through quantitative modelling. Where significant cumulative effects are identified these will be clearly reported and, if practicable, mitigation measures will be recommended.
- 5.6.10 The initial list of schemes to be considered in the cumulative assessment is set out in **Table 5.2** below and shown at **Figure 5.1**.

Table 5.2 – Initial List of Other Projects for Cumulative Assessment

Application Reference	Project Detail	Status	Included in Scope?
P/2017/0699	Kronospan – Log Delivery System and Chipping and Flaking System	Yes – chipping system is constructed but the log delivery and flaking system is awaiting construction	Yes (whilst noting that for some topics this would be part of the non-cumulative baseline)
APP/H6955/A/19/322757 1	Kronospan – OSB Facility	Extension to PB hall is constructed but the silos, sifters, and main building is awaiting construction	



Application Reference	Project Detail	Status	Included in Scope?
P/2022/0336	Kronospan – Covered Loading Yard	Awaiting construction	Yes
P/2022/0615	Kronospan – Engineering Stores	Awaiting construction	Yes
P/2022/0765	Kronospan – Silos and Extension to Chip Preparation Building	Awaiting construction	Yes
P/2022/1080	Kronospan – North Access Road and Associated Development	Awaiting construction	Yes
N/A	Indicative 132kV underground cable route between proposed 132kV substation and existing Legacy/Oswestry overhead line	Indicative (assumed) – not yet submitted (assumed to be installed predominately in the road and undertaken by statutory undertaker using permitted development rights)	Yes



6.0 NOISE

6.1 Introduction

- 6.1.1 This section sets out the proposed approach to the assessment of potential noise effects associated with the construction, operation, and decommissioning of the Proposed Development.
- 6.1.2 Liaison with WCBC Environmental Health Officers (EHO) would be undertaken to agree the location of noise sensitive receptors (NSR) relative to the Site, noise criteria and assessment methodology.
- 6.1.3 The noise chapter would be supported by a detailed noise assessment which provides an assessment of the likely noise impacts which would arise from the Proposed Development. The assessment would be informed by historical background sound monitoring undertaken in proximity to NSR and would be based on the highest likely noise conditions.

6.2 Baseline Environment and Proposed Study Area

- 6.2.1 The general noise climate around the Site is formed in general by local and distant road traffic movements, birdsong, occasional high-level aircraft and a distant low-level steady background noise from the existing Kronospan facility and other industrial units around the Canal Wood Industrial Estate and Mondelez.

6.3 Planned Surveys

- 6.3.1 This section provides details of the existing baseline data already held by the Applicant (which has been used for recent planning applications for other recent projects on and in the vicinity of the existing Kronospan Facility) and which will be used to inform the assessment of the Proposed Development.
- 6.3.2 The assessment benefits from an extensive baseline background sound survey which was undertaken during a week period commencing on the 27 July until 03 August 2021 at nine receptor positions (agreed as being appropriate by NRW for the Environmental Permit and assessment of noise from Kronospan) and was carried out in accordance with the advice given in BS4142: 2014+A1:2019. An additional sound survey was carried out between Friday 01 April 2022 to Tuesday 05 April 2022 at two further receptor positions for recent planning applications.



- 6.3.3 If requested by PEDW, a further baseline study would be undertaken at the agreed noise sensitive receptor monitoring positions and methodology suitable for compliance with BS4142:2014+A1:2019.

6.4 Development Design and Impact Avoidance Measures

- 6.4.1 The general approach to identifying development design and impact avoidance measures (embedded mitigation) is described at **Section 5.1** and **Section 5.4** of this document. This section provides further details of such measures already identified and likely to be identified relevant to this ES topic, noting that the design is still at initial concept stage and some of these measures are likely to be identified as the design reaches a final draft status prior to the commencement of the EIA assessment work; as such, these mitigation measures are unable to be identified in full at this stage and the information below is an indication only until such time that the baseline information is finalised and the EIA assessment work is commenced.
- 6.4.2 There are several different ways in which the Proposed Development noise levels could be reduced, for example, the use of noise control at source and/or the selection of different plant equipment, which may be quieter. The chosen method/s of mitigation should be appropriate to meet the noise criteria and the application of BAT.
- 6.4.3 Typical embedded noise mitigation measures would include:
- i) ID fan stack silencer.
 - ii) Boiler positioned inside a clad building.
 - iii) Bag filter plant enclosed to reduce radiated noise.
 - iv) Turbine fitted with an acoustic enclosure.



6.5 Characteristics of Potential Effects

6.5.1 Four types of effects at receptors have been identified:

- i) Residents of existing houses adjacent to the Site who could experience site operational noise during daytime and night-time periods.
- ii) Residents of existing houses who could experience additional road noise from the development.
- iii) Residents of existing houses adjacent to the Site who could experience temporary construction noise during daytime periods.
- iv) Users of the canal and marina who could experience temporary construction noise during daytime and operational noise during daytime and night-time.

6.5.2 In respect of noise characteristics, this would be relevant to operational noise, and would include the following:

Tonality

6.5.3 In terms of tonality, the potential noise sources that might generate this type of characteristic would include CHP plant such as fans, pumps and turbine inlet and exhaust systems. Plant emitting any significant tonal character at source would be controlled by design or mitigation measures.

Impulsivity

6.5.4 In terms of impulsivity (e.g. noise from Bagging Plant reverse jet filters and steam vents). The design would therefore control any associated impulse noise character using appropriate noise mitigation measures such as silencers and/or acoustic enclosures.

Intermittency

6.5.5 In terms of intermittency the only typical intermittent and regular activity is likely to be noise from reverse jet filters on-site. These would be suitably controlled and therefore unlikely to be distinctive at NSRs.



6.6 Assessment Method

6.6.1 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 at **Table 5.1** above, this is clearly described below.

6.6.2 Detailed baseline noise monitoring surveys have been undertaken during 2021 and 2022 at, or close to, the NSRs to identify the representative background noise levels around the Site. Should PEDW request that a further baseline assessment is required, this would be measured in accordance with guidance found within BS4142: 2014+A1:2019 and would include fixed sound monitoring at appropriate accessible secure positions over weekday and weekend periods during suitable weather conditions.

Modelling

6.6.3 Information on the proposed site layout, any building construction detail, detail of the likely plant list and any available information from equipment suppliers on plant noise levels or research into library data would be reviewed. Where appropriate, empirical noise level data would be referred to as obtained from similar plant operating in the UK.

6.6.4 Following the review of the proposed layout and data available on plant noise levels, noise prediction calculations would be undertaken of the effect of the plant in operation. This would involve producing a noise model using computer-based noise modelling software for the operation of the facility (likely to be CadnaA), which would apply ISO9613-2 calculation methodology. This would include the cumulative effect of the operation of all facilities on the Site. The predicted noise levels would assist in establishing the likely impact at the NSR positions by applying BS4142: 2014+A1:2019.

6.6.5 Noise would also be assessed for the construction phase of the Proposed Development. Information on noise sources likely to be used at site would be derived from the construction phase description and library data. An assessment of the highest likely noise levels would be provided based on the ABC methodology provided within BS BS5228-1:2009+A1:2014 'Code of Practice for noise and vibration control on construction and open sites'.



- 6.6.6 The results of the baseline noise monitoring would be assessed against the modelled noise impacts. The main noise sources from the Proposed Development would be assessed in terms of their contribution to noise radiating from the Site at NSRs and results compared with relevant impact criteria.
- 6.6.7 Where appropriate, noise control measures will be considered to ensure that noise levels are within relevant noise criteria guidance. Recommendations for appropriate noise control would be detailed taking BAT into consideration.
- 6.6.8 Noise arising from road traffic will be determined from the traffic figures provided in the Transport Assessment in accordance with the methodologies provided within 'Calculation of Road Traffic Noise' and the Design Manual for Roads and Bridges (DMRB LA 111 noise and vibration).
- 6.6.9 The impact assessment will be undertaken with reference to the following standards and guidance:
- i) The Institute of Acoustics (IOA) and the IEMA 'Guidelines for Noise Impact Assessment' 2014.
 - ii) BS4142: 2014+A1:2019 'Method for rating industrial noise affecting mixed residential and industrial areas.'
 - iii) BS8233:2014 'Guidance on sound insulation and noise reduction for buildings.'
 - iv) World Health Organisation (WHO) Guidelines for Community Noise: April 1999.
 - v) World Health Organisation (WHO) Night Noise Guidelines for Europe: 2009.
 - vi) Technical Advice Note ("TAN") 11, 'Noise' – 1997.
 - vii) EA Noise and vibration management: Environmental Permits (January 2024).
 - viii) ISO 9613-2: 1996 Acoustics – Attenuation of Sound During Propagation Outdoors.
 - ix) BS5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites'.
 - x) Design Manual for Roads and Bridges: LA 111 Noise & Vibration (May 2020).
- 6.6.10 In summary, the noise impact assessment would include the following:
- i) Background noise data to establish the baseline situation at NSRs.
 - ii) Identification of noise generating activities, such as:
 - a. Construction activities.



- b. Operational plant (fixed or mobile).
 - c. Traffic movements.
 - iii) Calculation of predicted noise levels using a computer model.
 - iv) Assessment of the predicted noise levels from fixed and mobile plant against the agreed noise criteria limits to derive a significant impact.
 - v) Assessment of any cumulative impacts from permitted development in the vicinity of the Site.
 - vi) Identification of mitigation measures to address any significant impacts.
- 6.6.11 Based upon the assessment of impact magnitude and the sensitivity of individual receptors, the matrix shown in **Table 6.1** has been developed to provide an indication of the possible level of effect for each predicted noise impact. Given that there are many factors which may affect the level of the effect of an impact, not least, the character of the noise and timescales over which the noise operates, the overall level of effect must be assessed on an individual project basis using professional judgement and experience.

Table 6.1 - Level of Effect Matrix

Impact Magnitude	Receptor Sensitivity		
	High	Moderate	Low
Severe	Major	Major/Moderate	Moderate/Minor
Substantial	Major/Moderate	Moderate	Minor
Moderate	Moderate	Moderate/Minor	Minor/Neutral
Slight	Minor	Minor/Neutral	Neutral
No significant impact (negligible)	Neutral	Neutral	Neutral

- 6.6.12 Where a level of effect is defined as Major or Major/Moderate, it is likely to be considered significant, i.e. an impact that is likely to be a key material factor in the decision-making process.

6.7 Potential for Additional Mitigation Measures

- 6.7.1 Potential further mitigation measures are unable to be identified at this stage as they will be informed by the results of the noise modelling and assessment work.



7.0 AIR QUALITY AND ODOUR

7.1 Introduction

7.1.1 This section sets out the proposed approach to the assessment of potential air quality and odour effects associated with the construction, operation, and decommissioning of the Proposed Development.

7.1.2 The existing Environmental Permit held by Kronospan and regulated by NRW will be varied to incorporate the operation of the Proposed Development. The Environmental Permit will impose limits on emissions to air based on the requirements of the EP Regulations, the Industrial Emissions Directive ("IED") (Directive 2010/75/EU) and the BAT Reference document (the "BREF") for the incineration of waste.

7.2 Baseline Environment and Proposed Study Area

7.2.1 The Proposed Development would be on the existing Kronospan Facility. There are no local Air Quality Management Areas (AQMAs) (i.e. in areas of concern over air quality) in the local area, the closest AQMAs are in the centre of Shrewsbury and Chester which are both over 30km away.

7.2.2 Within the village of Chirk there are two continuous analysers and four diffusion tube monitoring sites operated by WCBC:

- i) The two continuous analysers measure concentrations of oxides of nitrogen, nitrogen dioxide, and particulate matter (as PM₁₀ and PM_{2.5}), and volatile organic compounds (VOCs). Both these analysers are sited in background locations. The monitored concentrations include the contribution from existing operations at the Kronospan Facility and demonstrate that concentrations are well below the Air Quality Assessment Levels (AQALs) for the protection of human health.
- ii) The four nitrogen dioxide diffusion tubes are in various settings around the Kronospan Facility, including at roadside sites. These all include a contribution from the existing operations at the Kronospan Facility and demonstrate that concentrations are well below the AQAL for the protection of human health.

7.2.3 In addition to the local monitoring, the Department for Environment Food and Rural Affairs (Defra) provides modelled background concentrations of pollutants across the



UK on a 1km by 1km grid. This model is based on known pollution sources and background measurements and is used by local authorities in lieu of suitable monitoring data. In addition, mapped atmospheric concentrations of ammonia are available from the Air Pollution Information System (APIS) throughout the UK on a 1km by 1km grid. These datasets include the existing operations from the Kronospan Facility. These datasets confirm that the baseline concentrations are low in the local area.

- 7.2.4 There is no local monitoring of other substances which may be released from the Proposed Development. However, given the rural nature of the surrounding area, the existing operations at the Kronospan Facility would be the main contributor to baseline concentrations of these pollutants. For the purpose of this assessment, a review of national datasets will be carried out to determine an appropriate baseline concentrations.

7.3 Planned Surveys

- 7.3.1 No surveys are planned to support the air quality and odour EIA. The existing air quality monitoring carried out by WCBC is considered suitable.

7.4 Development Design and Impact Avoidance Measures

- 7.4.1 The general approach to identifying development design and impact avoidance measures (embedded mitigation) is described at **Section 5.1** and **Section 5.4** of this document. This section provides further details of such measures already identified and likely to be identified relevant to this ES topic, noting that the design is still at initial concept stage and some of these measures are likely to be identified as the design reaches a final draft status prior to the commencement of the EIA assessment work; as such, these mitigation measures are unable to be identified in full at this stage and the information below is an indication only until such time that the baseline information is finalised and the EIA assessment work is commenced.
- 7.4.2 The Proposed Development is required to have an Environmental Permit to operate and to comply with the measures within it to minimise the impact on the local environment. This will include limits on emission to air and to operate the Proposed Development in line with the Environmental Management System (EMS) which includes a Dust Management Plan and an Odour Management Plan.



- 7.4.3 The final stack height will be determined as part of the detailed modelling to minimise the impact on the local environment and in particular at local ecological sites.

7.5 Characteristics of Potential Effects

- 7.5.1 Potentially significant effects relating to air quality and odour could arise from:
- i) The generation of dust emissions on-site during the initial earthworks, construction, and movement of vehicles off-site (trackout) (i.e. material transferred on vehicle wheels to the public highway) associated with the construction of the Proposed Development.
 - ii) The generation of exhaust emissions from road traffic associated with the import and export of materials during the construction and operational phase.
 - iii) Operational process emissions associated with the Proposed Development.
 - iv) Fugitive releases of odour and dust during the operation of the Proposed Development.
 - v) Cumulative operational emissions associated with any other developments.

7.6 Assessment Method

Introduction

- 7.6.1 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 at **Table 5.1** above, this is clearly described below.

Generation of Construction Phase Dust Emissions

- 7.6.2 It is proposed to assess the impact of construction phase dust emissions qualitatively using the methodology outlined in the Institute of Air Quality Management (IAQM) guidance document "Guidance on the assessment of dust from demolition and construction" (January 2024). This will be used to determine any potential risks from dust generating activities and recommend suitable mitigation measures and determine whether residual significant effects are likely.



Vehicle Movements

- 7.6.3 The IAQM document "Land-Use Planning & Development Control: Planning for Air Quality" published in 2017 (the IAQM (2017) guidance) states an air quality assessment is required where a development would cause a "significant change" in LDV or HDVs. The indicative criteria to process to an assessment are:
- i) A change in LDV flows of:
 - a. more than 100 Annual Average Daily Traffic (AADT) within or adjacent to an AQMA; or
 - b. more than 500 AADT elsewhere.
 - ii) A change in HDV flows of:
 - a. more than 25 AADT within or adjacent to an AQMA; or
 - b. more than 100 AADT elsewhere.
- 7.6.4 The IAQM (2017) guidance does not clearly state the level of assessment which is required.
- 7.6.5 It is unlikely that the AADT trip generation rate during the construction period would exceed the above criteria. The impact of construction phase traffic will be assessed on a qualitative basis. This will take into account the likely profiling of construction phase vehicles over the construction phase and make a comparison with the operational phase traffic numbers.
- 7.6.6 If the AADT trip generation during the operational phase exceeds the indicative criteria for requiring an assessment, the impact will be assessed on a quantitative basis using the ADMS Roads dispersion model. The assessment will be based on the increase in vehicle flows, i.e., the change in impact. If the trip generation is below the indicative criteria for requiring an assessment, the impact will be assessed on a qualitative basis.

Combustion Process Emissions

- 7.6.7 The existing Environmental Permit for the Facility will be varied to allow the operation of the Proposed Development. The Environmental Permit will include both short-term and long-term limits on emissions to atmosphere for a range of combustion pollutants including:



-
- i) oxides of nitrogen ("NO_x", as NO₂).
 - ii) sulphur dioxide.
 - iii) particulate matter (as "PM₁₀" and "PM_{2.5}").
 - iv) carbon monoxide.
 - v) hydrogen chloride.
 - vi) hydrogen fluoride.
 - vii) volatile organic compounds ("VOCs").
 - viii) ammonia.
 - ix) mercury compounds.
 - x) cadmium and thallium compounds.
 - xi) other metals and their compounds (antimony, arsenic, cobalt, copper, chromium, lead, manganese, nickel and vanadium).
 - xii) dioxins/furans.
 - xiii) polychlorinated biphenyls (PCBs).
 - xiv) polycyclic aromatic hydrocarbons ("PAHs").
- 7.6.8 Detailed dispersion modelling will be 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 NRW and local authorities.
- 7.6.9 The modelling will consider existing (and any known proposed) buildings and will use five years of hourly sequential meteorological data from RAF Shawbury which is the closest and most representative meteorological station and was used in the previous modelling for the existing Kronospan Facility. The dispersion modelling will be undertaken using the discharge stack gas flow parameters to be provided by the technology supplier and the emission limits specified in Part 3 of Annex VI of the IED and Waste Incineration BREF BAT conclusions, as appropriate.
- 7.6.10 The dispersion model will be used to predict the short-term and long-term process contributions ("PCs") for the each of the pollutants released from the Proposed Development at the appropriate averaging periods and percentiles.
- 7.6.11 The dispersion modelling results will be used to determine a suitable stack height to minimise the impact upon the local environment whilst ensuring any limitations of the



site are considered. In addition, a sensitivity analysis will be included which will consider the effect that varying model assumptions has on the predicted impacts. This will be used to ensure the most appropriate model assumptions are used.

- 7.6.12 The predicted concentrations at the point of maximum impact, and at several discrete receptor locations in the area surrounding the Proposed Development representative of local sensitive receptors, will be compared with the relevant AQALs. These receptors will be selected following initial dispersion modelling to represent the locations most likely to experience a significant effect because of stack emissions, so are not specifically set out in this document. For those pollutants which have a short-term emission limit, the impact of the Proposed Development operating at this short-term emission limit will also be compared with the relevant short term AQALs.
- 7.6.13 As set out in **Section 3.0** of this document, the OSB facility is currently in development but not yet operational. Although this benefits from planning permission it does not yet have an Environmental Permit to operate. The Environmental Permit application was submitted to NRW at the end of 2023 and is currently being determined. As such the assessment will consider the following scenarios:
- i) Existing baseline – existing operations.
 - ii) Future baseline – or do-minimum – existing operations plus OSB facility.
 - iii) Do something – do minimum plus the Proposed Development.
- 7.6.14 The impact of the Proposed Development will be the difference between the do-something and do-minimum scenarios. In addition, in line with the IAQM (2017) guidance, the impact from the existing baseline will be considered.
- 7.6.15 The level of effects will be determined using the methodology outlined in the IAQM (2017) guidance. This guidance includes the following matrix which will be 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 7.1 – IAQM Magnitude of Change Descriptors

Long term average concentration at receptor in assessment year	% change in concentration relative to the Air Quality Assessment Level (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
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

7.6.16 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.

7.6.17 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) 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.

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

- i) < 10% - negligible;
- ii) 10 - 20% - slight;
- iii) 20 - 50% - moderate; and
- iv) 50% - substantial.

7.6.19 Following quantification of the magnitude of change the assessor should determine the significance of effect using professional judgement and should take into account such factors as:

- i) The existing and future air quality in the absence of the development;



- ii) The extent of current and future population exposure to the impacts; and
 - iii) The influence and validity of any assumptions adopted when undertaking the prediction of impacts.
- 7.6.20 The IAQM (2017) 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."*
- 7.6.21 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.
- 7.6.22 The IAQM (2017) guidance does not provide any descriptors for averaging periods of between 1 hour and a year. Therefore, for these periods the criteria detailed in EA (2016) 'Air emissions risk assessment for your environmental permit' will be used, which states that process contributions can be considered insignificant if:
- i) the long-term process contribution is <1% of the long-term environmental standard; and
 - ii) the short-term process contribution is <10% of the short-term environmental standard.
- 7.6.23 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 will be 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.
- 7.6.24 Results will be presented in tabular form for the point of maximum impact and at identified sensitive receptors in addition to a series of contour plots. Consideration



will be made of the in-combination impacts of vehicle and process emissions for those receptors within 200m of the road network impacted by the Proposed Development.

- 7.6.25 The impact of metals emissions will be assessed using the methodology outlined in the EA note, 'Guidance to applicants on impact assessment for group 3 metals stack emissions' (June 2016, version 4).

Dioxin Pathway Intake Assessment

- 7.6.26 The Environmental Permit will include a limit on emissions of dioxins and dioxin-like PCBs from the Proposed Development. These have the potential to accumulate within the food chain. The impact will be assessed in a Dioxin Pathway Intake Assessment which will consider the potential pathways for the pollutants to move through soil, plants and animals to humans using specialised software called IRAP.
- 7.6.27 IRAP implements the US Environmental Protection Agency's Human Health Risk Assessment Protocol (HHRAP) for pathway assessment. The results will be taken from IRAP and the UK specific health criteria will be applied to assess the impact (this is the EA's preferred approach). This approach is explained in the Environment Agency (EA) document "Human Health Toxicological Assessment of Contaminants in Soil", ref SC050021.
- 7.6.28 For dioxins and dioxin-like PCBs a Tolerable Daily Intake (TDI) is defined. This is "*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 K8 biomass boiler) and will be added to the MDI and compared with the TDI.

Plume Visibility

- 7.6.29 The dispersion modelling will also be used to determine the frequency and extent of visible plumes of condensed water vapour from the stack of the Proposed Development. The visual impact of the plume will then be assessed as part of the Landscape and Visual Assessment ES chapter.



Ecological Receptors

7.6.30 An assessment will be undertaken of the impact of emissions, including acid and nitrogen deposition, at ecologically sensitive receptors identified within the screening distance for habitats outlined in the EA guidance document "Air Emissions Risk Assessment for your Environmental Permit" (the Air Emissions Guidance), namely:

- i) Special Protection Areas (SPAs), Special Areas of Conservation (SACs), or Ramsar sites (European Sites) within 10km of the Proposed Development.
- ii) Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNR), Local Nature Reserves (LNRs), LWS and Ancient Woodland within 2km of the Proposed Development Site.

7.6.31 The sites to be assessed are set out in **Table 7.2** below:

Table 7.2 – Ecological Receptors

Site	Distance from Site (km) at Closest Point
River Dee and Bala Lake SAC	1.0
Johnstown Newt Sites SAC	6.3
Berwyn and South Clyde Mountains SAC	5.4
Berwyn SPA	8.5
Chirk Castle SSSI	0.5
Nant-y-Belan and Prynella Woods SSSI	2.4
Barracks Field LWS	1.1
Ceod-Y-Canal Wood LWS	<0.05

7.6.32 In addition to the sites listed in **Table 7.2**, the impact at the various ancient woodlands within 2km of the Site will be included.

7.6.33 The dispersion modelling results will be compared to the relevant Critical Levels for the protection of ecosystems and the habitat specific Critical Loads for deposition.

7.6.34 The IAQM (2017) guidance specifically states that it is not designed for assessing the impact at ecological sites. In 2020 the IAQM published the latest version of the guidance document "*A guide to the assessment of air quality impacts on designated*



nature conservation sites" (the IAQM 2020 guidance). This draws on the EA's Air Emissions Guidance which states that to screen out impacts as 'insignificant' at European and UK statutory designated sites:

- i) the long-term process contribution (PC) must be less than 1% of the long-term environmental standard (i.e. the Critical Level or Load); and
- ii) the short-term PC must be less than 10% of the short-term environmental standard.

7.6.35 If the above criteria are met, no further assessment is required. If the long-term PC exceeds 1% of the long-term environmental standard, the predicted environmental concentration (PEC), the sum of the baseline and PC must be calculated and compared to the standard. If the resulting PEC is less than 70% of the long-term environmental standard, the Air Emissions Guidance states that the emissions are 'insignificant' and further assessment is not required. In accordance with the guidance, calculation of the PEC for short-term standards is not required.

7.6.36 The Air Emissions Guidance states further that to screen out impacts as 'insignificant' at local nature sites:

- i) the long-term PC must be less than 100% of the long-term environmental standard; and
- ii) the short-term PC must be less than 100% of the short-term environmental standard.

7.6.37 In accordance with the guidance, calculation of the PEC for local nature sites is not required.

7.6.38 The Air Emissions Guidance criteria above have been set to screen out insignificant impacts. Regarding the impact on local nature sites, the IAQM 2020 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."

- 7.6.39 As such, it is considered appropriate to apply the screening criteria for SSSIs and European Sites to local nature sites.
- 7.6.40 Where impacts are identified that cannot be screened out as 'insignificant', either alone or in-combination with other identified cumulative schemes, the significance of effect will be assessed by the project ecologist.

Fugitive Dust and Odour Emissions

- 7.6.41 The Proposed Development would have the potential to give rise to fugitive releases of dust and odour. These will be controlled by Kronospan's EMS including the Dust Management Plan and the Odour Management Plan to ensure compliance with the requirements of the Environmental Permit. The significance of fugitive dust and odour emissions will be assessed on a qualitative basis. This will include consideration of the measures currently employed to control fugitive emissions and any changes required for the operation of the Proposed Development.

7.7 Potential for Additional Mitigation Measures

- 7.7.1 The Proposed Development will be designed to ensure that the impact on the local environment is not significant. As such, additional mitigation measures are unlikely to be required.



8.0 LANDSCAPE AND VISUAL ASSESSMENT

8.1 Introduction

- 8.1.1 This section sets out the proposed approach to the assessment of potential landscape and visual effects associated with the construction, operation, and decommissioning of the Proposed Development.
- 8.1.2 Landscape and visual effects are separate, although closely related and interlinked issues. As such, the assessments of the effects of the Proposed Development upon the landscape and upon visual amenity will be carried out under separate headings within the Landscape and Visual Impact Assessment (LVIA).
- 8.1.3 The assessment of landscape effects considers the potential effects of the Proposed Development on the landscape as an environmental resource. Landscape effects are caused by physical changes to the landscape, which may result in changes to the distinctive character of that landscape and how it is perceived.
- 8.1.4 The visual assessment is concerned with the potential effects that may occur resulting from the Proposed Development upon the population likely to be affected. It assesses the change in visual amenity experienced by people, arising from the presence of a development in the view.
- 8.1.5 The LVIA will be undertaken in accordance with the good practice guidance set out in *Guidelines for Landscape and Visual Impact Assessment*¹ (hereafter referred to as the GLVIA). Where appropriate, reference will be made to other environmental topics and other Chapters of the ES.

8.2 Baseline Environment and Proposed Study Area

Introduction

- 8.2.1 An overview of the existing Kronospan Facility and its wider context (including landscape considerations) is provided at **Section 2.1** and **Section 2.2** of this document.

¹ Landscape Institute and Institute of Environmental Management and Assessment, 3rd edition 2013. *Guidelines for Landscape and Visual Impact Assessment*. Routledge: Abingdon.



Baseline Environment

Landscape Designations

- 8.2.2 The Clwydian Range and Dee Valley AONB is approximately 550m west of the Site at the closest point (refer to **Figure 8.1** for location). AONBs are a statutory designation, first designated under the auspices of the National Parks and Access to the Countryside Act 1949. The primary purpose of an AONB, as set out in the Countryside and Rights of Way Act 2000, is to “*conserve and enhance the natural beauty*”.
- 8.2.3 The special qualities of the AONB are set out in the *Management Plan 2014-2019*² as follows:
- i) Tranquillity.
 - ii) Remoteness and Wildness, Space and Freedom.
 - iii) Heather Moorland and Rolling ridges.
 - iv) Broadleaved woodlands and veteran trees.
 - v) River Valleys and the River Dee.
 - vi) Limestone grasslands, cliffs and screes.
 - vii) Historic Settlement and Archaeology.
 - viii) Industrial Features and the World Heritage Site.
 - ix) Historic Defence Features.
 - x) Small historic features.
 - xi) Traditional boundaries.
 - xii) Iconic Visitor and Cultural Attractions.
 - xiii) The Offa's Dyke National Trail and Promoted Routes.
 - xiv) The Built Environment.
 - xv) People and Communities

² Clwydian Range and Dee Valley Area of Outstanding Natural Beauty, undated. *Management Plan 2014-2019*.



Other Designations

- 8.2.4 There are a range of heritage assets within the Study Area. Further details of these, and details of how effects upon them or their settings would be assessed are set out in **Section 9.0** of this document.
- 8.2.5 However, some of these assets do have an inherent landscape component, and where relevant their presence is reflected in the judgements made in the LVIA. Of particular relevance are the Pontcysyllte Aqueduct and Canal WHS and the Chirk Castle Registered Park and Garden (RPG). The location of these two features (including the essential setting of the WHS), and of other RPGs is illustrated on **Figure 8.1**.

Landscape Character

- 8.2.6 The Natural Resources Wales (NRW) LANDMAP study is the formally adopted methodology for landscape assessment in Wales and, as such, forms the baseline for landscape character assessment. The *Wrexham LANDMAP Supplementary Planning Guidance*³ (adopted 2007) uses LANDMAP data to subdivide the Borough into a series of four broad landscape types and twenty-seven geographically distinct landscape character areas (LCA). Given this, the LCAs identified by WCBC will be used as the baseline against which to assess effects on landscape character.
- 8.2.7 The Proposed Development would be within the Rural/Urban Villages landscape type and within LCA 7a: Chirk. The land in the western part of the Study Area is within the Uplands landscape type and within LCA 5a: Chirk Estate to Froncysyllte. The influence and visual dominance of industrial structures upon LCA 7a is specifically noted in the SPG.
- 8.2.8 Management guidance for both LCAs highlights the need to mitigate the impact of industry via strategic landscaping. In relation to the Proposed Development, a condition was attached to several planning consents for development at Kronospan which required the preparation of a landscape strategy to mitigate the visual effects of the existing Kronospan Facility from public viewpoints. As such, the Applicant submitted a landscape strategy for the area surrounding the existing Kronospan

³ Wrexham County Borough Council, adopted 2007. *Wrexham LANDMAP Supplementary Planning Guidance*



Facility to WCBC in 2017. The landscape strategy was approved in 2019, and planting has subsequently been carried out within land owned by Kronospan. This planting is beginning to become effective in screening views, including views towards the Site. Further similar planting is required by several more recent (i.e. post 2019) planning consent.

Visual Baseline

Zone of Theoretical Visibility

- 8.2.9 Zone of Theoretical Visibility (ZTV) mapping of the Proposed Development is presented on **Figure 8.1**, reflecting the theoretical visibility of the roof of the proposed boiler house building (height 43.85m) and the top of the proposed emissions stack (height 95m).
- 8.2.10 The ZTV was produced using a free 1m LIDAR Digital Surface Model (DSM) available from NRW under the terms of the Open Government Licence. The data was captured between 2020 and 2022.
- 8.2.11 The ZTV produced using the DSM reflects the presence of screening features in the landscape. However, it does not distinguish between the ground surface and the surface of structures and vegetation. As a consequence, the ZTV output may indicate visibility from areas known to be occupied by woodland and buildings (i.e., views from treetops and roofs). Ordnance Survey open mapping data (OS Zoomstack Woodland) datasets have been added to the ZTV Figures, as a solid white hatch on top of the ZTV information (but beneath base mapping), to mask out mapped areas of tree cover and buildings, noting this is unlikely to be exhaustive but helps refine the ZTV.

Viewpoints

- 8.2.12 The LVIA will include a detailed assessment of visual effects from a series of pre-determined viewpoint locations. Viewpoints fall into three categories, as set out in the GLVIA:

- xvi) Representative viewpoints (which represent the experience of different types of receptors in the vicinity).
- xvii) Specific viewpoints (a particular view, for example a well-known beauty spot).



- xviii) Illustrative viewpoints (which illustrate a particular effect/issue, which may include limited/lack of visibility).
- 8.2.13 It should be noted that the viewpoint itself is not the receptor. Rather it is the people that would be experiencing the view from it. People within the Study Area that are likely to experience views of the Proposed Development include:
- i) Local residents
 - ii) Users of public rights of way, and other routes/land with public access
 - iii) Visitors to Chirk Castle
 - iv) Road users
- 8.2.14 The LVIA team have been involved with a range of different development proposals at the existing Kronospan Facility over a period of more than ten years. Part of this previous work included the identification of a set of 26 viewpoint locations (agreed with WCBC, and with other consultees including the National Trust), which provide a full and representative coverage of locations and receptor types within the Study Area.
- 8.2.15 It is proposed that the majority of these viewpoints would be used in the LVIA (subject to agreement with consultees). Views of the Proposed Development would not be available from all of these locations. Viewpoint locations are illustrated on **Figure 8.1**, with a distinction between locations proposed to be included in the LVIA and locations proposed to be omitted.
- 8.2.16 The six viewpoints that are proposed to be omitted from the LVIA (Viewpoints O, P, S, T, Y and Z) are locations from which views towards the Proposed Development would be screened by vegetation cover, and in some cases by existing structures. These viewpoints are all outside the ZTV of the Proposed Development. As such, there would be no change in view as a result of the Proposed Development.
- 8.2.17 **Table 8.1** lists the 20 viewpoints that are proposed to be included in the LVIA. Viewpoints U and V at Chirk Castle both lie outside the ZTV, but given the sensitivity of views from these locations, it is considered of value to include them in the LVIA to demonstrate the lack of visibility.



Table 8.1 - Viewpoint Locations

Viewpoint	Location	Receptor Type
A: Chirk Recreation Ground	329040, 337815	Representative of views from public open space in Chirk village centre
B: Offa's Dyke Path near Fron Isaf	327302, 339844	Representative of views from the National Trail, north-west of the Site
C: N edge of Chirk	328921, 339165	Representative of views available to residents and road users at the edge of Chirk
D: Chirk Castle Gates	328106, 337680	Specific view from the Castle gates
E: Green Lane	329696, 338817	Illustrative of the degree to which the Proposed Development would be screened by other features in views from elevated locations
F: B5070 north of Chirk	328869, 339668	Representative of the views available from the road leading into Chirk
G: Offa's Dyke Path west of Bronygarth	325714, 336544	Representative of views from the National Trail, south-west of the Site
H: Chirk Castle Terrace	327158, 338969	Specific view from the garden terrace at the Castle
I: New Hall	327559, 338814	Representative of views from the adjacent road network and nearby property, and also from the entrance to Chirk Castle
J: Canal towpath near marina	328604, 339624	Representative of views available to canal and towpath users (including those at the marina)
K: Canal towpath north-west of site	328520, 338945	Representative of views available to canal users
L: Chirk Castle driveway	327234, 338569	Representative of views available to visitors on their way to the Castle itself.
M: Canal towpath north of site	328562, 339101	Representative of views available to canal users



Viewpoint	Location	Receptor Type
N: Canal towpath north of site	328564, 339152	Representative of views available to canal users
Q: New Hall South Lodge (Chirk Castle Entrance)	327507, 338782	Specific view from the entrance to Chirk Castle, adjacent to the listed lodge building
R: Eastern edge of Chirk Castle Estate	327544, 338701	Illustrative of views from the eastern edge of the Chirk Castle Estate
U: Chirk Castle entrance	326900, 338130	Specific view from outside the main entrance to Chirk Castle (the castle itself, and not the wider estate)
V: Chirk Castle roof	326864, 338121	Specific view from the roof of Chirk Castle
W: Footpath, Chirk Castle	327284, 338262	Specific view from the permissive path that runs through the Chirk Castle Estate
X: Minor road north of Chirk Castle	326821, 339365	Representative of views available to road users and to users of the Offa's Dyke Path National Trail (which crosses the road at this point)

8.2.18 Baseline photography from each of the viewpoints that are proposed to be included in the LVIA is presented on **Figures 8.2a-t**.

8.2.19 Wireframe visualisations have been prepared to illustrate the size and scale of the Proposed Development (excluding the feedstock storage, processing and conveyor systems) from Viewpoints A, C, M, Q and U. These are presented on **Figures 8.3a-e**.

Study Area

8.2.20 The Study Area for the LVIA has been determined based upon the LVIA team's prior knowledge of the existing Kronospan Facility and its surroundings, and previous experience of similar developments elsewhere. It is considered that, given the industrial context of the Site, there would be little scope for significant effects to extend over a wide area.



- 8.2.21 As such, it is proposed that the LVIA considers effects over a radius extending up to approximately 2.5km from the Proposed Development. A single viewpoint along the Offa's Dyke Path National Trail (Viewpoint G – see below), approximately 3.3km south-west of the Proposed Development, would also be included in the LVIA to pick up visual effects from this sensitive route. The extent of the proposed Study Area and proposed viewpoint locations are both illustrated on **Figure 8.1**.

8.3 Planned Surveys

Existing Data

- 8.3.1 The LVIA team has extensive data relating to the Study Area as a result of work undertaken in relation to previous planning applications. This includes:
- i) Extant landscape character assessment studies published by NRW and by WCBC.
 - ii) Baseline photography from all of the proposed viewpoint locations (shot in 2022), comprising.
 - a) Winter photography from all locations (except Viewpoint Z, which is proposed to be omitted from the LVIA – see above).
 - b) Additional summer photography from several viewpoints.
 - c) Summer photography only from Viewpoint Z.
 - iii) Other fieldwork to identify sensitive receptors.
 - iv) Topographic and arboricultural surveys.

Additional Surveys Required

- 8.3.2 Fieldwork will be carried to confirm that there have no changes within the Study Area that would invalidate any of the information obtained to date, including for example recent construction work or vegetation removal.

8.4 Development Design and Impact Avoidance Measures

- 8.4.1 The general approach to identifying development design and impact avoidance measures (embedded mitigation) is described at **Section 5.1** and **Section 5.4** of this document. This section provides further details of such measures already identified and likely to be identified relevant to this ES topic, noting that the design is still at



initial concept stage and some of these measures are likely to be identified as the design reaches a final draft status prior to the commencement of the EIA assessment work; as such, these mitigation measures are unable to be identified in full at this stage and the information below is an indication only until such time that the baseline information is finalised and the EIA assessment work is commenced.

- 8.4.2 The location of the Proposed Development within the existing Kronospan Facility and the height of the proposed structures have been determined to reduce their potential visibility from the surrounding area, hence reducing potential landscape and visual effects.
- 8.4.3 Further analysis regarding the size, scale and appearance of the proposed structures will be undertaken to determine the potential for the further reduction of landscape and visual effects. This is likely to relate chiefly to the height and mass of the proposed structures, and the colour scheme chosen for the cladding of these (provisionally goosewing grey to match surrounding structures but subject to consultation).
- 8.4.4 It should be noted that the height of the proposed emission stack has been determined principally by the outcomes of ecology/air quality modelling (refer to **Section 7.0** of this document) and there will be only limited scope for this to be influenced by landscape and visual considerations.

8.5 Characteristics of Potential Effects

- 8.5.1 Potentially significant effects could arise from:
- i) Views of the new structures from the surrounding area, affecting the visual amenity of local residents in their properties, users of the public rights of way network and other routes/land with public access, visitors to Chirk Castle and road and rail users.
 - ii) The influence of these upon the character of the surrounding landscape, with potential changes in the characteristics of those LCAs where visibility is predicted.
 - iii) The presence of a visible plume from the proposed emissions stack, which could draw further attention to the presence of the Proposed Development.
 - iv) The presence of the Proposed Development upon the identified purposes and qualities of landscape designations.



- v) Temporary activities associated with the construction of the Proposed Development, including the temporary presence of construction plant.
 - vi) Cumulative effects that would occur because of interactions between the Proposed Development and other consented or proposed schemes.
- 8.5.2 Direct physical effects would not be significant. The Proposed Development would be within previously developed land and there no vegetation loss would occur. As such, assessment of effects upon the physical landscape fabric of the Site would be scoped out of the LVIA.
- 8.6 Assessment Method**
- 8.6.1 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 at **Table 5.1** above, this is clearly described below.
- 8.6.2 The LVIA will be carried out in accordance with a project specific methodology prepared in accordance with good practice guidance provided within the GLVIA⁴, which will be appended to the LVIA. The proposed draft methodology is included as **Appendix 8.1**, and this includes details of how conclusions regarding significance (or level) of effects will be arrived at.
- 8.6.3 Not all landscape and visual effects arising because of a particular proposal will be significant. Furthermore, where likely significant environmental effects are predicted, this does not automatically mean that such effects are unacceptable and, indeed, some significant effects may be beneficial. The acceptability of landscape and visual effects is a matter to be weighed in the planning balance alongside other factors. What is important is that the likely environmental effects of any proposal are transparently assessed and described to enable the relevant determining authority to bring a balanced and well-informed judgement to bear as part of the decision-making process.
- 8.6.4 The judgement in relation to the LVIA of the Proposed Development is that a greater than 'moderate' level of effect is more likely to be significant. This is because such

⁴ Landscape Institute and Institute of Environmental Management and Assessment, 3rd edition 2013. *Guidelines for Landscape and Visual Impact Assessment*. Routledge: Abingdon.



an effect would generally result from larger magnitudes of change on higher sensitivity receptors. This does not preclude a 'moderate' effect or lower being significant, or a greater than 'moderate' effect not being significant. The professional judgement made will depend on the specific circumstances being considered.

8.6.5 The LVIA will aim to provide:

- i) A clear understanding of the Site and its setting in respect of landscape character and visual amenity.
- ii) An understanding of the Proposed Development in terms of its relationship with the landscape character and visual amenity.
- iii) An identification of potential effects of the Proposed Development upon the landscape, including upon landscape designations.
- iv) An identification of potential effects on visual receptors, including an identification of potential effects upon the experiences of users of public rights of way (i.e. sequential visual effects).
- v) A description of any proposed mitigation measures.
- vi) A conclusion as to the potential residual effects of the Proposed Development (reflecting any temporal changes in effects once mitigation provided by new planting and changes to the management of existing vegetation is effective).

8.6.6 The LVIA process will follow a standard approach, namely:

- i) The establishment of the baseline conditions i.e. the existing character and sensitivity of the landscape, and the type and sensitivity of visual receptors.
- ii) The prediction of the magnitude of change that the Proposed Development will bring, allowing for mitigation measures, upon the landscape and upon visual receptors.
- iii) An assessment of the level of effect that would occur, by considering the predicted magnitude of change, together with the sensitivity of the landscape or visual receptor.

8.6.7 The LVIA will be informed by updated ZTV mapping reflecting the final development layout.



8.6.8 The LVIA will also be informed by a series of annotated photographs from each Viewpoint representative of this range of receptors. Photomontages and/or wireframes will be prepared from specific viewpoints as set out in **Table 8.2**.

Table 8.2 – Visualisation Type

Viewpoint	Visualisation Type
A: Chirk Recreation Ground	Photomontage. Viewpoint is within Chirk Conservation Area
B: Offa's Dyke Path near Fron Isaf	Photomontage. Viewpoint is along a National Trail and within an AONB
C: N edge of Chirk	Photomontage. Viewpoint is close to residential properties within Chirk
D: Chirk Castle Gates	Photomatched wireframe to illustrate the degree of screening by vegetation
E: Green Lane	Annotated photograph
F: B5070 north of Chirk	Annotated photograph
G: Offa's Dyke Path west of Bronygarth	Annotated photograph. Whilst the location is sensitive (National Trail/AONB), the Proposed Development would be a very limited addition to the Kronospan Facility, which is itself only a modest presence within the view
H: Chirk Castle Terrace	Photomatched wireframe to illustrate the degree of screening by vegetation
I: New Hall	Photomatched wireframe to illustrate the degree of screening by vegetation
J: Canal towpath near marina	Annotated photograph. Proposed Development would be a small scale background presence, well screened by vegetation
K: Canal towpath north-west of Site	Photomontage. Viewpoint along the canal towpath close to the Site
L: Chirk Castle driveway	Photomatched wireframe to illustrate the degree of screening by vegetation
M: Canal towpath north of Site	Photomontage. Viewpoint along the canal towpath close to the Site
N: Canal towpath north of Site	Annotated photograph. Proposed Development would be well screened by vegetation and structures, and as a worst case, change in view would be similar to VP M
Q: New Hall South Lodge (Chirk Castle Entrance)	Annotated photograph. Proposed Development would be well screened by vegetation



Viewpoint	Visualisation Type
R: Eastern edge of Chirk Castle Estate	Annotated photograph. The Viewpoint is not a location likely to be frequented by members of the public
U: Chirk Castle entrance	Photomatched wireframe to demonstrate lack of visibility
V: Chirk Castle roof	Photomatched wireframe to demonstrate lack of visibility
W: Footpath, Chirk Castle	Photomatched wireframe to illustrate the degree of screening by vegetation
X: Minor road north of Chirk Castle	Photomatched wireframe to illustrate the degree of screening by vegetation

8.6.9 All photography and any visualisations will be prepared and presented in accordance with the requirements of *Technical Guidance Note 06/19* (TGN 06/19)⁵.

8.6.10 A separate methodology document setting out how all visualisation materials have been produced will be appended to the LVIA. This will include details of the processes followed in producing ZTVs, taking viewpoint photography and producing photomontages and other visualisation material. Any limitations inherent to these processes will also be set out.

8.7 Potential for Additional Mitigation Measures

8.7.1 To demonstrate net biodiversity benefit, which is a requirement of *Planning Policy Wales*⁶, the Proposed Development would potentially require landscape improvements to be undertaken. Given the location of the Proposed Development within an existing complex of industrial structures, it is likely that these would be located elsewhere within land under the control of the Applicant.

8.7.2 As noted in **Section 8.2** above, the Applicant has implemented planting within land under their control required by planning condition for consented developments within the existing Kronospan Facility, which is becoming effective in screening views. Further additional planting is also required as part of more recent planning permissions (including the North Access Road). As part of the LVIA process, and where required and practicable, the potential for further planting or other landscape

⁵ Landscape Institute, 2019. *Visual Representation of Development Proposals. Technical Guidance Note 06/19*

⁶ Welsh Government, 2024. *Planning Policy Wales Edition 12*



improvements would be considered to screen views of the Proposed Development and/or to provide more general enhancements to the landscape of the Study Area.



9.0 HISTORIC ENVIRONMENT

9.1 Introduction

- 9.1.1 This section sets out the proposed approach to the assessment of potential effects on the historic environment associated with the construction, operation, and decommissioning of the Proposed Development.
- 9.1.2 The historic environment assessment will consider the potential effects of the Proposed Development on the historic environment (built heritage and historic landscape character) as a result of development within the setting of historic assets. This section sets out the proposed approach to the assessment of potential effects on the historic environment during the construction and operation of the Proposed Development.
- 9.1.3 The Proposed Development is entirely within the footprint of the existing Kronospan facility. That facility was built in the 1970s and has developed throughout the later 20th and early 21st century. Modern aerial photographs document that the part of the site where the Proposed Development would be located has hard standing and is therefore likely to have been previously disturbed. Furthermore, no historic assets are recorded within the site of the Proposed Development and historic mapping does not indicate any previous buildings within the site of the Proposed Development. Consequently, no direct physical impacts on any historic assets are anticipated and it is proposed that construction phase effects on archaeology are **scoped out** of the EIA process.
- 9.1.4 However, given the proximity of the Proposed Development to known historic assets (described further below) it is proposed that a Heritage Impact Assessment relating to the potential impacts arising from development within the settings of historic assets is **scoped into** the EIA process. The assessment will be undertaken by a full member of the Chartered Institute for Archaeologists, in accordance with current best practice and guidance, set out more fully below.



9.2 Baseline Environment and Proposed Study Area

Baseline Environment

Designated Historic Assets

The Pontcysyllte Aqueduct and Canal World Heritage Site (Scheduled Monument and World Heritage Site), Ellesmere Canal and associated features at Chirk Bank (Scheduled Monument)

- 9.2.1 The Pontcysyllte Aqueduct and Canal World Heritage Site (WHS) is approximately 200m east of the Proposed Development Site at its closest point, the Site is within the WHS buffer zone. The WHS boundary coincides with a Scheduled Monument on both the Welsh and English sides of the River Ceiriog. The WHS Statement of Outstanding Universal Value (SOUV) describes the Pontcysyllte Aqueduct and Canal as “...a pioneering masterpiece of engineering and monumental architecture by the famous civil engineer Thomas Telford. It was constructed using metal arches supported by tall, slender masonry piers. The Pontcysyllte Aqueduct and Canal are early and outstanding examples of the innovations brought about by the Industrial Revolution in Britain, where they made decisive development in transport capacities possible. They bear witness to very substantial international interchanges and influences in the fields of inland waterways, civil engineering, land-use planning, and the application of iron in structural design”.

Scheduled Monuments

- 9.2.2 The following Scheduled Monuments are also within approximately 2km of the Proposed Development Site:
- i) Castell y Waun Castle Mound (DE117), a motte and bailey castle built by William Peveral of Dover in the late 11th or early 12th century.
 - ii) The London to Holyhead Road – Chirk embankment and earlier trackways (DE288).
 - iii) Offa's Dyke, a boundary earthwork, believed to be of Early Medieval date running, with some gaps, for roughly 120km through the border area between modern Wales and England, the following sections are to the west of the Proposed Development Site:
 - a. DE133 Offa's Dyke: Caeau-Gwynion Section stretches for 650m across Caeaugwynion farm towards Wern Wood.



- b. DE134 Offa's Dyke: Chirk Castle Section extending NE from Castle Mill measures 400m, running from Castle Mill to Home Farm, within Chirk Castle Registered Park and Garden.
 - c. DE135 Offa's Dyke: Chirk Park Section extending NE from the Lake runs north-north-east from the ornamental lake for 810m, where it is truncated by a road cutting.
 - d. DE138 Offa's Dyke: Section N & S of Plas-Offa is a 700m long stretch of the Dyke located just over 1km to the north-west of the Site. It is cut by the A5 in the centre and by the Llangollen Canal to the north.
 - e. DE198 Offa's Dyke: Chirk Park Section extending 340m NE of Home Farm runs north of DE134 across Chirk Castle Registered Park and Garden.
 - f. DE140 Offa's Dyke: Section N & S of Tan-y-Cut runs for c. 500m north-east from the Llangollen Canal to the River Dee.
- iv) Roman Military site at Rhyn park (1003716), a Roman camp and vexillation fortress.
- v) Motte castle adjacent to Oaklands Hall, Chirk Bank (1019299).

Conservation Areas, Registered Historic Parks and Gardens, and Listed Buildings

- 9.2.3 Chirk Conservation Area is within 500m of the Proposed Development Site. The Conservation Area includes the historic core of the medieval settlement and extends west to Station Avenue and Castle Road and south to include Chirk aqueduct and viaduct. The medieval town was largely destroyed during Glyndŵr's campaign and the War of the Roses in the 15th century and the majority of the buildings in the Conservation Area date to the late 18th century and the development of Chirk following the construction of the canal, the Holyhead Road, and the railway. There are a number of grade II listed buildings within the Chirk Conservation Area.
- 9.2.4 There are three Registered Historic Parks and Gardens within 2km of the Proposed Development Site:
- i) Chirk Castle (PGW(C)63(WRE)) is a Grade I listed park that forms the grounds of Chirk Castle. The park has its origins in the 14th century, in the late 17th century it was developed to include a Baroque layout with formal gardens and avenues. However, most of this layout was superseded by a new landscape design,



created by the English landscape designer William Emes for Richard Myddelton in the late 18th century. There are 26 listed buildings within the park, which include Grade I Chirk Castle and a number of parkland structures such as gates, entrance lodges, formal garden walls and ornaments, and estate workers' cottages.

- ii) Whitehurst (PGW(C)11(WRE)) is a Grade II* listed park that comprises a garden built by Sir Thomas Myddelton II in 1651 as the pleasure garden to Chirk Castle. The gardens include a number of listed buildings (including the Grade II* Queen Anne's Cottage and Grade II Whitehurst House), walled gardens, and a series of terraces. It was designed to be productive as well as ornamental and is a rare example of a 17th century ornamental fruit garden.
- iii) Brynkinalt Park PGW(C)15(WRE), a Grade II* landscaped park which forms the grounds of Brynkinalt Hall. The park was created by Lady Charlotte Dungannon in the early 19th century.

9.2.5 Grade I and II* buildings within 2km of the Proposed Development Site include:

- i) Chirk Castle is a Grade I listed building 2km to the west of the Proposed Development Site. The castle was built c.1295 for the Marcher lord Roger Mortimer. The castle was bought by the merchant Sir Thomas Myddelton in 1595. It remained in the Myddelton family until it was transferred to the National Trust in 1981.
- ii) Queen Anne's Cottage within Whitehurst Garden Registered Park and Garden (LB1288) is a Grade II* late 17th or early 18th century brick building, thought to have been a banqueting house.
- iii) Chirk Aqueduct (1295150) and Chirk Viaduct (1295219) are grade II* listed features to the south of Chirk that carry the railway and canal across the valley of the River Ceiriog at Chirk Bank.

Non-Designated Historic Assets

9.2.6 There are no non-designated historic assets within, or immediately adjacent the Proposed Development Site.

9.2.7 Non-designated assets within an approximately 500m of the Proposed Development Site are:



- i) Records for the non-scheduled sections of Offa's Dyke.
- ii) A number of farmsteads, including Afon Bradley to the north of the Site.
- iii) Industrial features such as the Brynkinallt Colliery to the east of the Site.
- iv) Features associated with the designed landscape at Chirk Castle.
- v) Historic built heritage within the Chirk Conservation Area.

Proposed Study Areas

9.2.8 The following Study Areas are proposed, based on the preliminary ZTV of the Proposed Development and relative sensitivity of receptors to harm resulting from changes to their settings:

- i) A Study Area of up to 3km is proposed for the World Heritage Site and associated Scheduled Monuments.
- ii) A 2km Study Area is proposed for grade I and II* listed buildings, Registered Parks and Gardens, Registered Historic Landscapes and other Scheduled Monuments.
- iii) A 1km Study Area is proposed for Conservation Areas and Grade II listed buildings.
- iv) A 500m Study Area is proposed for non-designated historic assets.

9.3 Planned Surveys

9.3.1 This section provides details of the existing baseline data already held by the Applicant (which has been used for recent planning applications for other recent projects on and in the vicinity of the existing Kronospan Facility) and which will be used to inform the assessment of the Proposed Development. This section also provides details of further baseline data and surveys to be gathered/undertaken in 2024 to ensure a suite of up-to-date baseline data is obtained to inform the assessment of the Proposed Development.

Existing Data

9.3.2 Historic environment baseline data already held by the Applicant, collated for previous recent applications in the vicinity of the Proposed Development Site, will be referenced where relevant, for example:



- i) Historic mapping regression analysis.
- ii) Reports on previous archaeological field work.
- iii) Baseline assessment of the contribution made by setting to the value of historic assets within the Study Area.

Additional Surveys

9.3.3 To ensure that baseline data is as up to date as possible, as a minimum, data will be gathered from the following sources:

- i) Clwyd Powys and Shropshire Historic Environment Records (HERs), including any available historic landscape characterisation data and records of previous archaeological investigations.
- ii) Cadw data for designated historic assets (Scheduled Ancient Monuments (SM), Listed Buildings (LB), Historic Parks & Gardens, Landscapes, Conservation Areas).
- iii) Data held by the National Library of Wales (NLW) and the Royal Commission on Ancient and Historical Monuments in Wales (RCAHMW).
- iv) National Heritage List for England (NHLE), the list of designated heritage assets maintained by Historic England.
- v) The Historic England Archive.
- vi) Historic mapping.
- vii) Local archive data.
- viii) Aerial photography.
- ix) Site walkover and setting assessment.

9.3.4 Data generated in relation to the other environmental topics will also be used as relevant, particularly ZTV, visualisations, borehole data, and LIDAR DSM data.

9.3.5 The following legislative, policy and best practice context will be considered in the preparation of the Heritage Impact Assessment:

- i) Ancient Monuments and Archaeological Areas Act, 1979.
- ii) Planning (Listed Buildings and Conservation Areas) Act, 1990.
- iii) Historic Environment (Wales) Act 2023.
- iv) Planning (Wales) Act 2015.
- v) Planning Policy Wales, Edition 12, Welsh Government, February 2024.



- vi) Technical Advice Note 24 (TAN24): The Historic Environment, Welsh Government, 2017.
- vii) Conservation Principles; Policy for the Sustainable Management of the Historic Environment in Wales, Welsh Assembly Government, 2011.
- viii) Heritage Impact Assessment in Wales, Welsh Government, 2017.
- ix) Sustainable Management of the Historic Environment in Wales (Conservation Principles) (Cadw 2011).
- x) The Register of Landscapes of Outstanding Historic Interest in Wales (Cadw, CCW & ICOMOS 1998).
- xi) Pontcysyllte Aqueduct & Canal. Supplementary Planning Notice (2012).
- xii) Pontcysyllte Aqueduct and Canal World Heritage Site Management Plan 2019-2029 (ARCADIS 2019).
- xiii) Guidance and toolkit for impact assessments in a World Heritage Site Context (UNESCO et al 2022).
- xiv) Managing Conservation Areas in Wales, Cadw 2017.
- xv) Principles of Cultural Heritage Impact Assessment in the UK, IEMA, IHBC and CIFA, 2021.

Setting Assessment

- 9.3.6 In accordance with The Setting of Historic Assets in Wales, Cadw 2017, an assessment will be undertaken to characterise the settings of the historic assets within the Study Areas outlined above and to establish the extent to which setting contributes to the heritage values of those assets. The assessment will include analysis using the visualisations produced for the landscape and visual impacts assessment, site visits and a desk-based assessment of the asset's heritage value and how and to what extent setting contributes to that.

9.4 Development Design and Impact Avoidance Measures

- 9.4.1 The general approach to identifying development design and impact avoidance measures (embedded mitigation) is described at **Section 5.1** and **Section 5.4** of this document. This section provides further details of such measures already identified and likely to be identified relevant to this ES topic, noting that the design is still at initial concept stage and some of these measures are likely to be identified as the design reaches a final draft status prior to the commencement of the EIA assessment



work; as such, these mitigation measures are unable to be identified in full at this stage and the information below is an indication only until such time that the baseline information is finalised and the EIA assessment work is commenced.

- 9.4.2 The location of the Proposed Development within the wider Kronospan Facility and the height of the proposed structures have been designed to reduce their potential visibility from the surrounding area, as far as reasonably practicable, and therefore also the degree to which they affect the heritage value of the surrounding historic assets. However, the height of the stack has been determined by other environmental topics and the scope to further mitigate setting effects through design may therefore be limited.

9.5 Characteristics of Potential Effects

- 9.5.1 There is very limited potential for the construction phase to result in direct physical effects on historic assets within the footprint of the Proposed Development given its location within the existing Kronospan Facility. No significant effects are predicted in relation to direct physical impacts during the construction phase.
- 9.5.2 The construction phase has the potential to impact the settings of historic assets. However, these impacts are short-term and temporary and would be reversed on completion of the construction phase. No significant effects are predicted in relation to the impacts arising from changes within the settings of historic assets during the construction phase.
- 9.5.3 The presence of the Proposed Development during the operational phase could potentially introduce a degree of change to the setting of historic assets within the vicinity of the Proposed Development Site. That change could impact the contribution made by setting to the asset's heritage value. The impacts would be direct, and temporary long-term (or permanent), occurring throughout the lifespan of the Proposed Development.
- 9.5.4 Any impacts resulting from development within the settings of heritage assets would be reversed on decommissioning, assuming that all above ground infrastructure was removed at that phase.



9.6 Assessment Method

Introduction

- 9.6.1 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 at **Table 5.1** above, this is clearly described below.
- 9.6.2 A staged assessment will be undertaken to determine the likely level of effects of the Proposed Development on the historic environment.
- 9.6.3 Once baseline data has been established, the heritage value (also referred to as heritage significance or receptor importance) of the historic assets will be determined. The magnitude of the impact of the Proposed Development on the heritage value of the historic assets within the baseline data will then be assessed. By comparing the value of the asset and the magnitude of impact, the overall significance of the effect will be determined.

Establishing Heritage Value (Receptor Importance)

- 9.6.4 An assessment of the heritage values of the assets within the baseline data, and the contribution made by setting to those values, will be undertaken. The value of the historic asset will be described in terms of its heritage interest and heritage values (evidential/archaeological, historical, aesthetic/architectural).
- 9.6.5 For designated assets (WHS, Listed Buildings, Scheduled Monuments, and Conservation Areas), the importance will be recorded as 'high' or 'very high' as these assets meet the national criteria for designation under the relevant legislation.
- 9.6.6 The relative importance of each non-designated historic asset within the historic environment baseline will also be determined to provide a framework for comparison. These categories provide an analytical tool that can inform later stages of assessment and the development of appropriate mitigation, where needed. Determining heritage significance is a professional judgment made with reference to Conservation Principles (Cadw, 2011).



Table 9.1 – Criteria for Determining Heritage Value (Receptor Importance)

Receptor Importance	Description
Very High (International)	Internationally important resources and designated assets of the highest significance, e.g. Grade I listed buildings, Grade I registered historic parks and gardens, World Heritage Sites.
High (National)	Nationally important resources, e.g. scheduled monuments, Grade II* and II Listed Buildings, Conservation Areas, Registered Landscapes, Grade II* and II Registered Parks and Gardens.
Medium (Regional)	Regionally important resources: Non-designated historic assets and landscape features with high or moderate evidential, historical, and/or aesthetic values.
Low (local)	Locally important resources: Non-designated historic assets and landscape features with low evidential, historical, and/or aesthetic values.
Negligible (minor)	Assets with very low or no evidential, historical, and/or aesthetic values, or where remains are known to have been significantly altered or destroyed.

Magnitude of Impact

- 9.6.7 The descriptions of magnitude of impact, provided in the following table, relate to harm to or loss of significance of the asset. Heritage significance can be harmed or lost through alteration or destruction of the historic asset or development within its setting. The former relates to any direct physical harm, including total or partial loss of the asset. Where the development only affects the setting of the asset, there is no direct physical harm but loss of or change to the asset's setting can (where setting contributes to the significance of the asset) result in a reduced ability to experience and understand the asset's heritage significance.



Table 9.2 – Criteria for Determining Magnitude of Impact

Magnitude	Definition
High	<p>Adverse: Total loss or substantial harm to key elements of the heritage interest of the asset or features or characteristics of the baseline (pre-development) conditions such that the adverse impact seriously affects a key element of its special interest of the asset.</p> <p>Beneficial: Significant removal of detracting elements or restoration of key elements of special interest strongly contributing to the asset's heritage value</p>
Medium	<p>Adverse: Partial loss or harm to one or more important elements or features or characteristics of the baseline (pre-development) conditions such that post development character or composition, or attributes of baseline will be significantly changed.</p> <p>Beneficial: Partial removal of detracting elements or restoration of key elements of special interest contributing to the asset's heritage value</p>
Low	<p>Adverse: Minor loss. Change arising from the loss or alteration will be discernible but underlying character or composition or attributes of the baseline condition will be similar to pre-development circumstances or patterns.</p> <p>Beneficial: Minor removal of detracting elements or restoration of elements of special interest contributing to the asset's heritage value</p>
Negligible	<p>Adverse: A slight loss of heritage interest through limited physical impact on the asset's value or a change within its setting that would be barely perceptible and the appreciation and understanding of the historic asset would be largely unchanged</p> <p>Beneficial: Slight removal of detracting elements or restoration of elements of special interest contributing to the asset's heritage value</p>
None	<p>No loss or alteration.</p> <p>Change not distinguishable or does not result in loss of heritage significance. Change does not result in any removal of detracting elements or restoration of elements of special interest.</p>

Level of Effect

- 9.6.8 The assessment will consider the relative heritage significance of the asset, the contribution made by setting to that significance, and the predicted magnitude of effect on that significance that would result from the Proposed Development. However, professional judgement will be applied, in accordance with the relevant



best practice guidance, to determine the overall level of effect for the historic environment topic. A degree of flexibility is therefore required when assessing the level of effect, and the following matrix is broadly consistent with **Table 5.1** above but with some minor deviations which allow for the full range of relative receptor values outlined above and the application of professional judgement.

Table 9.3 – Criteria for Determining Level of Effect

Magnitude of Impact	Heritage Value				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Major or moderate	Moderate or minor	Minor or Negligible
Medium	Major	Major or moderate	Moderate or minor	Minor	Negligible
Low	Moderate	Moderate or minor	Minor	Negligible or minor	Negligible
Negligible	Minor	Minor or negligible	Negligible	Negligible	Negligible

9.6.9 Major and moderate adverse effects will be considered to be significant effects in EIA terminology (highlighted in bold in **Table 9.3**). Effects of minor or negligible significance will be considered as not significant in EIA terms.

9.7 Potential for Additional Mitigation Measures

9.7.1 Design measures may not be possible to avoid or mitigate all potential historic environment impacts given the nature of the Proposed Development (as described above). Where adverse significant effects are predicted, offsetting or compensation measures may be necessary. Such measures could include:

- i) Off-site landscaping proposals (led by the LVIA process) which help to screen any views that hold intrinsic heritage value.
- ii) Supporting off-site conservation initiatives that deliver heritage benefits locally.
- III) Positively managing historic assets elsewhere within the land under the control of the Applicant to deliver heritage benefits.



10.0 CLIMATE CHANGE

10.1 Introduction

- 10.1.1 This section sets out the proposed approach to the assessment of potential climate change effects associated with the construction, operation, and decommissioning of the Proposed Development. This includes the impact of the Proposed Development to climate change i.e. a quantification of net greenhouse gas (GHG) emissions associated with the operation of the Proposed Development, and the resilience of the Proposed Development to climate change effects.
- 10.1.2 The Climate Change ES chapter will be supported by a GHG Assessment which will quantify the net GHG emissions associated with the operation of the Proposed Development and those associated with the likely alternative treatment for the Grade C waste wood and RDF to be processed.

10.2 Proposed Study Area

- 10.2.1 The impact of GHG emissions will be worldwide, a physical boundary to their impact cannot be defined. All GHG emissions arising over the course of the Proposed Development will be assessed as part of the GHG Assessment. Direct emissions from activities taking place within the Site boundary, indirect emissions from activities outside the Site boundary (such as those associated with the transportation of materials) and embodied carbon within construction materials will all be considered as part of the Study Area for the GHG Assessment.
- 10.2.2 For the climate change resilience assessment, the Proposed Development itself (during construction, operation, and decommissioning) is considered the receptor and therefore the Study Area is the red line boundary of the Proposed Development.

10.3 Planned Surveys

- 10.3.1 No surveys are planned to support the EIA. The existing monitoring of climatic conditions carried out by the Met Office is considered suitable to support the ES.



10.4 Development Design and Impact Avoidance Measures

10.4.1 The general approach to identifying development design and impact avoidance measures (embedded mitigation) is described at **Section 5.1** and **Section 5.4** of this document.

10.5 Characteristics of Potential Effects

10.5.1 The following likely potential effects arising from the Proposed Development relevant to climate change will be considered in the ES:

- i) The net GHG emissions associated with the treatment of Grade C waste wood and RDF at the Proposed Development; and
- ii) The resilience of the Proposed Development to the effects of climate change.

10.5.2 When considering the resilience of the Proposed Development to climate change it is proposed to consider the following climate effects:

- i) Increased winter precipitation, which could lead to fluvial or pluvial flooding of the site and access.
- ii) Increased frequency and magnitude of wind and storms which would have the potential to damage the Proposed Development and lead to obstruction of access routes.
- iii) Decreased summer precipitation, leading to the possibility of reduced water supply and drought.
- iv) Increase in summer temperatures - increases in temperatures could affect electrical infrastructure and conditions within working areas.

10.5.3 The vulnerability of the Proposed Development to the following climate change effects are expected to be not significant and are proposed to be scoped out:

- i) Sea level rise, storm surge and storm tide – the Site is not close to the sea.
- ii) Snow and ice - the UKCP18 predictions anticipate less snow and ice than the current baseline and as such the risk from snow and ice is not anticipated to increase due to climate change.
- iii) Increased winter temperatures - increases in winter temperatures do not exceed the current baseline for other times of the year and so the Proposed Development would not be vulnerable to this effect.



- iv) Relative humidity - changes in humidity are not included in the UKCP18 predictions and it is not likely to have a significant effect on the Proposed Development, which is designed to allow for a range of ambient conditions.
- v) Water quality and soils - water availability has the potential to cause changes to the mobilisation of pollutants. More acidic soils and/or water can increase the deterioration of building materials. Soil stability may be altered by a change in water availability. However, the design will account for a range of conditions.

10.6 Assessment Method

- 10.6.1 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 at **Table 5.1** above, this is clearly described below.

GHG Emissions

- 10.6.2 The additional GHG emissions from the Proposed Development will be calculated in accordance with the methodology presented in both the IEMA guidance 'Assessing Greenhouse Gas Emissions and Evaluating their Significance, 2022', and the UK Government guidance document 'Energy recovery for residual waste - a carbon-based modelling approach'. The calculation will consider:
- i) The emissions from the Grade C waste wood and RDF to be combusted.
 - ii) The emissions associated with the transport of the Grade C waste wood and RDF to the Proposed Development.
 - iii) Offset of emissions generated from the on-site plant (including the K7 and K8 biomass plants, gas turbines and gas engines which would otherwise provide heat and power to the manufacturing process.
 - iv) Offset of the emissions which would be generated by the RDF being disposed in landfill or an alternative Energy Recovery Facility (ERF).
 - v) Offset of the emissions which would be generated by the transportation of the Grade C waste wood and RDF to landfill or an alternative ERF.
 - vi) Offset of the emissions from electricity generation for the power which would have been generated by through burning of landfill gas or from an alternative ERF.



- 10.6.3 As set out in **Section 3.0** of this document, the OSB facility is currently in development but not yet operational. Although this benefits from planning permission it does not yet have an Environmental Permit to operate.
- 10.6.4 The following scenarios will be considered in the GHG Assessment:
- vii) **Existing baseline** – taking into account GHG emissions from the existing gas usage across the site, Grade C waste wood combusted at the site, and the transportation of materials to and from the site.
 - viii) **Future baseline or do-minimum** – including OSB facility – accounting for the changes to the gas usage across the site with the operation of the OSB facility, Grade C waste wood combusted, and the transportation of materials to and from the site.
 - ix) **Do something** – the future baseline modified to allow for proposed gas usage across the site with the operation of the OSB facility and the Proposed Development, Grade C waste wood and RDF combusted, and the transportation of materials to and from the site.
- 10.6.5 As detailed in **Section 3.0** of this document, the Proposed Development will replace the use of the on-site gas turbines and gas engines. The alternative destination of Grade C waste wood and RDF could be to UK landfill or to be processed in another ERF. Both possible scenarios will be considered for the alternative scenario of waste treatment. Due to the anticipated policy initiatives, it is expected that the biogenic contribution of RDF will decrease in future. Therefore, RDF composition changes will be considered. The alternative source of on-site electricity and heat would be the K7 and K8 biomass plants, and the on-site gas turbines and gas engines.
- 10.6.6 It can be argued that any GHG emissions can be considered significant. However, the 2022 IEMA Guidance emphasises that the significance of effect should be determined based on the contribution of the development to the Welsh government's net zero by 2050 target. This includes consideration of a project's baseline, should a project replace existing development or baseline activity that has a higher GHG profile. The significance of a project's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible. The net zero trajectory and the Welsh government's carbon budgets will be used to assess the significance of emissions from the Proposed Development.



- 10.6.7 In addition, the GHG emission impacts of the Proposed Development will be contextualised by comparing them to sector-based, local, and/or national carbon budgets, policy goals and/or performance standards.

Climate Change Resilience

- 10.6.8 To help assess the potential impact of climate change on the Proposed Development, a baseline climate will be established for the area. This will be based on data from the UK Meteorological Office (Met Office) historical climate averages, from the closest meteorological station with historical data, which is Hawarden, and the UK Met Office regional climate summary for Wales.
- 10.6.9 The future climate change baseline will be calculated using the baseline data from Hawarden and the climate change predictions as published by The UK Climate Projections ("UKCP"). UKCP18 is the latest generation of national climate change projections and will be used to form the future baseline in this assessment unless any more recent datasets are released prior to submission of the DNS application. The predictions of a 'high emissions scenario' (RCP8.5) will be used for Wales for 2040 to 2059.
- 10.6.10 Receptors associated with the Proposed Development which are vulnerable to climate change are listed below:
- i) Plant buildings and operation.
 - ii) Vehicular access to site (for workers and waste).
 - iii) Grid connection and local users.
 - iv) On site workers.
- 10.6.11 For each receptor, the significance of effect of each predicted climatic effect will be assessed on a qualitative basis taking into consideration the sensitivity (which takes into account the susceptibility, vulnerability and value of the receptor) and magnitude (which takes into account probability and consequence) at each receptor for each climate change effect using the IEMA 2020 Guidance - Environmental Impact Assessment Guide to Climate Change and Resilience and Adaption. This will allow for the mitigation incorporated into the design of the Proposed Development.



10.7 Potential for Additional Mitigation Measures

- 10.7.1 If further mitigation measures are required to reduce or remove adverse effects likely to arise from the Proposed Development, these will be identified within the ES. These mitigation measures are unable to be identified in full at this stage as they will be informed by the results of the assessment work.



11.0 PROPOSED STRUCTURE OF THE ES

11.1.1 The proposed contents and structure of the ES is shown below.

Table 11.1 – Proposed Volume Structure of the ES

Volume	Details
1	Non-Technical Summary
2	Main Report (see below for breakdown of ES chapters)
3	Figures
4	Technical Appendices

11.1.2 Volume 2 would be presented using the following ES chapters:

1.0 – Introduction

2.0 – EIA Methodology

3.0 – Alternatives Considered

4.0 – Description of the Proposed Development

5.0 – Noise

6.0 – Air Quality and Odour

7.0 - Landscape and Visual Assessment

8.0 – Historic Environment

9.0 – Climate Change

10.0 – Summary of Residual Effects and Conclusions



12.0 OTHER SUPPORTING (NON-EIA) ASSESSMENT INFORMATION

12.1 Introduction

12.1.1 **Table 12.1** below provides summary details of other (non-EIA) environmental assessment work that will be undertaken and provided as supporting information to the DNS application.

Table 12.1 – Other Supporting (Non-EIA) Assessment Information

Document	Summary Details
Geology, Hydrogeology and Contaminated Land	<p>The proposed scope of work is as follows:</p> <ul style="list-style-type: none"> • Liaison with local Contaminated Land Officer and agreement of scope. • Purchase and review of up-to-date historical mapping and site setting data for the Site (Envirocheck Report or equivalent). • Review of information including site setting, surrounding features, industrial land-uses, hydrogeology, former and current landfills, aerial imagery, geological, hydrogeological and hydrological information. • Review of any suitable information such as previous investigation reports, borehole logs, updated Site Condition Reports etc. • Site inspection by Geo-Environmental Consultant; provision of photographic record. • Development of conceptual site model (source-pathway-receptor). • Preparation of Phase 1 Geo-Environmental Assessment Report in accordance with EA LCRM guidelines; to include: <ul style="list-style-type: none"> ○ Qualitative risk assessment with respect to contamination and ground conditions/land stability. ○ Recommendations for Phase 2 intrusive investigations and generic quantitative risk assessment, if deemed necessary, to obtain further information on the ground conditions/contamination status to inform potential development constraints/requirements.
CHP Plan and R1 Calculations	<p>The CHP/Heat Plan will identify the heat requirements of the existing Kronospan Facility and explain how the export of heat from the CHP Plant has been optimised to maximise the energy efficiency of the Kronospan Facility in accordance with the requirement of the Environmental Permit and Article 1.1 of the Industrial Emissions Directive which requires regulators to ensure that regulated facilities use energy efficiently.</p> <p>The CHP/Heat Plan will also consider how the energy efficiency of the CHP Plant relates to the relevant energy efficiency requirements of the Waste Incineration BREF and the UK regulators recently published BREF Implementation Document.</p> <p>An R1 calculation will be carried out to demonstrate whether the design of the CHP Plant is able to satisfy the R1 (Recovery) criteria within the Waste Framework Directive.</p>



Document	Summary Details
Carbon and Greenhouse Gas Assessment	<p>The Climate Change ES chapter would be supported by a quantitative assessment of the carbon emissions associated with the operation of the Proposed Development. The carbon assessment will include a comparison between the following scenarios:</p> <ul style="list-style-type: none"> • Baseline – Calculation of the direct and indirect carbon emissions associated with the existing waste management arrangements for the waste processed at the Facility. • Proposed Development – Calculation of the direct and indirect carbon emissions from the operation of the Facility, to include: <ul style="list-style-type: none"> ○ Displacement of carbon emissions associated with alternative forms of power generation; and ○ Displacement of carbon emissions associated with alternative forms of waste management.
Transport Assessment	<p>A Transport Assessment will be provided that sets out the following transport matters:</p> <ul style="list-style-type: none"> • Review of existing site context, local highway network, road safety conditions and presentation of baseline traffic data. • Details of construction impacts, including phasing, trip generation during construction, construction traffic impact, construction traffic management plan, abnormal load strategy, and details of construction vehicles. • Forecast trip generation during both construction and operational phases using a first principles' approach, expressed as both annual and daily traffic flows. • Detailed highways analysis to include details of the necessary assessment time periods, future year traffic growth assumptions, details of committed development traffic, trip generation and assignment on following links (subject to agreement with Local Highway Authority): <ul style="list-style-type: none"> ○ Link 1 - B5070 Holyhead Road (North of Existing Site Access). ○ Link 2 - B5070 Holyhead Road (North of Old Black Park Road). ○ Link 3 - A5 (West of Whitehurst Roundabout). ○ Link 4 - A5 (East of Whitehurst Roundabout). ○ Link 5 - A483 (North of Halton Roundabout). ○ Link 6 - A483 (South of Halton Roundabout). • 1 x link flow analysis scenario would be presented of the Proposed Development traffic distribution. This will consider the use of a single access point. • Operational analysis of the access junction (one junction). • A 'Transport Implementation Strategy' (Travel Plan) section, as per TAN18 requirements.
Surface Water and Foul Water Drainage Strategy	<p>A surface water and foul water drainage strategy and drainage strategy report will be provided which will demonstrate that the current systems are able to effectively manage the surface water, foul and trade effluent flows in accordance with the relevant standards.</p>



Annex A – Traffic and Transport (Scoped Out Justification)

Introduction

The proposed approach to the assessment of potential traffic and transport effects associated with the construction and operation of the Proposed Development is set out below.

Baseline Environment and Study Area

This section provides a description of the baseline environment and proposed Study Area relevant to this topic.

Local Highway Network

As set out earlier in this EIA Scoping Report, the existing Kronospan Facility is located to the west of Holyhead Road (B5070). This road operates in a general north-south alignment as a two-way, single carriageway road and accommodates a footway on its eastern side, with parts of the road also accommodating a footway on its western side. Locally to the site, the road is lit and is subject to a speed limit of 30mph, although this increases to 50mph to the north on approach to the A5. Some parts of the route incorporate on-carriageway advisory cycle lanes.

The B5070 connects to the A5 approximately 1.5km to the north of the existing Kronospan Facility via a 3-arm priority roundabout junction known as Whitehurst Roundabout. Approximately 1km to the east of this roundabout, the A5 connects to the A483 by way of a 4-arm priority roundabout junction known as Halton Roundabout. The A483/A5 provide links north to Chester, west to Llangollen and south to Shrewsbury.

To the south of the Kronospan Facility, the B5070 leads to the A5 at the Gledrid Roundabout via Chirk town centre, although use of this route by goods vehicles in excess of 17T weight is prohibited by way of signed restrictions.



Site Access

The existing main access to the Kronospan Facility is via a simple priority T-junction with Holyhead Road (B5070) approximately 30m south of the B5070/Chapel Lane junction. Signage is in place at the junction which directs HGVs exiting the Kronospan Facility to travel northwards to reach the A5 and also advises of the restrictions to goods vehicles (in excess of 17T weight) that is in-place further south.

The minor arm of the junction (i.e. the Kronospan Facility access road) is subject to a 20mph speed limit and accommodates a separate pedestrian footpath and gated entrance on the northern side of the road, segregated from the carriageway by way of a wide grass verge.

Planning permission has been granted (WCBC planning reference P/2022/1080) subject to confirmation of legal agreements for a new access road (North Access Road), lorry park, weighbridge, 132kV substation and associated infrastructure on land immediately north of the existing Kronospan Facility. The North Access Road would be used as the main access to the existing Kronospan Facility and the Proposed Development; the current access would no longer be used for the access and egress of HGVs, except in exceptional circumstances.

The existing railhead and sidings within the existing Kronospan Facility are used to import timber for the manufacturing process (as well as import via HGV). Improved railway siding facilities have been constructed to enable an increased volume of timber to be imported by rail.

Public Rights of Way

There are no Public Rights of Way (PRoWs) that operate through, or in the vicinity of the Site. The nearest PRoW to the site is 'CHI/42', a public footpath located some 500 metres south-east of the site at Chirk AAA Sports and Social Club.

Study Area

The Study Area for the purposes of this EIA scoping process is set out below:

- i) Link 1 - B5070 Holyhead Road (North of Existing Site Access).
- ii) Link 2 - B5070 Holyhead Road (North of Old Black Park Road).
- iii) Link 3 - A5 (West of Whitehurst Roundabout).



- iv) Link 4 - A5 (East of Whitehurst Roundabout).
- v) Link 5 - A483 (North of Halton Roundabout).
- vi) Link 6 - A483 (South of Halton Roundabout).

Existing Traffic Conditions

To establish existing traffic conditions on the local highway network Manual Classified Turning Count (MCC) surveys were undertaken at the following key network locations:

- i) B5070 Holyhead Road/Farm Access/Old Black Park Road junction.
- ii) B5070 Holyhead Road/A5 Roundabout (Whitehurst Roundabout).
- iii) A5/A483 Roundabout (Halton Roundabout).

The above surveys were collected during a neutral weekday (Tuesday 08 March 2022) during both the AM (0700-100 hours) and PM (1600-1900 hours) peak periods.

An additional MCC was conducted at the existing Kronospan Facility access over a period of 7 days (from Tuesday 08 March 2022 to Monday 14 March 2022 inclusive), covering 12 hours per day (0700 – 1900 hours).

Automatic Traffic Counter (ATC) data was also collected over a 7-day period between 08 and 15 March 2022 at the following locations:

- i) North of the B5070 Holyhead Road/Farm Access/Old Black Park Road junction.
- ii) South of the B5070 Holyhead Road/Farm Access/Old Black Park Road junction.

The traditional AM peak (0800-0900 hours) and PM peak (1700-1800 hours) flows have been extracted directly from the MCC surveys. The Annual Average Daily Traffic (AADT) flows have been established from the ATC data (for Link 1 and Link 2) and from DfT traffic count sites (for Link 3, Link 4, Link 5 and Link 6).

Planning Policy, Legislation and Guidance

Relevant legislation and guidance pertaining to traffic and transport matters in EIA terms is provided below.



The principal guidance is that set out in the Environmental Assessment of Traffic and Movement (July 2023) document, produced by the IEMA, hereafter referred to as the 'IEMA Guidance'.

Although Design Manual for Roads and Bridges (DMRB), published by National Highways, provides a set of standards on environmental assessment and design requirements, these standards principally relate to the delivery of National Highways' motorways and all-purpose trunk road projects, albeit the DMRB standards are also often adopted by local highway authorities in the development of road projects on the local road network.

Since the Proposed Development is a non-highway/road project, the relevant guidance is the IEMA Guidance, albeit as advised in the IEMA Guidance at paragraph 1.20, there are "*useful references within DMRB that can be used cautiously to augment the assessment methodologies.*"

Assessment Methodology

The IEMA Guidance recommends (paragraph 2.16) that two broad rules of thumb be utilised to assist in delimiting the scale and extent of assessments:

- i) Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles (HGV) will increase by more than 30%).
- ii) Rule 2: Include highway links of high sensitivity where traffic flows have increased by 10% or more.

HGVs are defined by the Driver & Vehicle Standards Agency (DVSA) as all goods vehicles that have a Gross Vehicle Weight (GVW) of over 3.5 tonnes.

The IEMA Guidance also notes however that the above criteria should not be applied to assessments of:

- i) Air Quality.
- ii) Noise.
- iii) Road Safety.
- iv) Driver Delay.



Noise and air quality matters are considered at **Section 6.0** and **Section 7.0** of this document respectively, while matters relating to road safety and driver delay will be considered within the Transport Assessment.

There are various other assessments that have their own detailed guidance and methodologies and will be informed by traffic data in the necessary format for each discipline.

In relation to Rule 1, the IEMA Guidance states (paragraph 2.20):

“It is recommended that, as a starting point, a 30% change in traffic flow represents a reasonable threshold for including a highway link within an environmental assessment. Where there are major changes in the composition of the traffic flow, say a much greater flow of HGVs, a lower threshold may be appropriate.”

In relation to Rule 2, the IEMA Guidance states (paragraph 2.21):

“The competent traffic and movement expert should include any other link or location where it is felt specific environmental or population sensitivities may occur... Normally, it would not be appropriate to consider links where traffic flows have changed by less than 10%, unless there are significant changes in the composition of traffic, e.g. a large increase in the number of HGVs”.

It is also noteworthy that paragraph 2.18 of the IEMA Guidance states:

“It is generally accepted that accuracies greater than 10% are not achievable. It should also be noted that the day-to-day variation of traffic on a road is frequently at least + or -10%. At a basic level, it should therefore be assumed that projected changes in traffic of less than 10% create no discernible environmental impact.”

The above IEMA Guidance rules have been utilised as a starting point in establishing the Study Area for this topic and the scoping-in/scoping-out of links/locations as appropriate. The following methodology has been used in this scoping process, based on the above described IEMA Guidance principles:

- i) Include highway links where total traffic flows (i.e. total by all vehicle classifications combined) are projected to increase by 10% or more because of the Proposed Development (traditional AM and PM peak hours and AADT).



- ii) Include highway links where the number of HGVs will increase by more than 30% because of the Proposed Development (traditional AM and PM peak hours and AADT).

The scoping-in of all links where total traffic flows are projected to increase by 10% (as opposed to 30%) is a robust approach in that it assumes as a starting point that all links are subject to 'high sensitivity'.

Once the links have been scoped in/scoped out in this manner, the exact sensitivity of each scoped-in link is then determined. Any link that is not deemed to be subject to high sensitivity and is not projected to be subject to increases in total traffic flows or HGV traffic flows of more than 30% because of the Proposed Development is also then scoped out.

Assessment Years and Scenarios

The IEMA Guidance notes that developments pass through several stages in their lifetime, during which time the volume of development traffic and its associated proportion against non-development traffic on the network will invariably change.

Given that the IEMA Guidance and associated scoping thresholds relate to proportional changes in Proposed Development traffic against background traffic on the network, the greatest environmental change will generally be when the project traffic is at the largest proportion of the total flow. To this end, and for the purposes of a robust scoping process, the Proposed Development traffic flows have been considered against observed traffic data from the survey sources described previously (2022), given that this represents the greatest percentage change in network flows from the Proposed Development. A second scenario is included, which accounts for the cumulative impact of the OSB Facility that is currently under construction. The traffic associated with the OSB Facility is based on traffic flows submitted as part of the OSB application.

In summary, the following scenarios are included in this scoping assessment:

- i) Scenario 1: 2022 Observed + Proposed Development.
- ii) Scenario 2: 2022 Observed + OSB Facility + Proposed Development.



It should also be noted that for the purpose of robustness, the scoping assessments within this chapter assume that no Proposed Development traffic would utilise the North Access Road. Whilst the North Access Road would be used as the main access to the existing Kronospan Facility and to the Proposed Development, for robustness it is assumed that all traffic would route via the existing site access – i.e. the T-junction with Holyhead Road (B5070) – to account for potential effects along the sections of the B5070 immediately north of the existing site access.

Sensitive Receptors/Affected Parties

The IEMA Guidance advises (paragraph 1.39) that the following special interests should be considered when defining sensitive receptor geographic locations (although others can be added if considered appropriate):

- i) People at home.
- ii) People at work.
- iii) Sensitive and/or vulnerable groups (including young age; older age; income; health status; social disadvantage; and access and geographic factors).
- iv) Locations with concentrations of vulnerable users (e.g. hospitals, places of worship, schools).
- v) Retail areas.
- vi) Recreational areas.
- vii) Tourist attractions.
- viii) Collision clusters and routes with road safety concerns.
- ix) Junctions and highway links at (or over) capacity.

The assessment should set out the location of the above special interests and then assign a sensitivity value to each link. The exception to this is the following special interests:

- i) Collision clusters and routes with road safety concerns.
- ii) Junction and highway links at (or over) capacity.

Matters of road safety and driver delay will be considered within the Transport Assessment.



Characteristics of Potential Effects

The IEMA Guidance sets out a list of environmental effects which should be assessed for their magnitude of change. Definitions of each of the potential effects identified in the IEMA Guidance are summarised below.

- i) Severance of communities.
- ii) Road vehicle driver and passenger delay.
- iii) Non-motorised user delay.
- iv) Non-motorised amenity.
- v) Fear and intimidation on and by road users.
- vi) Road user and pedestrian safety.
- vii) Hazardous/large loads.

The IEMA Guidance includes recommended assessment techniques under each category for quantifying the magnitude of the impact and identifying the scale and nature of the effect to determine the level of significance that such changes may have.

It should be noted that the following matters would be addressed by way of a separate Transport Assessment:

- i) Road vehicle driver and passenger delay.
- ii) Road user and pedestrian safety.

The Proposed Development would not give rise to any hazardous/large loads.

Proposed Development Traffic Generation and Distribution

The net level of traffic that is projected to be generated by the Proposed Development during the construction and operational phases is set out below.

- i) Operation: 23 HGVs per operational day (46 two-way per operational day); and
- ii) Construction: Less than during operational phase.

The above operational figures are informed by way of information provided by the Applicant in respect to the yearly net fuel requirements with K7 continuing to run



(153,000T), the waste wood capacity of each vehicle (20T) and the number of operational days per year (333 no.) associated with the Proposed Development.

The construction figures will be informed by the applicant.

It is understood that fuel would be brought to the site 24/7, however for the purposes of robustness in establishing peak hourly traffic generation for this scoping exercise, it has been assumed that the above daily traffic flows are distributed over a shorter 12-hour daytime period only.

The Proposed Development traffic (construction and operational phase) has been distributed onto the highway network on the assumption that all traffic utilises the existing site access and routes north to the A5 at the Whitehurst Roundabout via Link 1 and Link 2. For robustness, all (100%) of the Proposed Development traffic is then assigned along each subsequent link on the A5 and A483 – i.e. Link 3, Link 4, Link 5 and Link 6 – in order to account for all potential routing scenarios.

Establishing the Scale and Extent of Assessment

Based on the methodology set out above, the Proposed Development is projected to result in the following changes in traffic flows on the identified links.

Operational Phase

Scenario 1

Table A.1 – Operational Phase Impact - Total Vehicles (Two-Way)

Link Ref.	Obs. 2022 AM	Obs. 2022 PM	Obs. 2022 AADT	Dev. AM	Dev. PM	Dev. AADT	Dev. Impact AM	Dev. Impact PM	Dev. Impact AADT
Link 1	738	967	9,020	4	4	46	0.5%	0.4%	0.5%
Link 2	717	810	8,641	4	4	46	0.6%	0.5%	0.5%
Link 3	632	607	10,838	4	4	46	0.6%	0.7%	0.4%
Link 4	873	879	13,006	4	4	46	0.5%	0.5%	0.4%
Link 5	2,328	2,456	32,200	4	4	46	0.2%	0.2%	0.1%
Link 6	1,874	1,995	24,167	4	4	46	0.2%	0.2%	0.2%



Table A.2 – Operational Phase Impact - HGVs (Two-Way)

Link Ref.	Obs. 2022 AM	Obs. 2022 PM	Obs. 2022 AADT	Dev. AM	Dev. PM	Dev. AADT	Dev. Impact AM	Dev. Impact PM	Dev. Impact AADT
Link 1	89	41	1,073	4	4	46	4.3%	8.9%	4.1%
Link 2	87	41	1,044	4	4	46	4.4%	8.9%	4.2%
Link 3	70	26	365	4	4	46	5.4%	13.3%	11.2%
Link 4	116	49	644	4	4	46	3.3%	7.5%	6.7%
Link 5	287	144	2,454	4	4	46	1.4%	2.7%	1.8%
Link 6	245	152	2,258	4	4	46	1.6%	2.6%	2.0%

Scenario 2

Table A.3 – Operational Phase Impact - Total Vehicles (Two-Way)

Link Ref.	Obs. 2022 + OSB AM	Obs. 2022 + OSB PM	Obs. 2022 + OSB AADT	Dev. AM	Dev. PM	Dev. AADT	Dev. Impact AM	Dev. Impact PM	Dev. Impact AADT
Link 1	773	996	9,629	4	4	46	0.5%	0.4%	0.5%
Link 2	752	839	9,250	4	4	46	0.5%	0.5%	0.5%
Link 3	632	607	10,838	4	4	46	0.6%	0.7%	0.4%
Link 4	908	908	13,615	4	4	46	0.4%	0.4%	0.3%
Link 5	2,346	2,471	32,505	4	4	46	0.2%	0.2%	0.1%
Link 6	1,892	2,010	24,472	4	4	46	0.2%	0.2%	0.2%

Table A.4 – Operational Phase Impact - HGVs (Two-Way)

Link Ref.	Obs. 2022 + OSB AM	Obs. 2022 + OSB PM	Obs. 2022 + OSB AADT	Dev. AM	Dev. PM	Dev. AADT	Dev. Impact AM	Dev. Impact PM	Dev. Impact AADT
Link 1	124	70	1,682	4	4	46	3.1%	5.4%	2.7%
Link 2	122	70	1,653	4	4	46	3.2%	5.4%	2.7%
Link 3	70	26	365	4	4	46	5.4%	13.3%	11.2%
Link 4	151	78	1,253	4	4	46	2.6%	4.9%	3.5%
Link 5	305	159	2,759	4	4	46	1.3%	2.5%	1.6%
Link 6	263	167	2,563	4	4	46	1.5%	2.3%	1.8%

On the basis of the above, it is evident that the development impact during the operational phase in terms of total vehicles amounts to less than 10% in both Scenario 1 and Scenario 2 on all links and is therefore scoped out.



On the basis of the above, it is evident that the development impact during the operational phase in terms of HGVs amounts to less than 30% in both Scenario 1 and Scenario 2 on all links and is therefore scoped out.

Construction Phase

The traffic generating potential of the construction scheme will be established using information supplied by the applicant. During the construction phase, both Scenarios 1 and 2 are anticipated to result in a lesser impact than the operational phase.

On the basis of the above, it is evident that the development impact during the construction phase in terms of total vehicles amounts to less than 10% in both Scenario 1 and Scenario 2 on all links and is therefore scoped out.

On the basis of the above, it is evident that the development impact during the construction phase in terms of HGVs amounts to less than 30% in both Scenario 1 and Scenario 2 on all links and is therefore scoped out.



1.0 INTRODUCTION

- 1.1.1 Landscape and Visual Impact Assessment (LVIA) is a tool used to systematically identify and assess the nature and significance of the effects of a proposed development upon the landscape and upon views and visual amenity. The purpose of the LVIA is to identify the level and nature of effect arising from a proposed development and if necessary, through an iterative design process, to inform changes to the development and evolution of mitigation strategies which minimise effects wherever possible.
- 1.1.2 The methodology for this LVIA is informed by guidance contained within the *Guidelines for Landscape and Visual Impact Assessment* (The Landscape Institute and Institute of Environmental Assessment, 3rd Edition, 2013), often referred to as 'the GLVIA'.
- 1.1.3 The LVIA aims to establish the following:
- i) A clear understanding of the development site and its context, in respect of the physical and perceived landscape and of views and visual amenity;
 - ii) An understanding of the proposed development in terms of how this would relate to the existing landscape and views;
 - iii) An identification of the likely effects of the proposed development upon the landscape and upon views, throughout the life-cycle of the development, including cumulative interactions with other developments;
 - iv) Those mitigation measures necessary to reduce or eliminate any potential adverse effect on the landscape or views arising as a result of the proposed development; and

-
- v) A conclusion as to the residual likely significant effects of the proposed development.
- 1.1.4 In accordance with the requirements of GLVIA, the LVIA is proportionate to the likely effects of the proposed development.
- 1.1.5 Professional judgement is a very important part of the LVIA process at every stage of the assessment. This judgement must be exercised within an assessment framework that transparently sets out the steps in the assessment process which have led to the overall conclusions. This is emphasised in Box 3.1 (page 37) of the GLVIA, which advocates a structured approach that considers the sensitivity of the receptor and magnitude of the effect when determining if an effect is material or not.
- 1.1.6 To ensure the transparency of the assessment and professional judgements made, the LVIA follows a standard approach, namely:
- i) The establishment of the baseline conditions, against which the effects of the proposed development will be assessed;
 - ii) The determination of the nature of the receptor likely to be affected, i.e. its sensitivity;
 - iii) The prediction of the nature of the effect likely to occur, i.e. the magnitude of change; and
 - iv) An assessment of whether a likely significant effect would occur upon any receptor, by considering the predicted magnitude of change together with the sensitivity of the receptor, taking into account any proposed mitigation measures.
- 1.1.7 The GLVIA clarifies that the guidance concentrates on
- [1.20] *“...principles while also seeking to steer specific approaches where there is a general consensus on methods and techniques. It is not intended to be prescriptive, in that it does not provide a detailed ‘recipe’ that can be followed in every situation. It is always the primary responsibility of any landscape professional carrying out an assessment to ensure that the approach and methodology adopted are appropriate to the particular circumstance”.*
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- 1.1.8 As set out above, use of professional judgement within a structured assessment framework is a very important element of the assessment of landscape and visual effects. As discussed in the GLVIA:

[2.23] *“...Whilst there is some scope for quantitative measurement of some relatively objective matters, ...much of the assessment must rely on qualitative judgement, for example about what effect the introduction of a new development or land use change may have on visual amenity, or about the significance of change in the character of the landscape and whether it is positive or negative”.*

[2.24] *“...In all cases there is a need for the judgements that are made to be reasonable and based on clear and transparent methods so that the reasoning applied at different stages can be traced and examined by others...”*

[2.26] *“...In carrying out an LVIA the landscape professional must always take an independent stance, and fully and transparently address both the negative and positive effects of a scheme in a way that is accessible and reliable for all parties concerned”.*

- 1.1.9 Landscape and visual matters are separate issues, although closely related and interlinked, are dealt with as such throughout the LVIA. The methodologies for assessing both are outlined separately below.



2.0 LANDSCAPE ASSESSMENT

2.1.1 The landscape assessment considers the potential effects of the proposed development on the components of the landscape as an environmental resource. Landscape receptors which could be affected by a proposed development may include:

- i) Individual constituent elements and features of the landscape (sometimes referred to as landscape fabric).
- ii) Specific aesthetic and perceptual qualities of the landscape.
- iii) The overall character and key characteristics of the landscape as experienced in different areas (e.g. landscape character areas or types).

Sensitivity

2.1.2 The nature of a landscape receptor likely to be affected, i.e. its **sensitivity** is determined by considering two factors, namely:

- i) Susceptibility to change.
- ii) Value.

Susceptibility to Change.

2.1.3 Susceptibility to change is defined in the GLVIA as follows:

[5.40] *“This means the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular landscape type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies”*



[5.41] *“The assessment may take place in situations where there are existing landscape sensitivity and capacity studies, which have become increasingly common. They may deal with the general type of development that is proposed, in which case they may provide useful preliminary background information for assessment. But they cannot provide a substitute for the individual assessment of the susceptibility of the receptors in relation to change arising from the specific development proposal”.*

2.1.4 To understand susceptibility to change, the various characteristics/factors that make up a particular landscape must be identified and consideration given as to how these will be affected by the proposed development. Consideration is given to physical and perceptual factors which are considered together to derive an overall susceptibility to change. Factors influencing the susceptibility of a landscape to change resulting from a large-scale industrial facility are set out below:

- i) **Scale:** A larger scale landscape (relative to the development proposed) will typically be less susceptible than a smaller scale landscape;
- ii) **Pattern/Complexity:** The susceptibility of a receiving landscape to change will be influenced by the specific pattern of features and elements present and by the complexity of this pattern;
- iii) **Development/Human Influence:** A landscape that includes obvious alterations to natural ground levels, contemporary development, or that is clearly functional/utilitarian in land use will typically be less susceptible than one where development is more traditional in style, or where natural influences and natural or long-established landforms are predominant;
- iv) **Connections with adjacent areas:** A landscape which has a clear relationship with other surrounding landscapes, for example in relation to views in and out, will typically be more susceptible than one where such relationships are not present;
- v) **Visual Interruption:** A landscape where views are frequently interrupted by screening features, for example vegetation cover or variations in landform, will typically be less susceptible than one where there are few / no screening features.



- 2.1.5 A particular landscape may have different characteristics that are more or less susceptible to change. As such, the overall susceptibility to change is allocated using professional judgement based upon consideration of the various factors outlined above and the relative weight attached to these (which will vary from landscape to landscape). The assessment of susceptibility is expressed using a three point verbal scale of high, medium or low. Where appropriate, intermediate levels such as medium/high or low/medium are used to refine the assessment. The rationale in support of the assessment of susceptibility is set out for each receptor in the assessment, so that it is clear how each judgement has been made.

Value

- 2.1.6 The value of the landscape receptor is independent of any development proposal. The absence of a formal landscape designation does not necessarily imply that a landscape is of lower value. Value is defined in the GLVIA as:

[5.19] "...the relative value that is attached to different landscapes by society, bearing in mind that a landscape may be valued by different stakeholders for a whole variety of reasons...Landscapes or their component parts may be valued at the community, local, national or international levels..."

- 2.1.7 Factors that can help in identifying valued landscapes include:

- i) Presence/absence of statutory landscape designations.
- ii) Presence/absence of local landscape designations and associated policies.
- iii) Landscape quality/condition.
- iv) Scenic quality.
- v) Rarity of particular elements/features.
- vi) Representativeness.
- vii) Conservation interest.
- viii) Recreation value.
- ix) Perceptual aspects.
- x) Cultural associations.



- 2.1.8 The assessment of value is expressed on a similar basis to that described for susceptibility of change above. Table 1 indicates how the above factors have been used to determine landscape value.

Table 1 – Landscape Value Criteria

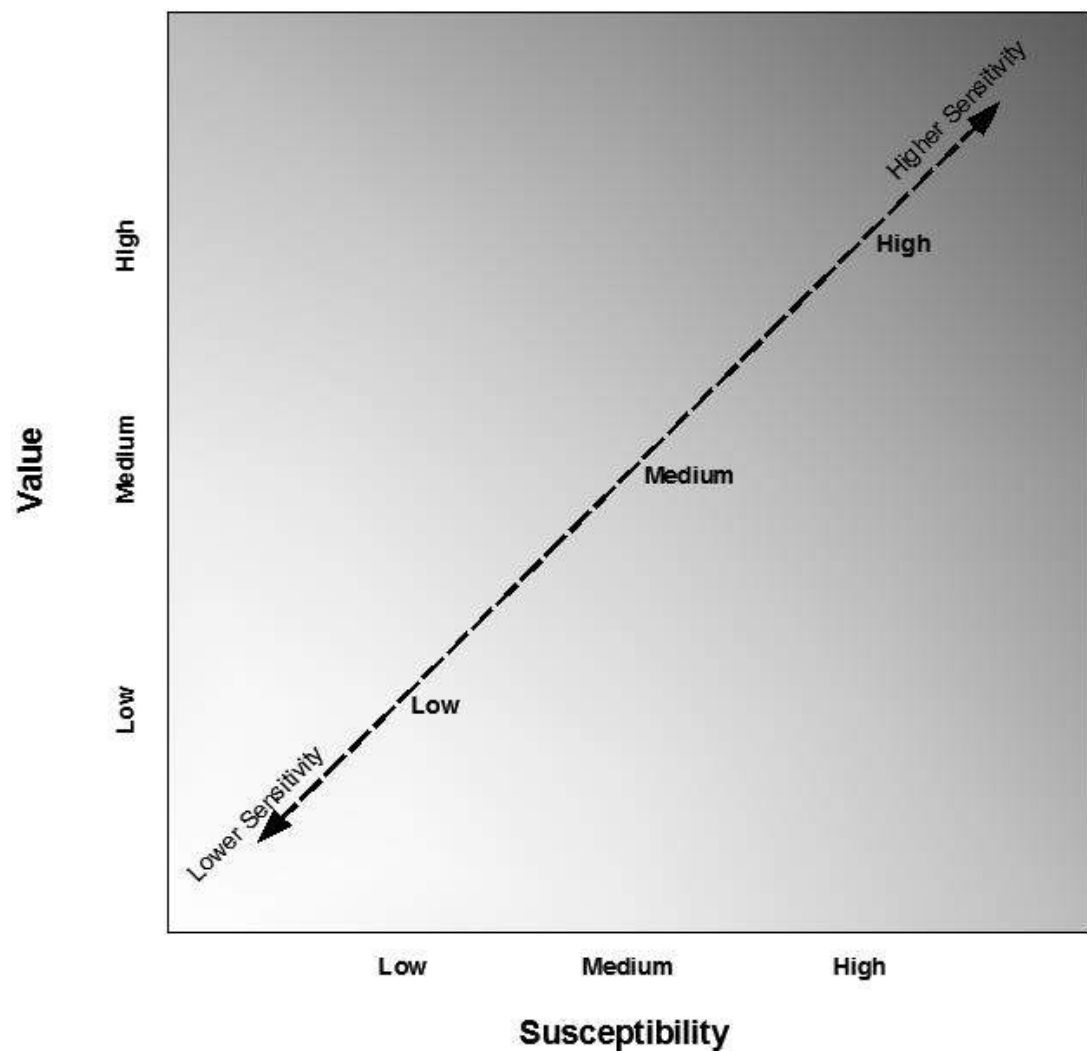
	Criteria tending towards higher or lower value	
	Higher ←	→ Lower
Value	Unique, and/or strongly positive landscape character, often with strong associations or (non-landscape) environmental designation. Nationally designated landscape (protected by statute)	Widespread or common landscape character. Negative character. Lack of other environmental qualities. Landscape without formal designation and with limited positive contribution to the locality.

Sensitivity

- 2.1.9 Susceptibility to change and value are considered together to determine the sensitivity of the receptor. It should be noted that the relationship between susceptibility to change and value can be complex and is not linear. For example, a highly-valued landscape (such as a National Park) may have a low susceptibility to change, due both to the characteristics of the landscape and the nature of the change proposed. Figure 1 provides a guide as to how susceptibility and value can be combined to assess sensitivity (with the grey shading indicative of the increasing sensitivity of receptors with increasing susceptibility and/or value). However, the final assessment of sensitivity is one of professional judgement based on consideration of the susceptibility and value assessments.



Figure 2 – Indicative Sensitivity Assessment



Magnitude

- 2.1.10 The nature of the effect that is likely to occur, i.e. its **magnitude**, is determined by considering four separate factors, namely:
- i) Size/scale.
 - ii) Geographical extent.
 - iii) Duration.
 - iv) Reversibility.
- 2.1.11 The size and scale of an effect is determined by considering the amount of change experienced by a receptor, including:
- i) The extent of existing landscape elements that would be lost, the proportion of the total extent that this represents and the contribution of that element to the wider character;
 - ii) The degree to which aesthetic or perceptual aspects of the landscapes are altered by the removal, or introduction of new landscape components;
 - iii) Whether change affects the key characteristics of a landscape.
- 2.1.12 The geographical extent of an effect is the area over which effects will be experienced. It is not the same as size / scale, as a small-scale change may be experienced over a wider area, or vice-versa.
- 2.1.13 The duration of an effect simply relates to the length of time for which it would be experienced, as follows:
- i) Long-term: 10+ years: or the change could not reasonably be considered temporary in nature.
 - ii) Medium-term: 3-10 years.
 - iii) Short-term: 0-3 years.
- 2.1.14 The reversibility of an effect relates to the prospects and practicality of an effect being able to be wholly or partially reversed, or whether the change cannot realistically be reversed, i.e. it is permanent.



2.1.15 These four factors are then considered together to derive an overall magnitude of change for each receptor, which is determined by use of professional judgement. The assessment of the magnitude of change is expressed using a four point verbal scale of large, medium, small or negligible. Where appropriate, intermediate levels such as medium/large or small/medium are used to refine the assessment. Table 2 indicates how the above factors have been used to inform magnitude of change. As the circumstances of each specific receptor will vary, a reasoned narrative is set out in the LVIA in order to justify the particular magnitude of change.

Table 3 – Magnitude of Landscape Change Criteria (indicative)

Magnitude	Description
Large	A substantial change in landscape characteristics and/or change over an extensive geographical area and/or which may result in an irreversible impact
Medium	A moderate change in landscape characteristics and/or which may occur over a large geographical area and/or which may be reversible over a long duration of time
Small	A small change in landscape characteristics and/or which may be over a relatively localised geographical and/or which may be reversible over a short duration of time
Negligible	A barely perceptible change in landscape characteristics and/or which is focussed on a small geographical area and/or which is almost or completely reversible



3.0 VISUAL ASSESSMENT

- 3.1.1 A visual assessment is concerned with the potential effects upon the population likely to be affected (i.e. the views experienced by people). As for landscape effects (see Section 2.0), the sensitivity of the receptor affected is identified, as is the magnitude of the change that would occur. These are then considered together to determine the level and significance of effect.
- 3.1.2 A key part of the visual assessment is the assessment of effects from a number of predetermined viewpoints, which reflect views available to different groups of people. The viewpoint itself is not the receptor; rather it is the people that would be experiencing the view. These people will generally have different responses to a change in view depending upon their location, their activity and other factors, including the weather and time of day or year. Viewpoints fall into three categories (as set out in the GLVIA):
- i) Representative viewpoints (which represent the experience of different types of receptors in the vicinity);
 - ii) Specific viewpoints (a particular view, for example a well-known beauty spot);
 - iii) Illustrative viewpoints (which illustrate a particular effect or issue, which may include limited or lack of visibility).
- 3.1.3 Private viewpoints, such as from specific residential properties are not typically included in the LVIA. It is often impractical to visit all affected properties and access to private land may not be granted. Representative or specific viewpoints from nearby publicly accessible locations can often give an impression of what effects from private land would be.

Sensitivity

- 3.1.4 The nature of a visual receptor likely to be affected, i.e. its **sensitivity** is determined by considering two factors, namely:
- i) Susceptibility to change.
 - ii) Value.



Susceptibility to Change

3.1.5 The GLVIA identifies susceptibility to change in view/visual amenity as:

[6.32] “...mainly a function of:

- i) *The occupation or activity of people experiencing the view at particular locations; and*
- ii) *The extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations”.*

3.1.6 Susceptibility to change is, in part, classified based upon the indicative criteria, provided in the GLVIA, as set out in Table 3.

Table 4 – Typical Visual Susceptibility to Change Criteria (indicative)

Level of Susceptibility to Change	Description
High	Residents at home; People engaged in outdoor recreation, whose attention/interest is likely to be focused on the landscape or particular views, including from public rights of way Visitors to heritage assets or other attractions, where views of the surroundings are an important contributor to the experience Communities where views contribute to the landscape setting enjoyed by residents Travellers on scenic routes.
Medium	Travellers on road, rail, or other transport routes.
Low	People engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape People at their place of work whose attention may be focused on their work / activity and not their surroundings.

3.1.7 It is important to note that the examples set out in GLVIA and Table 3 above only address the first bullet point and part of the second bullet point in paragraph 3.1.5 above (which are focussed on the occupation or activity of the people and the extent to which their attention is focussed on the view).

3.1.8 As such, the assessment of susceptibility in Table 3 and GLVIA (pages 113 &114) needs to be adjusted to reflect the requirements of the final part of the second bullet point, namely the visual amenity that people currently experience. GLVIA identifies clearly that the division between categories of susceptibility to change:



[6.35] “...is not black and white and in reality there will be a gradation in susceptibility to change. Each project needs to consider the nature of the groups of people who will be affected and the extent to which their attention is likely to be focused on views and visual amenity...”

3.1.9 For example, the presence of existing detracting features in any given view may reduce the visual amenity of those experiencing the view. This may therefore reduce their susceptibility to certain types of change and ultimately their sensitivity.

3.1.10 The assessment of susceptibility to change is made on the same basis as for landscape effects (Section 2.0 above). A three-point scale (with intermediate levels where appropriate) is used, supported by a reasoned narrative that explains the judgement made.

Value

3.1.11 In accordance with paragraph 6.37 of the GLVIA when considering the value of a view experienced, this should take account of:

- i) Recognition of the value attached to particular views, for example in relation to heritage assets or through planning designations;
- ii) Indicators of the value attached to views by visitors, for example through appearances in guidebooks or on tourist maps, provision of facilities for their enjoyment and references to them in literature or art.

3.1.12 For this reason, whilst not specifically referenced in the current edition of GLVIA, the number of people likely to be affected can influence the value assigned to a particular view.

3.1.13 The assessment of value is made on the same basis as the assessment of susceptibility to change.



Sensitivity

- 3.1.14 Susceptibility to change and value are considered together as discussed above for landscape sensitivity and illustrated above in Figure 1. Again, professional judgement determines the final judgement of sensitivity, due to the non-linear and complex relationship between susceptibility and value. A reasoned narrative is set out in the LVIA in order to justify the particular sensitivity assessed for each receptor, so that it is clear how each judgement has been made.

Magnitude

- 3.1.15 The nature of the visual effect that is likely to occur, i.e. its **magnitude**, is determined by considering four separate factors, namely:
- i) Size/scale.
 - ii) Geographical extent.
 - iii) Duration.
 - iv) Reversibility.
- 3.1.16 The size and scale of an effect is determined by considering the following:
- i) The scale of change in view, in respect of the loss of or addition of features, and change in composition, including the proportion of the view occupied by the development;
 - ii) The degree of contrast or integration of new features or other changes;
 - iii) The nature of the view, namely the relative amount of time it would be experienced for and whether the views would be full, partial or glimpsed.
- 3.1.17 The geographical extent of an effect will vary from viewpoint to viewpoint and will reflect the following:
- i) The angle of view in relation to the main activity of the receptor;
 - ii) The distance from the proposed development;
 - iii) The extent over which change in view would be visible.
- 3.1.18 The duration of an effect simply relates to the length of time for which it would be experienced, as follows:



- i) Long-term: 10+ years; or the change could not reasonably be considered temporary in nature.
 - ii) Medium-term: 3-10 years.
 - iii) Short-term: 0-3 years.
- 3.1.19 The reversibility of an effect relates to the prospects and practicality of an effect being able to be wholly or partially reversed, or whether the change cannot realistically be reversed, i.e. it is permanent.
- 3.1.20 These four factors are then considered together to derive an overall magnitude of change for each receptor, which is determined by use of professional judgement. The assessment of the magnitude of change is expressed using a four-point verbal scale of large, medium, small or negligible. Where appropriate, intermediate levels such as medium/large or small/medium are used to refine the assessment. Table 4 indicates how the above factors have been used to inform magnitude of change. As the circumstances of each specific receptor will vary, a reasoned narrative is set out in the LVIA in order to justify the particular magnitude of change allocated to each receptor.

Table 5 – Magnitude Change Criteria (indicative)

Level of Susceptibility to Change	Description
Large	A change affecting a large proportion of a view, which may be seen across an extensive area or experienced from a long section of a route, and/or a longer-term effect, and/or contrasting with the existing view.
Medium	A change affecting a moderate proportion of a view, which may be seen across a wider area or experienced from a section of a route, and/or a medium-term effect, and/or broadly compatible with the existing view.
Small	A change affecting a smaller proportion of a view, which may be seen from a limited area or experienced from a short section of a route, and/or a shorter-term effect, and/or compatible with the existing view.
Negligible	A change which is barely perceptible in the view, and/or which is only glimpsed from a route.

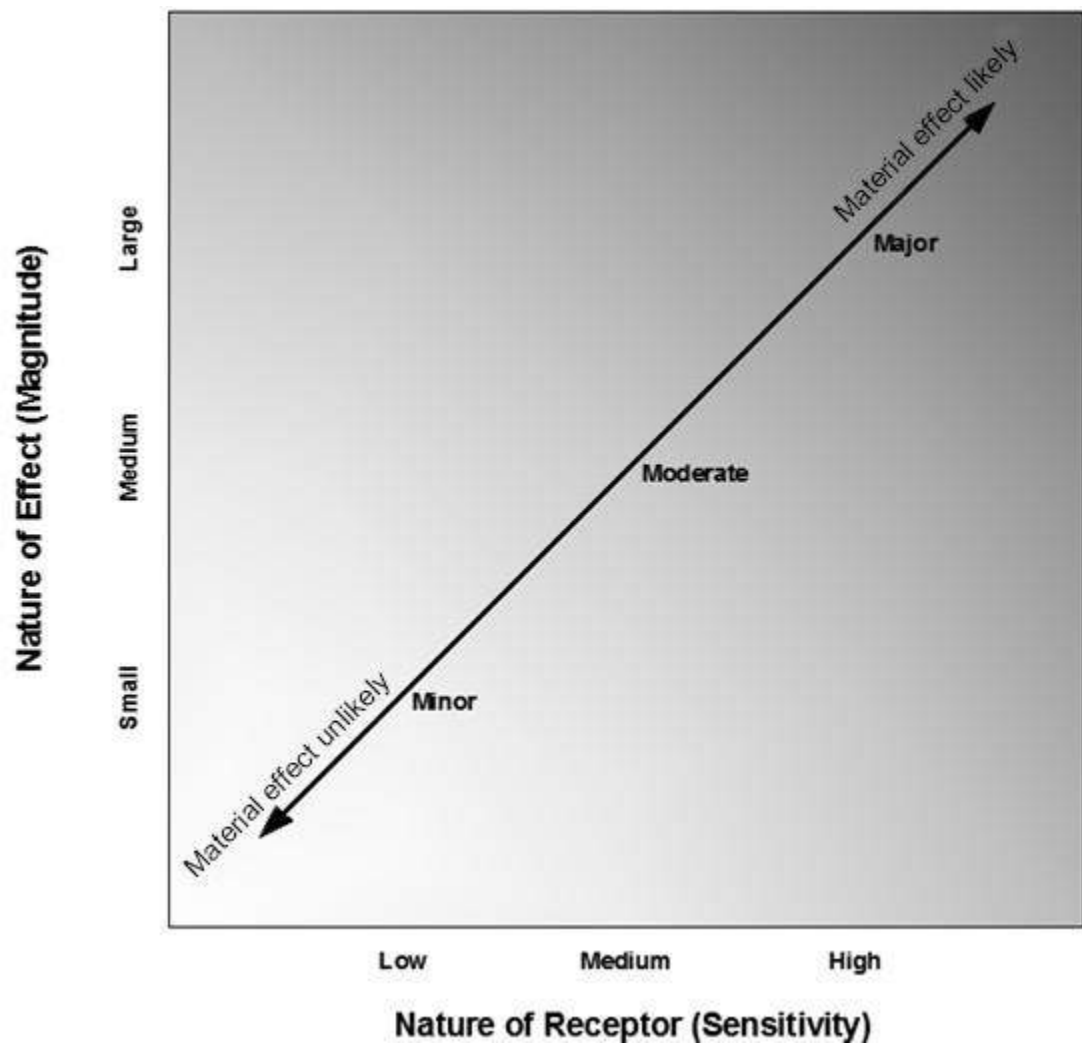


4.0 LEVEL AND SIGNIFICANCE OF EFFECT

- 4.1.1 The purpose of Environmental Impact Assessment (EIA) is to determine the likely significant effects of a development proposal. Not all landscape and visual effects arising as a result of a particular proposal will be significant. Furthermore, a significant effect does not necessarily mean that such an effect is unacceptable to decision-makers. This is a matter to be weighed in the planning balance alongside other factors. What is important is that the likely effects of any proposal are transparently assessed and described in order that the relevant determining authority can bring a balanced and well-informed judgement to bear as part of the decision-making process.
- 4.1.2 Page 60 of *The State of Environmental Impact Assessment Practice in the UK* (Institute for Environmental Management and Assessment 2011) identifies a range of different factors that should be considered when evaluating the significance of an effect, including:
- i) Knowledge and experience of significance from previous assessments.
 - ii) Details of the development proposal, such as construction and operational activities, and the nature of the effect associated with such activity.
 - iii) Details about the environmental sensitivity of the area that will be affected.
 - iv) Feedback from scoping and consultation.
 - v) The wider legal and policy context, which offers protection to the environment and community.
- 4.1.3 The level of effect that each receptor would experience can only be defined in relation to each particular development and its specific location. It is for each LVIA to determine how judgements about receptor sensitivity and the magnitude of change should be combined to derive the level of effect and to clearly explain how this assessment has been made, and if the effects that would occur is considered significant.
- 4.1.4 Figure 2 provides a guide as to how sensitivity and magnitude can be combined to identify the level of effect upon a receptor (with the grey shading indicative of the increasing level of effect with increasing sensitivity and/or magnitude). However, the final assessment of the level of effect and whether this is material for decision makers is one of professional judgement.



Figure 2 – Level of Effect Matrix (indicative)



4.1.5 The GLVIA identifies that:

[3.32] *“The Regulations require that a final judgement is made about whether or not each effect is likely to be significant. There are no hard and fast rules about what effects should be deemed ‘significant’ but LVIA should always distinguish clearly between what are considered to be significant and non-significant effects...”*

[3.33] *It is not essential to establish a series of thresholds for different levels of significance of landscape and visual effects, provided that it is made clear whether or not they are considered significant. The final overall judgement of the likely significance of the predicted landscape and visual effects is however, often summarised in a series of categories of significance reflecting combinations of sensitivity and magnitude. These tend to vary from project to project but they should be appropriate to the nature, size and location of the proposed development and should as far as possible be consistent across the different topic areas of the EIA*".

[5.56] & [6.44] *"There are no hard and fast rules about what makes a significant effect, and there cannot be a standard approach since circumstances vary with the location and [landscape]¹ context and with the type of proposal"*.

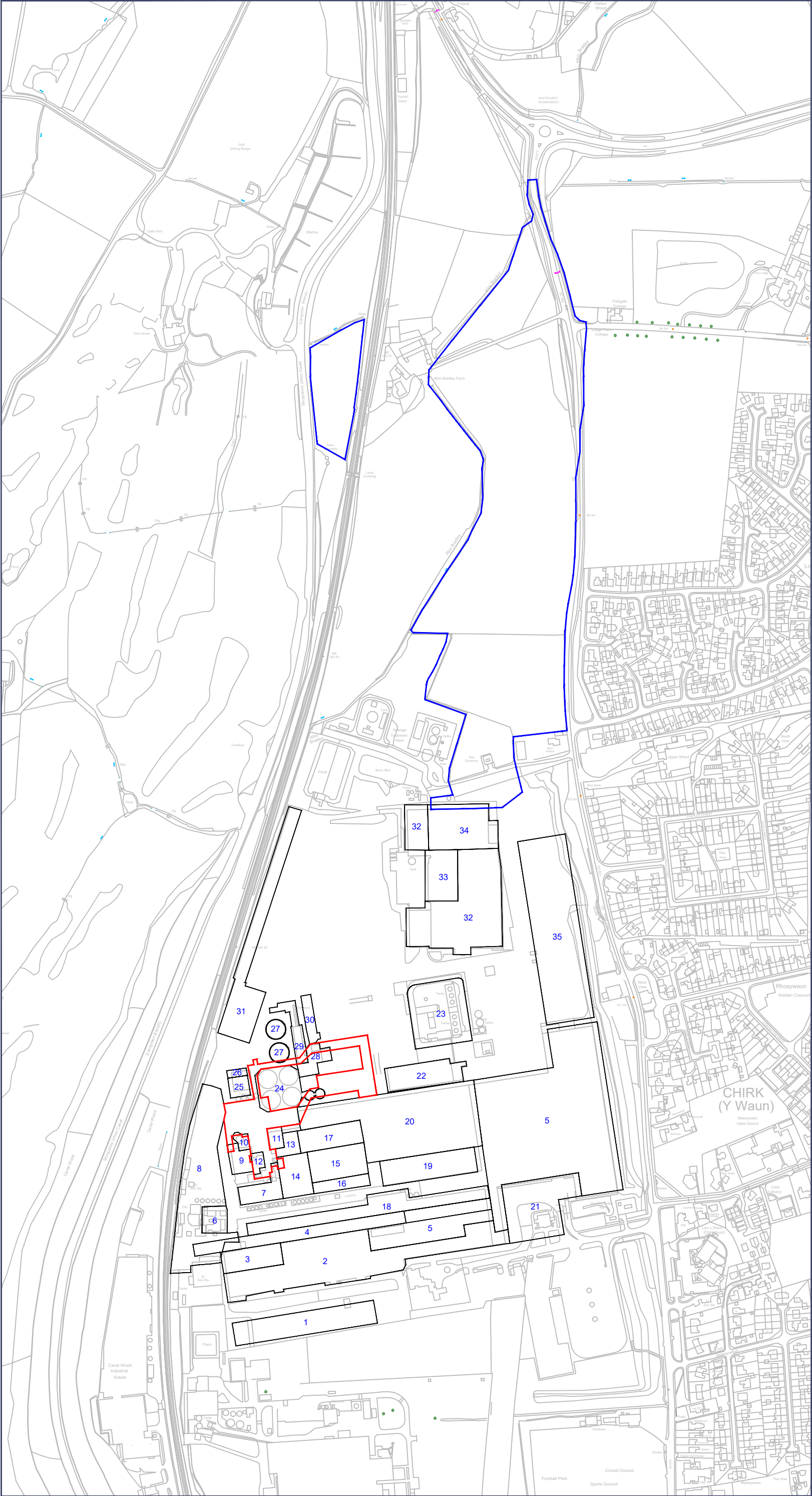
- 4.1.6 The judgement for this particular assessment is that greater than 'moderate' effects are more likely to be material to the decision-making process. This is because they would generally result from larger magnitudes of change on higher sensitivity receptors. This does not preclude a 'moderate' effect or lower being considered material or a greater than 'moderate' effect not being considered material. This judgement will depend on the specific circumstances being considered.
- 4.1.7 Where magnitude of change is identified as 'negligible', then effects are automatically considered also to be negligible and not significant due to the minimal level of change from baseline (which would often not be perceptible).
- 4.1.8 A significant effect occurring upon a receptor does not necessarily mean that such an effect will be unacceptable to decision-makers. This is a matter to be weighed in the planning balance alongside other factors. What is important is that the likely effects of any proposal are transparently assessed and described in order that the relevant determining authority can bring a balanced and well-informed judgement to bear as part of the decision-making process.

¹ The word landscape is present in paragraph 5.56 of the 3rd edition of GLVIA only. Otherwise, the sentence quoted from paragraphs 5.56 and 6.44 is identical.



- 4.1.9 It should be noted that effects may be either adverse (negative) or beneficial (positive). An effect can be material and adverse, or material and beneficial. If change occurs, with no obvious deterioration or improvement resulting, this can be said to be neutral.





Proposed Development Site

Proposed North Access Road Project
(granted under planning ref.
P/2022/1080 subject to legal
agreement)

Existing and Proposed Facility Areas

1. Proposed Engineering Stores
2. MDF
3. Stores
4. Proposed OSB or CB
5. Warehouse
6. K7 - Biomass
7. K8 - Biomass
8. Pre-Production
9. Refiner
10. Schrader
11. Gas Engines 1-3
12. Gas Turbines 1 and 2 (To be Decommissioned and Removed).
13. Water Treatment
14. Raw Paper Storage
15. VITS
16. Resin
17. High Bay Paper
18. Chipboard
19. High Bay Board
20. Melamine Facing
21. Proposed Covered Loading Bay
22. Sawmill
23. Formalin
24. Silos
25. Chip Prep Building
26. Proposed CPB Extension
27. Proposed Silos
28. Pre-Screening
29. Chipper
30. Pre-Crusher
31. Proposed Rail Offloading
32. Kronoplus Warehouse
33. Worktops
34. Flooring Lines
35. East Warehouse

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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 2.1

Figure Title

Site Context

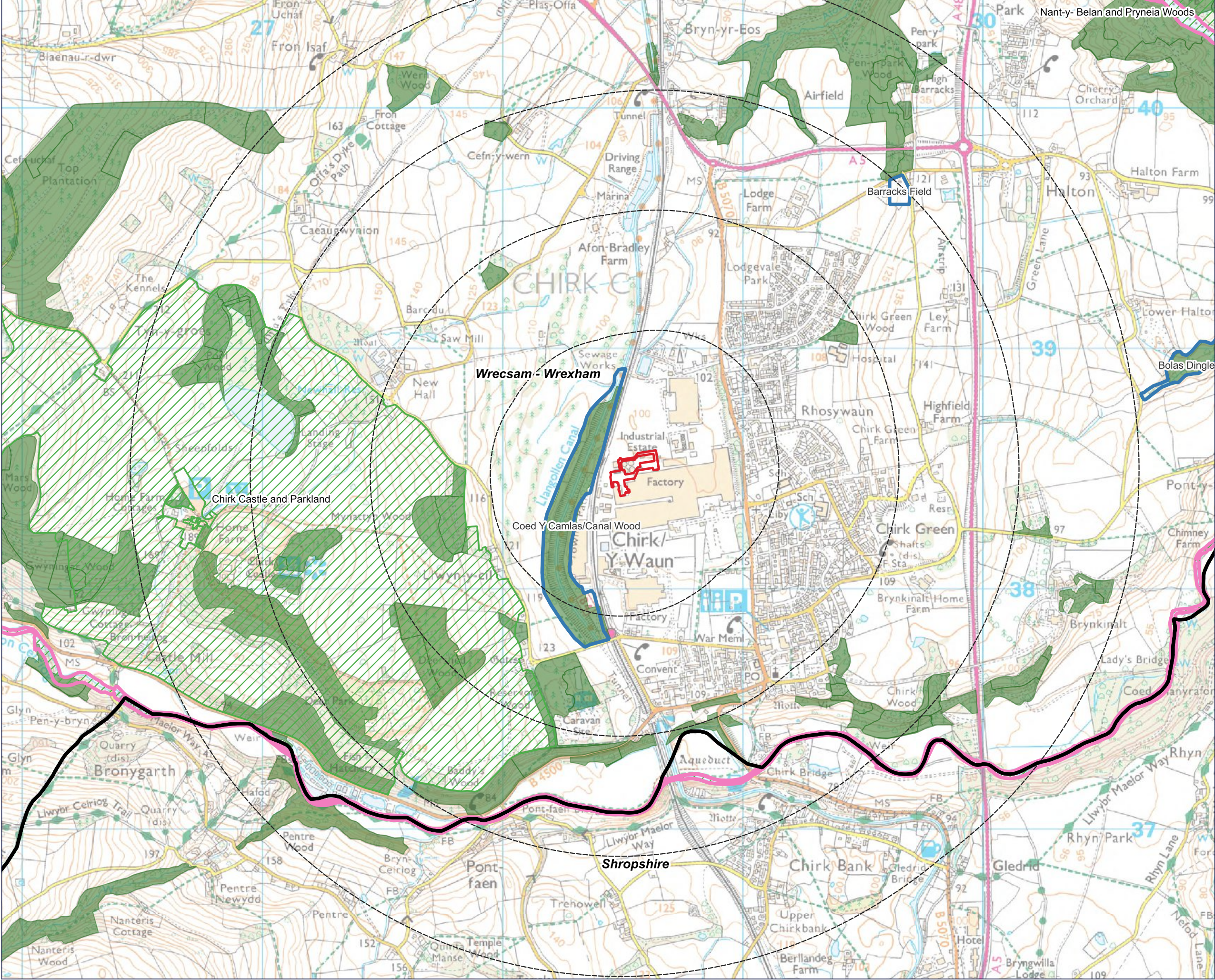
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Date

May 2024





- Proposed Development Site
- Local Authority Boundary
- Distance from Site at intervals of 0.5km
- Local Wildlife Site
- Special Area of Conservation
- Site of Special Scientific Interest
- Ancient Woodland

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Project

Kronospan Low Carbon Combined Heat and Power Facility

Figure Number

Figure 2.2

Figure Title

Biodiversity Features

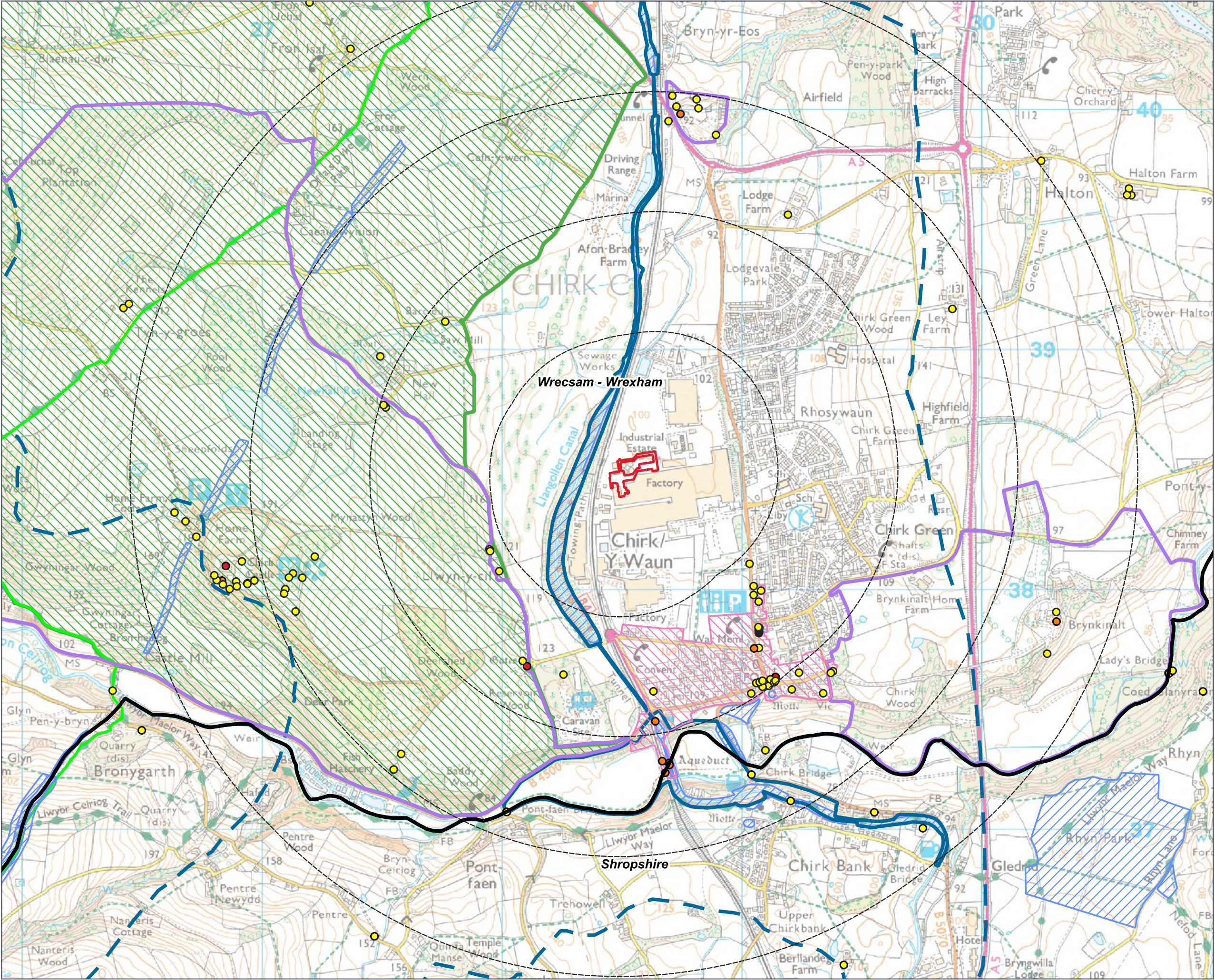
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Date

May 2024





- Proposed Development Site
- Local Authority Boundary
- Distance from Site at intervals of 0.5km
- Listed Buildings
 - Grade I
 - Grade II*
 - Grade II
- Scheduled Monument
- Conservation Area
- Registered Park and Garden
- World Heritage Site
- World Heritage Site - Essential Setting
- National Trail
- Area of Outstanding Natural Beauty

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Project

Kronospan Low Carbon Combined Heat and Power Facility

Figure Number

Figure 2.3

Figure Title

Landscape and Historic Environment Features

Scale

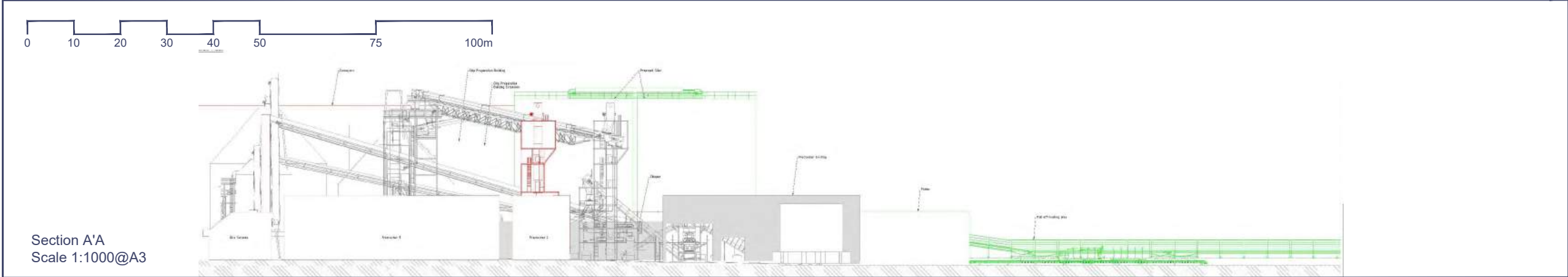
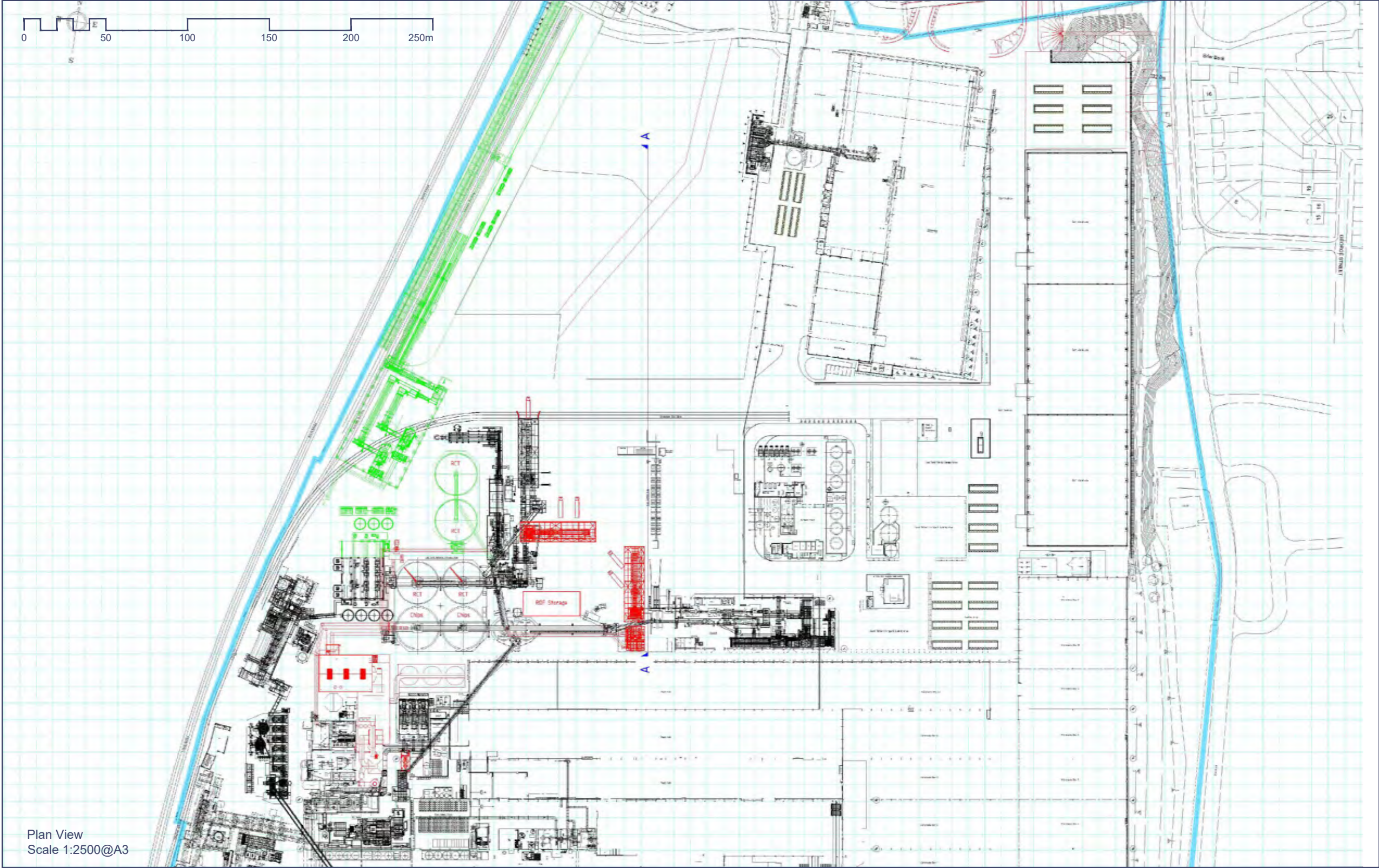
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Date

May 2024



0 300 600 900 1,200 1,500 m



Proposed investment

Planning permission granted

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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 3.1a

Figure Title

Indicative Design - Site Layout 1

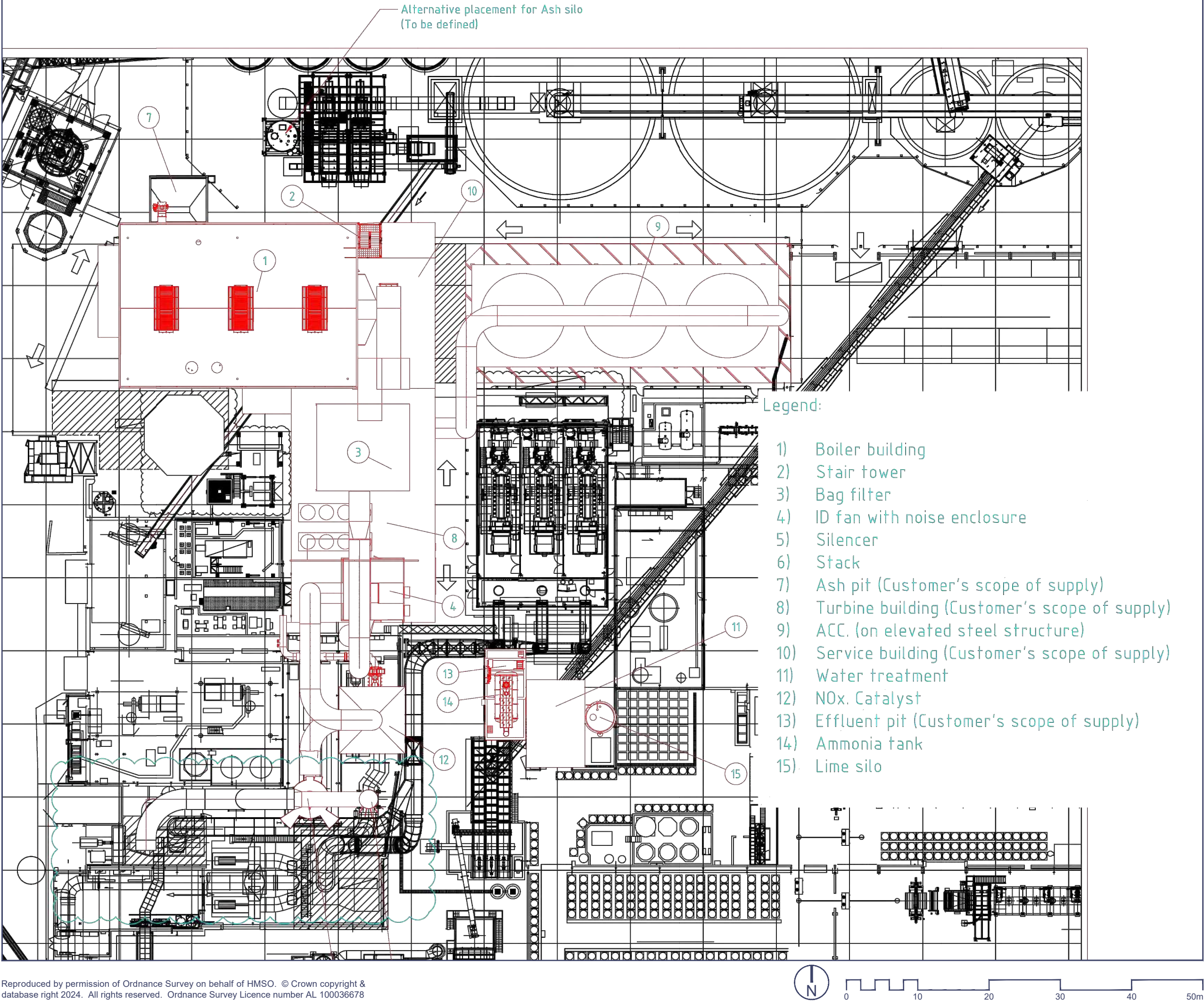
Scale

As Stated

Date

May 2024





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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 3.1b

Figure Title

Indicative Design - Site Layout 2

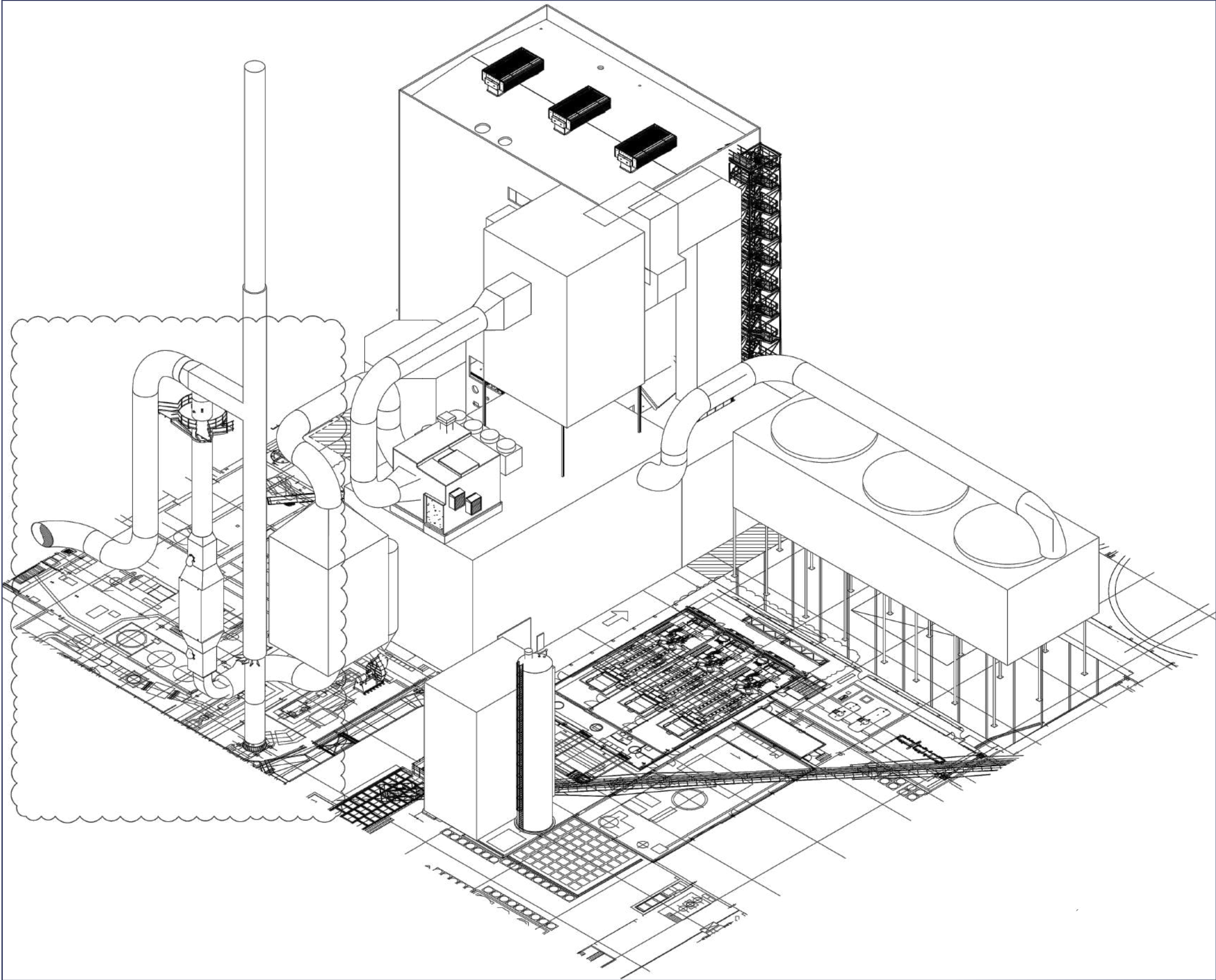
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Date

May 2024





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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 3.1c

Figure Title

**Indicative Design - Site Layout
Isometric**

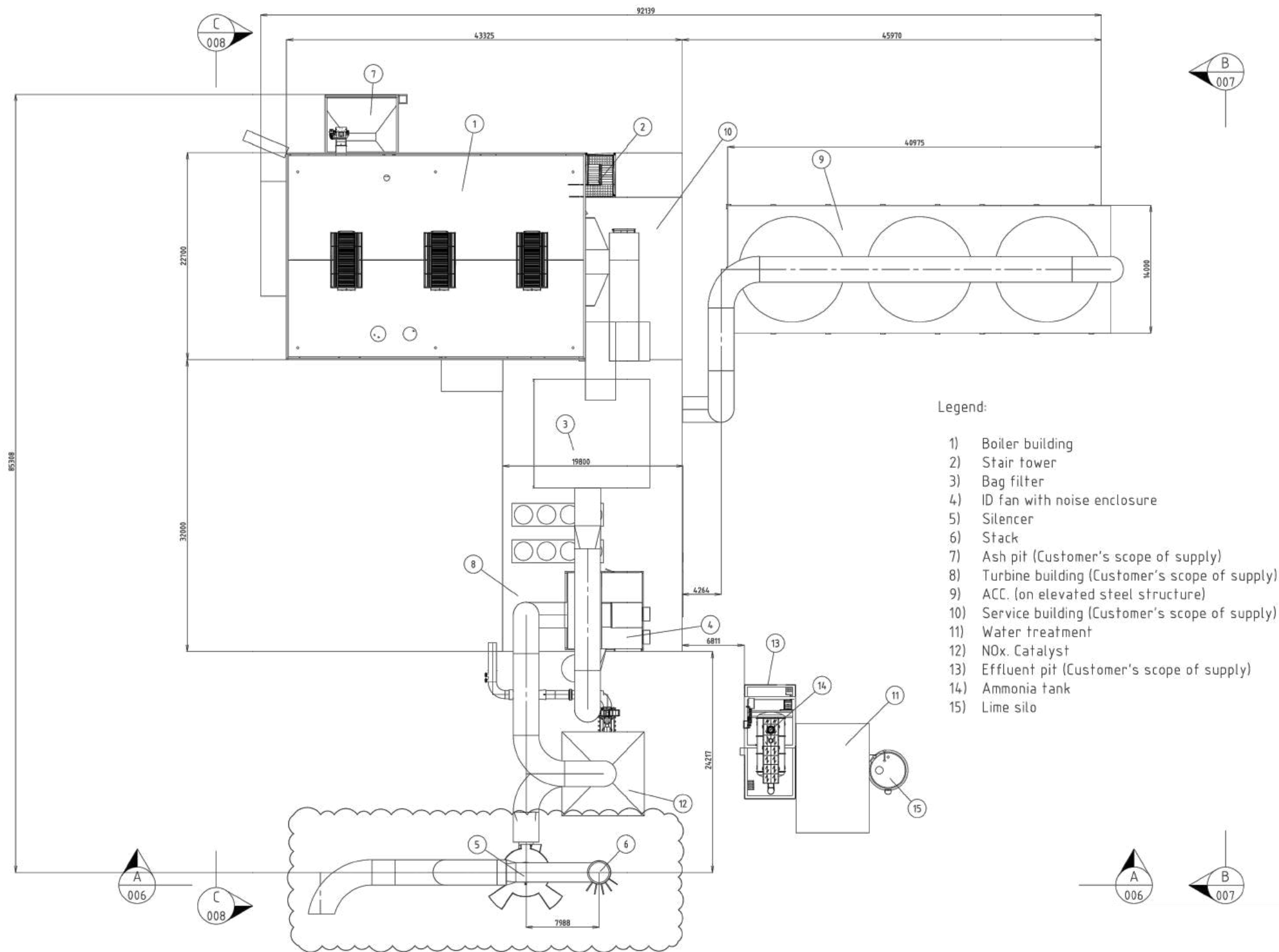
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Date

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Project

Kronospan Low Carbon Combined Heat and Power Facility

Figure Number

Figure 3.1d

Figure Title

Indicative Design - Plan View

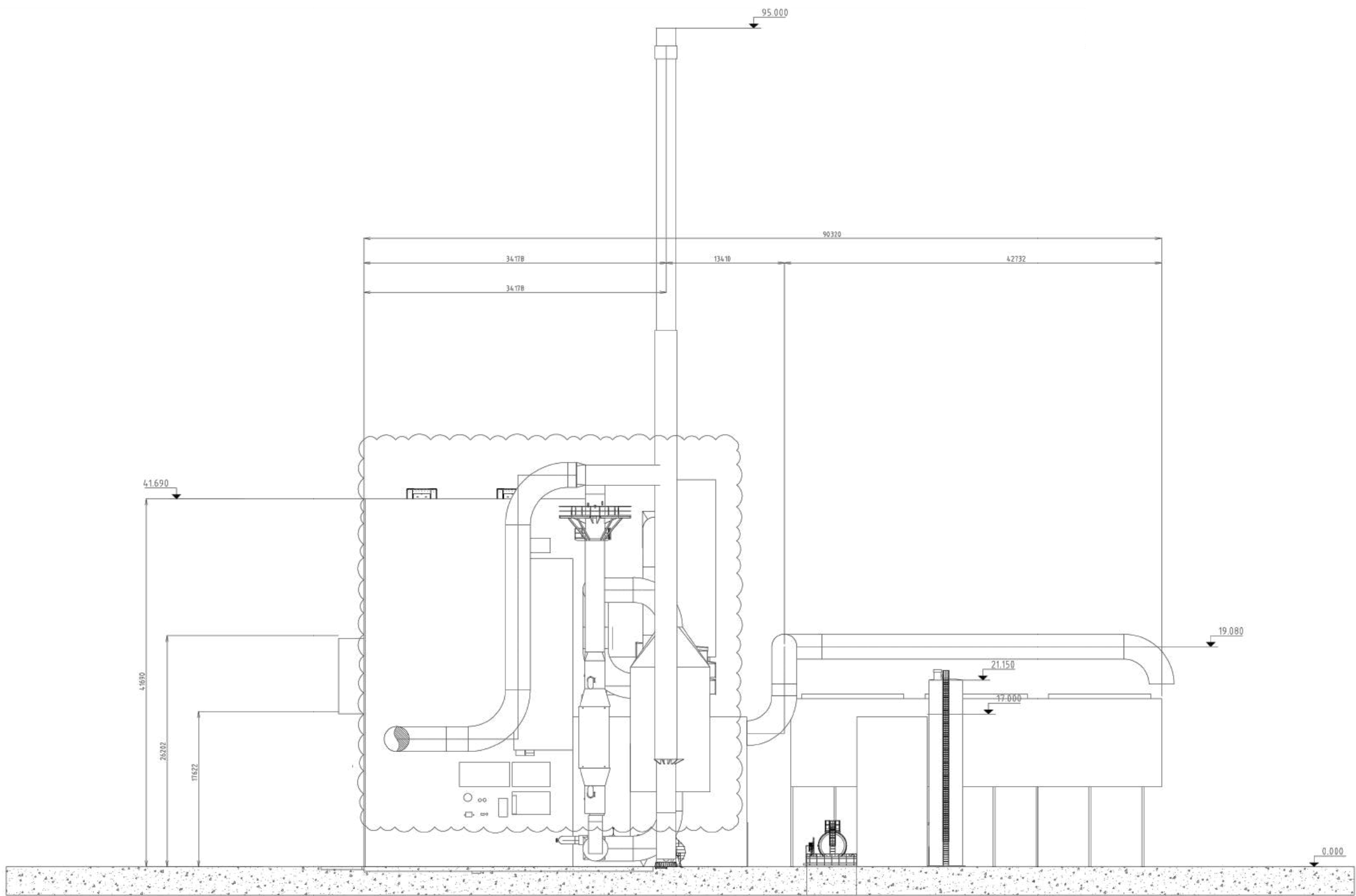
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Date

May 2024





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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 3.1e

Figure Title

Indicative Design - Elevation A-A

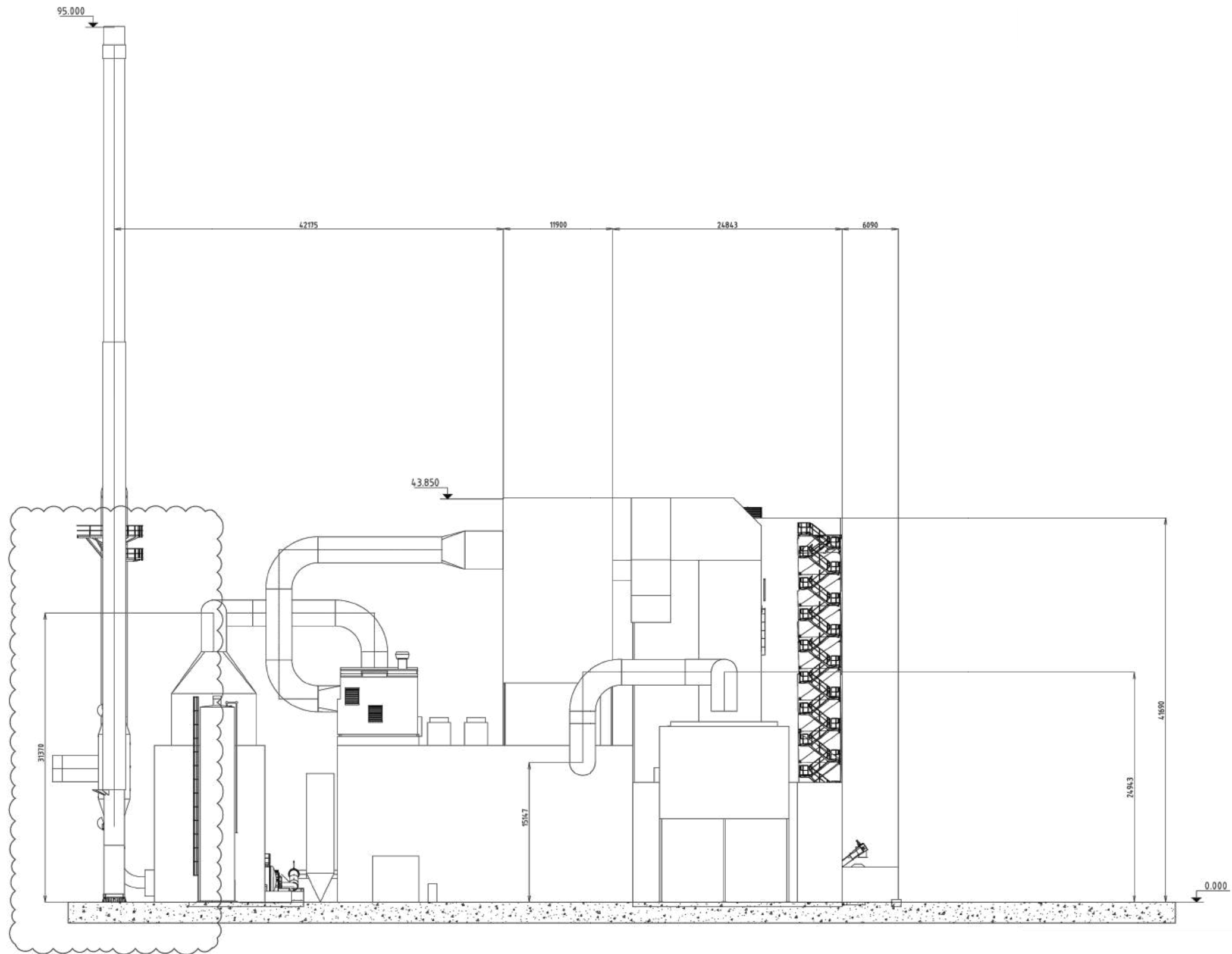
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Date

May 2024





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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 3.1f

Figure Title

Indicative Design - Elevation B-B

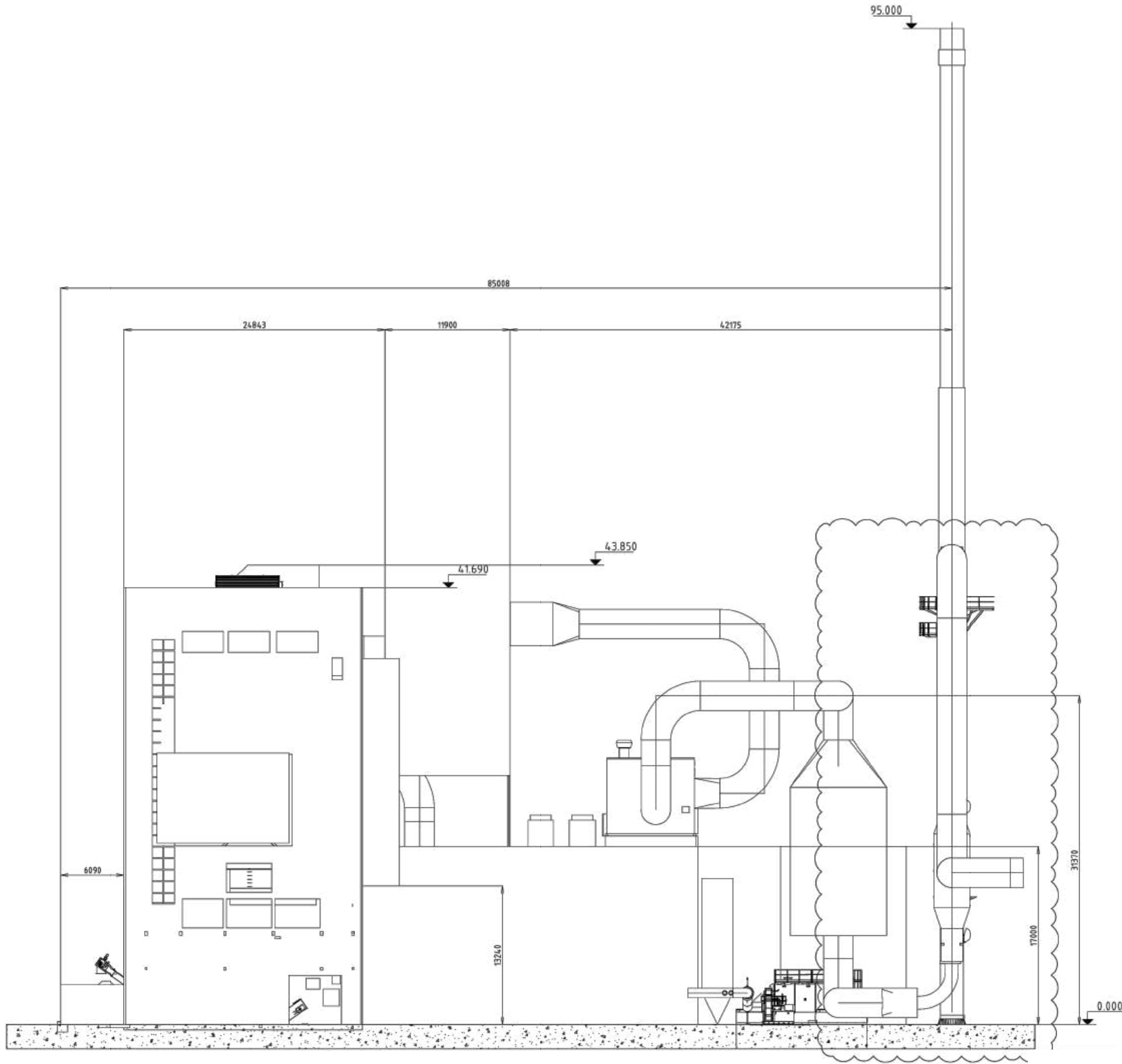
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Date

May 2024





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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 3.1g

Figure Title

Indicative Design - Elevation C-C

Scale

1:500 @A3

Date

May 2024



Existing Development



Proposed Development

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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 3.2a

Figure Title

Indicative 3D Visualisation 1

Scale

Not to Scale

Date

May 2024



Existing Development



Proposed Development

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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 3.2b

Figure Title

Indicative 3D Visualisation 2

Scale

Not to Scale

Date

May 2024



Existing Development



Proposed Development

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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 3.2c

Figure Title

Indicative 3D Visualisation 3

Scale

Not to Scale

Date

May 2024



Existing Development



Proposed Development

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Project

**Kronospan Low Carbon Combined
Heat and Power Facility**

Figure Number

Figure 3.2d

Figure Title

Indicative 3D Visualisation 4

Scale

Not to Scale

Date

May 2024



-  Silos and Extension to Chip Preparation Building (P/2022/0765) - Pending Determination by WCBC
-  Oriented Strand Board Facility (APP/H6955/A/19/3227571) - Part Constructed
-  Log Delivery and Flaking System (P/2017/0699) - Awaiting Construction
-  Engineering Stores (P/2022/0615) - Awaiting Construction
-  North Access Road (P/2022/1080 - Awaiting Construction
-  Covered Loading Yard (P/2022/0336) - Awaiting Construction
-  Indicative 132kV Underground Cable Route for North Access Road Substation

Llangollen Canal (World Heritage Site)

Railway

Main raw material processing facilities

Formalin Plant

Sawmill & Sawn Timber Storage

Main MDF / Chipboard Manufacturing Facility

Covered Loading Yard

Car Park

Engineering Stores

Kronoplus



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Project
Kronospan Low Carbon Combined Heat and Power Facility

Figure Number
Figure 5.1a

Figure Title
Cumulative Projects

Scale
1:5000 @A3

Date
May 2024



-  Silos and Extension to Chip Preparation Building (P/2022/0765) - Pending Determination by WCBC
-  Oriented Strand Board Facility (APP/H6955/A/19/3227571) - Part Constructed
-  Log Delivery and Flaking System (P/2017/0699) - Awaiting Construction
-  Engineering Stores (P/2022/0615) - Awaiting Construction
-  North Access Road (P/2022/1080 - Awaiting Construction
-  Covered Loading Yard (P/2022/0336) - Awaiting Construction
-  Indicative 132kV Underground Cable Route for North Access Road Substation
-  Indicative 132kV Underground Cable Route for North Access Road Substation

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Project

Kronospan Low Carbon Combined Heat and Power Facility

Figure Number

Figure 5.1b

Figure Title

Cumulative Projects

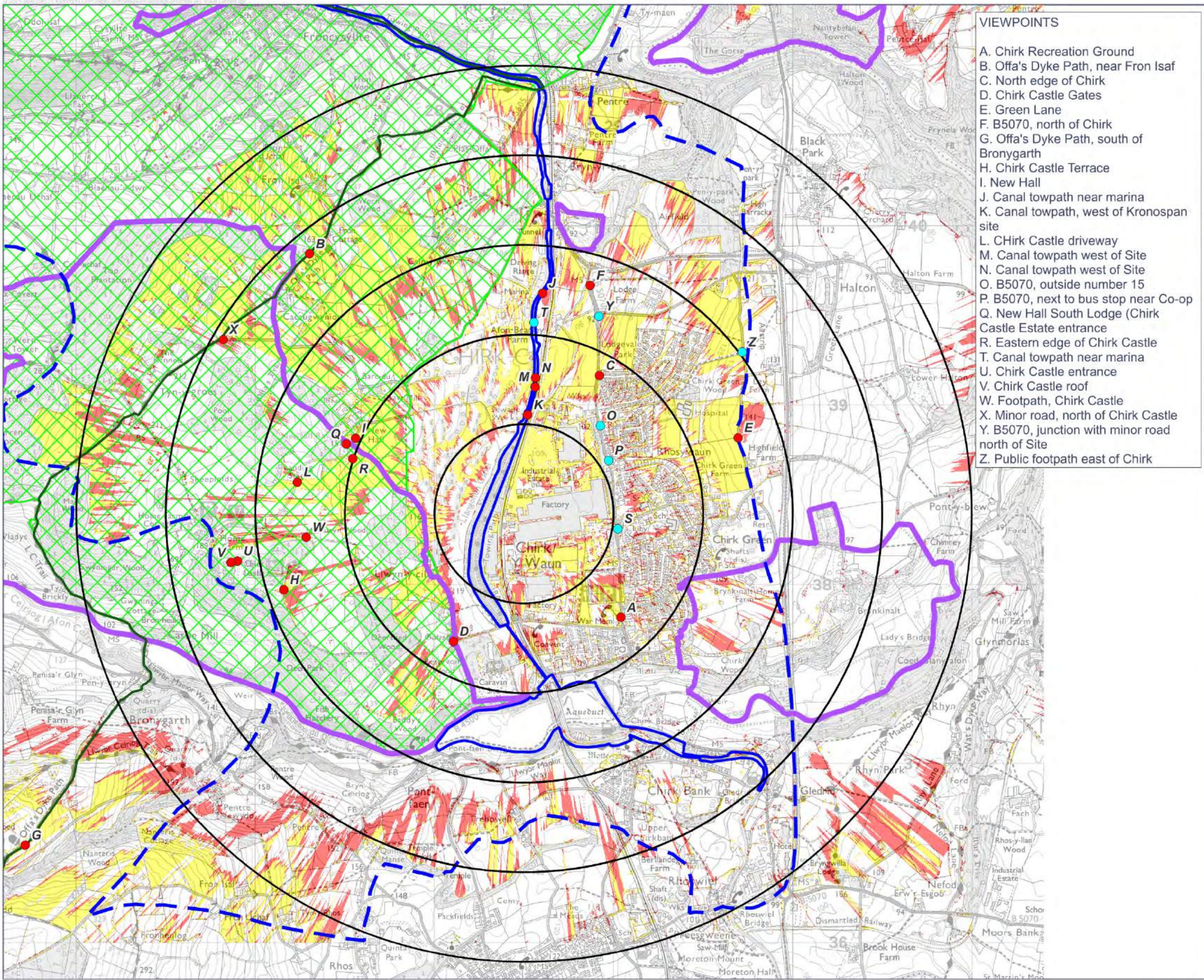
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Date

May 2024





- VIEWPOINTS**
- A. Chirk Recreation Ground
 - B. Offa's Dyke Path, near Fron Isaf
 - C. North edge of Chirk
 - D. Chirk Castle Gates
 - E. Green Lane
 - F. B5070, north of Chirk
 - G. Offa's Dyke Path, south of Bronygarth
 - H. Chirk Castle Terrace
 - I. New Hall
 - J. Canal towpath near marina
 - K. Canal towpath, west of Kronospan site
 - L. Chirk Castle driveway
 - M. Canal towpath west of Site
 - N. Canal towpath west of Site
 - O. B5070, outside number 15
 - P. B5070, next to bus stop near Co-op
 - Q. New Hall South Lodge (Chirk Castle Estate entrance)
 - R. Eastern edge of Chirk Castle
 - T. Canal towpath near marina
 - U. Chirk Castle entrance
 - V. Chirk Castle roof
 - W. Footpath, Chirk Castle
 - X. Minor road, north of Chirk Castle
 - Y. B5070, junction with minor road north of Site
 - Z. Public footpath east of Chirk

- 2.5km radius from Proposed Development
- Area of Outstanding Natural Beauty
- National Trail
- World Heritage Site Boundary
- World Heritage Site Essential Setting
- Registered Park and Garden
- ZTV of proposed 43.85m high boiler house
- Additional ZTV of proposed 95m high stack
- Viewpoint Location
 - Proposed to be included in LVIA
 - Proposed to omit from LVIA

NOTES:

- Zone of Theoretical Visibility has been generated using NRW 1m LIDAR DSM data, which takes account of screening features in the landscape.
- ZTV generation has allowed for curvature of the earth and light refraction.
- ZTV has been generated based upon an observer eye height of 1.7m above ground level.

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Project

Kronospan Low Carbon Combined Heat and Power Facility

Figure Number

Figure 8.1

Figure Title

Landscape and Visual Context

Scale

1:20000@A3

Date

May 2024







View at a comfortable arm's length
Print on paper at the following size. 841mm width x 420mm height (A1 width x A3 height)

Baseline View





View at a comfortable arm's length
Print on paper at the following size. 841mm width x 420mm height (A1 width x A3 height)

Baseline View









View at a comfortable arm's length
Print on paper at the following size. 841mm width x 420mm height (A1 width x A3 height)

Baseline View



View at a comfortable arm's length
Print on paper at the following size. 841mm width x 420mm height (A1 width x A3 height)

Baseline View



View at a comfortable arm's length
Print on paper at the following size: 841mm width x 420mm height (A1 width x A3 height)

Baseline View



View at a comfortable arm's length
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Baseline View













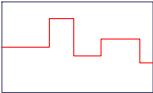




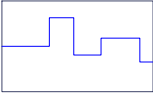
View at a comfortable arm's length
Print on paper at the following size. 841mm width x 420mm height (A1 width x A3 height)

Baseline View





Proposed Development likely to be visible



Proposed Development likely to be screened from view



Print on A3 paper.
View at a comfortable arm's length

Wireframe View (winter)







Print on A3 paper.
View at a comfortable arm's length

Wireframe View (winter)