Environmental Risk Assessment

Shotton Paper Mill Permit Variation Application

Shotton Mill Limited

Prepared by:

SLR Consulting Limited

3rd Floor, Brew House, Jacob Street, Tower Hill,
Bristol, BS2 0EQ

SLR Project No.: 410.065169.00001

15 April 2025

Revision: 01

Basis of Report

This document has been prepared by SLR Consulting Limited (SLR) with reasonable skill, care and diligence, and taking account of the timescales and resources devoted to it by agreement with Shotton Mill Limited (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.

Table of Contents

Tables in Text

Appendices

1.0 INTRODUCTION

SLR Consulting Limited (SLR) has been instructed by Shotton Mill Limited (SML) to prepare an environmental permit (EP) variation application for their Shotton Paper Mill, located at Weighbridge Road, Shotton, Deeside, Flintshire, CH5 2LW (hereafter referred to as 'the Site').

SML propose to repurpose the Site to produce containerboard and tissue paper, rather than newsprint. The existing listed activities and DAAs will remain unchanged, however the plant and operation on Site will change because of the following new plant being installed as part of the repurposing:

- new paper machine (PM) for containerboard;
- new pulp preparation equipment;
- new Effluent Treatment Plant;
- new Tissue paper mill; and
- new Combined Heat and Power plant.

1.1 Report Context

This ERA is an assessment of the potential risk to the environment and to human health that may be associated with the proposed changes at the Site. The document will describe the risks and what techniques will be implemented to manage its potential effects upon the environments.

The report has been drafted to satisfy the requirements of European Commission, UK and Defra guidance (where applicable), most notably:

- European Commission – Industrial Emissions Directive 2010; and
- The Environmental Permitting Regulations (England and Wales) 2016 (as amended).

This ERA uses the following approach for identifying and assessing the risks from the proposed permitted operations:

Step 1 Identify and consider risks for your site and the sources of the risks.

Step 2 Identify the receptors at risk from your site.

Step 3 Identify the possible pathways from the sources of the risks to the receptors.

Step 4 Assess risks relevant to your specific activity and check they are acceptable and can be screened out.

Step 5 State what you will do to control the risks if they are too high.

Step 6 Submit your risk assessment as part of your EP application.

Section 2.0 of this document is a screening step to identify potential risks to the environment as part of this assessment.

Section 3.0 identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. The ERA for an EP application requires all receptors that are near the Site and could reasonably be affected by the activities to be identified and considered as part of the assessment.

The guidance[1] requires all likely receptors that are near the Site and could reasonably be affected by the proposed changes to the Site, and both the direct and indirect environmental effects to be identified and considered as part of the ERA and to assess the measures to mitigate proposed risks. The assessment requires the identification and quantification of possible effects.

Therefore, for the purpose of this report:

- a 2km radius for RAMSAR, SAC, SPA, Marine Potential SPA, SSSIs and other sites of cultural and ecological; and
- a radius of 500m from the proposed permit boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

Section 4.0 of this document presents the assessment and demonstrates that any risks of pollution or harm will be mitigated to manage the risk.

This ERA should be read in conjunction with the following documents submitted with this variation application:

- Application Forms;
- Non-Technical Summary (SLR Ref. 410.065169.00001_NTS)
- Best Available Techniques and Operating Techniques (SLR Ref. 410.065169.00001_BATOT)
- Fire Prevention and Mitigation Plan (SLR Ref. 410.065169.00001_FPMP)
- Air Quality Assessment (SLR Ref. 410.065169.00001_AERA)
- Site Condition Report Addendum (SLR Ref. 410.065169.00001_SCR)
- Noise Assessment (SLR Ref. 410.065169.00001_Noise Assessment)
- CIRIA Risk Assessment (SLR Ref. 410.065169.00001_CIRIA RA)
- Drawings
    - 001 Site Location Plan (SLR Ref. 410.065169.00001_Drawing 001)
    - 002 Site Layout and Environmental Permit Boundary (SLR Ref. 410.065169.00001_Drawing 002)
    - 003 Environmental site setting & receptors (SLR Ref. 410.065169.00001_Drawing 003)
    - 004 Cultural and Natural Heritage Receptors (SLR Ref. 410.065169.00001_Drawing 004)

2.0 CONSIDERATION OF RISKS

Step 1 is a screening step to identify potential risks to the environment from the development. The risk assessment must identify whether any of the following risks could occur and what the environmental impact could be:

- Any discharge;
- Accidents;

[1] Environmental Permitting General Guidance Manual on Policy and Procedures for A2 and B Installations, April 2012

- Odour;
- Noise and vibration;
- Uncontrolled or unintended emissions (Fugitive emissions);
- Visible emissions; and
- Release of bioaerosols.

Based on the proposed changes for the facility, there will be no point source emissions to groundwater, or land. For the purpose of this ERA these elements have not been considered.

Therefore, only the following risks are required to be assessed for the permit application:

- Odour;
- Noise and vibration;
- Fugitive emissions (including, dust, litter, mud, leaks/spills and pollutant); and
- Accidents.

An Air Emissions Risk Assessment has been included in this permit application to address emissions to air (document reference 410.065169.00001_AERA).

A Best Available Techniques and Operating Techniques report (BATOT) has been included in this permit application, to address best available techniques to minimise the impacts on the environment (document reference: 410.065169.00001_BATOT).

3.0 SITE SETTING AND RECEPTORS

Step 2 identifies people or parts of the environment that could be affected (at potentially significant risk) by the activity. This section identifies the Site setting and potentially sensitive receptors in the vicinity of the Site.

3.1 Site Setting

The Site is located off Weighbridge Road, Deeside Industrial Park, centred on National Grid Reference (NGR) SJ 30434 71529. The Site is located within Deeside Industrial Park, 20km south of Liverpool and 10km west of Chester.

The River Dee is 1km west of the Site at the closest point, and the mouth of the River Dee is located 15km north-west.

The area immediately surrounding the Site comprises a combination of commercial and industrial units to the east and south, residential properties and open ground to the east and large areas of open ground to the north.

The closest residential receptors to the Site are approximately 1.3km to the south-west along Dee View Road.

The Site will be accessed via Weighbridge Road, to the north and east of the EP boundary.

The Site's location is illustrated on Drawing 001, and the EP Boundary and Site Layout are illustrated in Drawing 002. Local receptors within a 500m radius of the Site are shown on Drawing 003, and Cultural and Natural Heritage Receptors on Drawing 004.

A summary of the immediate surrounding land use is provided in Table 1.

Table 1 Immediate Land Uses Surrounding the Site

Direction	Land-Use
North	Access road immediately to the north, beyond which lies an area of open ground
East	Access road immediately to the east, beyond which lies commercial / industrial units
South	Areas of open ground to the south, beyond which lies commercial / industrial units
West	Open ground, beyond which the A548 lies 270m west

3.1.1 Industrial and Commercial

There are a number of industrial and commercial premises within 500m of the Site. The closest of these are Deeside Power (UK) which lies 130m west of the EP boundary, and Flintshire Bridge HVDC Convertor Station, situated approximately 250m south-east of the EP boundary.

3.1.2 Local Transport Network

There are a number of roads within 500m of the facility. These includes Weighbridge Road on the northern boundary and approximately 20m from the eastern boundary at the closest point. The A548 lies 270m to the west. There are also a number of unnamed access roads, serving other industrial / commercial units within the industrial park, within 500m of the Site.

3.1.3 Surface Water Features

There is a stream running adjacent to the EP boundary to the south. This stream runs to the west and north of the Site. There is a large area of open water known as the Shotton Lagoons (SSSI) situated 140m to the south-west.

3.1.4 Woodland

There are no areas of designated woodland within 500m of the facility. There are some areas of undesignated woodland adjacent on the southern EP boundary.

3.1.5 Agricultural / Open Land

There is a large area of open land adjacent to the Site on the northern boundary. There are other areas of open ground to the east of the Site, adjacent on the eastern boundary and approximately 320m east of the EP boundary.

3.1.6 Residential

There are no residential properties within 500m of the EP boundary.

3.2 Geology, Hydrogeology and Hydrology

3.2.1 Geology

A review of the British Geological Survey (BGS) map[2], reveals that the Site is underlain by three bedrock deposits:

[2] British Geological Society, geology viewer map https://geologyviewer.bgs.ac.uk/ accessed in October 2023

- The north-eastern corner of the Site is underlain by a bedrock of Kinnerton sandstone formation, formed between 252.2 and 247.1 million years ago;
- A small section beneath the centre of the Site is underlain with a bedrock of Bowland Shale Formation (mudstone), formed between 337 and 319 million years ago; and
- The remaining areas of the Site are underlain with of a bedrock of Pennine Lower Coal Measures Formation (mudstone, siltstone and sandstone), formed between 319 and 318 million years ago.

Superficial deposits underlying the Site comprise of tidal flat deposits (clay, silt and sand). These are sedimentary superficial deposits formed between 11.8 thousand years ago and today, during the Quaternary period.

3.2.2 Hydrogeology

3.2.2.1 Aquifer Designations

According to the Multi-Agency Geographical Information for the Countryside (MAGIC) map[3], there are three bedrock aquifer designations underlying the Site:

- The deposits underlying the north-eastern corner of the Site are classified as a Principal Aquifer;
- The deposits underlying a small section beneath the centre of the Site, are classified as a Secondary (undifferentiated) Aquifer; and
- The remaining areas of the Site are underlain with bedrock deposits classified as a Secondary A aquifer.

Superficial deposits underlying the Site are classified as a Secondary (undifferentiated) Aquifer.

3.2.2.2 Source Protection Zones

There are no Source Protection Zones classified beneath the Site.

3.2.3 Hydrology

3.2.3.1 Groundwater Vulnerability

The Groundwater Vulnerability layer on MAGIC map reveals there are no groundwater vulnerability classifications designated where the Site is situated.

3.2.3.2 Flood Zone

The Flood Risk Maps for Wales[4] confirms that the there is no flood risk classified within the EP boundary.

[3] Multi-Agency Geographical Information for the Countryside Map, available at www.magic.gov.uk, accessed in February 2024

[4] NRW https://check-your-flood-risk.naturalresources.wales/ accessed in February 2024

3.3 Ecology

3.3.1 Internationally Designated Sites

3.3.1.1 Sites of Special Scientific Interest (SSSI)

The following SSSIs lie within 2km of the EP boundary:

- The Dee Estuary / Aber Afon Dyfrdwy SSSI is situated 275m north of the Site at the closest point. There are a number of features contributing to the SSSI designations including Ranunculus communities, floating water plantain, Atlantic salmon, bullhead, lamprey, otter, club tailed dragonfly and fluvial geomorphology in the meandering section of the main stem Dee across the Cheshire Plain.
- Shotton Lagoons and Reedbeds SSSI is located approximately 140m south of the Site at the closest point.
- The River Dee / Afon Dyfrdwy SSSI is located 1km west of the Site at the closest point.
- Inner Marsh Farm Site of Special Scientific Interest (SSSI) lies approximately 1.2km north of the Site at the closest point. The SSSI is designated for its standing open waters and canals.

3.3.1.2 Ramsar

The Dee Estuary Ramsar is situated 40m south of the Site at the closest point. The Dee Estuary Ramsar covers a large proportion of the land within 2km of the Site to the north-west, west and some to the south.

3.3.1.3 Special Areas of Conservation (SAC)

The Dee Estuary SAC lies 275m north of the EP boundary at the closest point. This SAC covers a large proportion of the land within 2km of the Site to the north-west, west and some land to the south.

The River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegrid SAC lies 1km west of the Site at the closest point.

3.3.1.4 Special Protection Areas

The Dee Estuary SPA is situated 40m south of the Site at the closest point. The Dee Estuary SPA covers a large proportion of the land within 2km of the Site to the north-west, west and some to the south.

3.3.2 Nationally/Locally Designated Sites

The following nationally / local designated sites were not identified within 2km of the Site boundary:

- Ancient Woodland;
- National Nature Reserve;
- Area of Outstanding Natural Beauty;
- National Parks; and
- Biosphere Reserve.

3.4 Cultural Heritage

3.4.1.1 Scheduled Monument

One scheduled monument lies within 2km of the EP boundary, *'Promontory fort on Burton Point 550m south west of Burton Point Farm'* which lies 1.75km north of the Site.

3.4.1.2 Registered Parks and Gardens

Burton Manor registered park and garden lies 1.68km to the north-east of the EP boundary.

3.4.1.3 Other Receptors

The following cultural sites were not identified within 2km of the Site boundary:

- World Heritage Sites;
- Listed Buildings;
- Registered Battlefields.

3.5 Identified Receptors

Table 2 and Drawings 003 and 004 identified receptors which are considered to be potentially sensitive and could reasonably be affected by activities at the Site.

Table 2 Identified Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (in metres)
Human Receptors within 500m of the EP boundary as shown on Drawing 003			
Stream	Surface Water Feature	S	Adjacent
Woodland	Woodland	S	Adjacent
Open Land	Open Land	N / E	Adjacent
Weighbridge Road	Local Transport Network	N / E	Adjacent / 20
Deeside Power (UK)	Commercial / Industrial	W	130
Open Water	Surface Water Feature	S-W	140
Flintshire Bridge HVDC Convertor Station	Commercial / Industrial	S-E	250
A548	Local Transport Network	W	270
Open Land	Open Land	E	320
Cultural and Ecological Receptors and European Designated Ecological Sites within 2km of the EP boundary as shown on Drawing 004			
Shotton Lagoons and Reedbeds	SSSI	S	140
Dee Estuary	Ramsar / SPA	S	40
Dee Estuary	SAC / SSSI	N	275
River Dee / Afon Dyfrdwy	SSSI / SAC	W	1000
Inner Marsh Farm	SSSI	N	1200
Burton Manor	Registered Park and Garden	N	1680

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (in metres)
Promontory fort on Burton Point 550m south west of Burton Point Farm	Scheduled Monument	N	1750

3.6 Windrose

Figure 2 shows the wind patterns between 2017-2021 as identified at Hawarden meteorological station . The most prominent wind directions are from the south-east, and north-west. Winds from the north, north-east and south-west are relatively infrequent by comparison.

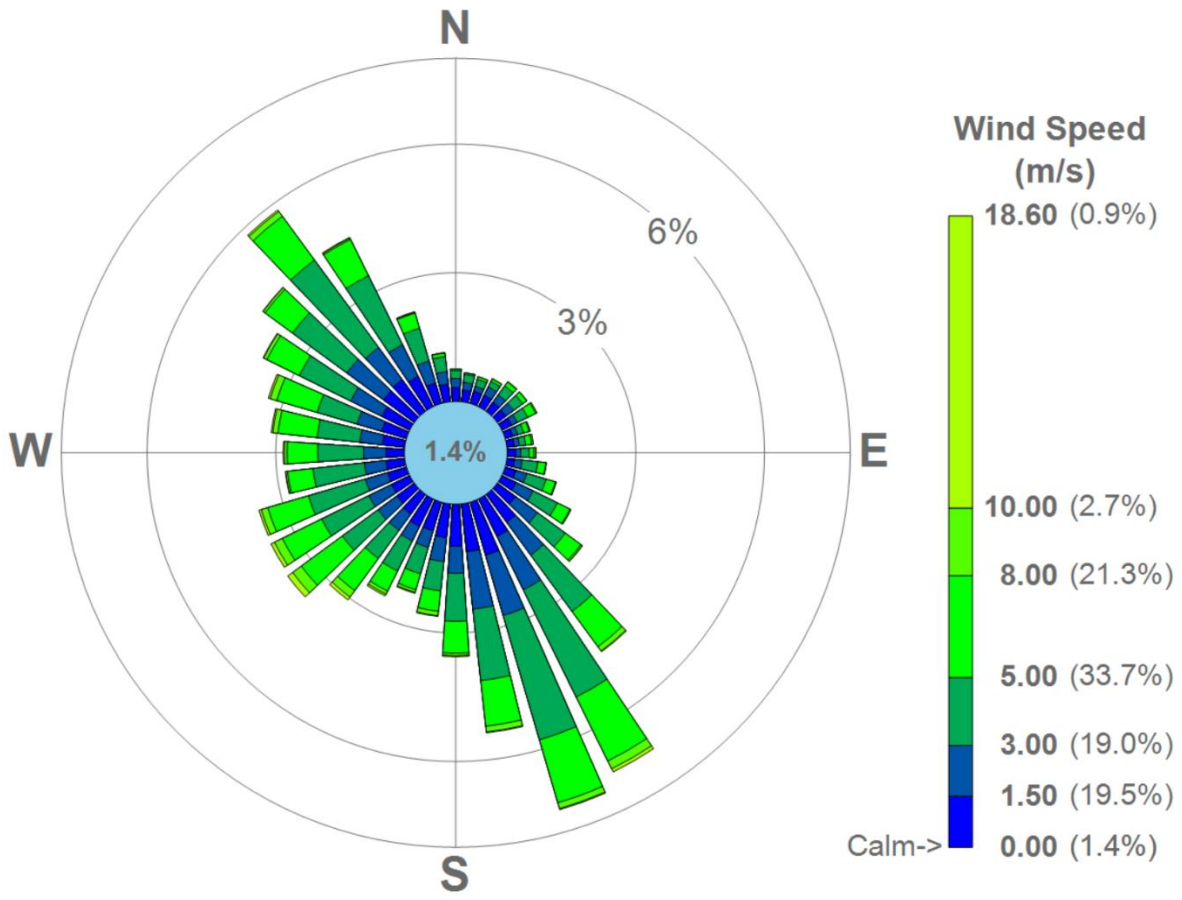


Figure 1 Windrose for Hawarden Meteorological Station (2017-2021)

4.0 ENVIRONMENTAL RISK ASSESSMENT

The following table sets out the potential hazards posed by the proposed redevelopment of the Site, receptors and pathways, along with management and assessment of the identified risks. As defined in Section 2, this assessment only considers risks to amenity (odour, noise and fugitive emissions) and as a consequence of accidents.

The probability of exposure is the likelihood of the receptors being exposed to the hazard, and is defined as low, medium or high. These terms are qualified as follows:

- Low: exposure is unlikely, barriers in place to mitigate against exposure.
- Medium: exposure is fairly probable, barriers to exposure less controllable.
- High: exposure is probable, direct exposure likely with few barriers.

The methodology outlined in Section 1.1 of this report is the basis on which it is determined whether the proposed operations will lead to significant impacts on the surrounding environment. Where a conclusion of ‘not significant’ has been reached, it is proposed that the mitigation and management measures that will be in place at the Site will be sufficient to ensure that there will be no impact at the surrounding environment.

Table 3 Odour Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Odour from the operation of new equipment on Site, associated with the following activities: - pulp preparation; - containerboard machine; and - tissue paper mill. Acceptance and storage of raw materials for use within the proposed new equipment on Site (i.e. pulp preparation equipment, paper machine and tissue paper mill).	Commercial/industrial premises Site personnel See Drawing 003	Air	Each of the proposed new operations will use either recovered paper wastes or virgin pulp. Recovered paper wastes and virgin pulp both inherently have a low odour potential. The facility already currently accepts recovered paper waste types and does not have issues with odour or odour complaints. No new waste types will be accepted to Site in association with the proposed activities. The operation of each of the proposed machines inherently have a low odour potential due to the nature of the operations largely involving only paper wastes and water. In addition to this, the following techniques will be in place which will reduce the odour risk from the Site: • The pulp preparation machine will be located within the Recovered Fibre building on Site. This building is fully enclosed, to ensure release of odour from the building is minimised; • All operations associated with the paper machine will be undertaken within an enclosed building, to ensure release of odour from the building is minimised; • The tissue paper machine will be housed within the repurposed 'PM2' building. This is a fully enclosed building, to ensure release of odour from the building is minimised. **<u>General Management</u>** The following measures will be in place across the facility, to ensure risk from odour from Site operations is minimised: • Strict waste acceptance procedures will be adhered to, to ensure only permitted wastes are accepted on Site; • Potentially odorous wastes will be a stored for minimal periods of time. The Site will be monitored for odours by Site personnel throughout the working week. In the event that odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action taken. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).	Very low	Odour Nuisance	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Odour from the effluent treatment plant	Commercial/industrial premises Site personnel See Drawing 003	Air	The Site is located within an area largely surrounded by agricultural / open land and industrial / commercial units. The closest sensitive receptors to odour are residential receptors located 1300m south-west from the Site, along Dee View Road. The ETP is not anticipated to give rise to any odour emissions. The plant is a completely sealed process, meaning that the risk of odour outside the limits of the plant is considered low. Despite this, the plant will be fitted with odour control measures to ensure a completely odour free process. The following measures will be also in place to ensure potential for odour emissions from the ETP is minimised: • The ETP will be adequately sized to meet 100% of the Site's effluent requirements; • The ETP will be maintained in accordance with the manufacturer's recommendations; • The Site's wastewater drains are inspected and regularly cleaned in accordance with SML's existing management system procedures to ensure that the drains do not become blocked; and • The anaerobic reactor associated with the ETP will be completely gastight and have no odour emissions to air. There would be a potential risk from odour from the ETP in the event that the aeration system were to fail. If the aeration system were to fail and the issue was no resolved over a number of days, the treatment system could get overwhelmed and cause potential odour risk. This risk is minimised as the ETP will be maintained in accordance with the manufacturers recommendations to avoid any system failures. In the event of a failure, the Site would fix the issue as soon as practically possible. The Site will be monitored for odours by Site personnel throughout the working week. In the event that odours are detected, investigations will be undertaken to determine the cause and appropriate remedial action taken. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).	Low	Odour Nuisance	**Not significant**

Table 4 Noise Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Noise from the operation of new equipment on Site, associated with the following activities: - pulp preparation; - containerboard machine; and - tissue paper mill. Noise from vehicles entering/leaving the site for despatch associated with the new operations on Site (i.e. paper machine, pulp preparation equipment and tissue paper mill).	Commercial/industrial premises Site personnel See Drawing 003	Air	The Site is located within an area largely surrounded by agricultural / open land and industrial / commercial units. The closest sensitive receptor to noise is residential receptors located 1300m south-west from the Site, along Dee View Road. The noise risk from the proposed activities in this EP application has been assessed in a Noise Impact Assessment (NIA) which was carried out in accordance with the guidance contained in British Standard 4142:2014 and is included within Section 08 of the EP application. The assessment concluded that: • The assessment concludes that the noise impact from the operations at the Site, at all noise sensitive receptors, falls under the category of 'No noise, or barely audible or detectable noise' as defined by NRW. All equipment proposed to be introduced to Site has been tested and show noise levels of less than 80db at 1m distance. While noise impacts from the proposed operations at the facility have been concluded to be negligible, the following procedures will be in place to ensure that noise from the acceptance, handling, and treatment of waste on Site is minimised; • All operations associated with the pulp preparation, containerboard machine and tissue paper mill, will be carried out within fully enclosed buildings, to minimise the ingress of noise from the operations; • All plant will be switched off when not in use; • Plant will be selected & operated to minimise noise. All Site plant and machinery will be operated and maintained in accordance with manufacturer's specifications; • If horns or alarms on Site plant or infrastructure, or delivery vehicles are deemed to cause unacceptably high levels of noise, alternative technologies will be explored and implemented; • Speed limits will be implemented for vehicles using the Site; • Traffic calming measures will be implemented to enforce speed limits; and • Site access roads and operational areas will be maintained and repaired to minimise emissions of noise due to uneven and poor surfacing. There will be no noise sources mounted on the roofs or any roof mounted equipment associated with any of new proposed buildings or operations, minimising the noise emissions from the Site.	**Low**	Noise Nuisance	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			Auditory inspections will be carried out daily & in response to complaints. A record of the inspection findings and any complaints will be made in the Site diary. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).			
Noise from operation of the ETP	Commercial/industrial premises Site personnel See Drawing 003	Air	The Site is located within an area largely surrounded by agricultural / open land and industrial / commercial units. The closest sensitive receptor to noise is residential receptors located 1300m south-west from the Site, along Dee View Road. The following techniques will be in place at the ETP to ensure noise emissions are minimised: • Inspection and maintenance of all equipment will be conducted in according to the manufacturer's recommendations; • Equipment is located in doors where possible; • Doors and windows to where the equipment is located will be kept shut at all times, where possible; • Staff will be suitably trained and experienced to operate the equipment. There will also be a new gas engines within the ETP. The following techniques will be in place to ensure noise emissions from the gas engines are minimised: • Inspection and maintenance of all equipment will be conducted in according to the manufacturer's recommendations; • The engine will be located within an enclosed building; • Doors and windows to where the engine is located will be kept shut at all times, where possible; • Staff will be suitably trained and experienced to operate the equipment. Auditory inspections will be carried out daily & in response to complaints. A record of the inspection findings and any complaints will be made in the Site diary. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).	**Low**	Noise Nuisance	**Not significant**
Noise from operation of the CHP	Commercial/industrial premises Site personnel See Drawing 003	Air	The Site is located within an area largely surrounded by agricultural / open land and industrial / commercial units. The closest sensitive receptor to noise is residential receptors located 1300m south-west from the Site, along Dee View Road. Emissions from the top of the CHP stacks proposed for installation has been modelled and shows noise levels of less than 80db at 1m distance.	**Low**	Noise Nuisance	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			The following techniques will be in place at to ensure noise emissions are minimised: • Inspection and maintenance of all equipment will be conducted in according to the manufacturer's recommendations; • Equipment has been specified to have noise levels <80dBA at 1m; • Staff will be suitably trained and experienced to operate the equipment. Auditory inspections will be carried out daily & in response to complaints. A record of the inspection findings and any complaints will be made in the Site diary. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).			

Table 5 Fugitive Emissions Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
To Air:						
Dust emissions from the acceptance, storage, handling and treatment, associated with the following activities: - Pulp preparation - Containerboard machine - Tissue paper mill Dust from the operation of new machinery and equipment: - Pulp preparation - Containerboard machine - Tissue paper mill Dust from additional vehicles entering the Site for dispatch and despatch associated with the new operations on Site (i.e. paper machine, pulp preparation equipment and tissue paper mill).	Industrial and commercial receptors. See Drawing 003	Air	The proposed new operations at the Site are not anticipated to give rise to significant dust emissions from the Site. The wastes proposed for use within the operations are recovered paper wastes, as such due to the nature of these wastes, the potential risk of dust emissions from acceptance handling and storage of the wastes are low. In addition to this, the following techniques will be in place which will reduce the odour risk from the Site: • Pulp preparation will take place within the existing Recovered Fibre building on Site, the building is fully enclosed to minimise release of dust emissions from the process; • The containerboard paper machine will be housed within an enclosed building. This building will be fully enclosed to minimise release of dust emissions from the process; • The tissue paper machine will be housed within the repurposed 'PM2' building. This is a fully enclosed building, to ensure release of odour from the building is minimised. **<u>New Raw Material Storage Area</u>** SML are proposing to add a new outdoor storage area for storing of baled and wrapped recovered paper wastes. This new storage area will be located adjacent to the existing storage areas on Site (see Drawing 002). While the storage area is proposed to be outside and not under cover, the nature of the wastes stored here will means that dust emissions from the storage area is low. The facility will abide by strict waste acceptance procedures to ensure only permitted waste types are accepted to the Site. Policies will be in place and staff trained appropriately to ensure only baled and wrapped recovered paper wastes are stored within the new proposed outdoor storage area. **<u>Management</u>** The following dust management measures will continue to be implemented on Site: • Speed limits are implemented for vehicles using the Site and will be implemented across the new roads for construction; • Traffic calming measures will be implemented to enforce speed limits and reduce emissions of dust from the new roads for construction;	Low as the process is within a building.	Nuisance and health risk to human receptors.	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			• Any new Site access roads and operational areas will benefit from new hard surfacing; • All new roads and operational areas will be swept where necessary to reduce dust emissions; and • All vehicles delivering waste to the Site will be covered to minimise emissions of dust. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).			
To Water:						
Runoff from Site surfaces	Potentially sensitive receptors including controlled water, land, commercial and industrial properties.	Land, surface and ground water	All waste stored on the proposed outdoor storage area will be on impermeable surfacing. This will reduce the risk of contaminated run off and generation of dirty process water. This storage area will also benefit from a sealed drainage system. Run-off from this area will be collected within the sealed drainage system, preventing uncontrolled risk of contaminated run off from the Site. Clean water runoff from proposed buildings constructed in association with this variation application will be collected within the surface water drainage system on Site. All surface water drainage from process areas on Site drains to the ETP. All new surface water drainage associated with changes within this variation application relating to process areas will also be drained to the ETP. The site lagoons have a pump discharge to the Dee Estuary. If the water within the lagoons is known to be out of required specifications, then water from the lagoons is recirculated back to the ETP for further treatment. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).	**Low**	Nuisance, pollution of controlled water and soil.	**Not significant**
Percolation of contaminated liquid into groundwater	Ground water	Percolation	All waste stored on the proposed outdoor storage area will be on impermeable surfacing. This will reduce the risk of contaminated run off and generation of dirty process water. All new tanks and hazardous waste storage areas on Site will be constructed with secondary containment to CIRIA C736 standard. As such, the risk of contaminated liquid reaching groundwater is very low as all spillages would be contained within the relevant secondary containment bund. Any new Site surfaces built in associated with the changes within this variation application, will be lain with impermeable surfacing, reducing the likelihood of percolation from the Site to groundwater.	**Low**	Contamination nuisance, pollution of soil and controlled water.	**Not Significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Litter / Mud						
Litter from the new external paper raw material storage area	Sensitive receptors listed in Table 2 including road network, industrial, commercial, agricultural and ecological receptors.	Air	SML are proposing to introduce a new outdoor storage area for paper and cardboard waste, adjacent to the existing storage areas on Site. There is some potential for litter to arise from storing theses wastes outside, if the bale wrapping is damaged, as such the following techniques will be in place to ensure litter emissions are minimised: • All recovered paper stored in this area will be stored within wrapped bales, which will be appropriately compacted to ensure fractions of paper waste cannot escape; • The area will be inspected daily to ensure there are no damaged bales which could give rise to litter; • Strict waste acceptance procedures will be in place to ensure no unauthorised wastes are accepted to the storage area. **General Management** The following management techniques will continue to be employed at the Site, to ensure that the risk of generation of litter from wastes is minimised: • Strict waste acceptance procedures will ensure that only authorised wastes are accepted; and • The Site benefits from good housekeeping and all areas of the Site, including the areas of the facility associated with proposed changes, will be cleaned on a daily basis. The Site is inspected on a daily basis and action is taken to maintain the area free of significant accumulations of litter and debris. Any excessive litter material at the facility is cleared using a mechanical sweeper and/or litter picker if required. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).	**Low**	Nuisance	**Low**
Mud from vehicle movements	Local Road Network	Transferral of mud on vehicles wheels	Any new operational areas associated with the proposed changes to the Site will be tarmacked, and as such the risk of mud track out from traffic and plant machinery movements will be low. The wastes proposed for use within the operations are recovered paper wastes. The nature of theses wastes mean that the potential for mud to track from the Site as a result of acceptance, handling and treatment of the wastes is low. Despite this, the following management techniques will continue to be employed at the facility, to ensure that the risk of mud track out is minimised: • Areas of hardstanding and impermeable surfacing will be maintained free of significant quantities of mud and debris; • All vehicles will be covered when loads are entering and exiting the facility; • Roads will be swept and cleaned whenever necessary; and	**Low**	Nuisance from mud. Dangerous conditions on roads.	**Negligible**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			• In the event that mud, debris, or waste arising from the Site is deposited outside the Site, the affected area will be cleaned, and traffic will be isolated from sources of mud and debris within the Site. Daily visual inspection of the Site by Site management will identify any problem with mud which will be cleaned up as soon as possible. Where necessary road cleaning equipment will be deployed. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).			
Pests						
Pests	Sensitive receptors listed in Table 3-2 including residential, commercial, agricultural recreational and ecological receptors.	Land, Water and Air	SML are proposing to introduce a new outdoor storage area for paper and cardboard waste, adjacent to the existing storage areas on Site. While the storage area is proposed to be outdoor, the only wastes which will be stored outside within this are wrapped and baled recovered paper and cardboard waste meaning that the risk from pests is low. Strict waste acceptance procedures will be implemented to ensure that only authorised wastes are accepted. In the event that non-conforming wastes are delivered to Site, they will be isolated and removed from Site at the earliest opportunity. In the event that birds, vermin & insects are identified at the Site, a specialist pest control contractor will be employed to undertake remedial measures. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).	**Low**	Nuisance, potential risk to health	**Negligible**

Table 6 Accidents Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? – Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Leakage from Site equipment	Local land quality, surface water and groundwater	Runoff and percolation through ground	All new storage tanks associated with the proposed variations, will be managed as follows: • New tanks to be used for the storage of fuel and maintenance oil, will be constructed so that any leaks/spillages will be contained; • All new containment tanks will be built in accordance with CIRIA C736 guidance, and will have undergone a risk assessment in accordance with CIRIA C736; • All new storage tanks will be constructed to the appropriate British Standard; • All new tanks will be inspected visually on a daily basis by the Site staff to ensure the continued integrity of the tanks and identify the requirement for any remedial action; • Minor spillages will be cleaned up immediately, using sand or proprietary absorbent to clean up liquids and placed in alternative containers; • Materials suitable for absorbing and containing minor spillages are maintained on Site and will be included in any areas with new containment tanks; • The Site staff will undertake daily monitoring for evidence of spillage and leakage. Alongside regular visual inspections, the tanks will be fitted with level indicators to prevent overfilling. In the event of a major spillage immediate action will be taken to contain the spillage and prevent liquid from entering surface water drains and unsurfaced ground. The spillage will be cleared immediately and placed in containers for off-Site disposal and NRW will be notified. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).	Low	Contamination of land, groundwater and surface water	**Low**
Fire	Industrial and commercial See Drawing 003	Air Land, surface water and groundwater.	The Site will be operated in accordance with SML's Fire Prevention and Mitigation Plan (FPMP) which is included as Section 07 of this EP application. The site benefits from an onsite Fire Fighting team.	Medium	Harm to human health and ecology. Nuisance. Contamination of land, groundwater and surface water	**Low**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Explosion risk from operation of the ETP Explosion risk from fire	Harm to human receptors, commercial and industrial receptors	Leak of gases from the plant	The proposed changes to the Site include refurbishment to the ETP at the facility, and addition of anaerobic digestion (AD) treatment. Biomethane generated within the AD process will be collected for use within the combustion plant on Site. Due to the nature of the ETP operations, and collection of biomethane, there is a small risk of explosion if these aspects of the facility were not managed correctly. As such, the following management techniques will be in place to manage this risk: • A biogas dryer will be fitted to prevent condensation forming in the pipeline feeding the combustion plant. Condensate can cause pressure fluctuations or blockages, which in turn can lead to risk of explosion. The dryer will reduce the risk of condensate forming and therefore reduce the risk of explosion; • All equipment associated with the ETP and biomethane handling and storage, will be maintained as pe the manufacturer's instructions; • All equipment associated with the ETP and biomethane handling and storage, will be inspected regularly to ensure there is no damage or defects. In the event that any defects are discovered, these will be dealt with as soon as practically possible; • All equipment associated with the ETP and handling and storage of biomethane, will be subject to a regular maintenance and repair program. In the event that there was a fire at the Site, there is also some potential risk of explosion during a fire. To minimise this risk, the Site will be operated in accordance with its dedicated FPMP. This FPMP has been updated to incorporate the changes associated with this variation application and can be found within Section 07 of this EP application. A DSEAR assessment has been undertaken to assess and mitigate any risks of explosions at the Site in associated with this variation application. Actions and mitigations outlined within this assessment will be followed to ensure risk of explosion at the Site is minimised. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).	Medium	Harm to human health and environment.	**Low**
Vandalism and Security	Harm to human receptors, commercial and industrial receptors	Land, surface water, groundwater, air.	The Site currently has the following security measures in place and all new areas of the Site will also benefit from these: • The Site is manned 24 hours / 7 days a week either by Site staff or security service who will undertake inspections of the Site; • An internal and external CCTV monitoring system which can be monitored on Site or remotely; and • A 2.4m high steel palisade security fence, surrounds the EP boundary.	Low	Theft, plant failure, harm to human health, environmental harm.	**Low**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			The Site is inspected daily by the operations staff to identify deterioration and damage and the need for any repairs. The Site is maintained and repaired to ensure its continued integrity. In the event that damage is sustained repairs are made by the end of the working day. If this is not possible, suitable measures are taken to prevent any unauthorised access to the Site and permanent repairs will be affected as soon as practicable. All visitors to the Site are required to register at the Security lodge. Visitors are provided with a pass that allows them to access the turnstiles and gain entry. This minimises the risk of unauthorised visitors being present at the Site. Operational procedures, including regular inspections, ensure continual monitoring of security provision at the Site. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).			
Flooding	Surface water, soils and groundwater. Receptors as identified in Table 2. See Drawing 003	Flood waters over land	The Flood Risk Maps for Wales confirms that the there is no flood risk classified within the EP boundary. Evacuation procedures will be implemented in the event of flooding. The Site Manager will be responsible for implementing risk management measures in accordance with the Best Available Techniques and Operating Techniques (BATOT) document (410.065169.00001_BATOT).	Low	Contaminated flood waters impacting land in industrial/commercial areas and ecological receptors.	**Low**
Vehicle collisions	Harm to human receptors		The Site implements strict vehicle movement protocols to prevent collisions. All new roads built on Site will be built to the relevant standard and layout. A speed limit of 9mph will be enforced across Site to limit the risk of vehicle collisions.	Low	Harm to human health	**Low**

5.0 CONCLUSION

This qualitative ERA has been undertaken in accordance with NRW guidance. The assessment concludes that with the implementation of the risk management measures described above, potential hazards from the proposed permitted activity are not likely to be significant or pose a significant risk of harm to sensitive receptors in the vicinity of the Site and therefore, no further assessment is required.

Appendix A Global Warming Impact Assessment

Environmental Risk Assessment

Shotton Paper Mill Permit Variation Application

Shotton Mill Limited

SLR Project No.: 410.065169.00001

15 April 2025

A.1 Introduction

A Global Warming Impact Assessment (GWIA) has been carried out for all of the relevant operations to be conducted on site. The GWIA has been carried out in accordance with the Environment Agency's (EA) Guidance5, which is adopted by NRW. This guidance is required for bespoke environmental permits where the activity produces air emissions.

Typically the GWIA compares different process options for the site's activities, however, in the case of Shotton Mill the process option for each activity has been based on the relevant Best Available Techniques, as detailed in the Best Available Techniques and Operating Techniques document (document reference 410.065169.00001_BATOT). As such, this GWIA does not compare the impacts of different process options, but simply quantifies the Global Warming Impact from the activities as they are intended to be operated.

A.1.1 Direct Emissions

Direct emissions are produced by the energy the site's activities use during storing, handling and processing. This includes any heat or power produced directly at the site.

Direct emissions are not limited only to energy use, but can arise from any manufacturing process in which a substance releases a greenhouse gas.

The processes on site that are classified as Direct Emissions are:

- Paper machine; OptiDry Twin
- Combined Heat and Power Plant (CHP)
- Backup Gas Boiler
- Effluent Treatment Plant (ETP) gas engines

In the absence of monitoring data or manufacture specified emissions of greenhouse gases, the carbon dioxide emissions for each activity are determined by multiplying the thermal energy input rating by the relevant conversion factor for carbon dioxide. This was necessary as the Air Emissions Risk Assessment (AERA) included as Section 05 of this submission (document reference 410.065169.00001_AERA) does not include the other greenhouse gasses identified in the EA Guidance in its modelling scenarios.

The AERA models air emissions required by the Medium Combustion Plant Directive (MCPD) (in the case of the OptiDry Twin and back-up boilers) and the Large Combustion Plant Directive (LCPD) (in the case of the CHP plant). Given the natural gas nature of the fuel for the OptiDry Twin, back-up boilers and CHP, the only emission limit value (ELV) of relevance is oxides of nitrogen (NOx).

The Global Warming Impact Assessment has, therefore, included a calculation of the annual carbon dioxide equivalent tonnage (in place of model-generated carbon dioxide figures). The total carbon dioxide tonnage is converted to kilograms, then multiplied by the EA's global warming potential factor.

The results are summarised in Table A.1.

[5] https://www.gov.uk/guidance/assess-the-impact-of-air-emissions-on-global-warming

Table A.1: Direct Emissions Global Warming Potential

Type	Fuel Source	Thermal input (MWth)	Conversion Factor	Tonnes CO_2 equivalent	Kg CO_2 Equivalent	GWP Factor
CHP 60MW	Natural Gas	128	0.19	24.32	24320	24320
Backup Boiler	Natural Gas	136	0.19	25.84	25840	25840
Paper Machine, OptiDry Twin	Natural Gas	19.45	0.19	3.7	3695.5	3695.5
Effluent Treatment Plant	Bio Methane	-	-	0	0	0

The EA Guidance states that a GWIA should “treat any direct or indirect carbon dioxide emissions that come from renewable energy sources (e.g.; from waste or from ‘biomass’ - biodegraded waste) as having an impact of ‘0’ on global warming”.

The ETP gas engines will be fuelled by biomethane, generated by the anaerobic digestion treatment step in the ETP process itself. This is representative of a renewable source and therefore the global warming impact for this activity is zero.

A.1.2 Indirect Emissions

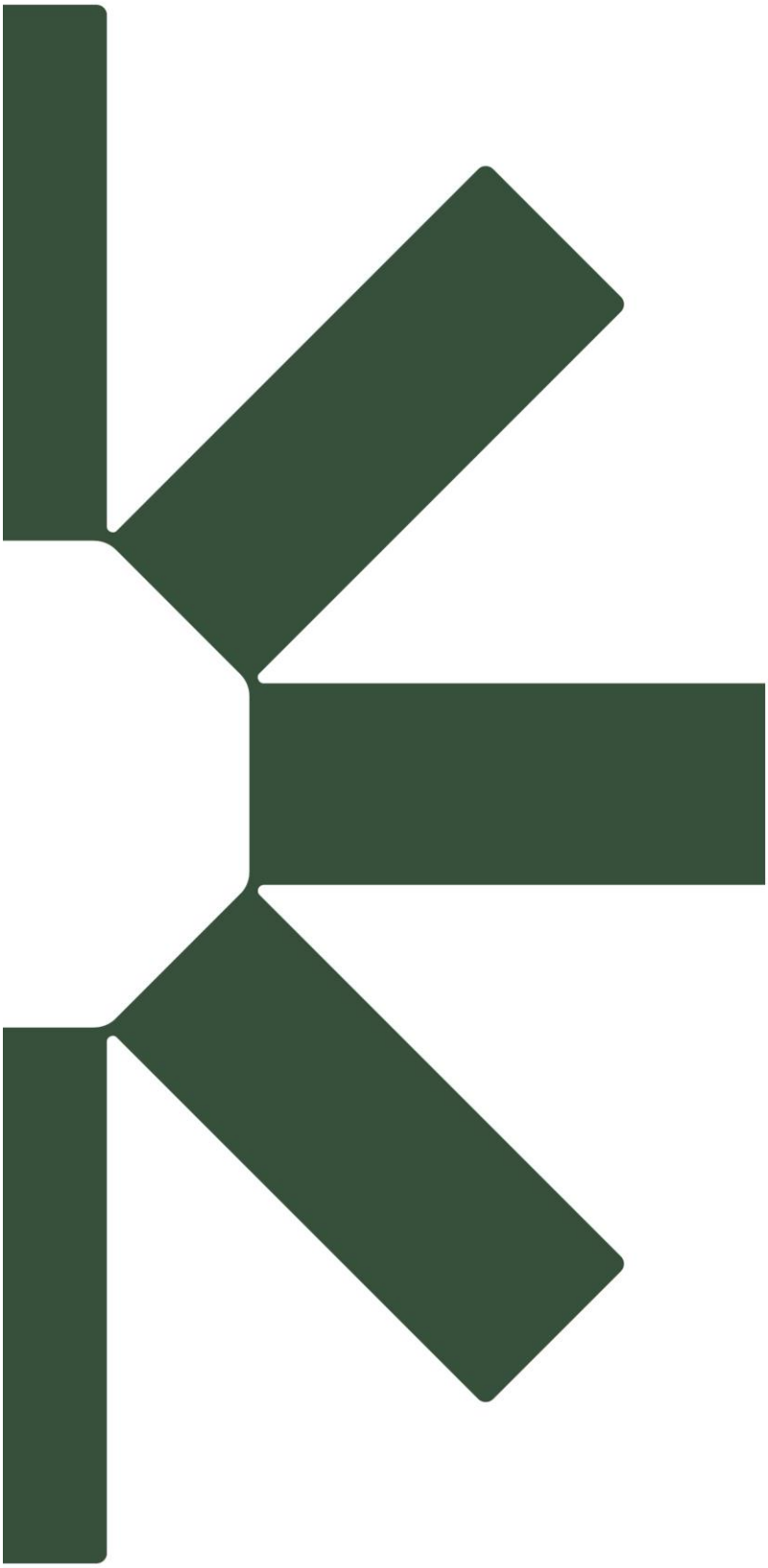
Indirect emissions are produced from the heat or power imported the site, such as electricity supplied by the National Grid.

The site has an existing Biomass Plant and a private supply from the Shotwick Solar Farm. These sources and the proposed CHP plant will provide all required electricity for the site. There will, therefore, be no imported electricity or natural gas to supplement the above activities identified as Direct Emissions during normal operations.

There will be no indirect emissions from the proposed activities during normal operations. Electricity would need to be imported from the National Grid in the event of on-site plant failures. As there is no existing information in relation to these potential plant failures, it is not possible to assess their potential impact on global warming.

A.1.3 Summary

The overall annual CO2e from all proposed processes at Shotton Mill is 53,856 Kg per MWh with a corresponding Global Warming Potential Factor of 53,856.



Making Sustainability Happen