



**BRIDGEND PAPER MILL  
VESTA**

**Application for a Variation to Environmental Permit  
Number EPR/EP3738NG**

**31 October 2025**

### Document History

Version	Status / Purpose	Author	Date
1		WEPA / PCU / bhm	31 October 2025

Thank you for the first draft, please see below comments:

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## NON-TECHNICAL SUMMARY

WEPA UK Ltd currently operates a paper mill and converting facility, a Combined Heat and Power Plant (CHP) and an effluent treatment plant (ETP) at Llangynwyd in the Llynfi Valley in South Wales approximately 5km south of Maesteg and 10km north of Bridgend. Situated in a semi-rural location, papermaking at the installation has been established since 1950. The existing Bridgend Paper Mill will continue to operate as per the conditions of the existing Environmental Permit. Therefore, discussion of the existing Installation has not been included in any significant detail in this application. This document provides the formal application on behalf of WEPA UK Limited for a substantial variation to the existing Environmental Permit for the Bridgend Paper Mill (hereafter referred to as the Paper Mill).

In 2025, WEPA UK have been granted planning permission for the construction of a tissue paper machine and associated development at their site in Bridgend. The new paper machine (called 'Vesta') will produce tissue paper only and it will have a theoretical maximum capacity of approximately 227 tonnes/day.

The new plant will replace the existing paper machine "Jupiter". Before commissioning the new "Vesta" machine, the old machine "Jupiter" will be shut down and dismantled. The Jupiter building will be re-used as Jumbo reel Storage.

The new machine will provide the following project benefits:

- the new machine is optimised to produce lower g/m<sup>2</sup> and high-quality toilet paper,
- it allows the use of higher content of recycled fiber,
- there is a possibility to further reduce water consumption achieving 100 % to a closed water loop in the future,
- reuse of waste heat energy,
- reducing the environmental footprint of tissue production by saving energy, water and CO<sub>2</sub>,
- overall higher efficiency due to reduction of paper waste and improvement of machinery performance, including reduction of waste at the converting lines.

The annual capacity of the entire paper mill is expected to be approximately 75,000 tonnes of paper product per annum.

A brief description of the proposed development follows:

Pulp is dissolved using water. Fibre in the pulp can be either fresh (virgin fibre) or derived from recycled paper (broke fibre). The virgin fibre usually derives from wood, although it can also originate from e.g. straw or sugar cane residue. The stock is then passed through basic cleaning systems prior to being mixed and fed to the paper machine. When the stock enters the machine, it comprises more than 99 per cent of water and less than one per cent of fibre. The mixed paper stock is fed to the papermaking machine which is designed to continuously produce a cohesive web of fibre, forming a wet sheet of paper tissue. Once the initial wet sheet is formed, the paper is passed through the drying section which is made up of a series of steam heated cylinders to dry the paper. The creped structure of the tissue paper is achieved when the paper web is scraped from the drying cylinder using a steel blade. At the end of the drying process the continuous paper sheet is wound onto a reel. When the reel is full, the sheet is spliced onto the next reel so that continuous paper production is achieved without stopping to change from one reel to the next.

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The existing installation includes a CHP power plant with a net thermal input of approximately 50 MW which supplies the entire steam demand of the papermaking operation and approximately 50% of the electrical power of the mill. The CHP plant is natural gas fired with the capacity for supplementary gas oil firing. The plant comprises of two gas turbines with a single 37m stack and a shell boiler with a 30m stack. The current CHP plant has the capacity to meet the additional energy demand of the new paper machine (approximately 5,800 kW / h, i.e. approx. 51 GWh / a).

CHP closure and boiler house replacement (installed in April 2025) has been formally submitted to Natural Resources Wales via a separate permit variation (ref: PAN-026789) which is still to be formally approved. It was submitted on 03/09/2024 ([Public register - Customer Portal](#)).

Noise emissions generated during operation and start-up have been assessed as part of this application. Noise levels recorded at representative local residences have been determined to be within appropriate guideline values.

The paper mill uses freshwater in the production process for stock preparation and process water. Based on a freshwater consumption of 4.5 m<sup>3</sup> per tonne of finished product, the new paper machine 'Vesta' will require approximately 292,500 m<sup>3</sup> of freshwater per year. Freshwater for papermaking is abstracted from the River Llynfi and the Nant Gwyn Stream.

The Mill operates a biological treatment plant utilising activated sludge. Water demand for the papermaking operations is supported by a recycling process at the ETP. All papermaking process wastewater is subject to treatment at the ETP before discharge in to the River Llynfi. The quality of the discharge is strictly controlled with limits for suspended solids, BOD, pH and temperature amongst others.

All water required for the proposed development will be included in the existing abstraction licence.

The current on-site effluent treatment plant has sufficient capacity to receive and treat the projected flows.

The surface water drainage system of the new facility will be connected to the existing drainage system of the site.

The sludge produced during the paper making process (as waste product) is collected, properly treated and reintroduced in the paper production process itself. The excess sludge that cannot be reintegrated is dried and used to make alternative agricultural products.

The mill operates a local Environmental Management System (EMS) which is fully integrated and certified to ISO14001:2015. With the proposed substantial change, the operator would review and update local procedures within the EMS.

The new paper machine utilises the best available techniques (BAT) for the sector.

## **SECTION 1**

### **INTRODUCTION**

# 1 Introduction

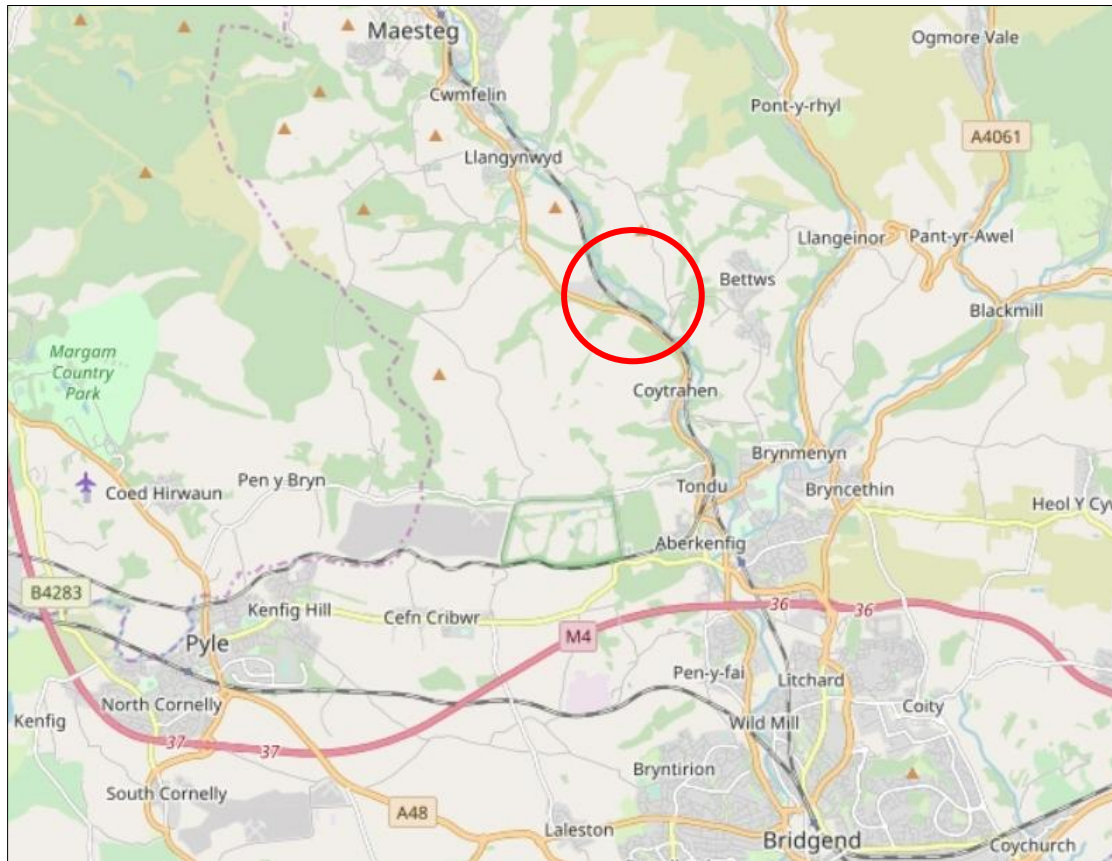
## 1.1 Application Overview

- 1.1.1 The WEPA Group is one of the leading private-label specialists in the consumer market. The company is a growing consumer business specialised in selling a broad range of paper products consisting of baking paper, stationery, art paper, sandwich and lining paper. The paper mill currently produces approximately 75,000 tonnes of paper with its existing tissue paper machines (called “Jupiter” and “Neptune”).
- 1.1.2 The “Jupiter” paper machine was installed in 1969. In 2019, a second paper machine called “Neptune” was granted planning permission. The development included a new pulp storage for bales (virgin fibre), a bale handling area, a new sludge press building, a paper machine building for a second production line (including the stock preparation). Construction was completed in 2022, although some of the development (i.e. the high bay warehouse) permitted under that planning permission has not been constructed.
- 1.1.3 WEPA will replace their CHP plant with a new boiler house, which will house two boilers and ancillary equipment (Planning application P/24/406/FUL).
- 1.1.4 WEPA UK have been granted planning permission to construct a new tissue paper machine, called Vesta. The new development will replace the existing paper machine “Jupiter” which was built in the 1970s. This machine has a high energy demand and water consumption that is not sustainable anymore. The produced paper does not add value to the final products currently required by the market. In order to enhance the production capacity, produce higher paper quality and reduce the power and water consumptions, WEPA is planning to replace the old Jupiter machine with a new machine, named Vesta.

### Site Location

- 1.1.5 The proposed development is located on the site of the existing Bridgend mill site approximately 5 km to the north of Bridgend town centre, in an area bound to the south and to the west by the A4063, to the east by the River Llynfi, and to the north by open farmland (Figure 1-1). The site is orientated along its long axis in an approximate west to east direction and it is accessed via the A 4063 (Bridgend Road) between Maesteg and Coytrahen, with traffic generally proceeding south towards the M 4. The Bridgend site covers a total area of around 25 hectares of which buildings and other hardstanding areas extend to approximately 17 ha (Appendix 1 and 2).

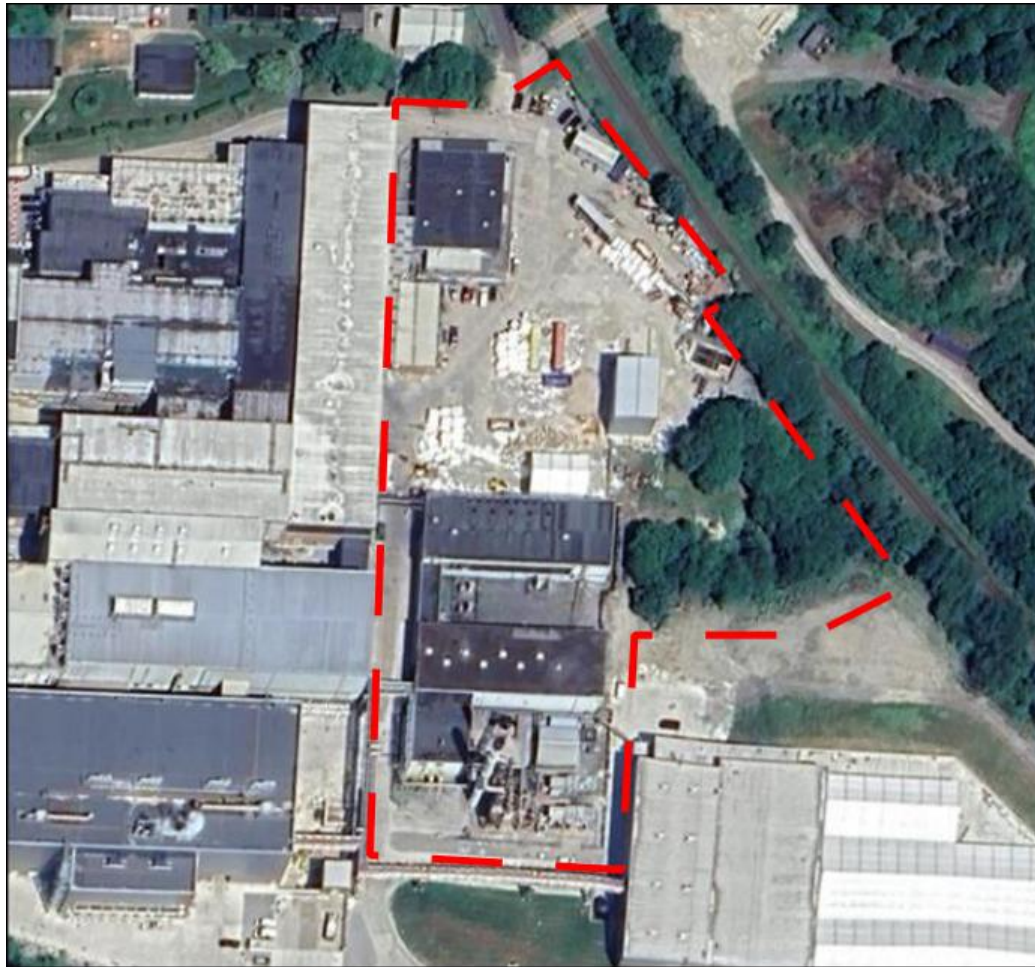
**Figure 1-1: Site Location**



Source: Open Street Maps

- 1.1.6 The new paper machine is centred on approximate National Grid Reference X: 288005, Y: 187080, as shown on Figure 2.1-1. The location of the proposed paper machine is within the existing WEPA UK site, situated adjacent the existing machine 'Jupiter'.

**Figure 1-2: Aerial image with application boundary**



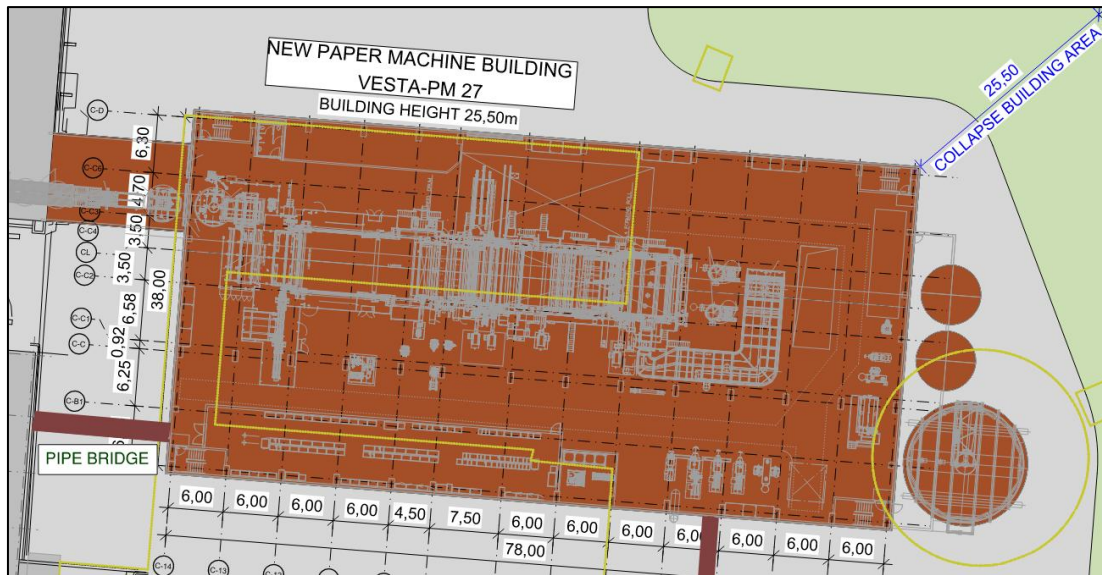
**Site Layout**

1.1.7 The proposed development will include the following buildings and areas.

Paper Machine “VESTA”

1.1.8 The paper machine building will be located to the north of the existing Department B building and to the east of the existing Jupiter building. The footprint of this building will be around 3,100 m<sup>2</sup>. The maximum daily capacity of the Vesta paper machine will be 227 tonnes/ day.

**Figure 1-3: Location of Paper Machine building**

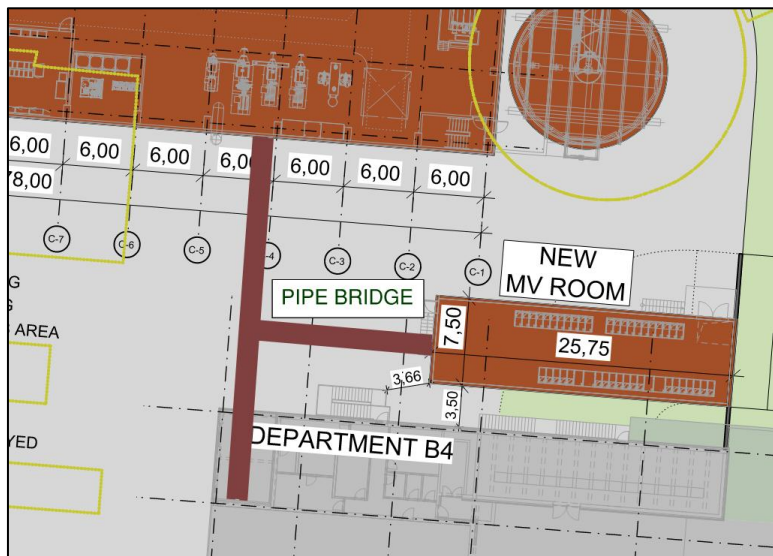


### Pipe Bridges

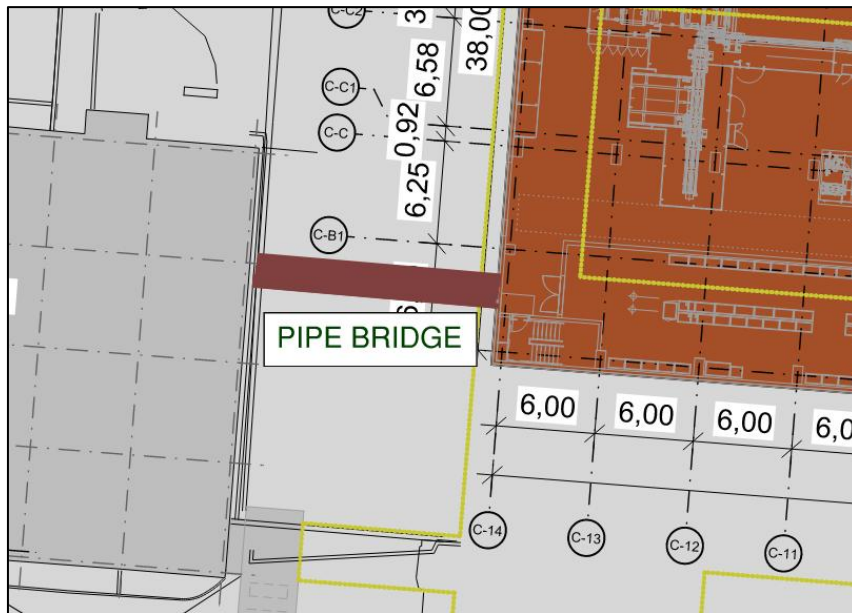
1.1.9

To keep the production process running, various media have to be supplied, shared or removed. The bridge is mainly occupied by pipelines. Steam pipes, water pipes, cable trays, etc. connect the existing bale handling section B to the new MV substation building and to the new Vesta paper machine building.

**Figure 1-4: Pipe bridge Dept. B – MV substation**



**Figure 1-5: Pipe bridge Vesta - Jupiter**



## Process description

- 1.1.10 Pulp is dissolved using water. Fibre in the pulp can be either fresh (virgin fibre) or derived from recycled paper (broke fibre). The virgin fibre usually derives from wood, although it can also originate from e.g. straw or sugar cane residue. The stock is then passed through basic cleaning systems prior to being mixed together and fed to the paper machine. When the stock enters the machine, it comprises more than 99 per cent of water and less than one per cent of fibre. The mixed paper stock is fed to the papermaking machine which is designed to continuously produce a cohesive web of fibre, forming a wet sheet of paper tissue. Once the initial wet sheet is formed, the paper is passed through the drying section which is made up of a series of steam heated cylinders to dry the paper. The creped structure of the tissue paper is achieved when the paper web is scraped from the drying cylinder using a steel blade. At the end of the drying process the continuous paper sheet is wound onto a reel. When the reel is full the sheet is spliced onto the next reel so that continuous paper production is achieved without stopping to change from one reel to the next.
- 1.1.11 More detailed process descriptions are included in Appendices 3 and 7.

## Energy

- 1.1.12 The existing installation includes a CHP power plant with a net thermal input of approximately 50 MW which supplies the entire steam demand of the papermaking operation and approximately 50% of the electrical power of the mill. The CHP plant is natural gas fired with the capacity for supplementary gas oil firing. The plant comprises of two gas turbines with a single 37m stack and a shell boiler with a 30m stack. The current CHP plant has the capacity to meet the additional energy demand of the new paper machine (approximately 5,800 kW / h, i.e. approx. 51 GWh / a).
- 1.1.13 CHP closure and boiler house replacement (installed in April 2025) has been formally submitted to Natural Resources Wales via a separate permit variation (ref: PAN-026789) which is still to be formally approved. It was submitted on 03/09/2024 ([Public register - Customer Portal](#)).

## **Water**

- 1.1.14 The paper mill uses freshwater in the production process for stock preparation and process water. Based on a freshwater consumption of 4.5 m<sup>3</sup> per tonne of finished product, the new paper machine development will require approximately 292,500 m<sup>3</sup> of freshwater per year. Freshwater for papermaking is abstracted from the River Llynfi and the Nant Gwyn Stream. The Mill operates a biological treatment plant utilising activated sludge. Water demand for the papermaking operations is supported by a recycling process at the ETP. All papermaking process wastewater is subject to treatment at the ETP before discharge into the River Llynfi.

## **Chemical Additives**

- 1.1.15 To improve the product properties and the production efficiency various chemical additives are applied in the process. Generally, chemical usage can be classified according to the following categories:
- Process Aids: facilitate the operation of the paper production process in order to improve production efficiency and throughput.
  - Product Aids: are applied to optimise the specific properties of the paper according to the product requirements.

## **Waste Arisings**

- 1.1.16 The principal waste arising from the operation of the plant include:
- Filters on air intakes will require changing periodically,
  - Lighting units replaced as required,
  - Waste from staff rooms etc.,
  - Oily sludge from cleaning of oil interceptors,
  - Waste oils and lubricants; oil residues arising from maintenance activities,
  - Packaging waste (timber, cardboard, plastic etc.).
  - Sludge form waste water treatment
- 1.1.17 Waste generated during annual outages varies according to the scope of the outage works, and consist mainly of oil residues and scrap metals. The quantities of waste generated are relatively low. Waste will be segregated and stored in labelled containers until disposal off-site by a qualified contractor.
- 1.1.18 The sludge produced during the paper making process (as waste product) is collected, properly treated and reintroduced in the paper production process itself. The excess sludge that cannot be reintegrated is dried and used to make alternative agricultural products.

## **Waste Water Treatment Plant (WWTP)**

- 1.1.19 The current effluent treatment system installed in 1991 has the capacity and capability to serve the new PM in addition to the current PM. A large part of the total amount of water needed for the tissue paper making process will be made available through intensive wastewater treatment, thus significantly reducing the total amount of fresh water taken from the River Llynfi. The treatment technology can be considered a suitable and well proven method. The plant uses the biological oxygen demand (BOD) process, which remains best available technology. For the biological process, the wastewater has to be conditioned, i.e.

additional nutrition like nitrogen and phosphor has to be added to the water coming from the production plant. Any excess water will be discharged to the River Llynfi via the existing effluent treatment plant (Appendix 19).

1.1.20 The plant design capabilities are as follows:

Average flowrate	-	18200m <sup>3</sup> /day
Maximum flowrate	-	27300m <sup>3</sup> /day
Peak hourly flowrate	-	1136m <sup>3</sup> /hr
Average BOD loading	-	1273Kg/day
Maximum BOD loading	-	3363Kg/day
Average Suspended Solids	-	546Kg/day

1.1.21 The overall discharge from Bridgend Paper Mill, including two paper machines, amounts to 3,954 m<sup>3</sup> / day (maximum flow rate). Compared to the permitted maximum flow rate of the 27,300 m<sup>3</sup>/day, the utilisation rate of the WWTP's capacity would be approximately 15 %.

1.1.22 Based on the overall water mass balance (Appendix 14) the following table summarises existing and new discharge volumes.

**Table 1-2: Overview waste water discharge volumes (expressed as m<sup>3</sup>/day)**

	CURRENT m <sup>3</sup> /d		FUTURE m <sup>3</sup> /d	
	IN	OUT	IN	OUT
Jupiter	3,172	2,518	0	0
Neptune	985	680	985	680
Vesta	0	0	985	680
Boiler house	125	0	125	0
Jupiter service pump	50	50	0	0
Sprinkler purge	13	13	13	13
Filter backwash	110	110	64	64
Circulator overflows	222	222	100	100
Losses	258	258	30	30
Townswater	198	142	110	110
<b>TOTAL</b>	<b>5,133</b>	<b>3,993</b>	<b>2,412</b>	<b>1,677</b>
Emission limits in existing permit *				17,500

\*at 25 °C

### Surface Water Drainage System

1.1.23 To prevent possible contamination and ensure the discharge of clean water, the drainage system is connected with the WWTP for some of the external areas where residue pulp might be present and collected within the rain water (Appendix 23).

1.1.24 The paper mill's Waste Water Treatment Plant has sufficient capability to treat any additional water required and waste water produced by the paper machine 'Vesta' (Appendix 19).

## **1.2 Planning Status**

- 1.2.1 Planning Permission for the new Vesta paper machine was granted on the 21 August 2025 (Planning Reference No.: P/25/172/FUL) (Appendix 29).

## **1.3 Purpose of this document**

- 1.3.1 The existing Bridgend Paper Mill will continue to operate as per the conditions of the existing Environmental Permit Number EPR/EP 3738NG. This application report is intended to provide details of the proposed substantial variation required to accommodate the second paper machine and associated facilities only. Therefore, discussion of the existing paper mill has not been included in any significant detail in this application.

- 1.3.2 In order to provide all the relevant information with which NRW can determine this application, this document provides the following:

a Application Forms:

Form A - About You

Form C2 - General – Varying a Bespoke Permit

Form C3 - Variation to a Bespoke Installation Permit; and

Form F1 - OPRA, Charges and Declarations

b Supporting Information; and

- c Proposed Improvement Plan including suggested improvement conditions that the Applicant considers should be included in the final Environmental Permit.

## **SECTION 2**

### **APPLICATION FORMS**

## 2 **Application Forms**

See separate files

## **SECTION 3**

### **INFORMATION IN SUPPORT OF PART C2**

## **3 Information in Support of Part C2**

### **3.1 About the Permit**

#### **Discussions before the application**

- 3.1.1 The Applicant has met with officers of NRW on several occasions as part of the pre-application consultation process for this application in order to discuss the proposals for the Project and consultation is on-going in relation to that application.

#### **Permit Number**

- 3.1.2 The existing Bridgend Paper Mill operates in accordance with the Environmental Permitting (England and Wales) Regulations 2010. The Environmental Permit reference number is EPR/EP 3738NG.

#### **Site details**

- 3.1.3 The proposed development site is located on the site of the existing Bridgend mill site approximately 5 km to the north of Bridgend town centre, in an area bound to the south and to the west by the A4063, to the east by the River Llynfi, and to the north by open farmland. The site is orientated along its long axis in an approximate west to east direction and it is accessed via the A 4063 (Bridgend Road) between Maesteg and Coytrahen, with traffic generally proceeding south towards the M 4.
- 3.1.4 The Bridgend site covers a total area of around 25 hectares of which buildings and other hardstanding areas extend to approximately 17 ha. The new paper machine is centred on approximate National Grid Reference (NGR): X: 287780, Y:187160. The location of the proposed paper machine is within the existing WEPA UK site, situated adjacent the existing machine 'Jupiter'.
- 3.1.5 Appendices 1 and 2, and Figure 3-1 illustrate that the WEPA mill site is bordered to the south and west by the A4063. The River Llynfi runs to the east of the site. To the north of the site, there are open fields and farmland. In the immediate surrounding of the site, sheep farming is the predominant land use. Woodland cover in the area is generally sparse, mainly confined to lining roads, around villages and along the River Llynfi.

**Figure 3-1: Development site and surrounding**



## 3.2 About your proposed changes

### Type of variation

- 3.2.1 The variation to the existing Environmental Permit should be classed as a substantial change as the new paper machine 'Vesta' is described as an industrial plant for the production of paper and board with a production capacity exceeding 200 tonnes per day.

### Non-technical summary of the application explaining the changes or additions to existing activities

- 3.2.2 WEPA UK intend to operate a new tissue paper machine and associated development at their site in Bridgend. The new paper machine (called 'vesta') will produce tissue paper only and it will have an average daily output of approximately 227 tonnes/day. The annual capacity of the installation is currently approximately 65,000 tonnes of paper product per annum.
- 3.2.3 The paper mill uses freshwater in the production process for stock preparation and process water. Based on a freshwater consumption of 4.5m<sup>3</sup> per tonne, the new paper machine development will require approximately 292,500 m<sup>3</sup> of freshwater per year. The operation of the new paper machine will not result in an increase of the demand for water or a change in the effluent produced. Any abstraction of fresh water and discharge of waste water will be accommodated within existing permit allowances (Appendix 18). The current on-site effluent treatment plant has sufficient capacity to receive and treat all projected flows.

3.2.4 The surface water drainage system of the new development will be connected to the existing drainage system of the site. The installation will operate in accordance with the approved Sustainable Drainage System (SuDS) (Appendix 23) as issued by Bridgend County Council (Application No: D-2025-05-SAB, dated 03 September 2025).

### **3.3 Your Ability as an Operator**

3.3.1 WEPA UK has considerable experience of tissue paper machines as they operate various similar plants in the UK and all over Europe.

3.3.2 A dedicated project management team of experienced WEPA UK employees will oversee the construction of the new plant to ensure that all works are being carried out in a safe, efficient and proper manner. The project team will ensure that all works take place in accordance with the requirements of any consent or permit granted to WEPA UK for the development.

#### **Management System**

3.3.3 WEPA are committed to preventing pollution and operating to high standards of environmental management. For the paper mill in Bridgend, WEPA have implemented an Environmental Management System which is fully integrated and certified to BS EN ISO14001:2015, and a Quality Management System which is certified to BS EN ISO 9001:2015.

3.3.4 Management techniques are one of the available techniques for emission prevention and control and are therefore part of the determination of Best Available Techniques (BAT) for the installation. The new paper machine will employ state of the art technology and conform to BAT for environmental management, pollution control, and abatement. Further, WEPA have extensive experience and track record in managing their plants in compliance with applicable European and national regulations.

3.3.5 The importance of sound organisational arrangements, effective operations and maintenance procedures, and trained and competent staff is recognised by the Applicant. In particular, the following is addressed under the environmental management system (EMS):

- Management responsibility for environmental performance,
- Minimizing materials, energy and water consumption to the extent feasible,
- Reduction of waste, promotion of reuse and recycling, and assurance that all residual waste is minimized and disposed of appropriately,
- Anticipation and minimization of environmental risks in possible abnormal situations,
- Promotion of information exchange and provision of training to individuals on environmental issues,
- Development of good communication of environmental information to interested parties with regard to environmental performance and planned actions,
- Auditing of operations and activities and monitoring of environmental performance to demonstrate compliance with this policy.

3.3.6 WEPA operates a program of continual improvement of environmental impact issues. When considering the development of the new paper machine at the site, the key environmental performance parameters considered were:

- Meeting emission targets to air,
- Eliminating spills and loss of containment incidents,
- Controlling raw material input to ensure optimum operation of the plant,
- Re-use of process water providing a minimal amount of water to be discharged to the existing Effluent Treatment Plant,
- Preventing fugitive odours escaping into the external environment

3.3.7 The project would trigger changes to internal procedures linked to the environmental permit. With this proposed substantial change, the operator will review local procedures within the EMS and update them as part of the Improvement Plan (Section 6).

### **Operation and Maintenance**

3.3.8 The new paper machine will be operated 7days / week and 24hrs/day on a 3-shift system.

3.3.9 Effective operational and maintenance systems will be employed on all aspects of the proposed installation whose failure could impact on the environment, in particular there will be:

- documented operational control procedures
- a documented preventative maintenance schedule, covering all plant whose failure could lead to impact on the environment, including major 'non productive' items such as pipework, ducts and filters; this should be reviewed and updated regularly
- documented procedures for monitoring emissions
- a clear internal reporting, recording and decision making mechanism identifying personnel, their roles and their responsibilities for the controls included within the permit conditions

3.3.10 A list of key process equipment and abatement equipment will be provided. Such equipment will be provided with alarms or other warning systems which indicate equipment malfunction or breakdown. Such warning systems will be maintained and checked to ensure continued correct operation, in accordance with the manufacturer's recommendations.

3.3.11 Essential spares and consumables will be held on site or be available at short notice from suppliers, so that plant breakdown can be rectified rapidly.

3.3.12 WEPA have a formal computerised maintenance and management system called CMMS which includes maintenance planning, programmed preventative maintenance, breakdown history and recording of all maintenance done.

3.3.13 A preventative maintenance program will be in place to take account of feed back in trends of performance and emission releases in the equipment performance.

### **Incidents and Complaints**

- 3.3.14 WEPA has an established procedure for communication and reporting of health and safety incidents. For the proposed installation, the same system, which will include all operations of the plant, reporting environmental incidents in addition to health and safety incidents will be adopted. Health and safety 'near misses' and environmental incidents are also recorded via a hazard identification reporting system and a non-conformance reporting system. All incidents are discussed at the daily management meeting, and actions are raised to close out any near misses or incidents.
- 3.3.15 A competent person has been appointed to liaise with the regulator and the public with regard to complaints. Complaints of the public are documented and responded to by a designated person able to take appropriate action to control the problem at the time, in cases where this is appropriate.
- 3.3.16 The Operator will record and investigate complaints concerning the Installation's effects or alleged effects on the environment. The record will give the date and nature of complaint, time of complaint, name of complainant (if given), a summary of any investigation and the results of such investigation and any actions taken.

### **Training and Competence**

- 3.3.17 The new paper machine will employ an approximate 10 people per shift. They will be supervised by staff who are suitably trained and fully conversant with the requirements of the paper machine's operation.
- 3.3.18 As part of the Integrated Management System (ISO 9001 and ISO 14001) a comprehensive staff training program is in place for all company employees. The programme covers new starter induction and refresher training and will be managed by a training manager. Topics covered include operating procedures, health and safety, and environmental awareness.
- 3.3.19 Operating staff that will be running the plant will undergo in depth training. Training will reflect all applicable work instructions and environmental procedures to all staff whose roles have a direct impact on the environmental performance of the site.
- 3.3.20 The staff training program covers potential impacts from operating the plant, emissions monitoring and reporting procedures, spill prevention and clean up procedures, and the site emergency plan.
- 3.3.21 Training will also include supervised training provided by WEPA at plants in Germany, and by on-site training during commissioning.
- 3.3.22 The operator will maintain a record of the skills and training requirements for all staff whose tasks in relation to the proposed installation may have an impact on the environment and shall keep records of all relevant training.
- 3.3.23 Further specific training will be given to nominated key post holders to reflect legislative changes and any particular EPR requirements.

### **Responsibilities and Procedures**

- 3.3.24 The paper mill in Bridgend is headed by a Managing Director of Production who assumes the responsibility for all site management including environmental protection.

- 3.3.25 As part of the Integrated Management System (ISO 9001 and ISO 14001) WEPA UK has implemented a system of authorized representatives. The plant's management structure is shown in Appendix 10.
- 3.3.26 The Authorized Representative for the EMS, a senior production, water, and effluent treatment manager, reports on environmental issues on a regular basis.
- 3.3.27 The mechanical and electrical engineering departments will include the maintenance function and development of the new facility. Operational responsibility rests with the Managing Director of Production to comply with the legal requirements for company procedures, and for all environmental performance requirements and specific requirements of the Environmental Permit.
- 3.3.28 All staff is responsible for maintaining task control and recording systems in order to fulfil their allocated environmental tasks. It is also their responsibility to work in accordance with procedures aimed at environmental compliance.

### **Environmental Improvement Programme**

- 3.3.29 The monitoring of the overall environmental performance against the ISO 14001 management system is done through structured internal and external audits and an annual management review.

### **Monitoring and Measuring Performance**

- 3.3.30 Environmental performance is reviewed as part of the annual management review. An accredited auditor audits the ISO 14001 management system on an annual basis, and measures the operator's performance against criteria laid down within the ISO 14001 management system.
- 3.3.31 Monitoring of emissions from the installation is carried out, recorded and reported in accordance with current regulations.

### **Auditing**

- 3.3.32 The implementation of a programme of internal and external audits ensures auditing of all the elements of the ISO 14001 management system is carried out over a three year period. Independent external surveillance audits are carried out annually by an accredited and certificated body who are accredited to review and appraise ISO 14001 certified systems in the UK. Audits will also be carried out on the management systems of contractors and service providers, by agreement and with their co-operation. Where corrective action is identified as being required, through audit (or otherwise), which involves changes to the EMS or modifications to the plant and equipment of the new plant, the implementation of such changes will be managed via the EMS Management Programme.

### **Reporting**

- 3.3.33 The WEPA UK site reports annually on its environmental progress and accomplishments, taking into account local and national reporting standards and best practices. Operational and performance reviews are undertaken through daily, monthly and annually meetings.
- 3.3.34 Incidents involving a breach of permit requirements are communicated to the Managing Director and other key members of the management team. External complaints are investigated and a record of communication is held in an Environmental Communications file.

### **3.4 Supporting Information**

#### **A Site Plans**

3.4.1 The relevant local authority is the Bridgend County Borough Council. The address of the new development is:

WEPA UK Ltd.

Bridgend Paper Mills

Llangynwyd Bridgend

Mid Glamorgan CF34 9RS

3.4.2 The location of the site is shown on Figure 1-1 and Appendix 1. The Application Site is centred at the approximate National Grid Reference (NGR): X: 288005, Y: 187080. Appendices 2 and 9 identify all of the land on which the activities of the installation take place.

#### **B Extra land**

3.4.3 This application for a variation to the existing Environmental Permit will not require additional land to be included within the Permit as it would be located within the curtilage of the existing permit boundary (Appendices 8 and 9).

#### **C Site Condition Report**

3.4.4 A Site Condition Report (SCR) had previously been submitted for the Bridgend Paper Mill site. The SCR from 2016 covered the area required to construct all new buildings and plant of the new development. Investigations / samples and ground investigations have been taken on the proposed location of the new development concerning groundwater and soil analysis. The results and reports are included as Appendix 24.

### **3.5 Environmental Risk Assessment / Environmental Statement**

3.5.1 The proposed development has been subject to a comprehensive Environmental Impact Assessment (Appendix 27) which included a qualitative Air Quality Assessment (dust during construction phase only) (Appendix 21) as well as a full Noise Assessment (Appendix 22).

3.5.2 Table 3-2 to 3-4 give a qualitative assessment of the risks from the site using a simple classification of high, medium, low or negligible risk; it identifies the sources of, pathways for and receptors to risk. The risk management and control measures, that will be in operation at the site, are described. Where further quantitative data are available to support the assessment of risk a brief description of this is included. This Environmental Risk Assessment has considered the various amenity and accident risks that are presented by the operation of the proposed development. The assessment has identified the management and mitigation measures that will be implemented to ensure that the site does not represent a significant risk to the surrounding environment and human health.

#### **Conclusion**

3.5.3 Overall, the results of the risk assessment show that the proposed management and control measures, which will be used at the Bridgend Paper Mill, will give adequate protection. The site is low risk and will not cause a significant impact on the nearby environment or local residents.

**Table 3-1: Noise Risk Assessment and Management Plan**

<b>Hazard</b> <i>What has the potential to cause harm?</i>	<b>Receptor</b> <i>What is at risk?</i>	<b>Pathway</b> <i>How can the hazard get to the receptor?</i>	<b>Risk management</b> <i>What measures will be taken to reduce the risk? If it occurs – who is responsible for what?</i>	<b>Probability of exposure</b> <i>How likely is this contact?</i>	<b>Consequence</b> <i>What is the harm that can be caused?</i>	<b>Overall risk</b> <i>What is the risk that still remains?</i>
General operation of the plant	Adjacent commercial developments	Air	<ul style="list-style-type: none"> <li>• Use of inherently quiet plant equipment, silencers, sound insulation of buildings and technical equipment, and sound attenuation.</li> <li>• Operational arrangements at night-time to avoid excessive noise emissions</li> <li>• All plant items shall be controlled to minimize noise of an impulsive or tonal nature.</li> <li>• Monitoring of noise after completion of construction phase and improvement programme to minimize plant noise where possible.</li> <li>• Distance attenuation.</li> <li>• Plant and equipment will be maintained to minimize emissions of noise.</li> <li>• In the event of a complaint, the Operator will follow a complaints procedure to record and act on the complaint, and to inform the NRW.</li> </ul>	Low - The new plant will operate continuously and thus generate noise continuously	The results of the Noise Assessment (Appendix 23) show that calculated specific sound levels at the nearest residential receptors will be between 19 and 28 dB. Daytime noise rating levels at all receptors are predicted to be at least 13dB below the background level. This is significantly less than the WHO guideline of 70 dB for neighbouring industrial and commercial areas	Negligible

<b>Hazard</b> <i>What has the potential to cause harm?</i>	<b>Receptor</b> <i>What is at risk?</i>	<b>Pathway</b> <i>How can the hazard get to the receptor?</i>	<b>Risk management</b> <i>What measures will be taken to reduce the risk? If it occurs – who is responsible for what?</i>	<b>Probability of exposure</b> <i>How likely is this contact?</i>	<b>Consequence</b> <i>What is the harm that can be caused?</i>	<b>Overall risk</b> <i>What is the risk that still remains?</i>
	Noise Sensitive Locations identified in Appendix 23	Air	<ul style="list-style-type: none"> <li>• Use of inherently quiet plant equipment, silencers, sound insulation of buildings and technical equipment, and sound attenuation.</li> <li>• Operational arrangements at night-time to avoid excessive noise emissions</li> <li>• All plant items shall be controlled to minimize noise of an impulsive or tonal nature.</li> <li>• Monitoring of noise after completion of construction phase and improvement programme to minimise plant noise where possible.</li> <li>• Distance attenuation.</li> <li>• Plant and equipment will be maintained to minimise emissions of noise.</li> <li>• In the event of a complaint, the Operator will follow a complaints procedure to record and act on the complaint, and to inform NRW.</li> </ul>	Medium - The new plant will operate continuously and thus generate noise continuously	The noise rating level at the closest receptor location is predicted to be 13 dB below the background level during the night-time.	Negligible

**Table 3-2: Vibration Risk Assessment and Management Plan**

<b>Hazard</b> <i>What has the potential to cause harm?</i>	<b>Receptor</b> <i>What is at risk?</i>	<b>Pathway</b> <i>How can the hazard get to the receptor?</i>	<b>Risk management</b> <i>What measures will be taken to reduce the risk? If it occurs – who is responsible for what?</i>	<b>Probability of exposure</b> <i>How likely is this contact?</i>	<b>Consequence</b> <i>What is the harm that can be caused?</i>	<b>Overall risk</b> <i>What is the risk that still remains?</i>
General operation of the plant	Adjacent developments	Land	<ul style="list-style-type: none"> <li>Any plant vibration issues will be resolved during the plant commissioning period and will be controlled under the plant preventative maintenance schedules.</li> <li>In the event of a complaint, the Operator will follow a complaints procedure to record and act on the complaint, and to inform the NRW.</li> </ul>	Low	Vibrations from the paper machine would result in vibration levels which are well below the human perception threshold. The effects are considered not significant (Chapter 7 of Environmental Statement).	Negligible

**Table 3-3: Accidents Risk Assessment and Management Plan**

<b>Hazard</b> <i>What has the potential to cause harm?</i>	<b>Receptor</b> <i>What is at risk?</i>	<b>Pathway</b> <i>How can the hazard get to the receptor?</i>	<b>Risk management</b> <i>What measures will be taken to reduce the risk? If it occurs – who is responsible for what?</i>	<b>Probability of exposure</b> <i>How likely is this contact?</i>	<b>Consequence</b> <i>What is the harm that can be caused?</i>	<b>Overall risk</b> <i>What is the risk that still remains?</i>
Operator error	Air/ land / water	Various – dependant on nature of error	<ul style="list-style-type: none"> <li>The plant will be automatically controlled under normal operation, thereby minimising the potential for operator error.</li> <li>The automatic control system will include alarms to alert the operator of potential operational problems and where relevant will be triggered with sufficient safety margin to permit operator intervention to prevent an actual problem occurring.</li> <li>All operational staff will be fully trained against the site operating procedures.</li> <li>Preventative measures will be under continuous review as part of the site EMS.</li> <li>In the event of a major operator error, the plant will shut down automatically</li> </ul>	Low	Variable depending upon nature of incident	Not significant provided operating procedures are followed.
Fire	Local water course	Air, Surface water drainage system	<ul style="list-style-type: none"> <li>Responsibilities to be assigned during the development of the plant EMS. Full training provided to all staff regarding the procedures/ responsibilities documented in the plant EMS.</li> <li>A comprehensive fire detection and suppression systems will be installed (e.g. hydrants external to buildings, portable fire extinguishers),</li> <li>Emergency management plan</li> <li>Fire resistant oils will be supplied wherever possible.</li> </ul>	Low - Fire prevention measures will ensure such events will be rare.	Potential explosion hazard. Release of emissions to air resulting from oxygen starved combustion of natural gas.	Not significant providing all documented procedures are adhered to and fire-fighting equipment is adequately maintained.

<b>Hazard</b> <i>What has the potential to cause harm?</i>	<b>Receptor</b> <i>What is at risk?</i>	<b>Pathway</b> <i>How can the hazard get to the receptor?</i>	<b>Risk management</b> <i>What measures will be taken to reduce the risk? If it occurs – who is responsible for what?</i>	<b>Probability of exposure</b> <i>How likely is this contact?</i>	<b>Consequence</b> <i>What is the harm that can be caused?</i>	<b>Overall risk</b> <i>What is the risk that still remains?</i>
Failure to contain fire-water	Local water course	Surface water drainage system	<ul style="list-style-type: none"> <li>Measures are in place to protect against a fire. Fire response systems should ensure a rapid response thereby addressing the fire at the earliest point to avoid fire spread and therefore minimising the potential volumes of fire-waters.</li> <li>The Effluent Treatment Plant will be used to retain firewater.</li> </ul>	Low – Sufficient retention volume to contain fire-water	Moderate (although firewater would not be discharged to surface water).	Low – - provided fire fighting procedures are adhered to.
Flooding	Local water course	Water	<ul style="list-style-type: none"> <li>The majority of the site is located in Flood Zone A, and partially within Flood Zone B.</li> <li>All systems are designed for the 1 in 100 year + 40% climate change event.</li> </ul>	Low – The site is considered to be at low to no risk.	Potential contamination of flood waters.	Not significant - provided flood procedures of flood warning alerts are followed

## **SECTION 4**

### **INFORMATION IN SUPPORT OF PART C3**

## 4 Information in Support of Part C3

### 4.1 Type of Activities

4.1.1 This application is for a substantial variation of the existing Environmental Permit for Bridgend Paper Mill and is submitted, on behalf of WEPA UK. The variation will require the addition of an activity listed in Schedule 1, Part 2 of the Environmental Permitting (England and Wales) Regulations 2016.

4.1.2 The application includes for:

Category: S6.1 A(1)(b): Producing, in industrial plant, paper and board where the plant has a production capacity of more than 20 tonnes per day.

Purpose: Production of a range of hygienic paper tissue products from virgin wood-pulp and recycled paper from a single paper machine

Capacity: The new tissue paper machine has an annual capacity of 65,000 tonnes of tissue paper

### 4.2 Emissions to Air, Water and Land

#### Point source emissions to air

4.2.1 The existing installation includes a CHP power plant with a net thermal input of approximately 50 MW which supplies the entire steam demand of the papermaking operation and approximately 50% of the electrical power of the mill. The CHP plant is natural gas fired with the capacity for supplementary gas oil firing. The current CHP plant has the capacity to meet the additional energy demand of the new paper machine (approximately 5,800 kW / h, i.e. approx. 51 GWh / a). Therefore, any associated change in air emissions will be accommodated within existing permit allowances.

4.2.2 CHP closure and boiler house replacement (installed in April 2025) has been formally submitted to Natural Resources Wales via a separate permit variation (ref: PAN-026789) which is still to be formally approved. It was submitted on 03/09/2024.

4.2.3 The existing Environmental Permit sets emission limits and monitoring requirements for major release points only.

**Table 4-1: Summary of existing release points**

Emis-sion point	Description	Category
<b>Existing release points Bridgend Paper Mill</b>		
A 1	CHP plant – Gas turbine stack	To be removed from permit
A 2	CHP plant - Shell boiler sack	To be removed from permit
A 3	Not used within permit	
A 4	Jupiter Machine Hood Exhaust Vent	Major releases to air

A 5	Jupiter PVOH application drum vent	Minor releases to air
A 6	CHP plant - High pressure natural gas vent (South)	Minor releases to air
A 7	CHP plant - High pressure natural gas vent (North)	Minor releases to air
A 8	HVAC (LUWA) dust extraction system including wet scrubber serving Converting Halls 1 and 3, Lines 15, 18 & 19	Minor releases to air
A 9	Scrubber dust extraction system serving Converting Hall 2, Line 16	Minor releases to air
A 10	Dust extraction system including briquette machine serving Converting Hall 2, Line 17	Minor releases to air
A11	Neptune Machine (Yankee) Hood Exhaust Vent	Minor releases to air
A 12	Wet Dust Exhaust of Paper Machine	Minor releases to air
A 13	WEE (MIST REM) roof exhaust direction south	Minor releases to air
A 14	Gas boiler stack	Major releases to air
A 15	Gas boiler stack	Major releases to air
W 1	Effluent Treatment Plant discharge to River Llynfi	Major release to water

4.2.4 Proposed site layouts of the Vesta paper machine with new air release points indicated are included as Appendix 21. The locations of new key release points within the site plan are summarised in the following table.

**Table 4-2: Summary of new release points (air)**

Table – Emissions (releases)				
Installation / Activity name	'Vesta' Paper machine			
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity unit	Unit
A 16 (height 27.4 m), No. 1 on Appendix 20	WEE (MIST REM) roof exhaust direction south			
A 17 (height 30.4 m), No. 2 on Appendix 20	Vesta Machine (Yankee) Hood Exhaust Vent	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	40	mg / Nm <sup>3</sup>
A 18 (height 27.4 m), No. 3 on Appendix 20	Wet Dust Exhaust of Paper Machine			

4.2.5 The proposed facility will give rise to emissions to air, primarily nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and carbon dioxide (CO<sub>2</sub>) as a result of the combustion process. NO<sub>x</sub> are formed in almost all combustion processes where air is the oxidiser. CO emissions are minimised by efficient and complete combustion; at the same time this optimises the efficiency of the system, as the fuel is being exploited as efficiently as possible.

4.2.6 The new boiler house, which is still to be formally permitted, reduces the amount of CO<sub>2</sub> emissions by approximately 25,000 t CO<sub>2</sub>/year. Compared to the existing Jupiter machine, the new Vesta machine will reduce the amount of scope 1 CO<sub>2</sub> emissions by 9,489 t CO<sub>2</sub>/year.

- 4.2.7 Emissions from other point sources such as:
- methane and other non-methane hydrocarbons emissions from safety vents on the natural gas system
  - emissions of steam from steam vents
  - emissions of dust from dust vents

will be insignificant

- 4.2.8 During commissioning emissions of NO<sub>x</sub> are expected to be above the limit of 40 mg/Nm<sup>3</sup> for a limited period of time of approximately 3-4 weeks. The activities during this period will include e.g. 'first paper' and full-speed-reduced-load operation. It is expected that during the majority of the commissioning phase, there will be no sustained periods of operation at full speeds. Even though the concentration of emissions may exceed the emission limits during the commissioning phase, there is no overall increase in emission mass flow rates since the flue gas mass flow is much lower than during full speed operation.

- 4.2.9 There would be no significant emissions from the proposed project (Appendix 21).

#### *Air quality assessment*

- 4.2.10 The assessment has considered the significance of potential effects on the local air quality and amenity as a result of the proposed development of the Application Site. The proposed development incorporates the replacement of an existing paper machine by a new more energy efficient paper machine.
- 4.2.11 Operational phase emissions have been screened out as the operation of the new paper machine is not associated with additional road traffic. Moreover, the new paper machine will consume less energy resulting in a reduction of air emissions from power generation.
- 4.2.12 A qualitative assessment of the potential dust impacts during the construction phase of the development has been undertaken. Through good practice and implementation of appropriate mitigation measures, it is expected that the release of dust would be effectively controlled and mitigated, with resulting impacts considered to be 'not significant'. All dust impacts are considered to be temporary and short-term in nature.
- 4.2.13 Due to the low additional number of HDV trips anticipated during the construction phase of the development, these are predicted to result in an 'insignificant' effect on air quality from road vehicle emissions. Furthermore, emissions from plant / NRMM on-site is predicted to result in a 'not significant' impact on air quality.
- 4.2.14 As such, it is not considered that air quality represents a material constraint to the development proposals, which conform to the principles of Planning Policy Wales, and the Bridgend County Borough Council Local Plan.

#### **Point source emissions to water**

##### Effluent Treatment Plant (ETF)

- 4.2.15 The paper mill uses freshwater in the production process for stock preparation and process water. Based on a freshwater consumption of 4.5 m<sup>3</sup> per tonne, the new paper machine development will require approximately 292,500 m<sup>3</sup> of freshwater per year.

Freshwater for papermaking is abstracted from the River Llynfi and the Nant Gwyn Stream. The Mill operates a biological treatment plant utilising activated sludge. Water demand for the papermaking operations is supported by a recycling process at the ETP. All papermaking process wastewater is subject to treatment at the ETP before discharge into the River Llynfi. The existing Environmental Permit strictly controls the discharge with limits for suspended solids, BOD, pH and temperature amongst others.

- 4.2.16 No additional water would be abstracted as the new paper machine consumes considerably less water than the existing 'Jupiter' machine.
- 4.2.17 The operation of the new paper machine will not result in an increase in the demand for water or a change in the effluent produced. Any abstraction of fresh water and discharge of waste water will be accommodated within existing permit allowances. The current on-site effluent treatment plant has sufficient capacity to receive and treat the projected flows.
- 4.2.18 The overall discharge from Bridgend Paper Mill, including the new Vesta machine, will amount to 1,677 m<sup>3</sup> / day (maximum flow rate). Compared to the permitted maximum flow rate of the 27,300 m<sup>3</sup>/day, the utilisation rate of the WWTP's capacity would be approximately 6 %. Based on the overall water mass balance (Appendix 14) the following table summarises existing and new discharge volumes.

**Table 4-3: Overview of current and future wastewater discharge volumes (expressed as m<sup>3</sup>/day)**

	CURRENT m <sup>3</sup> /d	FUTURE m <sup>3</sup> /d
Jupiter	2,518	0
Neptune	680	680
Vesta	0	680
Boiler house	0	0
Jupiter service pump	50	0
Sprinkler purge	13	13
Filter backwash	110	64
Circulator overflows	222	100
Losses	258	30
Townswater	142	110
<b>TOTAL</b>	<b>3,993</b>	<b>1,677</b>

\*at 25 °C

### Surface Water Site Drainage

- 4.2.19 The surface water drainage system of the new development will be connected to the existing drainage system of the site. The majority of the surface water drainage will be uncontaminated and typical of surface water run-off from areas of hardstanding, roofs and roads. The design of the drainage system incorporates oil interceptors and traps. Contaminated water will discharge with the other surface water run-off to the Effluent Treatment Plant where it will be treated before discharged. Adequate facilities for the inspection and maintenance of oil interceptors will be provided and the interceptors will be regularly emptied and de-sludged to ensure efficient operation. The sludge will be disposed of, off-site, by a licensed contractor. All elements of the treatment systems will be regularly monitored to ensure optimum performance and maintenance.
- 4.2.20 The proposed development complies with the Statutory Standards for Sustainable Drainage Systems produced by Welsh Government and the CIRIA SuDS Manual (C753). A detailed description of the Drainage Concept is presented in Appendix 23.
- 4.2.21 The installation will operate in accordance with the approved Sustainable Drainage System (SuDS) (Appendix 23) as issued by Bridgend County Council (Application No: D-2025-05-SAB, dated 03 September 2025).

### Discharge to Groundwater

- 4.2.22 There are no proposed point source releases to groundwater associated with the proposed operation of the installation.

### **Point Source Emissions to Land**

- 4.2.23 Deposition to land of pollutants as a result of air emissions do not occur.
- 4.2.24 As per the existing Bridgend Paper Mill, the new installation will generate no emissions to land.

## **4.3 Operating Techniques**

- 4.3.1 The main activity of the new development is the production of a range of hygienic paper tissue products from virgin wood-pulp and recycled paper from a single paper machine.

### **Technical Standards**

- 4.3.2 The new plant will be designed and operated in accordance with the relevant sections of the documents:
- a How to comply with your environmental permit (NRW 2016)
  - b Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board (EU 2015)

## 4.4 General Requirements

### Control of Fugitive Emissions to Air

- 4.4.1 The only potential source of fugitive emissions on the site is potential release of unburned natural gas. The risk of fugitive emissions to air is minimised by scheduled maintenance of natural gas containment and by using fuel gas leak detection systems and alarms. Other potential fugitive emissions to air comprise releases of carbon dioxide from the deluge fire fighting system. This will be restricted to emergency fire-fighting events and routine testing or maintenance.

### Control of Fugitive Emissions to Water

- 4.4.2 Surface water quality may potentially be affected by the discharge of contaminated water from the site drainage system during operation. Contamination may arise from vehicle usage and parking, where leaks of oils and petrol occur and can enter the drainage system.
- 4.4.3 Accidental spillages during loading or unloading operations can also occur and the spilled substances enter the drainage system. Spill kits will be maintained to seal drains and to confine spills should they occur. The maintenance and testing of these kits will be part of the ISO14001 Environmental Management System to be developed.
- 4.4.4 Bunded enclosures will be provided around equipment that contains oil and (process) chemicals, and they will have a capacity to hold minimum of 110% of the oil volumes, plus an allowance if applicable for the volume of fluid from any associated fire protection system. These areas will be clearly marked and maximum storage capacities clearly stated. Bunds will be impermeable, resistant, will contain no outlet, will drain to a blind collection point (sump), will contain no penetration of contained surfaces, will be designed to catch leaks from fittings and will have fill points inside the bund.
- 4.4.5 Locations of storage areas and containment measures for (process) chemicals are shown in Appendix 15 and 17.

### Control of Odour

- 4.4.6 None of the air emissions from the new plant will give rise to odours beyond the boundary of the sites.

### Control of Noise and Vibration

- 4.4.7 Noise may be created from the site operations. There are sensitive receptors within 500 m of the site and so a noise assessment has been undertaken. The full report is presented at Appendix 22. Design and construction of all units and machines involved in the process comply with the current state of the art in the field of noise reduction. Especially exposed units are either installed in closed rooms and / or encased appropriately. The construction of buildings is based on the targets set out in Appendix 22 with regard to sound insulation values of components.
- 4.4.8 Noise is successfully managed at Bridgend Paper Mill by employing the following techniques:
- Minimisation of noise production in design (i.e. sound insulation of roofs and walls);

- Control of significant noise generating activities (by employing enclosure and silencers);
- Appropriate zoning – noisy operations are located at a significant distance from residential areas.

4.4.9 It is anticipated that the overall noise produced by the development will be of a constant and steady nature, with the inclusion of slightly perceptible tonal content. The design of the plant has incorporated a number of mitigation measures to reduce the noise emitted into the local environment.

4.4.10 These mitigation measures include:

- Use of inherently quiet plant equipment, silencers, sound insulation of buildings and technical equipment, and sound attenuation;
- All plant items shall be controlled to minimize noise of an impulsive or tonal nature;
- Monitoring of noise after completion of construction phase and improvement programme to minimise plant noise where possible;
- Distance attenuation;
- Plant and equipment will be maintained to minimise emissions of noise;
- In the event of a complaint, the Operator will follow a complaints procedure to record and act on the complaint, and to inform NRW.

4.4.11 The results of the noise assessment (Appendix 22) indicate that significant adverse noise or vibration effects would not be expected as a result of operating the facilities.

#### Control of dust

4.4.12 The fibre is delivered by truck, mostly in loose form, with some in bales. The trucks are unloaded within the raw material storage building where the bales and the loose recovered paper are stored. The bales are transported to the storage boxes by clamp-lift-trucks and the loose paper by shovel-loaders. The raw material storage building has a sufficient storage capacity to ensure that no paper will have to be unloaded or stored outside the building. Doors and gates will be kept close all the time. Loose paper and waste paper will be re-fed to the process through a paper reject system.

4.4.13 General management techniques described in this section as well as good housekeeping will ensure that no significant dust emissions or litter of any kind will occur.

#### General techniques to reduce the risks

4.4.14 Having identified the hazards and their level of risk, various general techniques will be adopted to prevent accidents and minimise their environmental consequences:

- Adequate storage arrangements for raw materials, products and wastes will be provided and identified.
- The process design and control aspects, including hard-wired interlocks, will ensure that control is maintained in emergency situations.
- Preventative techniques such as suitable barriers to prevent damage to equipment from the movement of vehicles will be included where appropriate.

- Appropriate containment will be provided, e.g. bunds, catchport / catchpits, double skinned vessels.
- Techniques and procedures to prevent overflowing of storage tanks (liquid or powder) will be provided, such as level measurement, independent high-level alarms, high level cut-off and batch metering.
- Adequate redundancy or standby plant will be provided with maintenance and testing to the same standards as the main plant.
- Installation security systems to prevent unauthorised access will be provided as appropriate, including maintenance arrangements where necessary.
- There will be an installation log/diary to record all incidents, near misses, changes to procedures, abnormal events and findings of maintenance inspections.
- Procedures to identify, respond to and learn from such incidents will be established.
- The roles and responsibilities of personnel involved in accident management will be identified and trained as part of the training scheme.
- Clear guidance will be available on how each accident scenario is managed e.g. containment or dispersion, to extinguish fires or let them burn in a contained manner.
- Procedures will be in place to avoid incidents occurring as a result of poor communication among operations staff during shift changes and maintenance or other engineering work.
- Safe start-up and shutdown procedures will be in place.
- Communication routes will be established with relevant authorities and emergency services before and in the event of an accident. Post-accident procedures will include the assessment of harm caused and steps needed to redress these.
- Appropriate control techniques to limit the consequences of the accident such as oil spillage equipment, isolation of drains, alerting of relevant authorities, evacuation procedures will be in place.
- Personnel training requirements will be identified and provided where necessary.
- The site speed limit for road vehicles is 10mph in order to minimise the risk of collisions and the corresponding consequences.
- Process waters, site drainage waters, emergency firewater, chemically contaminated waters and spillage of chemicals, where appropriate, will be contained and where necessary routed to the effluent system, with provision to contain surges and storm water flows, and treated before emission to controlled waters or sewer. Sufficient storage will be provided to ensure that this can be achieved. There will also be spill contingency procedures to minimise the risk of accidental emission of raw materials, products and waste materials and to prevent their entry into water. The emergency firewater collection system takes account of the additional firewater flows or fire fighting foams.
- For accidental emissions from vents and safety relief valves/bursting discs, consideration will be given to the possibility of containment or abatement. Attention will be focussed on reducing the probability of the emission.

- For drainage systems procedures will be in place to ensure that before treatment or disposal, the composition of the contents of a bund sump or sump connected with a drainage system are checked; drainage sumps will be equipped with a high-level alarm or sensor with automatic pump to storage (not to discharge); a system will be in place to ensure that sump levels are kept to a minimum at all times;

#### Decommissioning

- 4.4.15 The lifetime of the plant is currently anticipated to be of the order of 30 years. It will be so constructed as to enable the replacement and upgrading of key components in line with technological change.
- 4.4.16 An intrusive investigation has been undertaken of ground conditions and the water environment at the development site to establish base-line environmental conditions prior to the commencement of construction and operation of the facility. The results of the investigation are presented in the amendment of the Site Investigation Report (Appendix 24) and the Environmental Statement (Appendix 27). They give a baseline for future comparison.
- 4.4.17 Infrastructure dedicated to the facility will be removed or taken out of use if no further immediate use is required for it on that site. Disconnection of site services, whether partial or complete will be considered before dismantling work commences on site. Plant equipment, where possible, will be dismantled and, if necessary, decontaminated on site, followed by inspection and if necessary further decontamination once the equipment has been removed from position and before it has been removed from site.
- 4.4.18 Despatch of equipment from site whether as a saleable asset, e.g. as spare parts to other paper production facilities, or as scrap, will be accompanied by a Certificate of Decontamination.
- 4.4.19 All equipment containing chemicals will be drained with the chemical stored in appropriate containers and removed offsite to reduce the potential for spillage.
- 4.4.20 The site will be left in a safe manner. Trenches, pits and excavations shall be made safe by suitable back-fill, or access denied by suitable fencing and notices coupled with adequate regular site inspections until responsibility for the site has been transferred to the new owners.
- 4.4.21 Buildings and facilities which cannot be re-used will be demolished with all materials recycled or disposed of following Duty of Care. Since the facility will be constructed as asbestos free asbestos surveys will not be required before decommissioning is started.
- 4.4.22 Buildings and facilities which are to remain in place for other commercial or industrial purposes will be cleaned thoroughly internally and externally to avoid any potential risk of pollution. If these buildings or facilities are to continue for activities for which the PPC permit is no-longer required a suitable programme of reconstruction and timescale for completion will be agreed with the Environment Agency to achieve the best environmental outcome and to minimise waste.
- 4.4.23 In the event of a definitive cessation of all activities a full site closure report will accompany the surrender of the site licences to the relevant regulatory bodies and consultees.

## 4.5 Types and Amounts of Raw Materials

4.5.1 The principal raw materials used in the tissue paper production process are:

- Fibre (broke and virgin)
- Process chemicals
- Water
- Lubricating oil
- Transformer oil

4.5.2 Appendices 6 and 15 show which raw materials are used in the production process.

### Fibre

4.5.3 Vesta has the capability to run up to 30% of recycled material, pending commercial and market placed requirement for such a recycled content. In addition to the more efficient use of materials, the design of the new machine and the resultant tissue characteristics leads to the potential to add up to 30% white recycled fibre/ paper, whilst still creating the current market preference for white tissue paper.

4.5.4 However, it should be noted that if tissue paper colour preference in the market changes, recycled paper from the UK could be used up to a full 100%. This would reduce the imported virgin pulp and the UK export of fibres/ paper partially circularising the UK tissue paper supply chain.

**Table 4-4: Overview of fibre usage**

Recycled Material Capacity (white tissue)	
Jupiter	15 %
Vesta	30 %
kg/t of virgin material per t of output product	
Jupiter	850 kg
Vesta	700 kg

4.5.5 Thus, the improvement in Raw Material used to produce the same functional outcome is 150 kg per t of output product, i.e. 1.59 t/Mm<sup>2</sup> or a 55.6% improvement. More recycled content in typical products up to a maximum of 15% in Jupiter to 30% in VESTA with capability of running a specialist 100% recycled product, provides the adaptability needed to respond to market conditions.

### Process Chemicals

4.5.6 A list of the main paper making additives and their estimated consumption are presented in the following table. Safety information sheets are given in Appendix 16. The table below shows estimates of the amounts of raw materials used and stored the facility.

4.5.7 It should be noted that the table only includes chemicals that will be stored for the new 'Vesta' paper machine. Existing storage locations and capacities of chemicals for the existing paper machine are not included.

4.5.8 The types and amounts of raw materials are provided in Appendix 15.

### **Chemicals Storage Areas**

- 4.5.9 Appendices 15 and 17 give more detailed information of the medium stored and the material and location of containment and storage tanks.
- 4.5.10 All parts of the system where chemicals are handled are designed to ensure that the substance concerned cannot leak in the course of normal operations. The system is designed to be stable and resistant to any anticipated mechanical, thermal and chemical influences. Where required, the materials and plant components used have the appropriate design approval and test marks. Any leakages which may arise in any part of the system can be quickly and reliably detected. Before being set into operation, any systems subject to obligatory testing for storing or handling chemicals will be inspected by a technical expert.
- 4.5.11 All chemicals and oils used on site will be stored within a bunded area sized to accommodate the greater of 110 % of the contents of the largest tank within the bund or 25 % of the total tank contents. All spillages will be retained within the bunded areas and treated as necessary prior to disposal off-site in a manner that ensures no adverse environmental impact. A leakage monitoring system is located in the paper machine's control room which is constantly manned.

### **Fresh Water**

- 4.5.12 The paper mill uses freshwater in the production process for stock preparation and process water. Based on a fresh water consumption of 4.5 m<sup>3</sup> per tonne, the new paper machine development will require approximately 292,500 m<sup>3</sup> of freshwater per year. Freshwater for papermaking is abstracted from the River Llynfi and the Nant Gwyn Stream. The operation of the new paper machine will not result in an increase of the demand for water or a change in the effluent produced. Any abstraction of fresh water and discharge of waste water will be accommodated within existing permit allowances. A water mass balance diagram for the facility is shown in Appendix 14.
- 4.5.13 The use of water will be monitored, and the EMS will provide a mechanism for reducing its use where commercially viable. Other losses from the steam / water cycle will be minimised by good maintenance. Minor quantities of water will be used for domestic / sanitary purposes (drinking, washing, etc).

### **Lubricating and transformer oil**

- 4.5.14 Lubricating oil will be used in the mechanical equipment of the paper machine as well as the new converting lines. Occasional top up or replacement will be required. Lubricating oil will be stored in storage tanks within the paper machine building.
- 4.5.15 Transformer oil (free of pcb) will be used in oil cooled transformers. Occasional top up or replacement will be required. Transformer oil will be stored in a storage tank within the paper machine building.
- 4.5.16 Supplies of the lubrication oil and transformer oil and other materials in small quantity will be delivered to the site by road. All valves, pipework and couplings associated with the filling/emptying of oil storage tanks will be contained within a bund surrounding the tank.

## 4.6 Monitoring

### Papermaking

#### *Raw materials*

- 4.6.1 The main process material used by the new paper machine is broke and virgin fibre. The fully operational paper machine will utilise approximately 700 kg/t of virgin material per tonne of output product. No on-site sorting of raw material is performed. The quality of material is ensured by contractual arrangement with suppliers to deliver material of suitable quality. If excessive contaminants are noted during unloading, the load is returned to the supplier.

#### *Water usage*

- 4.6.2 The facility uses an automatic water management system of the manufacturer. This includes the appropriate dimensioning of all chests and storage tanks including automatic metering and control. All monitoring will be undertaken in full accordance with the Environmental permitting Technical Guidance for the Pulp and Paper Sector (BAT Reference Document for the Production of Pulp, Paper and Board, EU 2015).

### Monitoring releases to air

- 4.6.3 The only significant point source for emissions to air is the exhaust flue at the 'Vesta' machine (Yankee) hood exhaust vent. Facilities will be provided for the automatic measurements of oxides of nitrogen (NO and NO<sub>2</sub>). The location of the ports will comply with NRW Guidance Note M1 Sampling Requirements for Stack Emission Monitoring, Version 6, January 2010.
- 4.6.4 NO<sub>x</sub> emissions will be measured via a spot sample once per year, the same as Neptune and current permit requirements. This will be performed by a MCERTS approved third party once per year in accordance with the monitoring standard BS EN 14792.

### Monitoring energy consumption

- 4.6.5 Energy consumption is monitored and metered throughout the facility. The detailed metering and monitoring system of the new paper machine 'Vesta' is described in Appendix 7.

### Noise monitoring

- 4.6.6 An environmental noise survey following the general procedures outlined in BS4142:2014+A1:2019 will be carried out within twelve months of the plant being commissioned. This will compare measurements with the ambient noise levels and the results of the BS 4142 assessment described in the Noise assessment (Appendix 22). The survey will include measurements of the sound pressure levels at the locations identified as sensitive receptor location. The results and measurement conditions are recorded and retained for 5 years.
- 4.6.7 The General Manager of the facility will be notified if any of the sound pressure levels recorded exceed the limits specified in the site's planning consent, and if noise complaints are likely to occur. If required, an action plan is devised and implemented to reduce levels below those specified in the site planning consent and reduce the probability

of noise complaints. When the work is complete, the noise levels are then monitored again as described above.

- 4.6.8 Once the plant is fully operational, noise monitoring will be undertaken by external consultants on a 5-yearly basis as described in Appendix 22.

### **Vibrations**

- 4.6.9 During normal operation of the paper mill vibrations or inadmissible low-frequent noise do not occur. A source of vibration related to the operation of the development would be vehicles on the road network including trucks serving the proposed facility. However, these sources already exist, and there would be no significant change in vibration magnitude, simply a small increase in event numbers. Hence any impact from vibration related to additional traffic would be insignificant.

### **Control and Monitoring of Dusts, Fibres and Particulates**

- 4.6.10 The site has a 10mph speed limit and the benefit of a fully surfaced entranceway and internal road system which are maintained free of loose material to minimise the potential for dust generation by vehicle movements. Water is available on site for dampening any material liable to cause a dust nuisance during shredding, loading or unloading.

### **Monitoring during commissioning**

- 4.6.11 The commissioning of the paper machine will include the monitoring of the emissions to ensure compliance with the emission limits required. The protocol for doing so will be developed with the technology supplier, but as a minimum will meet the requirements of NRW. The Plant will not be considered to be fit for operations unless the commissioning tests have been successfully completed i.e. that the plant has shown it can operate within the required emission limits.

### **Monitoring standards**

- 4.6.12 All monitoring will be undertaken in full accordance with the EA Technical Guidance Notes M1 and M2 and the European IPPC Bureau's Reference Document on the General Principles of Monitoring (EU 2003).

### **Environmental Monitoring beyond the installation**

- 4.6.13 The conclusion of the Environmental Statement is that the residual impacts, for air, water and noise, are all 'Not Significant' and, as such, no continuous off-site monitoring is proposed for the new plant.

## **4.7 Environmental Impact Assessment**

4.7.1 A planning application for the new facility was submitted to Bridgend County Borough Council in March 2025. Permission for development was granted in August 2025 (Appendix 28).

4.7.2 As required by the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2017, the planning application was also accompanied by an Environmental Statement (ES) (Appendix 27). The ES provided details on many aspects of the scheme, which are relevant to the Environmental Permitting process. A copy of the ES, and technical statements of the detailed impact assessment studies undertaken of air quality and noise are included in Appendices 20 and 22.

## **4.8 Resource Efficiency and Climate Change**

### **Basic measures for the improvement of energy efficiency**

4.8.1 The Operator will, as already required by the existing Environmental Permit;

- take appropriate measures to ensure that energy is used efficiently in the activities;
- review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- take any further appropriate measures identified by a review.

4.8.2 The new facility will be designed with careful attention being paid to all normal energy efficiency design features, such as high efficiency motors, high standards of cladding and insulation etc. The plant is expected to be the most efficient in terms of water and energy use on the market. The new paper machine will use a fully digitalised process management system and business management capability monitoring and measurement of consumption and traceability.

4.8.3 In terms of energy efficiency, the design of the facility takes due regard of the energy efficiency techniques outlined in the Best Available Techniques (BAT) Reference Document for the Production of Pulp, Paper and Board (EU 2015). The following features facilitate the most effective use of energy:

- High efficiency motors will be used where practicable to reduce the parasitic load of energy plant and equipment; motors and drives with adjustable speed drives (ASDs) will be used wherever possible.
- Pipes, furnaces etc. will be insulated to prevent heat loss.
- Steam pipes will be arranged to minimise their length and reduce heat loss.
- Water pipes will be configured to minimise their lengths to reduce pumping losses.
- Unnecessary releases of steam and hot water will be avoided to minimise the loss of boiler water treatment chemicals and the heat contained within the steam and water.
- Only equipment that meet the standards of the Energy Technology List of the ECA Energy Scheme will be used.

- The ETP is designed to use mainly gravitational flow. Pumps will be needed for e.g. pumping of return sludge from the secondary clarifiers back to the aeration tank.
- All stages of the treatment process will be closely monitored to assure direct action in case of variation from specifications.
- If pumps are needed, they will be designed according to recent energy saving standards. The majority of the pumps will be equipped with frequency converters thus the power consumption can be adjusted to the actual flow conditions.
- The flow conditions will be measured constantly using flow meters installed at all major pipes.
- All plant is operated and maintained to ensure that energy efficiency is maintained, e.g. regular lubrication of moving parts, cleaning of heat transfer surfaces.
- Doors and openings to all buildings will be kept close to prevent loss of tempered air.
- Lighting systems will be designed in accordance with CIBSE Guidance for industrial sites of this type for both normal operations and emergency lighting conditions.
- Building walls will be made of concrete sandwich elements with at least 10 cm heat / sound insulation and facing concrete. Sub structures for buildings consist of liner trays or partly pre-cast concrete elements.

#### **Breakdown of any changes to the energy - Energy flows**

- 4.8.4 The Bridgend Paper Mill consumes significant amounts of energy in the form of electricity and steam within the recycling and production processes. The currently permitted installation includes a CHP power plant with a net thermal input of approximately 50 MW which supplies the entire steam demand of the papermaking operation and approximately 50% of the electrical power of the mill.
- 4.8.5 CHP closure and boiler house replacement (installed in April 2025) has been formally submitted to Natural Resources Wales via a separate permit variation (ref: PAN-026789) which is still to be formally approved. It was submitted on 03/09/2024,

#### **Operation and Maintenance Procedures**

- 4.8.6 An energy efficiency plan will be included into the operation and maintenance procedures of the plant ensuring maximum, practical, sustainable, safe and controllable electricity generation. This plan will be reviewed regularly as part of the ISO 50001 process. During normal operation, procedures will be reviewed and amended, where necessary, to include improvements in efficiency as and when proven new equipment and operating techniques become available.

#### **Climate change levy agreement**

- 4.8.7 CO<sub>2</sub> is a greenhouse gas and contributes to global warming. The use of a gas turbine, heat recovery steam generator and condensing steam turbine minimises the quantities of CO<sub>2</sub> emitted compared with other combustion techniques. Moreover, the use of steam (i.e. heat) for production purposes results in the highest efficiency of fuel usage.
- 4.8.8 WEPA UK is part of an Umbrella climate change agreement for the paper sector (Agreement updated 2023) (Appendix 11).

### **Justification for usage of raw materials (process chemicals and water)**

4.8.9 A schematic of overall inputs and outputs to the process is given in Appendix 6.

#### *Efficient use of raw materials*

4.8.10 WEPA UK will

- maintains a list of the raw materials and their associated properties (Appendix 15 and 16); and
- regularly review any new, less polluting, raw materials and will implement them if they reduce their environmental impact.

4.8.11 The operator will take appropriate measures to ensure that raw materials are used efficiently and will maintain records of raw materials used on site. Materials used on site will be recycled and re-used, wherever possible. Where possible, raw materials that minimise environmental impact were selected. Consideration was given to such factors as degradability, bioaccumulation potential and toxicity. A regular review will be undertaken to ensure raw materials are appropriate for use, consumption optimised and opportunities for reduction of use and improvements identified. Alternative raw materials will be evaluated for their environmental impact on an on-going basis and subject to specific quality requirements; substitution will be given appropriate consideration. Safety Information Sheets of all relevant materials will be held by the Site Manager and located at the facility (also see Appendix 16). Raw materials will be reviewed periodically to identify potentially safer alternatives.

4.8.12 Where not specified, consumables and chemicals will be supplied to standard specifications offered by main suppliers. All chemicals will be handled in accordance with COSHH Regulations as part of the EMS and full product data sheets will be available on site.

4.8.13 Periodic reviews of all materials used will be made in the light of new products and developments. Any significant change of material, where it may have an impact on the environment, will not be made without firstly assessing the impact and seeking approval from NRW.

#### **Water**

4.8.14 A constant supply of fresh water is required, principally for process purposes, a small amount of which is required for consumptive use. Fresh water will be taken from the River Llynfi. The demand on fresh water is determined by the product, the daily production capacity, the technology used, and water efficiency measures applied. According to the Operator experience, a continuous fresh water demand of **6.5 m<sup>3</sup>** per tonne of product is calculated for the new paper machine, relating to the production capacity. This determines a yearly demand on fresh water for the operation of the paper machine of approximately **488,000 m<sup>3</sup>**.

4.8.15 Fresh water demand complies with the Environmental permitting Technical Guidance for the Pulp and Paper Sector (BAT Reference Document for the Production of Pulp, Paper and Board, EU 2015).

4.8.16 A water mass balance diagram for the facility is shown in Appendix 14.

## **4.9 Waste**

4.9.1 The principal waste arising from the operation of the plant include:

- Filters on air intakes will require changing periodically,
- Lighting units replaced as required,
- Waste from staff rooms etc.,
- Oily sludge from cleaning of oil interceptors,
- Waste oils and lubricants; oil residues arising from maintenance activities,
- Packaging waste (timber, cardboard, plastic etc.).
- Sludge from waste water treatment

4.9.2 Waste generated during annual outages varies according to the scope of the outage works, and consists mainly of oil residues and scrap metals. The quantities of waste generated are relatively low. Waste will be segregated and stored in labelled containers until disposal off-site by a qualified contractor. The sludge produced during the paper making process (as waste product) is collected, properly treated and reintroduced in the paper production process itself. The excess sludge that cannot be reintegrated is dried and used to make alternative agricultural products.

4.9.3 There is no on-site disposal of wastes and the site does not operate as a waste disposal facility. All waste produced in the installation is closely monitored and disposal routes, including, re-use and recycling, are selected through a process of consideration of appropriate options.

4.9.4 A waste minimisation program will be used as a systematic approach to minimising the amount of waste and will be integrated into the operation of the plant. A comprehensive system will be used to maintain a record of the quantity, nature, origin, destination, frequency of collection, mode of transport and treatment method of any waste which is disposed of in accordance with the relevant regulations.

4.9.5 As part of the EMS waste minimisation audits are carried out routinely. The applicant will carry out regular inspections of waste storage and transfer areas to ensure waste are properly segregated and containers are sealed correctly and maintained in good condition. All waste containers will be clearly labelled. Records of all waste transfers off-site are maintained on site.

## **SECTION 5**

### **INFORMATION IN SUPPORT OF PART F**

## **5 Information in Support of Part F1**

### **5.1 General Information, Operational Risk Assessment (OPRA)**

- 5.1.1 The existing Bridgend Paper Mill will continue to operate as per the conditions of the existing Environmental Permit Number EPR/EP 3738NG.
- 5.1.2 As this application for a substantial variation only includes the new project, i.e. the paper machine 'Vesta', the attached OPRA file (Appendix 30) is limited to the proposed development and its emissions.
- 5.1.3 Therefore, permitted emissions of the existing paper mill have not been included in any significant detail in this Operational Risk Assessment.

## 5.2 Application Checklist

Question reference	No. and title of Appendix (document reference)	Document section
Part A – Q5a	1 Site Location, 1:15000	SECTION 1.1 and 3.4
Part A – Q5a	2 Detailed site location, 1:1000	SECTION 1.1 and 3.4
Part C2 – Q2b	3 General project description	SECTION 1.1 and 3.2
Part A – Q5a	4 View, sections, elevations	SECTION 1.1
Part A – Q5a	5 3-D representations	SECTION 1.1
Part C3 – Q3a	6 Overall process flow diagram	SECTION 4.3
Part C3 – Q3a	7 Project and process description, monitoring, metering	SECTION 4.3 and 4.6
Part A – Q5a	8 Boundary existing mill site	SECTION 1.1
Part A – Q5a	9 Site layout with application boundary	SECTION 1.1 and 3.4
Part C2 – Q3d	10 Integrated management structures (IMS)	SECTION 3.3
Part C2 – Q3d	11 Environmental management system (EMS)	SECTION 3.3
Part C3 – Q3a	12 Fire protection system	SECTION 6
Part C3 – Q6	13 Energy efficiency, climate change	SECTION 4.8
Part C3 – Q3c	14 Water mass balance	SECTION 4.5 and 4.8
Part C3 – Q3b, Q3c	15 Process chemicals, consumption, storage, location	SECTION 4.4, 4.5 and 4.8
Part C3 – Q3b, Q3c	16 Safety information sheets (SIS)	SECTION 4.4, 4.5 and 4.8
Part C3 – Q3b, Q3c	17 Drawings location process chemicals	SECTION 4.4 and 4.5
Part C3 – Q3c	18 Freshwater abstraction licence	SECTION 3.2
Part C3 – Q2	19 Effluent treatment plant, description baseline	SECTION 4.2
Part C3 – Q2	20 Emission points noise and air	SECTION 4.2
Part C2 – Q6	21 Air quality assessment	SECTION 3.5 and 4.2
Part C2 – Q6	22 Noise assessment and Noise Monitoring Scheme	SECTION 3.5
Part C3 – Q2	23 Surface water drainage system SuDS	SECTION 4.2
Part C2 – Q5c	24 Site Condition Report	SECTION 3.4
Part C3 – Q3a	25 Mill site external lighting	SECTION 6
Part C3 – Q3a	26 Mill site fence	SECTION 6
Part C2 – Q6	27 Environmental Statement	SECTION 3.5 and 4.7
Part C3 – Q5	28 Planning permission, decision notice EIA	SECTION 4.7
Part F1 – Q2	29 Operational Risk Assessment (OPRA)	SECTION 5

## **SECTION 6**

### **BAT JUSTIFICATION**

## **6 BAT Assessment**

### **6.1 Introduction**

- 6.1.1 This section identifies where operations of the proposed facility meet BAT requirements.
- 6.1.2 The Environmental permitting Technical Guidance for the Pulp and Paper Sector (*BAT Reference Document for the Production of Pulp, Paper and Board*, EU 2015) gives definitions of indicative BAT for the range of aspects of operation of the new installation.
- 6.1.3 As WEPA's existing paper mill is an existing permitted activity, it has already been assessed by NRW to be managed with due regard to appropriate measures (Best Available Technique (BAT)). No changes are proposed to the operation of this existing activity, other than the change in the regulations to include it as a Schedule 1 Listed Activity. Therefore, the following BAT assessment would focus on the newly proposed paper machine and would not consider any existing activity such as the operation of the ETP and the CHP plant.
- 6.1.4 The following assessment replicates only the BAT conclusions relevant to the particular type of the new activity, i.e. new paper machine 'Vesta'.

## 6.2 BAT Assessment

BAT Conclusion Number	Summary of BAT Conclusion requirement	Assessment of compliance with BAT conclusion Techniques of 'Vesta' paper machine (refer to section or Appendix)
<b>General</b>		
1	<p><b>BAT 1. In order to improve the overall environmental performance of plants for the production of pulp, paper and board, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features:</b></p> <ul style="list-style-type: none"> <li>(a) commitment of the management, including senior management;</li> <li>(b) definition of an environmental policy that includes the continuous improvement of the installation by the management;</li> <li>(c) planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment;</li> <li>(d) implementation of procedures paying particular attention to:               <ul style="list-style-type: none"> <li>(i) structure and responsibility</li> <li>(ii) training, awareness and competence</li> <li>(iii) communication</li> <li>(iv) employee involvement</li> <li>(v) documentation</li> <li>(vi) efficient process control</li> <li>(vii) maintenance programmes</li> <li>(viii) emergency preparedness and response</li> <li>(ix) safeguarding compliance with environmental legislation;</li> </ul> </li> <li>(e) checking performance and taking corrective action, paying particular attention to:               <ul style="list-style-type: none"> <li>(i) monitoring and measurement (see also the Reference Document on the General Principles of Monitoring)</li> <li>(ii) corrective and preventive action</li> <li>(iii) maintenance of records</li> <li>(iv) independent (where practicable) internal and external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;</li> </ul> </li> <li>(f) review of the EMS and its continuing suitability, adequacy and effectiveness by senior management;</li> <li>(g) following the development of cleaner technologies;</li> </ul>	<p>The mill operates a local Environmental Management System (EMS) which is fully integrated and certified to ISO14001: 2015 (Appendix 11).</p> <p>The Operator will update its existing EMS, in accordance with ISO 14001 to include all new plant.</p> <p>General techniques to reduce environmental risks are described in Section 4.4.</p>

BAT Conclusion Number	Summary of BAT Conclusion requirement	Assessment of compliance with BAT conclusion Techniques of 'Vesta' paper machine (refer to section or Appendix)
	<p>(h) consideration for the environmental impacts from the eventual decommissioning of the installation at the stage of designing a new plant, and throughout its operating life;</p> <p>(i) application of sectoral benchmarking on a regular basis.</p> <p><u>Technical considerations relevant to applicability</u></p> <p>The scope (e.g. level of details) and nature of the EMS (e.g. standardised or non-standardised) will generally be related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have.</p>	
<b>Materials management and good housekeeping</b>		
2	<p><b>BAT 2. BAT is to apply the principles of good housekeeping for minimising the environmental impact of the production process by using a combination of the techniques given below.</b></p> <ul style="list-style-type: none"> <li>a) Careful selection and control of chemicals and additives</li> <li>b) Input-output analysis with a chemical inventory, including quantities and toxicological properties</li> <li>c) Minimise the use of chemicals to the minimum level required by the quality specifications of the final product</li> <li>d) Avoid the use of harmful substances (e.g. nonylphenol ethoxylate-containing dispersion or cleaning agents or surfactants) and substitution by less harmful alternatives</li> <li>e) Minimise the input of substances into the soil by leakage, aerial deposition and the inappropriate storage of raw materials, products or residues</li> <li>f) Establish a spill management programme and extend the containment of relevant sources, thus preventing the contamination of soil and groundwater</li> </ul> <p>Proper design of the piping and storage systems to keep the surfaces clean and to reduce the need for washing and cleaning</p>	<p>Locations of storage tanks and containment measures for (process) chemicals are shown in Appendices 15 and 17.</p> <p>The Management Techniques described in section 4.4 as well as good housekeeping will ensure that environmental risks are reduced.</p> <p>Safety information sheets are given in Appendix 16.</p>
<b>Water and waste water management</b>		
5	<p><b>BAT 5. In order to reduce fresh water use and generation of waste water, BAT is to close the water system to the degree technically feasible in line with the pulp and paper grade manufactured by using a combination of the techniques given below.</b></p> <ul style="list-style-type: none"> <li>a) Monitoring and optimising water usage</li> <li>b) Evaluation of water recirculation options</li> <li>c) Balancing the degree of closure of water circuits and potential drawbacks; adding additional equipment if necessary</li> </ul>	<p>All waste and process water will be re-used in the process where possible. Excess waste water from these sources will be discharged to the Effluent Treatment Plant located on the site.</p> <p>The operation of the new paper machine will not result in an increase in the demand for water or a change in the effluent produced. Any abstraction of fresh water and discharge of waste water will be accommodated within existing permit allowances. The current on-site effluent</p>

BAT Conclu- sion Number	Summary of BAT Conclusion requirement	Assessment of compliance with BAT conclusion Techniques of 'Vesta' paper machine (refer to section or Appendix)
	d) Separation of less contaminated sealing water from pumps for vacuum generation and reuse e) Separation of clean cooling water from contaminated process water and reuse f) Reusing process water to substitute for fresh water (water recirculation and closing of water loops) g) In-line treatment of (parts of) process water to improve water quality to allow for recirculation or reuse  <b>The BAT-associated waste water flow at the point of discharge after waste water treatment as yearly averages are</b> 1.5 – 10 m <sup>3</sup> / t for RCF paper mills without deinking	treatment plant has sufficient capacity to receive and treat the projected flows. The existing Effluent Treatment Plant is compliant with BAT.  Refer to Water Mass Balance in Appendix 14 waste water discharge for new paper machine: 3.8 m <sup>3</sup> / t
<b>Energy consumption and efficiency</b>		
6	<b>BAT 6. In order to reduce fuel and energy consumption in pulp and paper mills, BAT is to use technique (a) and a combination of the techniques given below.</b> a) Use an energy management system that includes all of the following features: i. Assessment of the mill's overall energy consumption and production ii. Locating, quantifying and optimising the potentials for energy recovery iii. Monitoring and safeguarding the optimised situation for energy consumption b) Recover energy by incinerating those wastes and residues from the production of pulp and paper that have high organic content and calorific value, taking into account BAT 12 c) Cover the steam and power demand of the production processes as far as possible by the cogeneration of heat and power (CHP) d) Use excess heat for the drying of biomass and sludge, to heat boiler feedwater and process water, to heat buildings, etc. e) Use thermo compressors f) Insulate steam and condensate pipe fittings g) Use energy efficient vacuum systems for dewatering h) Use high efficiency electrical motors, pumps and agitators i) Use frequency inverters for fans, compressors and pumps j) Match steam pressure levels with actual pressure needs	The existing installation includes a CHP power plant with a net thermal input of approximately 50 MW which supplies the entire steam demand of the papermaking operation and approximately 50% of the electrical power of the mill. The CHP plant is natural gas fired with the capacity for supplementary gas oil firing. CHP closure and boiler house replacement (installed in April 2025) has been formally submitted to Natural Resources Wales via a separate permit variation (ref: PAN-026789, submitted 03/09/2024) which is still to be formally approved.

BAT Conclusion Number	Summary of BAT Conclusion requirement	Assessment of compliance with BAT conclusion Techniques of 'Vesta' paper machine (refer to section or Appendix)
<b>Monitoring of key process parameters and of emissions to water and air</b>		
9	<p><b>BAT 9. BAT is to carry out the monitoring and measurement of emissions to air, as indicated below, on a regular basis with the frequency indicated and according to EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards which ensure the provision of data of an equivalent scientific quality.</b></p> <p>a) continuous monitoring of NOx</p>	<p>The only significant point source for emissions to air is the exhaust flue at the 'Vesta' machine (Yankee) hood exhaust vent. Facilities will be provided for the automatic measurements of oxides of nitrogen (NO and NO<sub>2</sub>). Continuous measurement of emissions by the operator is proposed. The Operator will install suitable automated monitoring systems (AMS) for measurement of NOx at the air emission release points that will have MCERTS certification.</p>
<b>Waste management</b>		
12	<p><b>BAT 12. In order to reduce the quantities of wastes sent for disposal, BAT is to implement a waste assessment (including waste inventories) and management system, so as to facilitate waste reuse, or failing that, waste recycling, or failing that, 'other recovery', including a combination of the techniques given below.</b></p> <p>a) Separate collection of different waste fractions (including separation and classification of hazardous waste) b) Merging of suitable fractions of residues to obtain mixtures that can be better utilised c) Pre-treatment of process residues before reuse or recycling d) Material recovery and recycling of process residues on site e) Energy recovery on- or off-site from wastes with high organic content f) External material utilisation g) Pre-treatment of waste before disposal</p>	<p>All waste produced in the installation is closely monitored and disposal routes, including, re-use and recycling, are selected through a process of consideration of appropriate options. A waste minimisation program will be used as a systematic approach to minimise the amount of waste and will be integrated into the operation of the plant. A comprehensive system will be used to maintain a record of the quantity, nature, origin, destination, frequency of collection, mode of transport and treatment method of any waste which is disposed of in accordance with the relevant regulations.</p> <p>As part of the EMS waste minimisation audits are carried out routinely.</p>
<b>Emissions of noise</b>		
17	<p><b>BAT 17. In order to reduce the emissions of noise from pulp and paper manufacturing, BAT is to use a combination of the techniques given below.</b></p> <p>a) Noise-reduction programme b) Strategic planning of the location of equipment, units and buildings c) Operational and management techniques in buildings containing noisy equipment d) Enclosing noisy equipment and units e) Use of low-noise equipment and noise-reducers on equipment and ducts f) Vibration insulation</p>	<p>The Operator has carried out a full Noise Assessment (Appendix 23). The results show that the predicted noise rating levels generated by the new plant will be between 19 and 28 dB. Daytime noise rating levels at all receptors are predicted to be at least 13 dB below the background level.</p> <p>Six months prior to the installation commissioning date, the Operator will confirm with Natural Resources Wales that the design of the</p>

BAT Conclusion Number	Summary of BAT Conclusion requirement	Assessment of compliance with BAT conclusion Techniques of 'Vesta' paper machine (refer to section or Appendix)
	g) Soundproofing of buildings h) Noise abatement	installation has not changed from that submitted as part of the Noise Assessment.
<b>Decommissioning</b>		
18	<b>BAT 18. In order to prevent pollution risks when decommissioning a plant, BAT is to use the general techniques given below.</b> a) Ensure that underground tanks and piping are either avoided in the design phase or that their location is well known and documented. b) Establish instructions for emptying process equipment, vessels and piping c) Ensure a clean closure when the facility is shut down, e.g. to clean up and rehabilitate the site. Natural soil functions should be safeguarded, if feasible. d) Use a monitoring programme, especially relative to groundwater, in order to detect possible future impacts on site or in neighbouring areas. e) Develop and maintain a site closure or cessation scheme, based on risk analysis, that includes a transparent organisation of the shutdown work, taking into account relevant local specific conditions.	Measures of decommissioning are described in paragraphs 4.4.13 to 4.4.21.
<b>Papermaking and related processes</b>		
<b>Waste water and emissions to water</b>		
47	<b>BAT 47. In order to reduce the generation of waste water, BAT is to use a combination of the techniques given below.</b> a) Optimum design and construction of tanks and chests b) Fibre and filler recovery and treatment of white water c) Water recirculation d) Optimisation of showers in the paper machine	The facility uses an automatic water management system from the manufacturer. This system provides adequate storage capacity for broke and whitewaters and is closely monitored to ensure that spillages and overflows do not occur (Appendix 7: Monitoring and Metering System).

<b>Waste generation</b>		
<b>52</b>	<p><b>BAT 52. In order to minimise the amount of solid waste to be disposed of, BAT is to prevent waste generation and to carry out recycling operations by the use of a combination of the techniques given below (see general BAT 20).</b></p> <p>a) Fibre and filler recovery and treatment of white water b) Broke recirculation system</p>	Refer to project description (Appendix 3) and process descriptions (Appendix 7).
<b>Energy consumption</b>		
<b>53</b>	<p><b>BAT 53. In order to reduce the consumption of thermal and electrical energy, BAT is to use a combination of energy efficient techniques.</b></p>	Basic measures for the improvement of energy efficiency are described in Section 4.8

## **SECTION 7**

### **PROPOSED IMPROVEMENT PLAN**

## **7 Proposed Improvement Plan**

### **7.1 Introduction**

7.1.1 Some design details of the proposed plant have not yet been completed and, as such, it is appropriate to suggest some pre-operational conditions in addition to the improvement plan.

### **7.2 Pre-Operation Conditions**

#### **Noise Assessment**

7.2.1 Six months prior to the installation commissioning date, the Operator will confirm with Natural Resources Wales that the design of the installation has not changed from that submitted as part of the Noise Assessment and Noise Monitoring Scheme (Appendix 22). If the design has changed the Operator will revise the Noise Assessment and re-submit the assessment to NRW.

7.2.2 Within 6 months of commissioning, the Operator will submit to NRW for approval written proposals for carrying out a noise survey to assess the impact of the Installation when fully operational. The proposals will include the comparison of measured data against the information supplied in the Noise Assessment. This will involve establishing whether any of the noise emissions have a tonal quality (both during daytime and nighttime operation) likely to give rise to nuisance or complaint. The proposals will also contain details of the methods to be used for the assessment of tonal noise at sensitive receptors and proposed a timeframe within which the survey will be undertaken.

7.2.3 Within 12 months of commissioning the Operator will carry out the noise survey in accordance with NRW written approval.

7.2.4 Within 2 months after completion of the noise survey the Operator will submit a written report of the findings of the noise survey to NRW.

#### **Improvements and Modifications**

7.2.5 The Operator will submit for approval a written report which assesses whether any minor improvements and modifications are required. Where such improvements or modifications are required, the Operator shall provide a timescale for their implementation, and, if required, an associated cost-benefit analysis.

#### **Commissioning**

7.2.6 The Operator shall provide a written commissioning plan, including timelines for completion, for approval by NRW. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to NRW in the event that actual emissions exceed expected emissions.

7.2.7 Two weeks prior to the installation commissioning date, the Operator will inform NRW prior to paper being produced for the first time.

## **Monitoring**

- 7.2.8 Six months prior to the installation commissioning date, the Operator will install suitable automated monitoring systems (AMS) for measurement of NO<sub>x</sub> at the air emission release points that will have MCERTS certification. A report will be submitted to NRW detailing how the installation and operation of the AMS by the Operator will meet with BS EN 14181.

## **7.3 Improvement Plan**

- 7.3.1 The Operator will notify NRW, in writing, of the date when commissioning of the installation is complete. Within one month of completion of the installation commissioning process, the Operator shall provide a commissioning report, to NRW, detailing:
- the results of the commissioning programme;
  - any significant changes to the information provided in the original permit application;
- 7.3.2 Within twelve months of completion of the installation commissioning process, the Operator will update its existing Environmental Management System, in accordance with ISO 14001 to include all new plant.

## **SECTION 8**

## **APPENDICES**

## 8 Appendices

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