5 Description of the Development

5.1 Introduction

5.1.1 This chapter provides a description of the Development and was written by Quod, drawing on information presented in the 2015 planning application, Permit, material provided to VoGC to discharge planning conditions pursuant to the 2015 Permission and other information provided by the Project Team.

5.1.2 The chapter provides a description of the physical characteristics and components of the Development. It also provides a description of the proposed operational functions and associated processes. The description of the Development is based on the most accurate and up-to-date information, including topographic and 3D surveys of the Facility which were undertaken in March 2022.

5.1.3 The chapter is supported by:

- Appendix 5.1 – 2015 Permission approved drawings;
- Appendix 5.2 – Topographic survey of the As Built Development (SLR, March 2022, Rev 0);
- Appendix 5.3 – Screenshots of the 3D model (GHD, March 2022);
- Appendix 5.4 – Lighting Design Scheme (Hoare Lea, July 2022); and
- Appendix 5.5 – Design information (Blowdown Silencer Relocation, Main Process Building).

5.1.4 Section 5.20 of this Chapter provides information on the structures which were referred to by VoGC in their Enforcement Notice and Officers Report (Appendix 1.1) as being additional to those consented under the 2015 Permission. It should be noted that these structures form part of the Development as-built and are considered within the EIA which is the subject of this ES.

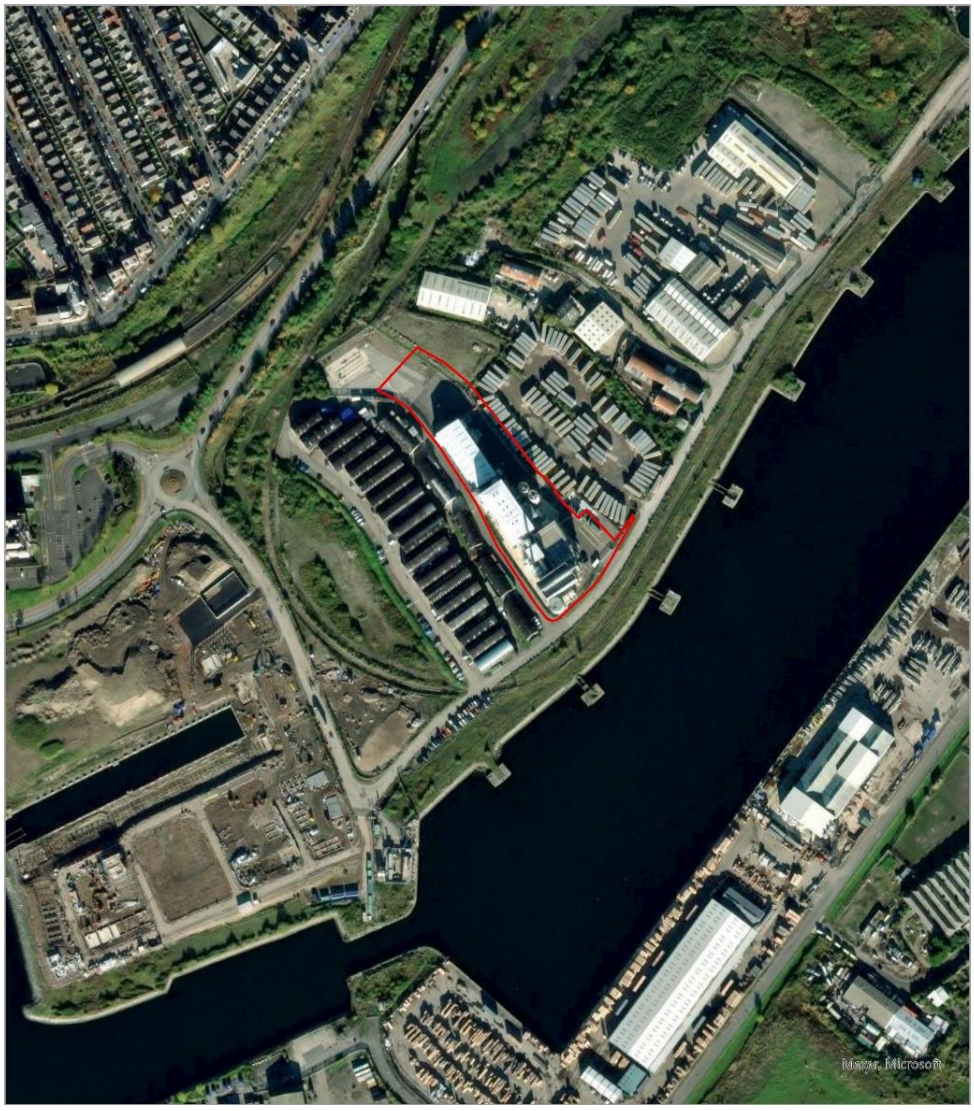
5.1.5 A retrospective description of the construction activities and programme associated with the Development is provided in Chapter 6.

5.2 Overview of the Development

Nature and Purpose

5.2.1 The Development is a renewable energy generation facility which has been designed to generate electricity for the Local Distribution Network from pre-prepared mixed waste wood feedstocks. It has been designed and constructed as a high efficiency energy generation plant that utilises Advanced Thermal Treatment (ATT) technology through a process known as ‘gasification’, to generate renewable energy from shredded waste wood. Figure 5.1 shows an aerial view of the Site and surrounding area.

Figure 5.1: Aerial image of the Site and surrounding area (Imagery from 2022)



Buildings and Structures

5.2.2 The Development comprise three main industrial buildings: (1) the Fuel Storage and Feedstock Building, (2) the Main Process Building, and (3) the Welfare, Turbine and Ancillary Building. The Development also includes other external plant and structures, hardstanding, staff and visitor car parking gatehouse, weighbridge, transformers, substation and grid connection and a single freestanding chimney or flue. The Site is surrounded by secure fencing.

Operational Process

5.2.3 The plant within the Development will heat pre-prepared (i.e. chipped) waste wood at high-temperatures to produce a combustible synthesis gas, which is then used to raise steam and generate renewable electricity, through steam cycle turbine generation. This happens in four stages:

1. **Delivery of waste wood:** All waste wood will be delivered directly into an enclosed fuel storage building. When required, the wood chip will be fed via a conveyor system into

the gasification building. All wood chip used must meet strict quality requirements. Any other material or sub-standard wood chip will be rejected.

2. **Gasification:** Wood chip is fed into the gasification system through a sealed air-tight feed mechanism, where it is gasified to produce a combustible gas (called syngas). The syngas is then used to produce high temperature flue gas. The heat from this process is collected in a conventional boiler and converted into superheated steam.
3. **Electricity generation:** The superheated steam then passes to a steam turbine and generator, which will produce an annual average of 10MWe of renewable electricity to be fed into the Local Distribution Network – enough to power 25,100 homes.
4. **Flue gas cleaning:** All emissions from the plant are cleaned using a system that neutralises and filters the emissions to make sure that when released, they meet limits set by the European Union (EU) Industrial Emissions Directive (2010/75/EU)[1] as amended by the Environmental Permitting (England and Wales) (Amendment (EU Exit) Regulations 2019 ('IED').

5.2.4 Further details of the building and structures on-Site and the operational process are provided in the following sections. A process flow diagram is provided as Figure 5.3.7

Approved Planning Drawings and Surveyed Information

5.2.5 Appendix 5.1 includes a selection of the planning application drawings which were approved by VoGC in 2015 as part of the 2015 Permission. The drawings included in Appendix 5.1 are listed in Table 5.1.

Table 5.1: Selection of Approved Planning Application Drawings (2015 Permission)

Drawing Reference	Drawing Title
2015 Permission Approved Drawings	
E1627-2101 RevA Traffic & Site (A1 PLOT 160415)	Traffic Movements – Entrance Movements to Reception Hall
E1627-2102 RevA Traffic & Site (A1 PLOT 160415)	Traffic Movements – Exit Movements to Reception Hall
E1627-2103 RevA Traffic & Site (A1 PLOT 160415)	Traffic Movements – Exit Movements to Reception Hall via Ash Silos
E1627-2104 RevA Traffic & Site (A1 PLOT 160415)	Traffic Movements – Entry and Exit from Site
E1627-2105 RevA Traffic & Site (A1 PLOT 160415)	Site Layout
E1627-2116 to 2120 RevB Traffic & Site	Site Elevations A-A, B-B, C-C, D-D
E1627-2117 to 2120 RevB Elevations (A-A)	Site Elevations A-A
E1627-2118 to 2120 RevB Elevations (B-B)	Site Elevations B-B
E1627-2119 to 2120 RevB Elevations(C-C)	Site Elevations C-C
E1627-2120 to 2120 RevB Elevations (D-D)	Site Elevations D-D

5.2.6 Details of site layout, finishes, elevations and landscaping were approved by VoGC under planning conditions pursuant to the 2015 Permission, although these are not appended to the ES as they are not critical to understanding the physical nature of the Development. Instead, the Site, which includes the constructed Development, was subject to a topographic survey undertaken by SLR in March 2022 which provides accurate information on the layout and heights of all buildings. The topographic survey drawing is included in full as Appendix 5.2

5.2.7 The Development was also subject to a 3D survey using drone technology undertaken by GHD in March 2022. Screenshots from the 3D model created from the 3D survey are included in Appendix 5.3.

NRW Environmental Permit

5.2.8 The Development is permitted by NRW as a "waste co-incineration activity" and is to be operated in accordance with the Permitting (England and Wales) Regulations 2016 ('EPR') and Chapter IV of the IED. The Development is subject to the EPR because it is a regulated facility.

5.2.9 Specifically under the EPR , it carries out an activity listed in Part 2 of Schedule 1 to the EPR: Section 5.1 Part A(1)(b) – the incineration of non-hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity exceeding 3 tonnes per hour.

5.2.10 For EPR purposes, the plant is "waste co-incineration plant" because the main purpose of the plant is the generation of energy. A "waste co-incineration plant" is defined as a stationary or mobile technical unit whose main purpose is the generation of energy or production of material products and which uses waste as a regular or additional fuel or in which waste is thermally treated for the purpose of disposal through the incineration by oxidation of waste as well as other thermal treatment processes, such as pyrolysis, gasification or plasma process, if the substances resulting from the treatment are subsequently incinerated.

5.2.11 An application was duly made on 21st November 2016 for a Permit which was issued by NRW on 7th February 2018 (Ref: EPR/AB3790ZB) (Appendix 1.2). The Permit was subject to a minor technical variation application made on 18th January 2019 which was approved by NRW on 14th March 2019 (Appendix 1.2). The variation to the Permit included amendment to the arrangements for monitoring of hydrogen fluoride.

5.2.12 The Permit imposes a number of operational requirements which the Development is required to comply with.

Current Operational Status (July 2022)

5.2.13 The Development has already been constructed under the 2015 Permission and the Permit. At the time of writing, however, the Development is not operational.

5.2.14 At the time of writing (July 2022), some commissioning had been carried out and the Development was being maintained in 'Preservation Mode' which includes the running of essential equipment including internally-sited compressors within the Main Processing Building, lean-to-building and on-site staff for maintenance and health and safety purposes. No waste wood feedstock is being accepted at the Site and no combustion is occurring.

5.3 Site Layout and Components

5.3.1 The main components of the Development are described in Table 5.2 and their location is shown on Figure 5.2. Figure 5.2 is based on the March 2022 topographic survey of the Site and is therefore up-to-date. The operational functions of each component and associated processes are described later in this chapter.

Table 5.2: Main Development components (Refer to Figure 5.2)

Ref (Fig. 5.2)	Component	Description
1	Reception Building / Fuel Storage and Feed Building	Most northerly building on Site built to store all waste wood and provide an enclosed transfer system. This includes a single storey lean-to structure. c.22.40mAOD in height (ridge level).
2	Main Process Building	The largest structure on Site, built to fully enclose the fluidised bed gasification equipment. This building includes a lean-to compressor house. c. 32.26mAOD in height (ridge level).
3	Turbine and Welfare Building	The building is sub-divided to include welfare facilities for employees, offices, the main control room and a turbine room which houses the steam turbine. c. 19.76mAOD in height (ridge level).
4	Air Cooled Condenser (ACC) Structure	An external ACC standalone unit is a standalone structure containing 8 axial fans and radiator cells on a traditional A-Frame structure. The ACC unit is located adjacent to the Turbine, Welfare and Ancillaries building. c. 26.66mAOD in height (ridge level).
5	Flue Gas Treatment (FGT) slab, including chimney stack and FGT equipment	A single, free-standing chimney stack/ combustor flue is c. 51.87mAOD in height, located to south of FGT slab.
6	Ash Silos	Storage silos (x 2 no) for ash residue, externally located.
7	Fire Water Tank and Fire Pump House	Emergency water fire tank mounted above ground and associated pumphouse located at the south west corner of

		the Site at the junction of Woodham Road and David Davies Road.
8	Emergency Diesel Generator and Diesel Storage Tank	Emergency generator required for the safe operation and shut down of the Development and diesel tank to store auxiliary fuel required to fuel equipment.
9	Weighbridge	Located at the Site entrance.
10	Auxiliary Coolers	Auxiliary coolers are adjoined to the Main Process Building between this building and the diesel storage tank (structure 8). The auxiliary coolers provide an air driven, mechanical heat exchange function.
11	Export Transformers	Located in the north-east of the Site, adjacent to containers. The export transformer units were installed by Western Power under their statutory powers. Transformers are not the responsibility of the Appellant.
12	Vehicle Turning Area	Area of hardstanding used for HGV manoeuvring in the northern part of the Site.

Note: Heights of Ref 1 to 7 based on March 2022 topographic survey of As Built Development.

Figure 5.2: Site Boundary and Layout (based on March 2022 topographic survey)

NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL RELEVANT PROJECT STANDARDS AND SPECIFICATIONS.

LEGEND

01	RECEPTION BUILDING / FUEL STORAGE AND FEED BUILDING
02	MAIN PROCESS BUILDING
03	TURBINE AND WELFARE BUILDING
04	ACC STRUCTURE
05	FGT SLAB, VARIOUS EXTERNAL EQUIPMENT (INC CHIMNEY STACK) AND FLUE GAS CLEANING EQUIPMENT
06	ASH SILOS
07	FIRE WATER TANK AND PUMPHOUSE
08	EMERGENCY DIESEL GENERATOR AND DIESEL STORAGE TANK
09	WEIGHBRIDGE
10	AUXILIARY COOLERS
11	EXPORT TRANSFORMERS
12	VEHICLE TURNING AREA

Revision	By	Chk'd By	Date	Comments
0	CR	IW	04/22	

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Project:

Drawing Title: **SITE LOCATION PLAN**

Scale: 1:400 @ A1

Date: APRIL 2022

Drawing Number: **BARRY-01-DWG-01-20000**

Revision: **0**

BARRY-01-DWG-01-20000.dwg

5.4 Operational Hours and Employees

5.4.1 The Development will operate 24 hours a day, seven days a week, with the exception of around four weeks of the year when planned maintenance typically takes place, although this is not limited by the 2015 Permission.

5.4.2 Fuel feedstock, hydrated lime and urea and other materials will be delivered to Site between Monday and Saturday between 07:00 and 19:00 hours and 08:00-16:00 on Sundays and Bank/Public holidays in accordance with Condition 24 of the 2015 Permission. In practice, deliveries of fuel feedstock take place typically between the hours of 08:00 – 17:30 Monday to Friday with additional deliveries outside these hours only in emergencies or in the event of unforeseen delays. However, the 2015 Permission allows deliveries to occur outwith these 'typical' periods.

5.4.3 The operational Development will support 14 jobs on-site, some of which will operate in a 12-hourly shift pattern, and 2-3 external contractors and off-site roles dealing with purchasing/ finance and compliance. On the busiest days, there will be up to 14 staff on site per day on weekdays and 5 staff on weekends. This will create some job opportunities within the local labour market, which is beneficial considering there is a high claimant count rate within the area.

5.5 Operational Functions of Buildings/Structures

5.5.1 The operational functions of each of the main built components of the Development (Ref. 1 to 12 on Figure 5.2 and listed in Table 5.2), are described in this section. There are no further operational functions described for the various external areas. A description of the operational processes is provided in Section 5.6.

Structure 1 – Reception Building / Fuel Storage and Feed Building ('Fuel Storage and Feed Building')

5.5.2 This building accepts waste wood which is delivered directly into the Fuel Storage and Feed Building by electrically operated roller shutter doors. The wood storage area has an approximate storage volume of 2,000m^3. When required, fuel is discharged onto a feedstock conveyor system and delivered into the Main Process Building via an external enclosed inclined conveyor and screening unit.

5.5.3 The Fuel Storage and Feed Building includes a single storey lean-to structure. The lean-to is a small plant house covering the extremities of the fuel handling plant, electrical hardware in its vicinity and an open pit housing the hydraulic rams used to power the walking floors.

5.5.4 The following structures are separate to the Fuel Storage and Feed Building but are in close proximity:

- Urea and Air Pollution Control Residue (APCR) silo – To the south east and adjacent to the Fuel Storage and Feed Building is a small silo containing urea and APCR which is necessary for the gasification process. The silos were installed to reduce deliveries of pre-mixed product by HGV tankers.
- External incline/discharge conveyor - located on the western elevation of the Fuel Storage and Feed Building. The incline/discharge conveyor connects the Fuel

Storage and Feed Building to the Main Process Building and moves feedstock from the reception area to the process building, allowing a consistent and automated fuel supply to the Main Process Building.

- Screening tower and dust extractor – located between the Fuel Storage and Feed Building and the Main Process Building. This structure forms part of the fuel infeed system providing a final screen of the incoming fuel guaranteeing its composition and quality prior to gasification therefore improving operational stability.

Structure 2 - Main Process Building

5.5.5 The Main Process Building contains the fluidised bed gasification system, combustion, heat recovery boiler systems and associated water pumping systems. The building also contains the water treatment plant and associated dosing skids[i] which feed directly into the feed line.

5.5.6 Ancillary plant includes the air compressors, emergency generator and associated fuel tank are located within a lean-to annex to the Main Process Building.

5.5.7 It should be noted that the Appellant intends to relocate blowdown (exhaust) silencers, used in the event of an emergency, from the western elevation to the eastern elevation of the Main Process Building to reduce the visibility of steam exhausts from the Facility. Details of this relocation are shown at Appendix 5.5 although it is not considered to be material to the EIA.

Structure 3 – Turbine and Welfare Building

5.5.8 The superheated steam passes to a steam turbine and generator, which converts steam to generate electricity. As a result, this then exports an annual average of 10Mwe of renewable electricity to the Local Distribution Network.

5.5.9 The building is subdivided to include welfare, offices and the control rooms for the operation of the plant.

Structure 4 – ACC Structure

5.5.10 The ACC contains eight axial fans and radiator cells on a traditional A-frame structure. ACCs immediately condense the steam turbine exhaust flow and return condensate to the boiler without water loss.

Structure 5 – Flue Gas Treatment slab, including Chimney Stack and Flue Gas Cleaning Equipment

5.5.11 The external plant includes the following components:

- Flue gas treatment plant - an external enclosed fan plant and Selective Non-Catalytic Reduction (SNCR) and Selective Catalytic Reduction (SCR) for the reduction of for the reduction of Nitrogen Oxides (NO_x), sorbent injection for acid gas neutralisation and activated carbon powder injection for absorption and removal of heavy metals, dioxins, Volatile Organic Compounds (VOCs) and other harmful substances. The flue

[i] feed liquid chemicals from a supply source to an injection point.

gas cleaning system also incorporates a baghouse system, which is designed to remove submicron dust particles within anticipated Emission Limit Values (ELV's) listed in Annex VI which are referenced by Chapter IV of the IED and in accordance with the Permit;

- Urea and APCR silos;
- Exhaust flue - a single freestanding flue/ chimney stack at 43m (51.97mAOD) in height with external platforming and associated continuous emissions monitoring equipment and equipment cabinets; and
- Fire kiosk - a small flat roofed building that houses valve sets necessary to distribute fire water to the deluge system. The structure forms part of the Fire Prevention and Management Plan that is part of the Permit and is necessary for insurance purposes.

Structure 6 – Ash Silos

5.5.12 Fly ash and APCR from the combustion process is delivered by a series of mechanical conveyors and transported for discharged to be stored in two externally located and sealed urea and activated carbon silos. Figure 5.3 provides an image of the enclosed ash silos.

Figure 5.3: Enclosed Ash Silos showing sealed fill pipes and enclosed discharge

Structure 7 – Fire Water Tank and Pumphouse

5.5.13 An externally mounted above ground (10m diameter) emergency Fire Water Tank which houses fire water and has a capacity of 840,000 litres. A fire water tank is a requirement of the Permit, to comply with the national guidelines for fire prevention systems on waste to energy facilities and is necessary for insurance purposes. The tank ensures that there is enough water store on Site to deluge the process equipment and fight a fire without the need for external support. The tank and pumphouse are located adjacent to the southern boundary of the Site.

Structure 8 – Emergency Diesel Generator and Diesel Storage Tank

5.5.14 The emergency generator is located directly adjacent to the Turbine and Welfare Building and is required for the safe operation and shut down of the Development in the event of a power failure or mains electricity black out.

5.5.15 The diesel tank is located adjacent to the auxiliary coolers (No. 10) and stores auxiliary fuel required for bring the Development to operating temperature and is also used to ease operational issues with auxiliary fuel used to maintain process temperatures in the event of short stoppages in the solid fuel feed.

5.5.16 Due to additional operational requirements, the Appellant intends to install a white diesel tank, this will either be a permanent ancillary tank or a mobile bowser (25.5cm x 13.85cm x 19.85cm in height) will be located within the central part of the Site, within the diesel tank structure. This tank has been assessed as part of the Development.

Structure 9 – Weighbridge

5.5.17 All incoming and outgoing delivery vehicles are required to report to the weighbridge at the Site entrance to weigh and record the delivered/ removed waste in accordance with the Site's working plan procedures.

Structure 10 – Auxiliary Coolers

5.5.18 The auxiliary coolers primarily provide cooling to the turbine lubricating oil system, the ash conveying system, the fuel feed screws and the steam and condensate sampling system. The coolers are essential for the operation of the process to ensure that critical systems operate within their design parameters and are essential for minimising risks associated with excess heat, e.g. risks of fire.

Structure 11 – Export Transformer

5.5.19 The export transformers are owned and leased by Western Power Distribution and are covered by their powers as a statutory undertaker. These structures are required to provide the necessary power import and export capabilities of the Site and do not form part of the responsibility of the operator.

Area 12 – Vehicle Turning Area

5.5.20 Area of hard standing laid out for storage and the manoeuvring and layover of HGVs associated with the Development. The area is accessed via the main Site access and is bounded by palisade fencing.

5.5.21 The area enables vehicles delivering waste wood to turn and park safely prior to unloading and avoid the need to queue/ wait outside the Site on David Davies Road or Woodham Road.

5.6 Operational Process Description

5.6.1 The operational processes which take place on Site are described in this section. This is informed by Figure 5.4 which shows a process flow diagram showing the gasification and energy generation process. Note, the reception hall, feedstock screening and other ancillary processes are not shown on the flow diagram.

5.6.2 Information on raw materials, including waste wood, used at the Development is provided in Section 5.7. Table 5.4 provides the operational inputs and outputs of the Development as based on the heat and energy mass balance.

1. Waste Wood Acceptance and Reception

5.6.3 The fuel for the plant comprises mixed waste wood only. The 2015 Permission and Permit restrict the use of other fuel sources. The fuel arrives on Site in the form of pre-processed shredded waste-wood by road in walking-floor HGV's.

5.6.4 On arrival, all vehicles report to the weighbridge for checks in accordance with site waste acceptance procedures, prior to being directed to the Fuel Storage Building for delivery. All fuel feedstocks are deposited directly into the internal fuel reception area.

5.6.5 Within the Fuel Storage Building, the site operators use mechanical loading shovels to load the fuel into the storage bays and onto the fuel transfer system, whereby it is automatically fed into the gasification system when required.

5.6.6 The Fuel Storage Building is of sealed construction and is equipped with fast acting roller shutter doors which remain shut when not in use. Air from within the Fuel Storage Building is extracted via the main combustion systems to ensure that the internal environment is maintained at acceptable occupational exposure levels. In addition to the extraction systems, the Fuel Storage Building is equipped with a misting dust mitigation system.

5.6.7 The wood storage area has an approximate storage volume of 2,000m^3 and is designed in accordance with the Permit requirements.

2. Waste Processing

5.6.8 The fuel transfer system comprises a push floor with intermediate storage to enable waste food to be transferred to the gasifier via conveyor. This is within the Fuel Storage and Feed Building. Hydraulic actuators pull fuel to the end of conveyors where the fuel drops onto a transport system and onto conveyors.

5.6.9 The fuel transfer system includes a material screen and metal separator to remove any oversize materials and metals from the feedstock. Ferrous and non-ferrous metals are separated using an overband magnet and eddy current separator and segregated into a dedicated container for export offsite. Following this, a sizing screen segregates oversize

material which is collected separately while smaller feedstock drops onto a chain conveyor which then transports the waste wood into the gasifier metering bins.

3. Gasification Process

5.6.10 The gasification system is made up of the following major plant items:

- Advanced Fluidised Bed Staged Gasification Cell;
- Underbed Air Distribution System;
- Overfire Air; and
- Bed Material.

5.6.11 Fuel is fed via the augers into the gasification unit, where it is distributed onto a fluidised bed located at the bottom of the unit. The fluidised bed heat treats the fuel to produce a synthetic gas which is then combusted to produce a high temperature flue-gas. A steam boiler then recovers heat from the flue-gas through the conversion of water to superheated steam. The superheated steam passes through a steam turbine which drives an electricity generator to produce an annual average of 10MWe of electricity for export to the National Grid.

5.6.12 Within the fluidised bed, air and recirculated flue gas is passed uniformly through the bed material at such a velocity that the bed material becomes buoyant and behaves as a fluid. The introduction to heated air within the fluidised bed drives the thermal conversion process and produces synthetic gas. The synthesis gas (syngas) then passes from the gasification bed to the secondary chamber where the gas mixes with primary and secondary combustion air and is combusted. Within the secondary chamber the temperature is maintained above 900^{o}C (i.e. greater than the 850^{o}C minimum requirements) and has a residence time well in excess of the 2 seconds minimum required.

5.6.13 Overfire air delivered to the gasification cell above the active bed is used to optimise the thermal oxidation and temperature profile and is key to the control of primary nitrogen oxide (NO_x) emissions.

5.6.14 The fluidised bed material is a fired refractory clay. The refractory material is selected for its resistance to thermal shock and abrasion. Ash material that is collected within the gasifier is recycled through the bed and ultimately removed in the fly ash streams. The bed recycling system is designed to allow the continuous operation of the fluidised bed process while removing inert materials, including metals.

5.6.15 The system is designed with both an underbed preheat burner system and overbed burner system, both oil fired, for start-up requirements and to maintain the required minimum temperature of 850°C during normal operation.

5.6.16 Syngas produced in the gasifier is then combusted and the heat recovered and converted to steam in the heat recovery boiler.

4. Electricity Generation

5.6.17 The Development is equipped with a single steam turbine and generator. The steam turbine has been designed to recover all available thermal energy from the steam and generate electricity.

5.6.18 The steam turbine is fed with the superheated steam from the gasifier and used to generate electricity. With the exception of a small portion of the steam which is extracted at the high-pressure exit stage of the turbine and the boiler drum for the supply of heat to the 'deaerator' and the feedwater preheater respectively, all steam is used for the generation of power.

5.6.19 An ACC circuit is employed to cool the exhaust steam from the turbine exit back to liquid state (condensate) to be re-used by the boiler.

Air Cooled Condenser

5.6.20 An ACC condenses the steam exiting the turbine. The ACC comprises a large bank of fans and cooling radiators to convert the low-pressure steam from the turbine exhaust back to condensate that subsequently flows back into a condensate tank and ultimately reused in the turbine.

Electrical Generation

5.6.21 The electricity produced by the steam turbine generator is transferred onto the Local Distribution Network using a 33 kilovolt (kV) connection.

5.6.22 The annual average export capacity of the Development is 10 Megawatt electric (MWe) of renewable electricity which can be exported to the Local Distribution Network operator (Western Power) network at full load. This supply of renewable electricity equates to the annual energy usage of approximately 25,100 households based on an average UK household consumption of 3,100 kilowatt hour (kWh)/year[2].

Boiler Water Treatment System

5.6.23 The Development is equipped with a water treatment system which is designed to provide high quality feedwater to the boiler.

5.6.24 The water treatment plant provides a multi-stage de-mineralisation process, consisting of the following elements:

- Activated carbon filter for the removal of free chlorine and any other organic impurities;
- Water softeners for the conversion of calcium and magnesium salts within the feedwater;
- Reverse osmosis for removal of dissolved solids from the feedwater; and
- Electro-deionisation for the final polishing of the feedwater.

5.6.25 All necessary chemicals are dosed directly within the water treatment plant. No solid chemicals are added to the water, therefore solid deposit formations are avoided.

5.6.26 The pH of the feedwater is maintained at a level to minimise corrosion in the feed system. The pH of the feed water is controlled by dosing a blend of proprietary low volatile water treatment chemicals, as needed.

5.6.27 These water treatment chemicals not only control the water pH but also minimise corrosion through the removal of oxygen.

5. Flue Gas Treatment

5.6.28 Flue gas cleaning and pollution control consists of Selective NO_x Catalytic Reduction (SNCR) by urea injection, SCR, anhydrous lime injection for acid gas neutralisation and activated carbon powder injection for absorption and removal of heavy metals, dioxins, VOCs and other harmful substances.

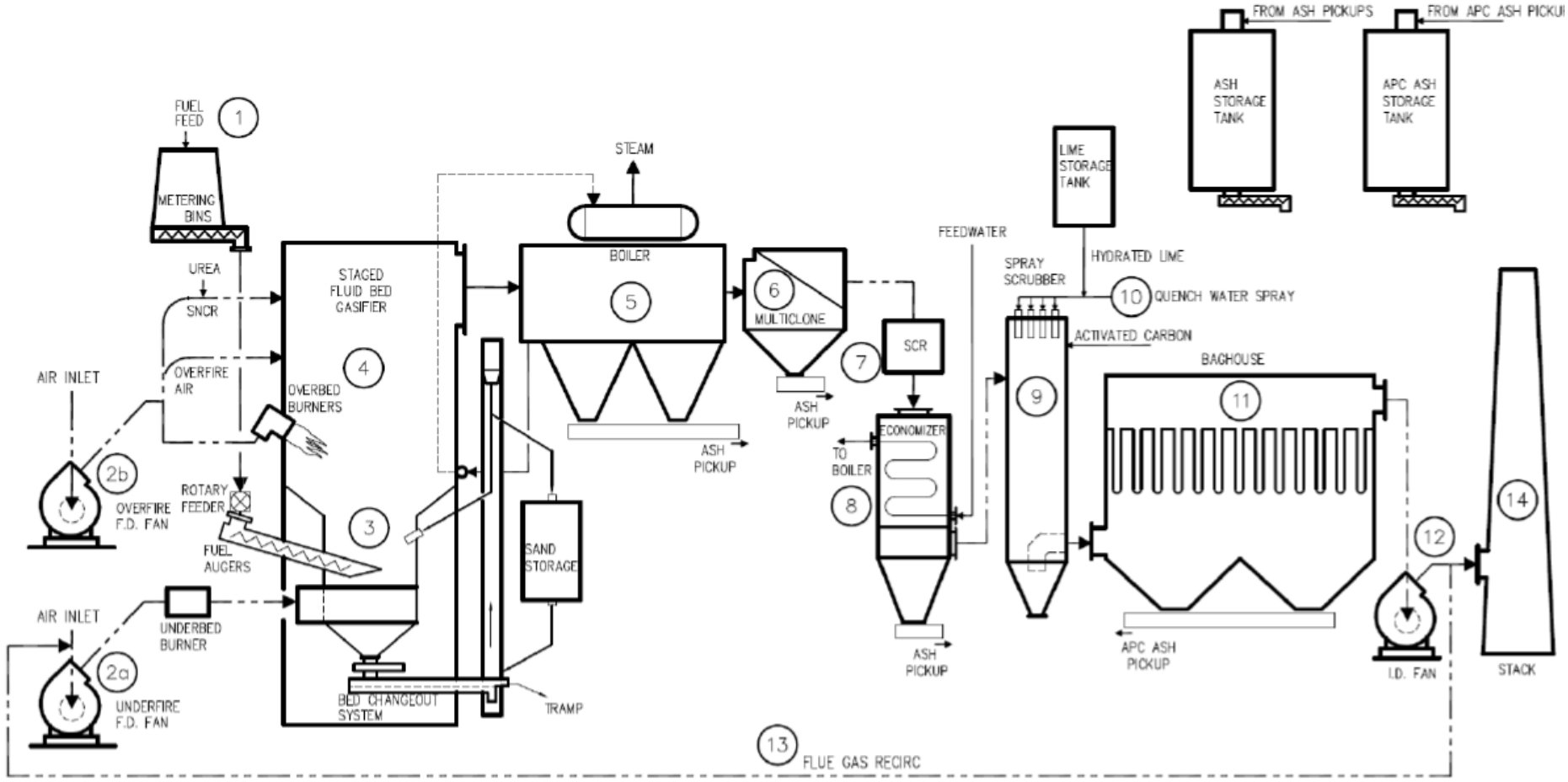
5.6.29 The gasification line is fitted with a dedicated baghouse filtration system with sufficient capacity to remove all submicron dust particles which include fly ash and absorbents leaving them behind as APCR. In turn, this residue is recovered from the bottom of the filter and transported to the APCR ash tank.

5.6.30 Emissions to atmosphere are then discharged through the stack. All emissions from the stack are monitored using a fully compliant MCERTS[ii] accredited Continuous Emissions Monitoring System (CEMS). The CEMS monitors hydrofluoric acid (HF), hydrochloric acid (HCl), nitric oxide (NO), nitrogen dioxide (NO_2), nitrous oxide (N_2O), NOx, ammonia (NH_3), oxygen (O_2), sulphur dioxide (SO_2), VOC, particulates, water (H_2O), temperature, pressure and flow. Total Organic Carbon (TOC) is analysed by a Flame Ionisation Detector.

5.6.31 The Development has been designed to ensure compliance with the IED Chapter IV Emission Limit Values (ELVs) in line with the conditions of the Permit.

[ii] The Environment Agency's Monitoring Certification Scheme for environmental permit holders.

Figure 5.4: Process flow diagram



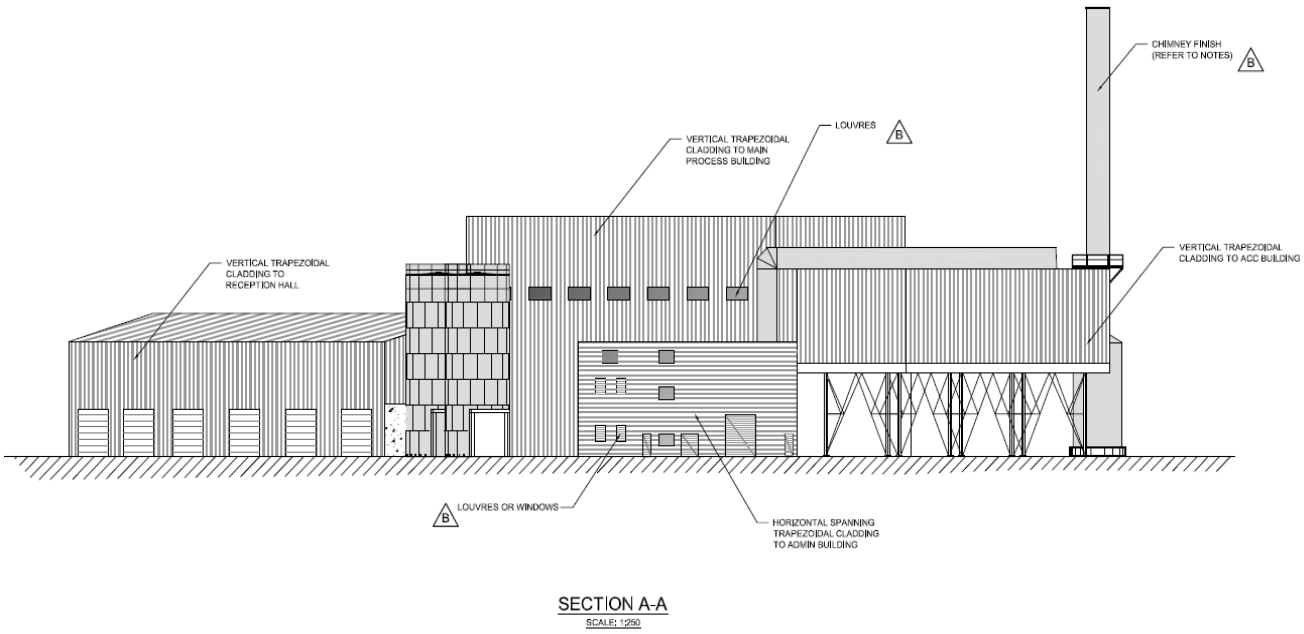
Design and Appearance

5.6.32 The appearance of all aspects of the Development is that of a modern industrial development. The 2015 Permission provided for three, functionally interconnected buildings with ancillary external structures. The 2015 application proposed that the finishes of the structures were to be steel portal frame construction, to be surfaced with micro profile or box cladding to all external elevations. The colour and specification of the panels were to be agreed with VoGC under Condition 7 of the 2015 Permission.

5.6.33 Detailed elevation drawings which approved by VoGC under the Condition 7 of the 2015 Permission in May 2016. These drawings are included in Appendix 5.1 and included the types of materials to be used in construction and the colours. The majority of structures within the Development are of a grey colour (Albatross Grey RAL 240 80 05).[iii]

5.6.34 Figures 5.5 and 5.6 illustrate building heights and finishes across the Development based on the approved elevation drawings and the As Built drawings of the Development (GHD, March 2022) respectively. Figure 5.7 provides a photograph of the Development.

Figure 5.5: Elevational Details of the Development (details submitted under Condition 7)



[iii] The 2021 OR states that the elevations approved pursuant to the 2015 Permission are a 'mirror image' of the approved layout plan which is a technical error. The as-built Development substantially conforms with the layout approved by the 2015 Permission and the OR 2021 notes at paragraph 16 that "the development undertaken is considered to be visually acceptable in relation to the outline consent granted".

Figure 5.6: As Built Development Structures and finishes (North and South Elevation) (GHD, March 2022)

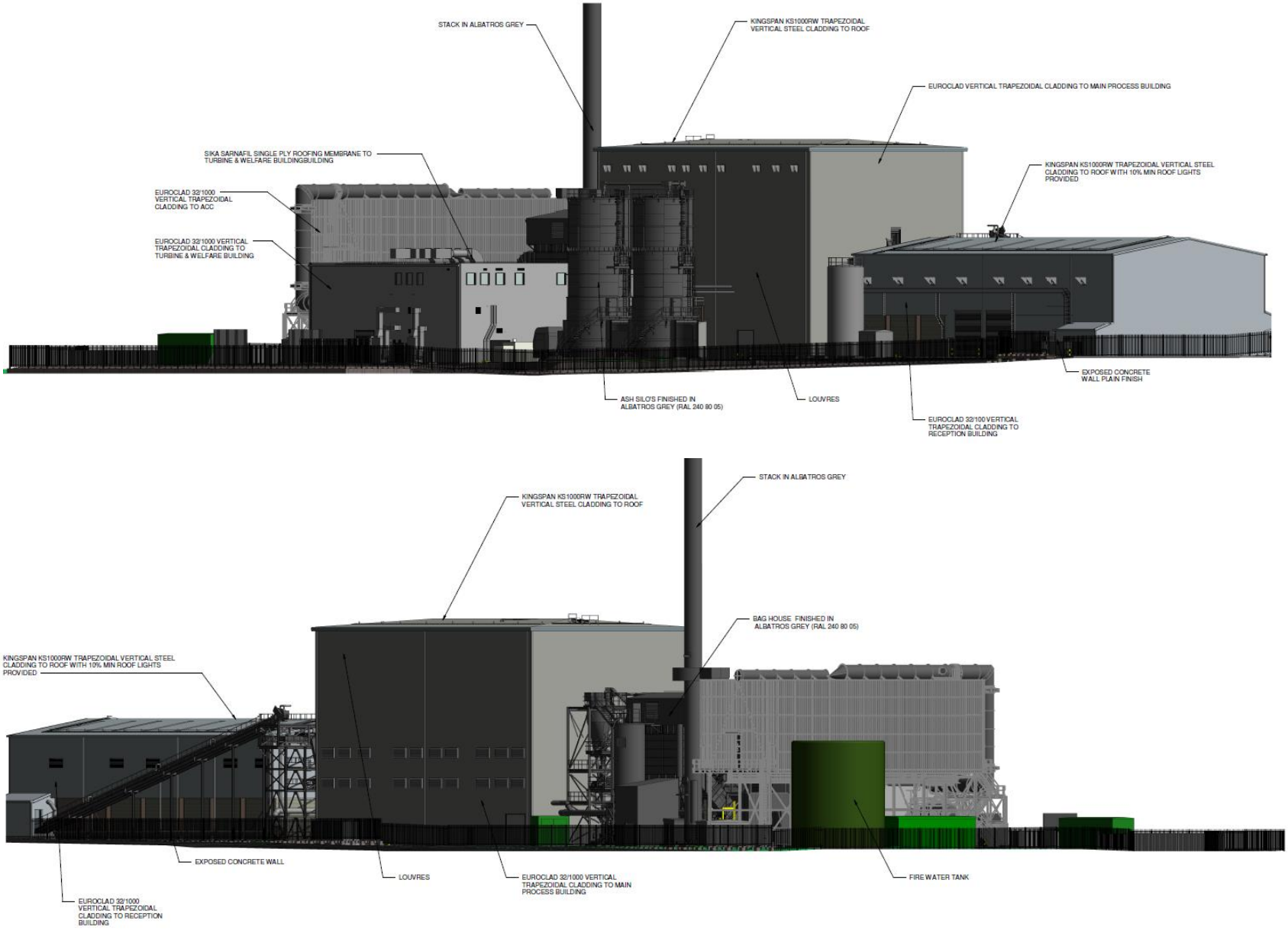


Figure 5.7: Image of the Development

5.7 Raw Materials

Waste wood fuel

5.7.1 Under the 2015 Permission, the Development is able to accept up to 72,000 (dry) tonnes of mixed waste wood per annum. Incoming waste must consist of 'fuel grade' mixed waste wood as defined by BS PAS 111: Waste Wood Processing[3] (Grade C).

5.7.2 All fuel feedstock is supplied to the Site via an approved third-party fuel provider who is contracted to provide material in accordance with the Site's waste acceptance procedures and waste supply specifications.

5.7.3 Under the Permit, the Appellant is permitted to accept up to 86,400 tonnes of waste wood at the Development per annum. This differs from the 2015 Permission figure of 72,000 tonnes. The difference is because of the moisture content in the wood: 86,400 tonnes is for wet wood and 72,000 tonnes if for dry wood.

5.7.4 Schedule 1, Table S1.1 of the Permit states that the total storage of capacity of incoming waste wood is 2,000m^3, therefore no more than this can be stored at any one time on Site.

5.7.5 As stated above, deliveries take place typically between the hours of 08:00 – 17:30 Monday – Friday (although the 2015 Permission allows between 07:00 and 19:00 hours Monday to Saturday and 08:00 – 16:00 on Sundays and Bank/Public holidays). Deliveries outside these 'typical' hours would usually be in emergencies or in the event of unforeseen issues

or delays. All deliveries will be undertaken accordance with the limitations imposed by Condition 24 of the 2015 Permission.

Operational consumables

5.7.6 In addition to waste wood, the Development utilises raw materials in line with the Permit as follows:

- Urea, hydrated lime and activated carbon (reagents for FGT);
- Limestone (bed additive);
- Water treatment chemicals and general stores (e.g. lubrication, hydraulic and turbine oils); and
- Diesel (auxiliary and back-up fuel).

Reagents

5.7.7 Hydrated lime, urea and activated carbon is used in the flue-gas treatment (FGT) process. The above reagents are utilised in the below approximate quantities onsite:

- Hydrated lime - approximately 536 tonnes per annum;
- Activated carbon – approximately 26 tonnes per annum; and
- 40 % Urea solution – approximately 2,400 tonnes per annum.

5.7.8 Reagents used in the FGT system are removed from Site within the APCR composed of fly ash and FGT reaction products (See below for further details).

Bed Additive

5.7.9 Solid limestone is introduced into the fluidised bed energy system for two reasons;

- Firstly, fuels containing high levels of alkaline elements typically contain ash with low softening temperatures. Lime helps reduce the effects of ash softening by coating the ash particles with the additive.
- Secondly, sulphur and other acid gas constituents are abated at source by introducing lime into the fluidised bed.

5.7.10 Approximately 136 tonnes of limestone is used by the process per annum.

Diesel

5.7.11 Diesel, used as an auxiliary fuel for the start-up burners and for mobile plant such as the mechanical loading shovel, is stored onsite in a 15m^3 bunded tank and used as required. An additional tank for white diesel is to be installed at the Site shortly (25.5cmx 13.85cm x 19.85cm in height).

Other Consumables

5.7.12 Lubrication, hydraulic and turbine oils, in addition to water treatment chemicals are stored internally within the ancillary building in bunded 5m^3 tanks.

5.8 Waste and Servicing

Process outputs (waste)

5.8.1 The gasification process does not inherently produce significant quantities of waste. There are two principal types of solid by-products produced from the operation of the gasification facility namely:

- Fly Ash; and
- Air Pollution Control Residues (APCR).

5.8.2 Fly ash is produced from within the gasification chamber from the combustion of the fuel feedstock. Fly ash is collected from the boiler, multicyclone and economiser systems within the fluidised bed combustion process. Fly ash is removed from the process and is transported for storage in an enclosed silo via enclosed water-cooled conveyors. Fly ash from other parts of the process is also transported in this way. The fly ash silo holds 100 tonnes of fly ash is emptied approximately every 2 weeks. The silo is sealed and therefore fugitive emissions to atmosphere are reduced.

5.8.3 APCR, is the solid output of the FGT equipment installed at the Facility. The APCR is removed from the process in much the same way as fly ash, however it is kept separate and stored in a dedicated silo. The silo can hold approximately 70 tonnes of APCR and will be emptied approximately once a fortnight.

5.8.4 The Development is expected to produce:

- 2,384 tonnes of fly ash per annum; and
- 1,544 tonnes of APCR per annum.

5.8.5 All ash from the Development will be transported off-Site by road for recovery or disposal dependent on its composition and testing. Both silos are fitted with conditioning units at the discharge points, and socks for connection to the collection vehicles or bags, depending on choice of removal. The collection process does not allow the escape of fugitive dust. The silos are emptied into special sealed containers which are designed to prevent the loss of dust during the loading process and then transported by road.

5.8.6 The disposal of the ash streams will be made in accordance with regulatory requirements and the 2015 Permission (Condition 6). Subject to testing which confirms the material is non-hazardous (as indicated to date), fly ash would be taken to a facility in Swansea for re-use as recycled aggregate material. As the APCR is categorised as hazardous, the ash will be transported for disposal at an appropriate hazardous waste landfill.

5.8.7 The Development will also generate tertiary waste sources including:

- Extracted metals and oversize fuel wood from screening system;
- Separated bed materials (inert clinkers and metals) from bed vibratory screens;
- Domestic/ office general wastes; and

- Specialist oils and chemical wastes arising from turbine and water treatment plant maintenance.

5.8.8 The above materials would be re-used, recycled or disposed of in line with regulatory requirements. Further information on waste streams and quantities generated by the Facility is provided in Appendix 3.16: Waste and Materials Technical Note.

5.9 Use of Natural Resources

5.9.1 The principal natural resource used at the Development is mains water usage. Supplies of mains water are provided to the Site by the municipal supply (Welsh Water) and feeds two water systems: Town's water and potable water.

5.9.2 The town's water system supplies several operational processes before entering the towns water storage tanks. These tanks supply water for firefighting and support the boosted towns water system. The boosted towns water system supplies water to demineralisation plant and other operational utilities. The potable water system supplies drinking water and water to shower and toilets.

5.10 Residues and Emissions

5.10.1 Water related emissions are subject to a discharge consent and are described under Section 5.15. The plant releases approximately 4m^3 per hour to sewer under consent from Welsh Water. All parameters as outlined within the discharge consent are adhered to, with online monitoring equipment and periodic third-party extractive sampling.

5.10.2 Details of residues and emissions in relation to discharges to; air and noise and vibration are set out in Chapter 8: Noise and Vibration and Chapter 9: Air Quality, respectively. Details of lighting are provided under Section 5.13 and visual effects of light emissions are considered within Volume II: Landscape and Visual Impact Assessment.

5.11 Access, Parking and Logistics

Access and Parking

5.11.1 The Site has one controlled, gated entrance off David Davies Road. Access onto the surrounding road network is gained via Cory Way onto Ffordd-Y-Mileniwm. The Development is situated within an area known as the Waterfront Strip - served by the A4050, A4055 and A4231 local roads - providing links to the national network and Cardiff.

5.11.2 The Development provides 12 car parking spaces plus one accessible space. 1 electric vehicle (EV) charger is available on-site. In addition, the Development also provides two cycle spaces to cater for employees. The cycle spaces comprise secure, locked facilities (i.e. Sheffield/ Rail or Guard rail/ Wall bracket/ Cycle locker design).

5.11.3 The Development operates in accordance with a Green Travel Plan submitted to discharge Condition 29 (pending determination) of the 2015 Permission which sets out measures to minimise staff car journeys to the Site and agreed haul routes for the delivery of waste wood and feed stock and the removal of ash from the Site.

Logistics

5.11.4 All deliveries of incoming waste wood, FGT reagents, and other consumables are undertaken via road as are all collections of residues and wastes from the Site.

5.11.5 Deliveries and waste collections can occur between 07:00 and 19:00 hours Monday to Saturday inclusive, and between 08:00 and 16:00 hours on Sunday.

5.11.6 Up to 15 deliveries per day of fuel feedstock could be expected. Waste ash collections will occur approximately once every 10 days. Other HGV movements associated with the other materials and removal of waste, are expected at a frequency of up to once per day.

5.11.7 Limestone, hydrated lime and bed material shall be moved into the Main Processing building via a single forklift. These operations would occur infrequently and would be conducted during the daytime only. The limestone tank will require filling once per month, the bed material will be replenished up to 4 to 5 times per year and the hydrated lime will be stocked approximately twice a month.

5.11.8 Further information on vehicle movements associated with the Development and potential transport effects are provided in Appendix 3.10: Transport Technical Note. As a worst case (Table 3.2 of Appendix 3.10), the EIA assumes there would be 38 HGV movements a day plus as small number of staff movements in private cars.

5.12 Heat and Energy Mass Balance

5.12.1 Table 5.3 provides the operational inputs and outputs of the Development as based on the heat and energy mass balance.

Table 5.3: Heat and Energy Mass Balance – Inputs and Outputs

Process ref. (refer to Figure 5.4)	Process	Per Annum (tonnes)	Per Hour (kg/h, unless otherwise stated)
Inputs			
(1)	Waste wood throughput tonnage (wet)	86,400 (72,000 dry)	10,800
(5) (10)	Water	33.37	0.8 t/h
(2b) (4)	Urea (40% conc)	2,400	300
(10)	Hydrated Lime	536	67
(9)	Activated Carbon	26	3.3
(3)	Limestone	136	17
(5)	Salt	4	0.5
(4)	Diesel	160 (litres)	20
(5)	Anti-scalant Chemicals	De-minimis	0.0
Outputs			
(1)	Wood	88	11
(1)	Metals	88	11
(8)	Fly Ash	2,384	29
(11)	Air Pollution Control Residues	1,544	193
(5)	Condensate	33.37 (31,368 litres)	0.8 t/h
-	Non-combustibles (including used bed material, glass and aggregate)	400	-

5.12.2 The Transport Technical Note (Appendix 3.10) considers a worst case in terms of inputs/outputs and also assumes most HGV deliveries and waste collections arrive on the same day which in reality would not be the case. Some non-combustible materials would form part of the fuel feedstock (e.g. glass/aggregates) and would arrive in deliveries and would be collected for re-use as aggregates. Wood would be sent back to the supplier for reprocessing. Condensate would be discharged to sewer under a discharge consent. Further details on raw materials consumption and waste generation are provided in Appendix 3.16: Waste and Materials Technical Note.

5.13 Lighting

5.13.1 External directional floodlights have been installed at the Site. Illumination of external areas is provided by a combination of wall-mounted linear Light-Emitting Diode (LED) luminaires and wall mounted LED flood lights. All luminaires have been installed around the perimeter

of the Development. Details related to lighting on-Site were submitted to VoGC in October 2017 to discharge Condition 12 of the 2015 Permission.

5.13.2 A baseline review of the installed lighting at the Site was undertaken by Hoare Lea lighting engineers in March 2022. This survey identified opportunities to upgrade the installed lighting with modern, energy efficient luminaires and reduce the potential for incidents of light pollution. The Appellant commissioned Hoare Lea to redesign the lighting scheme in line with current standards and best practice published by the Institute of Lighting Professionals (2021)[4] [5].

5.13.3 At the time of writing this ES, a revised lighting design scheme has been prepared by Hoare Lea and this had been agreed by the Appellant. The Appellant intends to install the revised lighting scheme during Summer 2022. Details of the revised lighting design scheme are provided in Appendix 5.4, including luminaire data sheets and marked up drawings of the Site. The lighting design scheme has been informed by detailed assessment of illumination impact profiles which consider the potential for light pollution at sensitive (included as Appendix 3.17). This analysis confirms that the revised lighting scheme accords with current standards and best practice and that the Development would not lead to light pollution.

5.13.4 As part of the revised lighting design, management controls of lighting have also been considered to avoid unnecessary external lighting of areas at night. The following provides a summary of the key components of the revised lighting scheme design:

- All operational lighting associated with the Site is designed to comply with Environmental Zone E3/4 in accordance with the guidance in the ILP's PLG04 and the definitions in ILP Guidance Note GN01/21;
- Lighting levels and controls are designed to minimise but be commensurate with the requirements of security, safety and operational purposes in accordance with BS EN 12464-2 – Lighting of Work Places, which clarifies required task illuminance (lux) for the operational tasks across the Site;
- Lighting layout and product types are designed to minimise light spill onto residential sensitive locations to avoid disturbance impacts in accordance with the guidance in ILP Guidance Note GN01/21;
- All floodlight type luminaires comprise 'flatbed optic' design, meaning no light exits the fitting above 85° and no luminaires are tilted (all angles 0°) but are mounted parallel with the ground in accordance with the guidance in ILP Guidance Note GN01/21.
- Other luminaire types, battens types on staircases etc., have been chosen for their asymmetric distribution to ensure that light is only directed towards the local working area which require the appropriated lighting level as per BS EN 12464-2 – Lighting of Work Places.
- All lighting to utilise modern, Light Emitting Diode (LED) luminaires to minimise the obtrusive light spill footprint and be as energy efficient as possible with a colour temperature of all LED light sources <4200K.

5.13.5 Lighting details pursuant to Condition 12 of the 2015 Permission are pending approval and will be updated to reflect the revised lighting scheme.

5.14 Security

5.14.1 The Development has been built-out with a secure 2.4m high perimeter fence (2.1m S&K haulage boundary to adjoining secured property along eastern perimeter of Site) and controlled entrance whereby a fob card is required for staff to enter. The Site is manned 24 hours a day, seven days a week in-person and monitored by CCTV on the Site boundaries.

5.15 Drainage and Pollution Control

5.15.1 The Development has been designed to operate safely and without significantly increasing flood risk elsewhere.

5.15.2 There will be no direct process emissions from the Development to surface water or groundwater. In addition, there are no point source releases of process effluents to controlled waters from the Site. All process effluents are discharged to the sewer system. Foul drainage from the office/ administration area and blowdown from the plant processing will be collected through a separate foul system and discharged into a packaged treatment plant before being discharged to the sewer system.

5.15.3 Uncontaminated rainwater runoff from roof drainage is collected through the use of a syphonic rainwater collection system. This system brings rainwater down to ground level and discharges into a vented manhole, i.e. grated cover, which is connected to the underground drainage infrastructure. The underground drainage network connects into the existing sewer system at an agreed position at the Site boundary. Collected surface water is linked underground to the drainage system and will pass through an oil separator, as required by Condition 13, prior to attenuation on Site.

5.15.4 The buildings on Site are all provide with both secondary and tertiary containment to ensure that spillages, leaks or incidents arising within the process areas will be effectively contained and captured. There are no internal surface water drains located within the building interiors that would allow contaminated water to enter the surface water drainage system.

5.15.5 All storage tanks are fitted with level gauges, alarms and are subject to electronic monitoring. All above ground drainage is designed in accordance with BS EN12056 and site drains can be isolated in the event of an emergency. The surface water drainage attenuation tank is fitted with an actuated penstock to isolate the surface water drainage system in the event of a fire. More specifically, all fire-fighting water will enter the drainage system and flow into the attenuation tank, from which point the contaminated water will be tankered away to a suitable water treatment facility. There will be no releases of fire-fighting water to surface water.

5.15.6 The Development also has a supply of emergency spill kits to deal with oils and chemicals.

5.15.7 Details of the drainage scheme at the Development were submitted to VoGC for approval to discharge Condition 13 of the 2015 Permission in November 2017.

5.15.8 Further consideration of flood risk and drainage is provided in Appendix 3.14: Flood Risk and Drainage Technical Note.

5.16 Landscaping

5.16.1 Landscaping, including planting, seeding and turfing, has been completed on-Site in accordance with the approved reserved matters and landscape plan (E1627-2105 Rev A, included within Appendix 5.1) approved by VoGC under Condition 15: Landscaping of the 2015 Permission. Trees and shrubs are present along the south west boundary of the Site parallel to Woodham Road and the south east boundary parallel to David Davies Road.

5.17 Management of the Operational Development

5.17.1 The Site will be operated under the Permit which has been issued and regulated by NRW. As part of the Permit, the Site is subject to a number of management plans which ensure that operation of the Development is undertaken in a sound and safe manner which does not give rise to unacceptable environmental impacts. The Site is also subject to an Environmental Management System under ISO 14001.

5.17.2 The following management plans are in place at the Site which are subject to regular review:

- Dust and Particulate Emissions Management Plan;
- Noise Management Plan;
- Accident Management Plan;
- Emergency Plan;
- Site Environmental Management Plan; and
- Fire Prevention and Management Plan.

5.18 Climate Change Adaptation and Resilience

5.18.1 Chapter 7: Climate Change and Greenhouse Gas Emissions (Part B) sets out the measures that have been adopted to minimise risks to the Development associated with climate change.

5.18.2 Further to this, the Development has embedded technological capability to provide heat recovery offtake should a technically feasible and financially viable connection arrangement and pipework be put in place. The Development generates and has the capability to export up to 7.3MWTh and/ or 10 Megawatts electric (Mwe) per annum (subject to all necessary consents).

5.18.3 The Development has been designed with the capacity to be retrofitted for CCS. The Appellant has future aspirations to explore the opportunities for carbon capture and storage

(CCS) (known as Bioenergy with Carbon Capture with Storage (BECCS), subject to viability and any necessary consents.

5.19 Vulnerability to accidents and disasters

5.19.1 The EIA Regulations state that the EIA must identify, describe and assess in an appropriate manner the direct and indirect significant effects arising from the vulnerability of the Development to risks of major accidents or disasters. Vulnerability of the Development to major accidents introduced by the location should be considered as well as risks that are an inherent characteristic of the development.

5.19.2 The objective of such an assessment is to establish whether the Development increases risks to existing receptors or increases the sensitivity of those receptors to the consequences of the hazard. For example, by introducing new links/pathways between a possible hazard and a receptor.

5.19.3 The Development will operate under a Permit granted by NRW. An assessment of accidents and emergencies was undertaken as part of the Permit application through an associated Environmental Risk Assessment (ERA). The ERA presents a high-level assessment of accident risks, that has then informed an Accident Management Plan (AMP) for the operational site. An AMP is a regulatory requirement for the Permit and will be updated throughout the lifetime of the development.

5.19.4 The storage and processing of mixed waste wood feedstock is a regulated activity which presents a risk of fire unless controlled and managed appropriately. Accordingly the owner will manage the Site in accordance with an approved Fire Prevention and Mitigation Plan (FPMP) which forms part of the operational requirements and specified Risk Management Controls within the Permit.

5.19.5 Appendix 3.15: Major Accidents and Disasters Technical Note provides further information on the vulnerability of the Development to accidents and disasters and how these are managed to ensure that significant environmental effects would be avoided.

5.20 Discrepancies identified in the 2021 Officer Report to which the Enforcement Notice relates

5.20.1 The 2015 Permission granted planning permission for the development of a wood fired renewable energy plant. The Development has been constructed substantially in accordance with the approved layout shown in Appendix 5.1, although there are a number of ancillary elements that have been incorporated into the Development as a result of detailed design for operational reasons and to ensure compliance with the Permit. These structures have been assessed part of the EIA Development in this ES.

5.20.2 Table 5.4 contains the structures identified in the 2021 Officer Report and the Enforcement Notice (Appendix 1.1). These are illustrated in Figure 5.8.

Table 5.4: Additional Structures identified in the Enforcement Notice

Ref.	Structure	Description
1	Lean to FRB	7434 L x 2217 W x 4000 H (area 16.4 sqm) A small (non-material) plant house providing environmental protection to hydraulic plant and rams for the walking floor feedstock system.
2	Lean to Compressor House	12508 L x 7350 W x 4231 H or 9754 H if aux coolers included (area 27.5 sqm) Lean-to (non-material) plant building that provides environmental protection to the compressor plant equipment.
3	Urea Silo	4544 L x 4544 W x 11131 H (area 20.3 sqm) Small (non-material) silos containing Urea and APC reagents. Installed as a result of detailed design and the desire to reduce the deliveries of pre-mixed product by HGV tankers.
4	Inclined Conveyor	5400 L x 220 W x 1370 H (area 118.8 sqm) The incline conveyor is shown on the Approved Layout Plan and forms part of the Development authorised by the 2015 planning permission.
5	Screening Tower & Dust Extractor	2100 L x 487 W x 1370 H (102.3 sqm) This structure screens oversize and metal products from the fuel stream and forms part of the fuel infeed system.
6	Diesel Generator / Diesel Tank	700 L x 230 W x 225 H (area 16.1 sqm) The emergency generator is an approved piece of plant, that was re-located to an external location for ease of access and to create space. The Development requires an emergency generator for the safe operation and shut down of the facility in the event of a power failure or mains electricity black out.
7	Fire Kiosk	600 L x 220 W x 290 H (area 13.2 sqm) A small flat roofed building (non-material) that houses valve sets necessary to distribute fire water to the deluge system.
8	Fire Water Tank / Fire Pump House	Tank: 1000 L x 1000 W x 1020 H (area 100 sqm) Pumphouse: 1000 L x 600 W x 400 H (area 6 sqm) Structure which houses fire water as specified by the Fire Prevention and Mitigation Plan that forms part of the Permit and pumping equipment.
9	WPD Transformer Unit	Reactor: 600 L x 600 W x 450 H (area 36 sqm) Transformer: 700 L x 800 W x 350 H (area 56 sqm) The structure was erected by Western Power Distribution under its powers as a statutory undertaker.

N.B: Dimensions as stated in Appellant's Statement of Case.

Figure 5.8: Additional Structures cited by VoGC in the Enforcement Notice (refer to Table 5.5)

5.20.3 The additional structures cited in the Enforcement Notice have been assessed as part of the EIA Development.

References

[1] Directive 2010/75/EU of the European Parliament and of the Council of the 24th November 2010 on Industrial Emissions (Integrated Pollution Prevention and Control) (IED).

[2] Department for Business, Energy & Industrial Strategy (2021). Energy Follow Up Survey: Household Energy Consumption & Affordability. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1018725/efus-Household-Energy-Consumption-Affordability.pdf

[3] PAS 111:2012. Specification for the requirements and test methods for processing waste wood. WRAP. (2012)

[4] ILP. GNO1/2021: Guidance Notes for the reduction of obtrusive light.

[5] ILP. PLG04 Guidance on undertaking environmental lighting impact assessments.