CONTENTS

TABLES

FIGURES

APPENDIX

INTRODUCTION

2.1 The Applicant is proposing the replacement of existing aging biomass boilers and, biomass thermal fluid heater serving both of Medite's two MDF production lines. The new renewable energy plants will have a rated thermal capacity of up to 60MW and 30 MW for Line 1 and Line 2 production lines respectively, at the existing MDF manufacturing plant in the townland of Redmondstown, Clonmel, Co. Tipperary, refer to Figure 2.1 below.

2.2 This chapter sets out a description of the Proposed Development i.e. 'the project' including the existing and proposed site layout and details on the dimensions of all proposed structures as required by the 2011 EIA Directive (2011/92/EU), as amended by the 2014 EIA Directive (2014/52/EU) (herein referred to as the EIA Directive) and the EPA "Guidelines on the Information to be Contained in Environmental Impact Assessment Reports" (2022) (herein referred to the as the EPA Guidelines 2022). The European Commission guidance 'Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report'' published by the European Union in 2017 was also considered in the preparation of this EIA Report.

2.3 This chapter summarises the Proposed Development and all phases associated with it including construction, operation and decommissioning. The EIAR should be read in conjunction with the planning application documentation and associated drawings that include site layout plans, floor plans and elevations of the Proposed Development.

Figure 2.1
Site Context Map highlighting the Medite Facility (Source: Google Maps)

Proposed Development Site

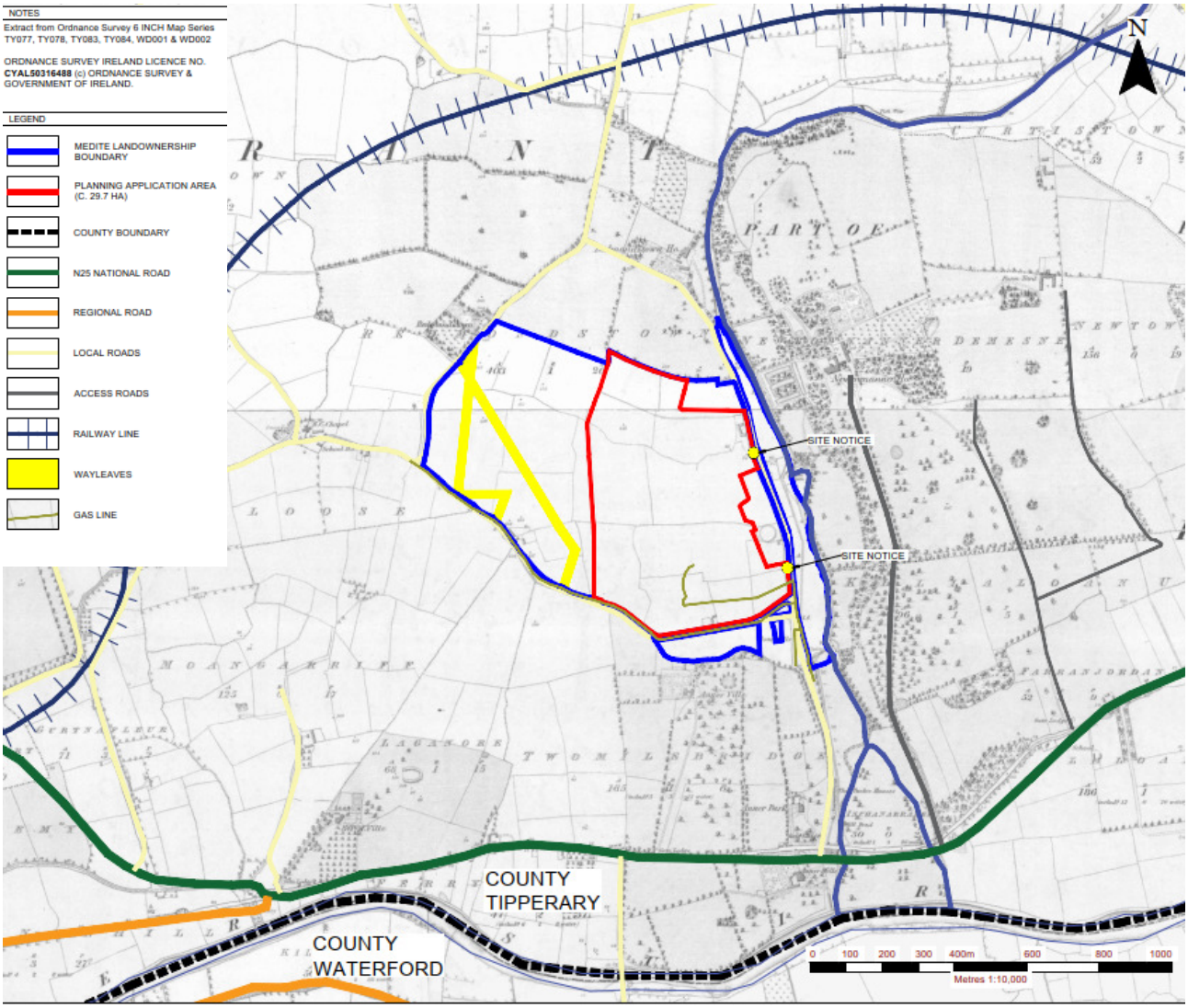
2.4 The lands of the subject site are that of a long-established industrial facility Medite Europe DAC, located in Redmondstown, Clonmel, Co. Tipperary (Refer to Figure 2.1).

2.5 Figure 2.2 below presents the lands subject to this planning application (red line boundary) and land ownership area (blue line). The application site boundary has an area of 29.7ha. which is part of the overall Medite landholding of 69.0 Ha.

2.6 Initial site works and construction of the MDF plant were completed in the period between 1981 and 1983 and over the course of many years, additional works have taken place on the site as the operations expanded.

2.7 The site is composed of the main production plant building and materials storage areas. With the exception of log storage and three areas within development areas 1, 2 and 3 all areas associated with the facility's operations are located on hardstanding. A number of landscaped areas are located along the perimeter of the site. The land in the area of the subject site slopes in a south-easterly direction towards the River Anner, with an elevation range of 20m to 35mOD.

Figure 2.2
Site Boundary and Application Area of the Medite Landholding (Source: Google Maps)



2.8 The proposed development site is situated in what can be characterised predominantly as a green field and agricultural area, located approximately 4 km east of the centre of Clonmel town and approximately 0.9 km north of the N24. The site is accessed through a local road that connects directly to the N24. The subject site is well screened and the existing buildings within the industrial facility are situated 50m back from the local access road and are largely obscured from view due to the presence of abundant shrub and tree plantations at the site boundaries.

2.9 The River Anner flows to the east of the subject site and connects as a tributary to the River Suir, which is approximately 1 km south of the subject site. The River Suir (including the River Anner) is part of the Lower River Suir SAC.

2.10 An industrial area is located south of the subject site, bounded by the N24 and accessed through entrances positioned along this national primary road.

Existing Site

2.11 The Medite industrial facility shown in **Figure 2.2** was established in 1982. The company has since become a market-leading manufacturer of environmentally produced, sustainable timber panel boards, specifically, medium density fibre ("MDF") board. This is a successful and innovative export-driven business employing approximately 170 people directly in Clonmel and supporting further employment through the supply chain across the southeast region. The main processes operate 24 hours per day, 7 days per week.

2.12 The area within the site where the Proposed Development will take place is shown in **Figure 2.6 and Figure 2.12.** The Proposed Development as referred to in this EIAR will be located predominantly within three areas of existing manufacturing facility. These are referred to as Development Areas 1, 2 and 3.

2.13 Development Area 1 includes portions of the current Logyard, the Fuelyard, and Chipyard, and contains the following structures and plant;

- Debarker building (ITEM 1.10)
- Debarker Infeed Conveyor (ITEM 1.10A)
- Outdoor Fuel Storage / Fuel Shed (ITEM 1.11)
- Chip storage silos (ITEM 1.24)
- Dust silos (ITEM 1.27)
- Edge trim Silo (ITEM 1.26)
- MTX Building and associated plant (ITEM 1.19)

2.14 Development Area 2 includes a small area planted with trees (c. 0.42 ha) and elements of Production Line 1. It also contains the following structures and plant;

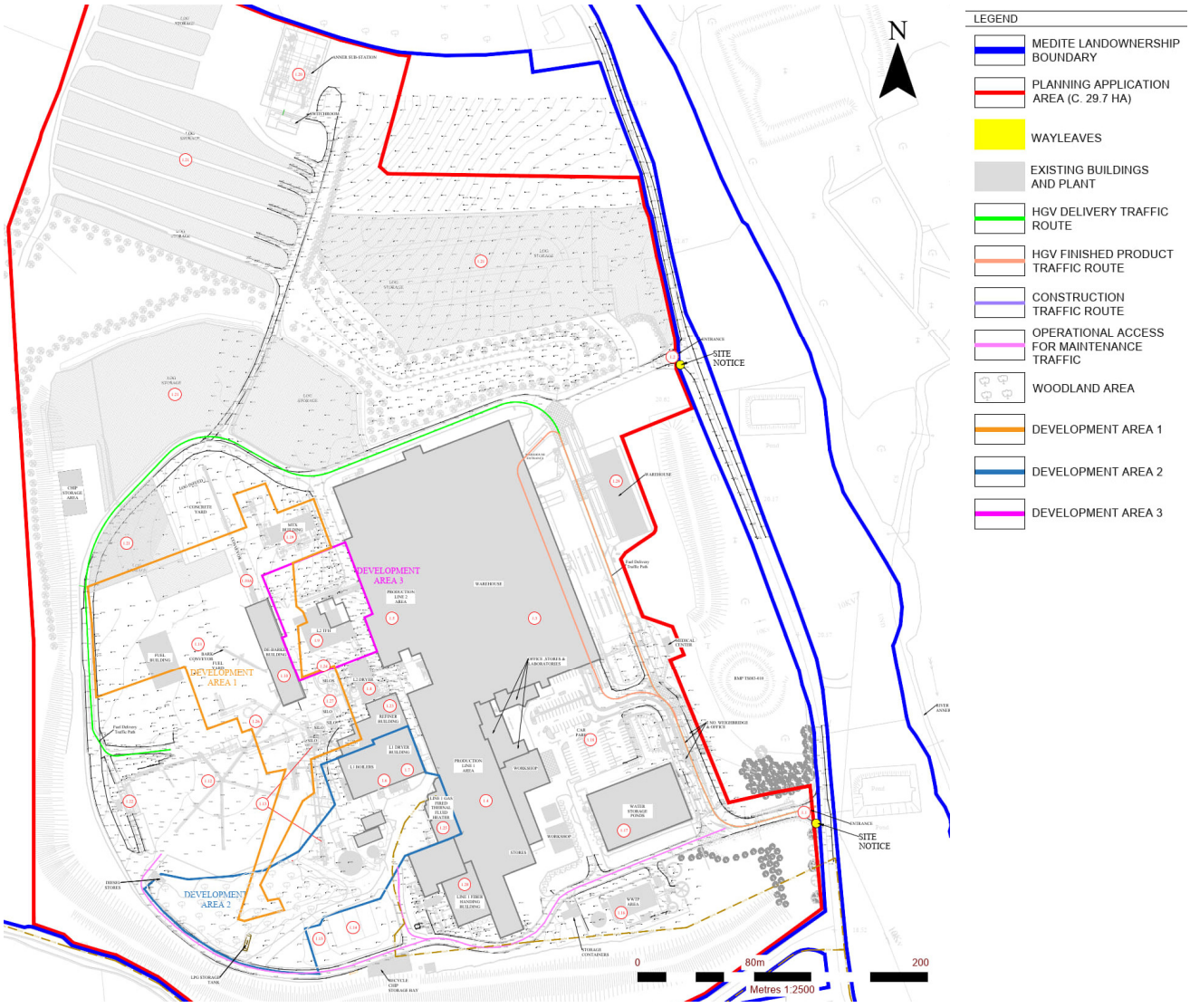
- Line 1 Boiler building (in which the 2 biomass boilers area is housed) (Item 1.6)
- Line 1 Dryer building (in which the 2 dryers area is housed) (Item 1.7)
- Line 1 Ancillary building (including gas fired thermal fluid heater room)
- DAF Building
- Production Chip Screening Plant (Item 1.12 CHIP STORAGE / YARD)
- LPG tank
- Chemical Storage Building (Item 1.15)

- External laydown/storage area

2.15 Development Area 3 contains the following structures and plant;

- Line 2 Thermal Fluid Heater and associated plant (ITEM 1.25)

Figure 2.3
Existing Site Layout (Refer to Figure 2-11 for A3 pull out)



Existing Site Operations

2.16 The Medite industrial facility shown in **Figure 2.3** operates 2 no. MDF production lines 24 hours per day, 7 days per week. The combined maximum production capacity of both lines in Medite is 425,000m^3 of MDF using up to 715,000 tonnes of wood.

2.17 The maximum production capacity of the plant of 425,000m^3 is based on the capacity of production equipment and a number of commercial and technical factors. This maximum production has only been achieved 2 times in the past 8 years.

2.18 Production Line 1 (circa L 155m x W32.5m x H 14.0m) (ITEM 1.4), (constructed in 1982 and redeveloped in 2002), and Production Line 2 (circa L 128m x W72.8m x H 14.0m) (ITEM 1.5), (constructed in 1995) operate independently and in parallel. Both lines share the same Log and Chip Handling stage (ITEM 1.10, 1.10A, 1.12, 1.13, 1.22). The fuel for both systems is unloaded and prepared in the same area for both lines (ITEM 1.11) but have their own dedicated energy plant.

2.19 Production Line 1 located in Development area no 2 comprises two biomass fired boilers, a gas fired thermal fluid heater and Production Line 2 in Development area no. 3 comprises a biomass fired thermal fluid heater to provide heat streams to the process. Steam is used in the wood refining process, flue gas used in the wood fibre drying process, and the high temperature fluid used for heating the board press.

2.20 As an installation for the manufacture of MDF, Medite operates under Industrial Emissions licence (P0027-04).

2.21 An aerial picture of the site is included in Figure 2.4 below.

Figure 2.4
Aerial Photograph of the Medite Facility in an East to West Direction (Source: Medite)

Manufacturing Process

2.22 MDF is an engineered wood-based panel manufactured in accordance with internationally recognised standards and specifications.

2.23 To manufacture MDF, wood chip residues from sawmills or chipped pulp wood are refined into a wood fibre, dried, and then combined with resin to form an MDF panel.

2.24 The production process for MDF has 6 stages:

- Log & Chip Handling
- Refining
- Drying
- Forming
- Pressing
- Finishing

2.25 The following sections describe each stage of the MDF manufacturing process:

Log And Chip Handling

2.26 Pulpwood logs arrive by truck and are unloaded and stored in the log yard (ITEM 1.21) prior to use. An operator-driven grab machine loads the logs onto the debarker infeed conveyor (circa L 100.8 x W varies 1.7-3.7m x H varies 0-22.0m) (ITEM 1.10A) and conveyed into the Drum Debarker.

Bark is removed by friction in the Drum Debarker within the Debarker Building (circa L 73.3m x W16.6m x H varies 18-22.9m) (ITEM 1.10). The removed bark is conveyed outside the debarker building onto the fuel yard (ITEM 1.11) for use as a biomass fuel in the plants energy systems.

The debarked log is then conveyed into a chipper where it is chipped before onward conveying to the chip storage area (ITEM 1.12).

2.27 Wood chips are also brought directly from sawmills to site by both 'Chipliner' trucks and trucks utilising 'walking floor' trailers.

Chipliners are offloaded through an automatic truck tipper (ITEM 1.22); the truck is tilted on its side to an angle and the off-loaded chips are conveyed directly to the chip storage yard (ITEM 1.12).

Walking floor truck trailer combinations unload directly in chip storage yard (ITEM 1.12) without the use of the truck tipper.

2.28 A front-loader is used to feed chips from the chip storage yard (ITEM 1.12) into a chip-infeed hopper. The chips are screened in the 'ClassiCleaner' unit (circa L 17.1m x W 13.8m x H 17.9m) (ITEM 1.13), oversize chips are re-chipped, fines (i.e., sawdust) and metal objects removed, and the chips are then conveyed to a wood chip storage silo (ITEM 1.24).

Refining

2.29 There are three refining systems at the Medite facility: two in Production Line 1 (ITEM 1.4) (Face system & Core system) and one in Production Line 2 (ITEM 1.5). All three systems are contained in the Refiner Building (circa L 26.6m x W 24.6m x H 22.3m) (ITEM 1.23).

2.30 The chips are conveyed, in enclosed belt conveyors, from the wood chip storage silo, first to a pre-steaming vessel where the chips are softened and then through a Plug Feeder to a Steam Digester Column where the chips are subjected to high-pressure steam. As the chips are fed through the Plug Feeder, excess water is squeezed out and is sent to wastewater treatment plant (ITEM 1.16). The softened chips are then passed through the refiner plates where the action of two grinding

discs creates the wood fibre from the softened chips. This wet fibre is transported from the Refiner to the dryer system via a 100-mm diameter 'Blowline pipe'

2.31 Resin and other additives as required (dyes, urea, MDI, fire retardant chemicals) are injected into the Blowline.

Drying

2.32 The wood fibre is conveyed and dried by hot air in flash dryers. The Production Line 1 dryers (circa L 34.0m x W 27.3m x H 35.2m) (ITEM 1.7), located in the Line 1 Dryer Building, are heated indirectly by steam from the Line 1 wood biomass fired boilers (circa L 30.5m x W 26.2m x H 19.5m) (ITEM 1.6), and also directly by the flue gases from the same boilers.

2.33 The Production Line 2 dryer (circa L 15.5m x W 12.2m x H 35.3m) (ITEM 1.8) is heated directly by flue gases from the Line 2 wood biomass fired Thermal Fluid Heater (ITEM 1.9).

2.34 All dryers utilise flash drying technology with cyclones to separate the dried fibre from the wet air. The wet air is released to atmosphere at the top of the dryers (ITEM 1.7 and ITEM 1.8) (emission point references A2-5, A2-6 and A2-21 as per IE Licence P0027-04).

2.35 The dried fibre (3-14% moisture) passes over a continuous weigh belt and is conveyed to Fibre Handing Building / Storage Bins (ITEM 1.28), ready for the next stage.

Forming

2.36 A wood fibre mat is formed by even controlled spreading of the dried, resin infused wood fibre through 3 Forming Heads in the Production Line 1 Building (ITEM 1.4), and through 1 Forming Head in the Production Line 2 Building (ITEM 1.5), onto a continuously moving conveyor belt. The depth and width of wood fibre spread is pre-set according to the thickness, width and density required.

2.37 The mat is then compressed down to a more compact form. Excess wood fibre is trimmed off the edges of the mat and re-cycled back into the wood fibre forming system. A weight scanner measures the weight and evenness of spread across the mat width.

Pressing

2.38 The Hot Presses are continuous presses, which consists of an upper and lower continuously moving heated steel belt, through which the mat moves at a rate proportional to the thickness being produced. The Line 1 press is in the Line 1 Production Building (ITEM 1.4) and the Line 2 press is in the Line2 Production Building (ITEM 1.5). Press temperature varies, depending on the MDF board thickness being produced. The pressed board is cross-cut to the required length, then cooled, stacked and removed for either immediate storage or sanding.

Finishing

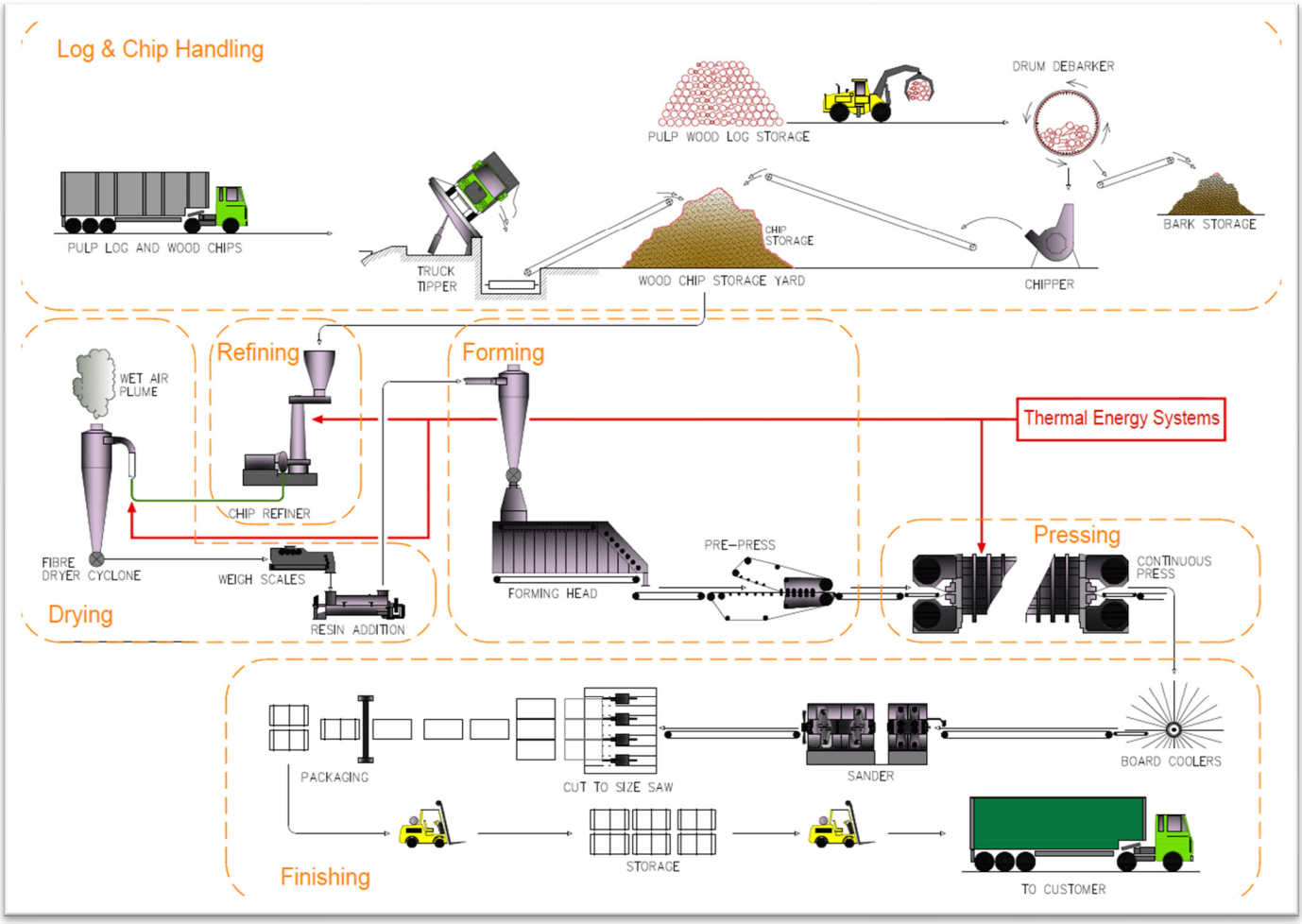
2.39 The finishing systems for both production lines are in the Warehouse (ITEM 1.3). The board is sanded to remove the pre-cure and any superficial blemishes from the surface by passing it through a series of sanding heads with varying grit sizes.

2.40 The sander dust generated is removed by pneumatic conveying system to dust silos for follow on use as a fuel source by conveying to either the Line 1 wood biomass boilers (ITEM 1.6) or the Line 2 wood biomass fired Thermal Fluid Heater (ITEM 1.9).

2.41 The sanded board is then cut to size. The sawn off-cuts generated are shredded and conveyed pneumatically to the edge trim silo for use as a fuel in Line 1 wood biomass boilers (ITEM 1.6). The stacked boards are then packaged and loaded by forklift onto flatbed covered trailers and secured for transport.

2.42 A simplified process flowsheet for MDF manufacture is contained in Figure 2-5.

Figure 2-5
A simplified process flowsheet for MDF manufacture



Thermal Energy Requirements for MDF Production

2.43 The manufacturing process uses a significant amount of thermal energy. Heat is required in following MDF production stages:

- **Refining** Direct steam (12Barg) is used to soften the wood chip before grinding into fibre.
- **Drying** Indirect Steam (27Barg) and direct Flue Gases (150°-200°C for Line 1, and 350°-400°C for Line 2) are used to dry the wet fibre to a target moisture.
- **Pressing** Heated Thermal Fluid (270°-285°C) indirectly provides heat to the steel belt in the press.

2.44 The quantum of thermal energy required by each stage of the production process varies due to a range of factors, such as ambient temperature, moisture content of the feed stock, wood chip quality & dimensions, MDF product type, MDF product thickness.

Current Thermal Energy Infrastructure

2.45 **Production Line 1** is served by two wood biomass fired boilers (18MW each), and a natural gas-fired Thermal Fluid Heater (TFH) (6MW).

2.46 The steam generated by the boilers is used in the Line 1 refining stage, where it is directly injected into the wood chip. Steam is also used in the drying stage where it indirectly heats the air stream in the Line 1 dryers. The flue gases from the boiler are also used in the drying stage where they are directly added to the Line 1 dryer air stream.

2.47 The TFH heats thermal fluid which is pumped to the Production Line 1 Press to heat the steel belt.

2.48 **Production Line 2** is served by a single wood biomass fired Thermal Fluid Heater (19MW)

2.49 The flue gases from the TFH are used in the drying stage where they are directly added to the Line 2 dryer air stream to provide all the required thermal energy. This differs somewhat from Production Line 1 where steam is also used in conjunction with flue gases for drying.

2.50 The TFH heats thermal fluid which is pumped to the Production Line 2 Press to heat the steel belt, and also pumped to a steam generator to provide steam for the refining stage, where it is directly injected into the wood chip.

Other Energy Requirements for MDF Production

2.51 The production process also uses significant electrical energy (Peak 15MW approx.).

2.52 Diesel Fuel (approx. 245,000 litres per annum) is used in the front-end loaders and Liquefied Petroleum Gas (LPG) (approx. 100,000 litres per annum) is used in the forklifts that support the production process.

Support Infrastructure

2.53 Additional support infrastructure to the production systems and the energy systems includes the following:

- Finished goods Warehouse (Item 1.3 & Item 1.29).
- MTX Building for storage and transport of wood chip for the production of MDF (Item 1.19);
- An activated sludge treatment plant to treat domestic sewage and process effluent (mostly water squeezed from the wood chip during the refining stage) (Item 1.16);
- Surface water interceptor settling lagoons (Item 1.14);
- Bulk and drum chemical storage (Item 1.15);
- Maintenance area (Item 1.3);
- A laboratory (Item 1.3);

- Administration offices (Item 1.3);
- Stores (Item 1.4);
- Fire water storage ponds (Item 1.17 Surface Water Lagoons)
- Medical Centre
- Pneumatic Conveying systems, including blowers, fans & filters to capture & transport production residues.

Normal Hours of Operation

2.54 The MDF manufacturing process runs continuously 24 hours a day, 7 days a week. The Debarker runs from 07:00 to 23:00 Monday to Friday and the weighbridge operates from 06:00 to 22:00 Monday to Thursday and 06:00 to 20:00 on Fridays. Currently, all biomass fuel for the energy systems is delivered to site during the operating hours of the weighbridge.

Some deliveries of production wood chip take place outside of the weighbridge hours. The same is true of resin deliveries and shipped goods departing site.

2.55 Data of existing trips to and from the Site is collected regularly and this, along with tonnage capacity throughputs for production, have been used to determine the existing and proposed trip generation. Trip generation for existing and proposed tonnages per year have been set out in Table 14-4 of Chapter 14.

Existing Water Management System

Existing Surface Water Drainage

2.56 There are two surface water discharges from the Medite site.

2.57 Surface water from the north of the site, i.e. from the log yards, is collected in an open drain and flows to a point adjacent to the North gate where it is piped under road and into a settlement pond that outflows at discharge point SW1 into the River Anner. The discharge is monitored under IE Licence P0027-04.

2.58 The second discharge is surface water from the main process area which is subject to both coarse and fine screening before discharge into three large interceptor settling lagoons. Surface water can also be diverted into an Emergency Holding tank, which is one of the three surface water lagoons. The surface water from these settling lagoons flows through an oil interceptor before meeting the clarified effluent from the WWTP. The combined flow is measured and monitored under IE Licence P0027-04 before discharge at SW2 to the River Anner.

Wastewater Treatment

2.59 A wastewater treatment plant (WWTP), Item 1.16, treats process effluent, consisting mainly of effluent from the refiners (water squeezed out of untreated virgin wood) and wash water from the debarker. Sanitary effluent is also discharged to the WWTP but it constitutes <2% of total treated effluent.

2.60 The on-site WWTP consists of a screening unit, dissolved air flotation system, MBBR (moving bio bed reactor) tank, an activated sludge tank and a clarification system which removes BOD, suspended solids, phenols and nitrogen compounds from process effluent.

Raw & Auxiliary Materials & Other Substances onsite

2.61 Table 2-1 shows the raw and ancillary materials and other substances used on site.

Table 2-1
Raw and auxiliary materials and other substances used on site

Material or Substance Main Raw Materials	Annual Usage
Pulpwood/ Wood chip from sawmills	300,000 tonnes (dry) ≈ 650,000 tonnes (wet)
Resins for adhesion (Urea Formaldehyde, Melamine Urea Formaldehyde)	50,000 tonnes
Waxes (Paraffin and Montan)	4,500 tonnes
Urea	2,000 tonnes
Fire Retardants	1,500 tonnes
Colorants (water based)	25 tonnes
Fuels / Heating Media	**Annual Usage**
Wood Biomass	111,000 tonnes (wet)
Natural Gas	33,000 MWh*
Liquified Petroleum Gas (LPG)	100,000 litres
Thermal Fluid for heat transfer	Minimal – closed loop
Gas Oil (diesel oil)	245,000 litres
Utilities Substances	**Annual Usage**
Hydrochloric acid	150 tonnes
Sodium Hydroxide	4,000 litres
Sodium Chloride (salt)	132 tonnes
"Betz" products (Biocides, Corrosion Inhibitors, Scale removers)	15,500 litres

Wastewater Treatment Chemicals	Annual Usage
Aluminium chloride (flocculant)	450 tonnes
Polymers (for sludge dewatering)	10 tonnes
Polymers (coagulant)	5 tonnes
Anti Foams	10 tonnes
Nutrifeed (nutrient)	55 tonnes
Sodium Hypochlorite 15%	1 tonne
Hydrated lime	200 tonnes
Maintenance Materials	**Annual Usage**
Oils (lubricating, hydraulic)	68,000 litres
Degreaser	1,600 litres
Water	**Annual Usage**
Potable Water (Mains)	15,000 M3
Process/Fire Water (River Anner)	421,374 M3
Others	**Annual Usage**
Laboratory Chemicals (toluene, acetone, COD reagent, acids, bases)	610 litres

Current Fuel Consumption

Production Residues

2.62 The manufacturing process generates the following wood biomass residues (per annum) that are utilised as fuel in the existing biomass energy systems, refer to Table 2-1 for a summary of the raw and auxiliary materials and other substances used on site.

- In the Log & Chip Handling stage of production, bark is removed from the pulpwood log being used in production. The amount of bark generated is approximately 21,000 tonnes. Currently, the majority of the bark generated can be too wet to use in the existing biomass fired energy systems.

- The bark is the wettest part of the log and due to its relatively high moisture content (approx 60%), it's too wet for the existing biomass systems to consume in larger volumes, and so the balance is sold for use in horticulture. The proposed biomass energy systems will be capable of consuming all the bark generated onsite.

- In the Log & Chip Handling stage of production, approximately 11,000 tonnes of Wood Fines are screened out of the woodchip.
- In the Refining & Forming stages of production, occasionally some fibre is rejected for quality or other reasons. This reject fibre amounts to approximately 3,400 tonnes.
- In the Pressing stage of production, rejected boards are occasionally removed and shredded. This shredded MDF material amounts to approximately1,300 tonnes.
- In the Finishing stage of production, the less dense edges of the MDF are sawn off and shredded. This shredded MDF material (called 'Edge Trim') amounts to approx 2,500 tonnes.
- In the Finishing stage of production, sander dust is generated by the sanding of the MDF boards and saw dust by the cutting-to-size of the MDF boards. The sander/saw dust amounts to approx. 23,800 tonnes.
- The Wastewater Treatment Plant generates approx. 8,000 tonnes of wood sludge.

2.63 The total amount of wood biomass production residues is 71,000 tonnes, including the bark not currently consumed in the energy plants.

2.64 Other residues generated onsite and transported offsite to appropriately licenced facilities include;

- Packaging – Cardboard/Plastic – approx. 13 tonnes
- Ash from biomass energy systems – approx. 3,500 tonnes

Table 2-2
Summary of the raw and auxiliary materials and other substances generated

Production Residues	Quantity (tonnes)
Bark removed from the pulp log	21,000
Wood chip Fines	11,000
Reject fibre	3,400
Shredded rejected boards	1,300
Edge Trim	2,500
Sander/saw dust	23,000
Wood sludge from Wastewater Treatment Plant	8,000
Total amount of production residues **generated** on site	71,000
Total amount of production residues **used** on site (majority of bark generated is not used)	52,000

2.65 As well as using the production residues totalling 52,000 tonnes, the existing biomass energy systems consume an additional 59,000 tonnes of wood biomass fuel delivered by truck to Medite. Total wood biomass currently consumed by the energy plants in Medite can vary depending on the availability, makeup & moisture content of the individual constituents. The maximum consumption modelled is 111,000 tonnes, for peak annual production of MDF.

2.66 The wood biomass delivered to the site from within the island of Ireland typically takes three forms.

- **Forestry Residues (Brash & Non-commercial logs)** (approx. 20,000 tonnes)
  Stored outside, periodically batch chipped and stored in open stockpiles before being transported to the fuel yard by front end loader for manual mixing with other fuels to achieve a homogenous blend. The blended fuel is then transported by front end loader to the infeed systems for the Line 1 Boilers and the Line 2 Thermal Fluid Heater.

- **Recovered wood** (approx. 25,300 tonnes)
  Meeting the requirements of the IEL, i.e., not containing halogenated organic compounds or heavy metals. This wood biomass is delivered in the form of chip by walking floor trailer and unloaded in the fuel yard for manual mixing with other fuels to achieve a homogenous blend. The blended fuel is then transported by front end loader to the infeed systems for the Line 1 Boilers and the Line 2 TFH.

- **Sawmill Residues** – Wood Biomass (approx. 13,700 tonnes)) Including Saw dust, reject chip, & bark.

Table 2-3
Quantity of Existing Fuel Sources

Existing Fuel Sources	Quantity (tonnes)
Medite residues	52,000
Forestry Residues	20,000
Recovered wood	25,300
Sawmill Residues	13,700
`Total	111,000

Electricity Supply

2.67 Electricity is taken from the national grid via a 110 kV alternating current (AC) supply. It is stepped down for the plant distribution network to 10 kV AC in two 20 MW transformers, located at the onsite sub-station (Item 1.20). The main uses of the electricity are as follows:

- Motor control centre distribution;
- Plant lighting and utilities;
- Process drives.

Traffic

2.68 HGV traffic to and from the site includes the following:

- Log Trucks (Production Logs & Fuel Logs)
- Chip liner Curtain siders (Production Wood Chip)
- Moving Floor Trailers (Production Wood Chip)
- Moving Floor Trailers (Fuel Wood)
- Bulk Tankers (Resins & Chemicals)
- Curtainsider Trailers (Finished Goods)

2.69 Current traffic movements assuming maximum production of 425,000m^3 are contained in the Table 2-4 below. The table is tabulated for traffic movement, i.e., 1 HGV delivery equates to two traffic movements (entering & exiting site).

Table 2-4
Current & Proposed Traffic Movements

Medite Traffic Movements		Current*		Proposed*	
		Yearly	Ave. Daily	Yearly	Ave. Daily
HGV	Delivery of Raw Material	60,604	194**	65,846	213**
	Shipping of Finished Goods	26,716	85**	26,716	86**
Non-HGV	Employees	71,012	254***	71,012	254***
	Visitors/Contractors/Couriers	19,412	84***	19,412	84***
TOTAL		177,744		182,986	

* *Assuming Maximum MDF Production, i.e. 425,000M3*
** *Mon to Sat Inclusive (312 days yearly)*
*** *Mon to Fri Inclusive*

Car Parking

2.70 There is an existing asphalt carpark (Item 1.18) with 112 spaces located adjacent to the Office/Stores/Workshop Area. Couriers and other van/truck deliveries to stores gain access through a separate controlled entrance.

Delivery Protocol

2.71 Every incoming truck that is delivering raw material (inclusive of deliveries on Saturdays) is weighed in and out at the weighbridge and a weighbridge docket is produced with the following information:

- Docket Number
- Date & Time of Transaction
- Product
- Supplier
- Vehicle Registration
- First Weight
- Second Weight
- Nett Weight
- FSC%
- Forest Number
- SP Number
- MR Number
- Species
- Permit Number
- Txn Number

2.72 Every haulier must have a key fob that is compatible with Medite's weighbridge system.

2.73 Once onsite, safety rules and procedures must be followed at all times.

Existing Flue Gas Systems and Treatment

2.74 The flue gas from the wood biomass energy systems is using directly in the Drying stage of the respective production lines. This means that in normal operating conditions that the flue gas emissions are mixed with and released with the dryer emissions, i.e., the top of the dryer cyclones.

2.75 These are controlled air emission points under the EPA issued Industrial Emissions Licence P0027-04, refer to Table 2-5 below for emission limit values.

2.76 The Air Emission Point Reference No's. for the Core and Face Dryers in Production Line 1 are A2-5 and A2-6 respectively. Both emission points are 39 metres above ground level and have the same emission limit values.

Table 2-5
Controlled Air Emission Points for Production Line 1

Air Emission Point Reference No's. A2-5 and A2-6	
Parameter	**IEL Emission Limit Value**
Volume	174,400 m3 /hour
PM10	5 mg/m3
Dust	20 mg/m3
TVOC	120 mg/m3
CO	600 mg/m3
Nitrogen Oxides (as NO2)	110 mg/m3
Formaldehyde	15 mg/m3
MDI	0.06 mg/m3

2.77 The Air Emission Point Reference No. for the single Dryer in Production Line 2 is A2-21. The emission point is 39.94m above ground level and has the air emission limit values set out in Table 2-6 below.

Table 2-6
Controlled Air Emission Points for Production Line 2

Air Emission Point Reference No. A2-21	
Parameter	**Emission Limit Value**
Volume	174,160 m3 /hour
PM10	5 mg/m3
Dust	20 mg/m3
TVOC	120 mg/m3
CO	300 mg/m3
Nitrogen Oxides (as NO2)	110 mg/m3
Formaldehyde	15 mg/m3
MDI	0.06 mg/m3

2.78 The flue gases from both the biomass boilers on Line 1 and the TFH on Line 2 pass through multicyclones to remove fly-ash. The multicyclones are the only abatement system on the flue gas.

Licences

2.79 Medite operates under an Industrial Emission (IE) Licence (P0027-04) granted by the Environmental Protection Agency (EPA) and using and Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels. As part of the existing IE Licence, the EPA has applied the Commission Implementing Decision (EU) 20 15/1 19 of 20 November 20 15 establish ing best available techniques (BAT) conclusions, under Directive 20 1 0/75/EU of the European Parliament and of the Council, for the production of wood-based panels as a reference when setting licence conditions.

Permits

2.80 The Applicant holds a Greenhouse Gas Permit as required by the EU ETS Directive.

Other Certification

2.81 Medite also operates under the following systems / certifications issued by the National Standards Association of Ireland (NSAI), Building Research Establishment UK (BRE UK), BMTrada, and REPAK.

Table 2-7
Medite's Acreditate Licences / Permits / Certification

System / Certification	Standard / Regulation	Accreditation Organisation / Regulatory Agency
Environmental Management System	ISO14001	NSAI
Energy Management Systems	ISO50001	NSAI
Health & Safety Management	ISO 45001	NSAI
Quality Management System	ISO9001	NSAI
Environmental Product Declaration (EPD)	EN15804	EPD Ireland
Forestry Stewardship Council Certification	FSC-STD-01	BMTrada
REPAK Certificate	REPAK	REPAK

PROPOSED DEVELOPMENT

Development Overview

2.82 Medite operates two production lines producing up to 425,000m^3 of finished MDF product annually. MDF is produced on the site using up to 650,000 tonnes of product feedstock per annum. The plant has two biomass boilers and a gas-fired thermal fluid heater providing thermal energy to production line 1 and a biomass fired thermal fluid heater providing thermal energy to production line 2.

2.83 The Proposed Development will replace all three existing aging biomass fired thermal energy systems serving both of Medite's two production lines, specifically;

- the two wood biomass fired boilers (18MW each) (ITEM 1.6) serving Production Line 1.
- the wood biomass fired Thermal Fluid Heater (19MW) serving Production Line 2. (ITEM 1.9).

2.84 The Proposed Development will also provide the thermal energy currently provided by the natural gas-fired Thermal Fluid Heater (TFH) (6MW) serving Production Line 1, which will be retained for backup purposes or in the event of disruption in the biomass fuel market.

2.85 Energy will be generated from the combustion of up to 186,000 tonnes a year from a range of biomass fuels including by-products from the Medite manufacturing process and forestry and sawmill residue. This increase from the existing throughput of 111,000 tonnes per annum will not result in an increase in the production of MDF but is required to reflect a change in the fuel inputs. The additional amount will replace the energy currently derived from a gas fired thermal fluid heater and reflects the increasing variability in moisture content of biomass wood fuel which is transported to the site from within the island of Ireland. The Proposed Development will realise carbon savings of 2951 tCO2e/yr.

2.86 Of the 186,000 tonnes of proposed fuel intake, 71,000 will comprise Medite production residues which are sourced on site and 115,000 tonnes will comprise forestry and sawmill residues. Accounting for the existing fuel intake, the net increase will correspond to an additional 75,000 tonnes. The proposed development utilises the optimum technology and fuel menu to support the ongoing operation of the Medite facility.

2.87 These systems will be replaced with 2 new renewable energy plants. These renewable energy plants will have rated thermal input capacity of up to 60 MW for the system serving Production Line 1 and 30 MW for the system serving Production Line 2. The plants will take the form of wood biomass fired Thermal Fluid Heaters.

2.88 The new renewable energy plants will provide thermal energy to the manufacturing process in following ways;

- Treated flue gases from each of the new plants will be ducted to the existing Dryers in both production lines, H 35.3m. (Item 1.7 / Item 1.8).
- Heated thermal fluid will be sent to the existing Presses.
- Heated thermal fluid will be sent to new Steam Generators that will form part of the development. (Item 3.9).

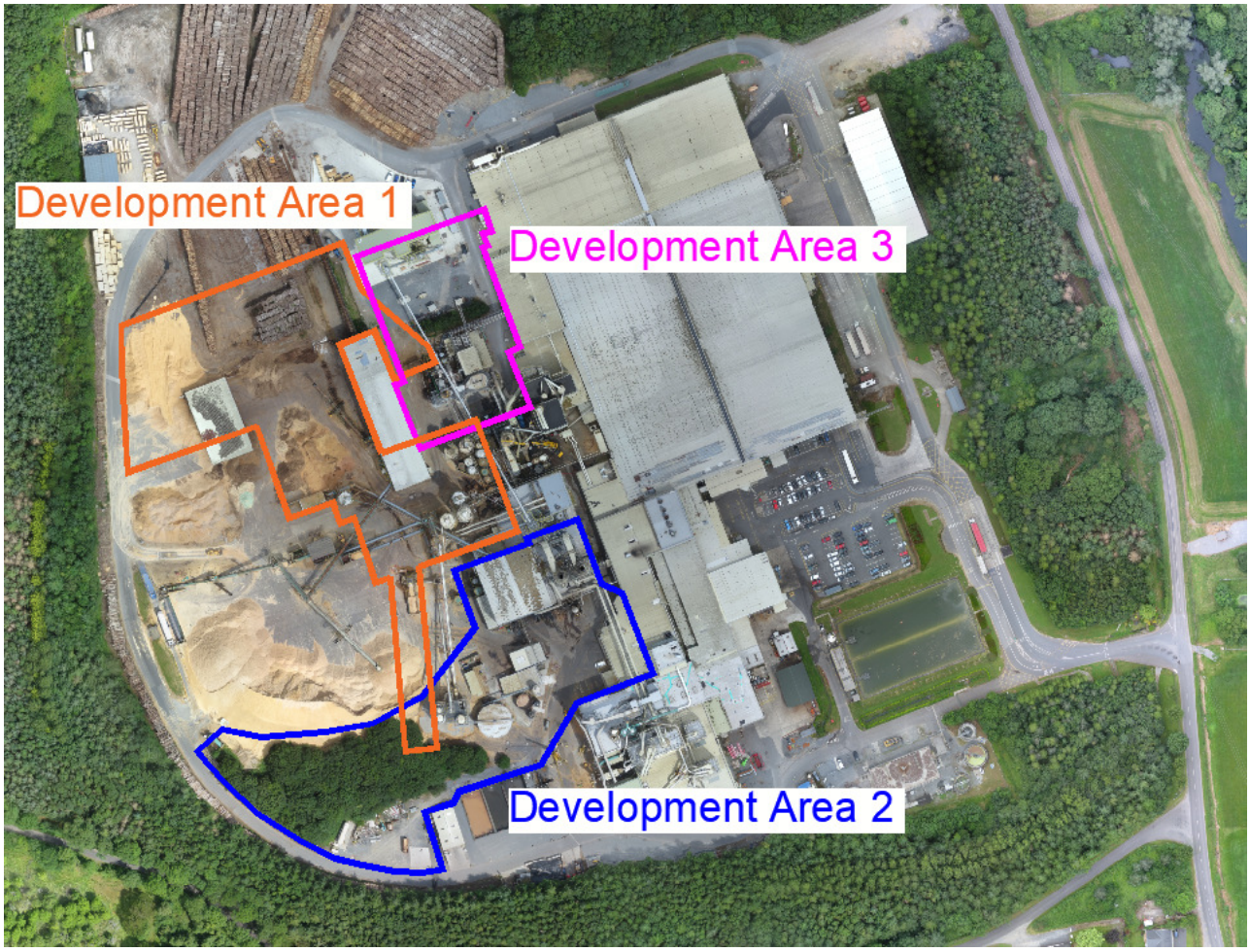
- Steam (generated by the new Steam Generators) will be sent to the existing refining equipment, H 22.3m (Item 1.23) in both production lines.

2.89 The Proposed Development will include pipes/ducts and associated supporting infrastructure to transfer the thermal energy to the various heat users within each of the production lines, including the necessary modifications to the Line 1 Dryers (**Item 1.7**) to take all required heat in the form of flue gas, rather than the current combination of flue gas and steam.

2.90 The pipes and ducts will run from the energy plants to the heat consumers within the existing Medite plant buildings and along the corridors formed by the existing roadways.

2.91 The Proposed Development will incorporate an existing wood chip storage and conveying facility (MTX Building & associated plant Item 1.19) which is currently used to store and transport wood chip into the MDF production process. The system will then be used to store and transport fuel wood into the new energy systems.

Figure 2.6
Proposed Development Areas (Refer to Figure 2-12 for proposed layout on a A3 pull out)



Development Areas

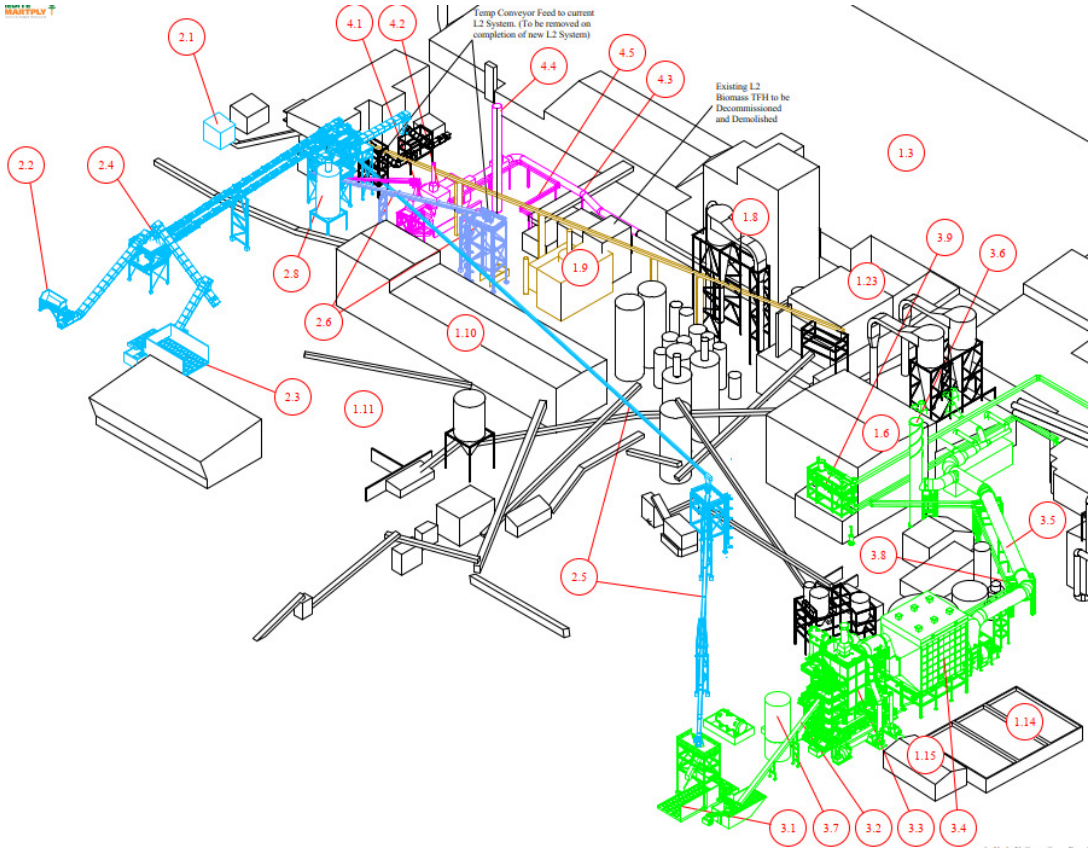
2.92 The proposed development will be located within the confines of the existing Medite site and within three primary development areas as indicated in Figure 2-6. They are:

- **Development Area 1** will accommodate the new fuel reception, storage and conveying/screening plant and associated infrastructure works, including the modified MTX building (item 1.19) and associated plant. (Items 2.1-2.8)

- **Development Area 2** will accommodate the new Line 1 energy plant which will be located to the south of the Medite site. The two existing wood biomass fired boilers (18MW each) that serve Line 1 will be decommissioned and the existing equipment will be retained on site. The LPG Tank will also be decommissioned after the new Line 1 energy plant is constructed. The natural gas-fired Thermal Fluid Heater will be retained. Trees will be removed to facilitate the proposed development at this location, refer to Figure 2-13 for details. (Items 3.1-3.11)

- **Development Area 3** will accommodate the new Line 2 energy plant which will be located adjacent to the existing Line 2 Energy Plant. The existing single wood biomass fired Thermal Fluid Heater (19MW) serving Line 2 will be decommissioned and the existing Thermal Fluid Heater equipment will be dismantled and removed from the site and disposed of to a suitably licensed facility, refer to Figure 2-13 for details. (Items 4.1-4.7)

Figure 2.7
Existing and Proposed Layout – 3D View



Proposed Development Detail

2.93 **Proposed Development within Area 1** will include the following: **Error! Reference source not found.** Table 2-8 shows a breakdown of the detail description of each item.

Table 2-8
Development Area 1

No.	Item	Description
ITEM 2.1	1 x Fuel Reception Units (7.0m x 5.0m x 5.5mH) Area = 35m²	A new Fuel Reception unit will be constructed adjacent to the existing Fuel Reception. The existing hopper that is currently in this location will be removed. The Fuel Reception Units will facilitate the unloading of HGV's delivering fuel chip to site in walking floor trailers. The HGV's will reverse the trailers into position and evacuate the walking floor trailer into the reception unit that gathers and conveys the material onwards. The units are covered to minimise any potential dust emissions.
ITEM 2.2	Fuel infeed hopper 3.0m x 6.2m x 5 m H Area = 18.6m²	The Fuel infeed Hopper will facilitate the introduction of fuel wood chipped onsite into the fuel storage system by means of a front end loader.
ITEM 2.3	Walking Floor Infeed System 24m x 18.6m x 5.0m H Area = 202.3 m²	The Walking Floor infeed system facilitates the introduction, buffer storage, and mixing of production residue fuels into the fuel storage and conveying system by means of a front-end loader.
ITEM 2.4	Conveying Systems #1 (Into Storage Building) Approx 200m length of conveying Height Varies from ground to max of 20.8m, refer to drawings. Conveying System #1 Area = 520m²	The conveying systems will consist of both belt and chain conveyors (all covered to minimise dust emissions) to transport fuel from the Fuel Infeed Hopper (Item 2.3) and from the Walking Floor Infeed System into the Fuel Storage Building (Item 1.19).
ITEM 2.5 – 2.6	Conveying Systems #2 (from Storage Building to energy Systems) ITEM 2.5 to Line 1 Energy Plant	The conveying systems will consist of both belt and chain conveyors (all covered to minimise dust emissions) to transport fuel between from the fuel storage building (item 1.19) to the respective energy systems. This will include an existing conveyor that will be relocated.

No.	Item	Description
	Approx 266m length of conveying Height Varies from ground to max of 22.5m, refer to drawings. Conveying System #2 Area = 245m² ITEM 2.6 to Line 2 Energy Plant Approx 44m length of conveying Height Varies from ground to max of 20.9m, refer to drawings. Conveying System #2 Area = 77.5m²	
ITEM 2.7 - 2.8	Pneumatic (Dry Fuel) Systems Item 2.7 Pneumatic Transport Ducts #1 Length = 161.5m x Ø150mm pipe #2 Length = 202.9m x Ø150mm pipe Item 2.8 Edge Trim Silo Ø=5.6m x H= 19.5m Area = 6.2m x 6.2m = 38.4m²	The existing pneumatic conveying systems, including blowers, fans & filters to capture & transport production residues will undergo some alterations and additions to facilitate the proposed development. The existing Edge Trim System will be modified by dismantling and removing the existing Edge Trim Silo and associated filter plant (Item 1.26) (Air Emission A2-20) and constructing a new Edge Trim Silo Ø=5.6m x H= 19.5m, (Item 2.8) and associated filter plant adjacent to the fuel storage building. The Ø150mm pipe that currently connects the production process to the existing Edge Trim Silo will be redirected to the new Edge Trim Silo (Item 2.7). The discharge system within the new Edge Trim Silo will deposit the material into the fuel storage system conveyors. The alterations will include the pneumatic conveying plant and infrastructure to transport the edge trim to the new silo and the silo discharge system to deposit the material into the fuel storage system conveyors. The existing Line 2 Sander Dust & Saw Dust pneumatic extraction systems will be modified to provide separate systems for sander dust and saw dust. This will incorporate additional pneumatic conveying plant and infrastructure to transport the saw dust to the existing sander dust silos. A new Sander Dust Silo Ø=6.0M x H=16M & associated filter plant (Item 3.7) will be located in Development Area 2, adjacent to the proposed Line 1 Energy System. The Sander Dust Silo will receive pneumatically conveyed fuel dust from

No.	Item	Description
		the existing on sander dust silos and will discharge material into the Line 1 Energy Plant as fuel. The existing Line 1 Saw Dust pneumatic extraction system will be modified to send the saw dust to either (by means of a divert gate) the proposed Edge Trim Silo (see above) Or the proposed Sander Dust Silo (also see above). The existing Line 1 Sander Dust Silos (2No.) discharges will be modified to deliver sander dust to the new Sander dust silo proposed adjacent to the proposed Line 1 Energy System. The Ø150mm pipe that currently connects the existing Line 1 Sander Dust Silos to the existing Line 1 Energy System will be redirected to the proposed new sander dust silo.

2.94 The alterations and additions to the pneumatic conveying systems will create two additional air emission points:

- proposed Sander Dust Silo (ITEM 3.7 Line 1 Dust Silo)
- proposed Edge Trim Silo. (ITEM 2.8)

2.95 It will also see the elimination of one existing air emission point (Air Emission A2-20) at the existing Edge Trim Silo.

2.96 **Proposed Development within Area 2** will include the following: **Error! Reference source not found.** Table 2-9 shows a breakdown of the detail description of each item.

Table 2-9
Development Area 2

No.	Item	Description
ITEM 3.1	Line 1 Wet Fuel Metering Bin (18.6m 15.7m x 4.5mH) Area = 254.5m²	The wet fuel (bark or chips) is received by the Wet Fuel Metering Bin from the conveying systems referred to in Development Area 1.
ITEM 3.2	Line 1 Energy System Fuel Feed Conveyor (33.2m long conveyor) Max Height 17.8m Area = 38.0m²	The Wet Fuel will be discharged from the Wet Fuel Metering Bin to a Line 1 Wet Fuel Metering Bin Outfeed Weight Belt and a Line 1 Energy System Fuel Feed Conveyor to the Grate Furnace Combustion Chamber with the energy plant.
ITEM 3.3	Line 1 Energy Plant	The energy plant will consist of a wood biomass fired Thermal Fluid Heater (TFH). Inside the TFH, the Wet Fuel will

No.	Item	Description
	32.5m x 21.6m x 33m Area =442 m²	combust together with fresh air provided by the Primary Fan and Secondary Fan inside the Combustion Chamber to produce hot flue gas. An emergency stack on the TFH with a damper will automatically open upon upset conditions. The hot flue gas will supply heat to a thermal fluid that is piped through the energy plant, which in turn provides heat to the Line 1 press and a Steam Generator).
ITEM 3.4	Line 1 Dry Electrostatic Precipitator (within the TFH dims of 27.6m x 13.7m x 23.3mH) Area = 286.9m²	The Fly Ash inside the Hot Gas will be cleaned and captured by a Dry Electrostatic Precipitator (Dry ESP) and discharged through the SSC Rotary Airlock onto the Wet Ash Conveyor. The Bottom Ash will be discharged through the holes on the grate and recovered by the Wet Ash Conveyor to the Ash Storage Bunker for disposal.
ITEM 3.5	Line 1 Hot Gas Duct (105m long x Ø3.2m) Area = 336m²	The Hot Gas will be transported to the Line 1 Dryer Systems (Core and Face dryers) via the Hot Gas Duct where it will be mixed with ambient air for the purpose of drying the wet wood fibre. The existing mixing chambers located within the Line 1 Dryer Building will be modified to accommodate the new hot gas duct.
ITEM 3.6	Line 1 Start Up Stack (30.2m x Ø3.6m) Area = 10.8m²	The Hot Gas duct will contain an abort gate & Start-up Stack. This Abort Gate and start-up stack serves as a by-pass of the Hot Gas Flow to the dryer to atmosphere in case the dryer system is in upset conditions or during plant start-up.
ITEM 3.7	Line 1 Sander Dust Silo (Ø 6.0m x 16mH) Area = 28.3m²	As referenced in 'Pneumatic (Dry Fuel) Systems' in Development Area 1, the existing extraction systems are to be modified and will a proposed Sander Dust Silo Ø 6.0m x 16mH and associated filter plant, located adjacent to the proposed Line 1 Energy Plant. The Sander Dust Silo will discharge material into the Line 1 Energy Plant as fuel.
ITEM 3.8	Line 1 Thermal Fluid Piping 217m L x Ø 0.6m x 16.3mH Area = 10.9m²	The Thermal Fluid Piping will transport the heated thermal fluid to and from the energy plant and both the existing Line 1 Press and a new steam generator.
ITEM 3.9	Line 1 Steam Generator 14.4m x 3.5m x 17.9mH Area = 47.5m²	The Steam generator will use heated thermal fluid to generate steam for the various existing steam users on Line 1. The new steam piping will connect the steam generator to the existing steam pipe infrastructure.

No.	Item	Description
ITEM 3.10	Line 1 Dryer System 34.0m x 17.5m x 13.9mH Area = 505.7m²	The Hot Gas generated by the new Line 1 Energy plant will be utilised in the dryer system to dry wood fibre to produce MDF.
ITEM 3.11	Line 1 Bunded Oil Storage 10.4m x 6.4m x 3.1mH Area = 66.5m²	Bunded Oil Storage Tank

- Ancillary & Other
- As well as the core equipment listed above the overall system will include the following that due to size and nature is not obvious on the planning drawings.
    - Combustion System Fans, motors & drives
    - Thermal Fluid Heat Exchangers with the TFH
    - Pumps for thermal fluid circulation
    - All Required Primary Fittings, Valves, Isolation, Expansion Joints
    - Vibration and Temperature Sensors on all primary pumps
    - All Piping Supports from hot oil heater system to pump skids and to main exit valves after headers
    - Refractory Material
    - Dampers and Actuators
    - All Structural Support Steel
    - Electrical Devices, Hardware, Software and Programming
    - Remote Diagnostic System
    - Oxygen Analysis
    - Flow Meters
    - Combustion Chamber Video Cameras and Monitor

2.97 The two existing wood biomass fired boilers (18MW each) that serve Line 1 will be decommissioned and the existing equipment will be retained on site. The natural gas-fired Thermal Fluid Heater will be retained as a backup energy source, refer to Figure 2-13 for details.

2.98 Within an area of 0.42 ha, there will be a requirement for tree removal in advance of ground preparation works and construction. An area of 0.42 ha of tree planting is proposed along the

northern boundary of the Site to replace the 0.42 ha of trees being felled in Development Area 2. Please refer to **Figure 2.12** and **Figure 13-11 – Proposed Planting Plan** in Chapter 13 of this EIAR for an indication of the trees to be removed and replanted, to facilitate the Proposed Development.

2.99 **Proposed Development within Area 3** will include the following; **Error! Reference source not found.** Table 2-10 shows a breakdown of the detail description of each item.

Table 2-10
Development Area 3

No.	Item	Description
ITEM 4.1**3**	Line 2 Energy Plant 6.1m x 17.1m x 18.5mH Area = 109.0m²	The energy plant will consist of a wood biomass fired Thermal Fluid Heater (TFH). Inside the TFH, the Wet Fuel will combust together with fresh air provided by the Primary Fan and Secondary Fan inside the Combustion Chamber to produce hot flue gas. An emergency stack on the TFH with a damper will automatically open upon upset conditions. The hot flue gas will supply heat to a thermal fluid that is piped through the energy plant, which in turn provides heat to the Line 2 press and an existing Steam Generator).
ITEM 4.2	Line 2 Dry Electrostatic Precipitator 7m x 4.1m x 10.8mH Area = 25.6m²	The Fly Ash inside the Hot Gas will be cleaned and captured by a Dry Electrostatic Precipitator (Dry ESP) and discharged through the SSC Rotary Airlock onto the Wet Ash Conveyor. The Bottom Ash will be discharged through the holes on the grate and recovered by the Wet Ash Conveyor to the Ash Storage Bunker for disposal.
ITEM 4.3	Line 2 Hot Gas Duct Ø1.6xm x 54.3mH Area = 86.9m²	The Hot Gas will be transported to the Line 2 Dryer via the Hot Gas Duct where it will be mixed with ambient air for the purpose of drying the wet wood fibre.
ITEM 4.4	Line 2 Start Up Stack Ø2.1m x 30.0mH Area = 23.0m²	The Hot Gas duct will contain an abort gate & Start-up Stack. This Abort Gate and start-up stack serves as a by-pass of the Hot Gas Flow to the dryer to atmosphere in case the dryer system is in upset conditions or during plant start-up.
ITEM 4.5	Line 2 Thermal Fluid Piping Ø0.4m x 53.3Mh Area = 21.4m	The Thermal Fluid Piping will transport the heated thermal fluid to and from the energy plant and both the existing Line 2 Press and an existing steam generator. The Line 2 Dry Electrostatic Precipitator (within the TFH), 23.2m x 8.0m x 17.7mH, (Item4.4)

Ancillary & Other Infrastructure

2.100 As well as the core equipment listed above the overall system will include the following that due to size and nature is not obvious on the planning drawings.

- Combustion System Fans, motors & drives
- Thermal Fluid Heat Exchangers with the TFH
- Pumps for thermal fluid circulation.
- All Required Primary Fittings, Valves, Isolation, Expansion Joints
- Vibration and Temperature Sensors on all primary pumps
- All Piping Supports from hot oil heater system to pump skids and to main exit valves after headers
- Refractory Material.
- Dampers and Actuators
- All Structural Support Steel
- Electrical Devices, Hardware, Software and Programming
- Remote Diagnostic System
- Oxygen Analysis
- Flow Meters
- Combustion Chamber Video Cameras and Monitor

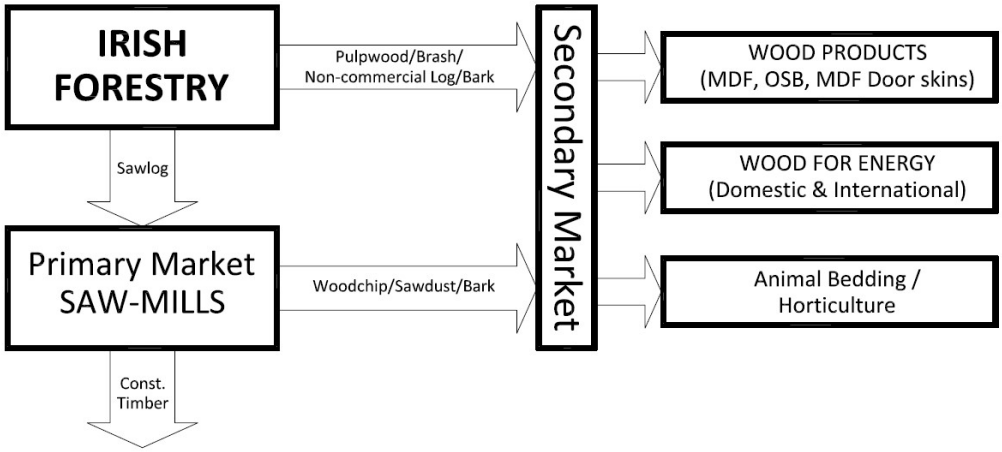
2.101 The existing single wood biomass fired Thermal Fluid Heater (19MW) (ITEM 1.9) serving Line 2 will be decommissioned and the existing Thermal Fluid Heater equipment will be dismantled and removed from the site, refer to Figure 2-13 for details.

Proposed Biomass Consumption

2.102 MDF is an engineered wood-based panel manufactured in accordance with internationally recognised standards and specifications. To manufacture MDF, wood chip residues from sawmills or chipped pulp wood are refined into a wood fibre, dried, and then combined with resin to form an MDF panel.

2.103 Medite has a maximum capacity to process up to 715,000 tonnes of wood biomass arising from the forestry/sawmilling industry on an annual basis. 100% of the biomass material used in the manufacture of MDF are secondary residues from the primary forestry operations to produce construction timber. Medite procures its process feedstock from FSC and PEFC certified sources providing assurances that the forests where the material ultimately comes from are managed sustainably under the criteria set out in these standards. Figure 2-8 below illustrates the primary market and demand.

Figure 2.8
Market for Irish Forestry Markets



2.104 This material includes pulpwood, woodchip, brash, sawdust, bark. The market for this material in Ireland (other than very small amounts used in horticulture and for animal bedding) is the panelboard industry and the biomass energy industry.

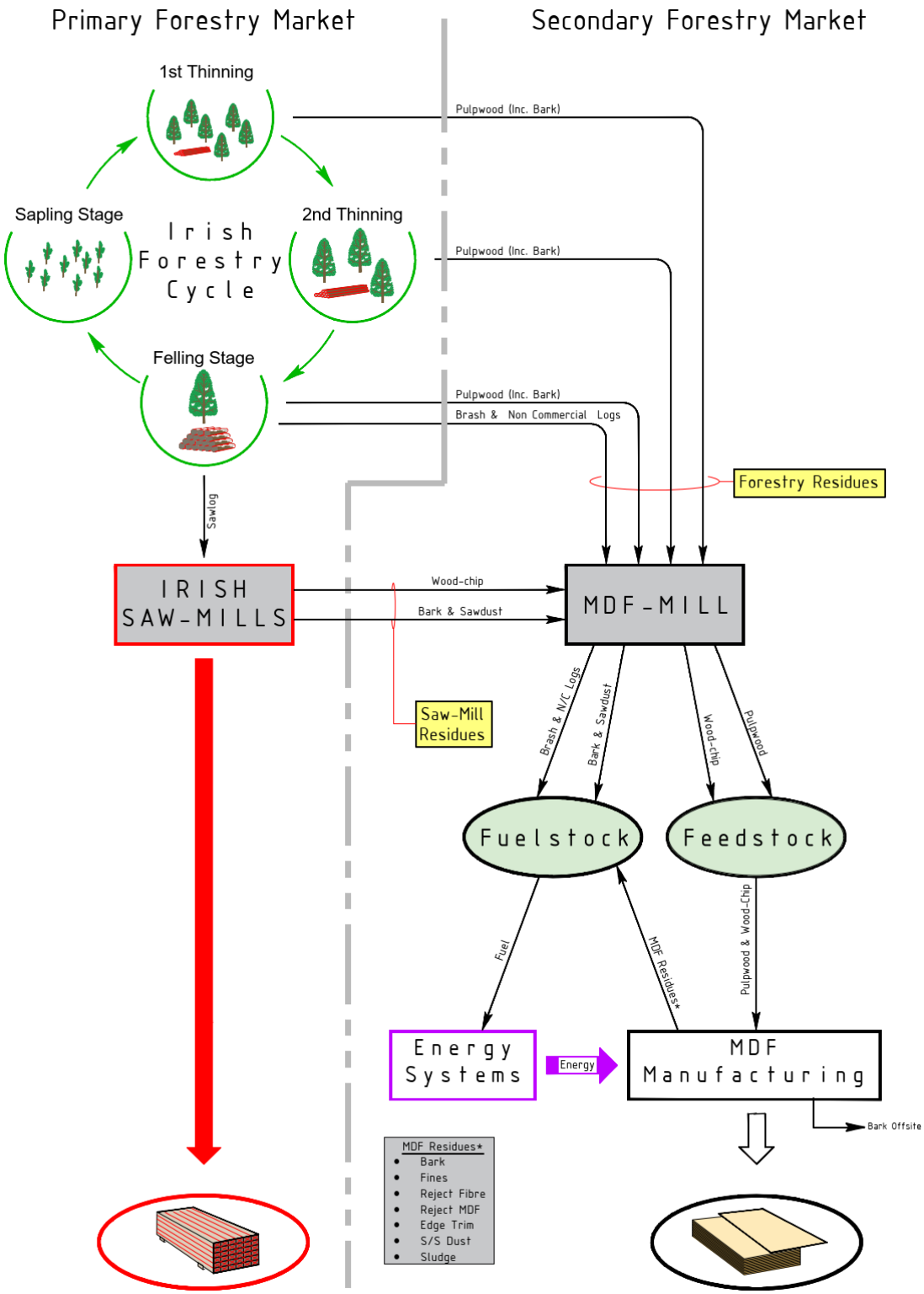
2.105 The panelboard industry in Ireland consists of just three companies, Medite Europe DAC (MDF panels), Smartply Europe DAC (OSB panels), and Masonite (Ireland) Ltd (MDF door skins).

2.106 All the wood biomass utilised by Medite, including proposed fuel, is a residue of either forestry operations or saw-milling. These are the secondary outputs of both forestry operations and saw-milling. The primary output of forestry operations in Ireland is Sawlog, which is milled into construction timber by sawmills. The demand for sawlog generates the demand for the primary output of forestry operations in Ireland.

2.107 Additional forestry is not required to support the MDF Manufacturing process. This is because the availability of the material used to make MDF is directly linked to demand for the prime product and the volume of available commercial forestry generally. Material for MDF processing relies on the availability of secondary residues. It does not require a dedicated crop and there is no element of direct and indirect land use change associated with it.

2.108 Both the production feedstock and fuelstock are sourced from the Island of Ireland and regulated separately under legislation and regulations that apply to the forestry sector.

Figure 2.9
Current plant, including typical annual fuel usage biomass inputs and Proposed Biomass Inputs



2.109 The Proposed Development will include a new fuel reception and storage plant, including the conveying infrastructure to transport the fuel to the energy plants. It will also include modifications and additions to the existing pneumatic fuel transport systems and fuel storage silos.

2.110 The Proposed Development will result in an increase in the biomass usage onsite, though not an increase in MDF production of 425,000m^3. The amount of wood biomass fuel that will be consumed as a result of the existing and Proposed Development in its totally has been calculated at a 186,000 tonnes per annum. This includes an extra margin of 10% to cater for variation in fuel mix and moisture content. This represents an overall increase of 75,000 tonnes (including the 10% margin). from 111,000 tonnes.

2.111 The increase in the volume of biomass will be required to:

- replace the energy currently provided by the fossil fuel natural gas.
- replace current use of recovered wood. The fuel (due to its relatively low moisture content)
- Cater for larger volumes of wetter fuel (in the form of forestry and sawmill residues).
- Include an extra margin of 10% to cater for variation in fuel mix and moisture content.

2.112 A comparison of the existing versus the proposed fuel consumption is presented in the Table 2-11 below.

Table 2-11
Comparison of Existing v Proposed Fuel Consumption

Fuel Type	Existing Biomass Boilers Line 1 + Line 2 t/y	Proposed Biomass Energy Plant Line 1 t/y	Proposed Biomass Energy Plant Line 2 t/y	Total Proposed Line 1 + 2 t/y	+10% headroom (to account for variation in fuel mix and moisture content)
Medite residues	52,000	48,000	23,000	71,000	71,000
Forestry & Sawmill Residues	33,700	67,000	31,000	98,000	115,000
Recovered wood	25,300	,	,	,	
Total	**111,000**	**115,000****	**54,000****	**169,000****	**186,000****

2.113 An additional 75,000 tonnes of fuel will be required to facilitate the Proposed Development. The additional biomass fuel will be sourced from Medite Residues and the secondary outputs for forestry and sawmilling, i.e., forestry residues and sawmill residues.

2.114 The Proposed Development will require a net increase in Fuelstock of 75,000 tonnes. With the replacement of recovered fuel, this will result in an increase in:

- Medite Residues (Bark too wet for existing energy plants (19,000 tonnes))
- Sawmill Residues & Forestry Residues (81,300 tonnes)

Medite Residues

2.115 The Proposed Development will use the production residues wood biomass fuel currently consumed by the existing biomass fired energy systems in Medite.

2.116 The Proposed Development will also consume the approx 19,000 tonnes of bark that is currently transported offsite. The existing biomass fired energy systems do not have the capacity to deal with such a volume of wetter fuel.

2.117 This amounts to 71,000 tonnes of Medite residues which will now be consumed on site in the new energy plants.

Sawmill Residues & Forestry Residues

2.118 The delivered wood biomass fuel will arrive in two distinct forms, both of which are current fuels used in Medite.

1. Forestry Residues. These are the elements of the tree remaining once Sawlog has been removed. Forestry Residues can be further subdivided into 3 categories, Non-commercial logs, Brash, & Pulpwood.
    a. Non-Commercial logs are logs that cannot be used in the timber processing sector due to deformities such as size, taper and crookedness.
    b. Brash is branches & off-cuts remaining onsite post-harvest, mostly in clear-felling situations.
    c. Pulpwood is logs of insufficient size or quality for sawing into construction lumber. Typically the higher section of mature trees & trees felled in later thinning operations, or all of the tree in earlier thinning operations. Pulpwood is used as Feedstock in Medite.
2. Sawmill Residues - elements of the Sawlog remaining once it has been processed into lumber at a sawmill. Sawmill Residues can be further subdivided into 3 categories, Woodchip, Bark, & Sawdust.
    a. Woodchip is the wood remaining after cutting the Sawlog into construction timber that is chipped. Woodchip is used as Feedstock in Medite.
    b. Bark removed from Sawlog as part of the sawmilling process.
    c. Saw dust generated by sawing processes within the saw mill.

2.119 In addition to Medite residues, the required balance of fuel (115,000 tonnes) will consist of wood biomass (Sawmill & Forestry Residues) fuel delivered to site by HGV from within the island of Ireland. The quantity of forest residues and sawmill Residues will increase by 81,300 tonnes.

2.120 The design of the renewable energy plant has assumed that the current fuel stream of recovered wood may not form part of the fuel basket because of concerns over security of supply. The fuel (due to its relatively low moisture content) has a higher calorific value and if utilised would mean a

reduction in overall tonnage of fuel consumed to provide the required energy. For the purpose of design, it has been assumed that this fuel is displaced with a larger volume of wetter fuel in the form of forestry and sawmill residues.

2.121 The proposed fuel intake represents an increase of 58,000 tonnes on the current consumption of 111,000 tonnes (or 75,000 tonnes including the 10% margin), refer to Table 5 below. This increase in wood biomass fuel will not result in an increase in the production volume of MDF, but it is due to a change in the fuel inputs and the substitution of wetter fuels for dryer fuels. The additional biomass fuel used will also displace the fossil fuel natural gas currently used in one of the existing energy systems.

2.122 The delivered wood biomass will be unloaded into the proposed reception units for transfer into the fuel storage plant, if it arrives in a chipped form.

2.123 Fuel Biomass that is delivered in the form of log or brash bundles will be stored outside, periodically batch chipped and stored in open stockpiles (as is current practice). The chipped material will then be metered into the fuel storage plant via the proposed reception units.

2.124 Bark, which is removed from pulpwood logs used for MDF production, will be conveyed from the existing debarker building into the fuel storage plant.

2.125 Other MDF Production residues such as edge trim and saw dust will be pneumatically conveyed to the proposed edge trim silo adjacent to the fuel storage plant and metered into the outfeed conveyors.

2.126 The fuel storage plant will enable a controlled blend of wood biomass to be supplied to the energy plants ensuring optimum operation. The blended biomass will be conveyed by a series of enclosed conveyors from the fuel storage plant to the energy plants.

2.127 These will traverse part of the Medite site. The conveyors serving the new Line 1 energy plant will over-sail the existing Medite feedstock handling equipment, rising to approximately 18m maximum at the connection to the new energy plant.

2.128 Lighter MDF Production residues such as sander dust and some saw dust will be pneumatically conveyed to the new energy plant dust burners via the proposed modifications/additions to the existing pneumatic fuel transport systems and fuel storage silos.

2.129 The comparison of proposed fuel consumption to existing is contained in the Table 2-11.

Proposed Flue Gas Systems and Treatment

2.130 The flue gas from the new wood biomass energy systems will be used directly in the ***Drying*** stage of the respective production lines. This means that in normal operating conditions that the flue gas emissions are mixed with and released with the dryer emissions, i.e., the top of the dryer cyclones. This is as per the existing approach with one minor change. Part of the thermal energy used for Drying in Production Line 1 is delivered in the form of steam. This will no longer be the case, 100% of the thermal energy used for Drying in both production lines will be provided by flue gases from the new energy systems.

2.131 This change in Production Line 1 Drying methodology will result in an increase in the volumetric air flow released through the Line 1 Face & Core Dryer emission points. The Emission Point Reference numbers for the Core and Face Dryers in Production Line 1 are A2-5 and A2-6 respectively. Both emission points are 39m above ground level and currently have the same air volume discharge limit of 174,400 Nm3/hr.

2.132 The volumetric air flow will increase from 174,400 Nm3/hr to 199,600 Nm3/hr in both the Face and Core Dryers.

2.133 The Emission Point Reference numbers for the single Dryer in Production Line 2 is A2-21. The emission point is 39.94m above ground level and has a discharge limit of 174,160 m^3 /hour. This will remain unchanged after the proposed development.

2.134 The flue gases from the new energy system will meet the requirements of both relevant BAT documents prior to being sent to the fibre dryers in the MDF process, specifically Best Available Techniques (BAT) Reference Document for the Production of Wood-based Panels – 2016.

2.135 Combustion of the wood biomass fuel in the Energy plant's combustion chambers utilising a combustion grate design in combination with dedicated dust burners, will generate combustion gases. The hot combustion gases will heat the thermal oil heat transfer fluid (HTF) before exiting the energy system and being sent to the dryers as flue gases.

2.136 Combustion will be carefully controlled and optimised using best available techniques with automation of the fuel feed rate and monitoring of furnace and flue gas conditions.

2.137 Both systems will also incorporate a Dry Electrostatic Precipitator (ESP) to remove particulate. The Dry ESP uses electrical forces to remove particulate matter from the flue gases. A high-voltage source generating a corona current charges the particulate matter, which migrates to the collecting plate.

2.138 Combustion emissions will be continuously monitored and controlled using best available techniques (BAT) to ensure the energy plants operate in compliance with robust environmental standards set and licenced by the Environmental Protection Agency (EPA).

2.139 The treated flue gases will be sent directly to the Dryers to dry the wood fibre in the MDF manufacturing process. As such the main flue gas emission points will continue to be the existing dryer emission points. There will also be a 59.5m AOD start-up stack dedicated to each energy plant used for start-up and shut down, when the flue gases cannot be sent to the dryers. This compares to the existing start-up stack of 25M for the Line 1 wood biomass fired boilers and 18M for Line 2 wood biomass fired Thermal Fluid Heater.

Current versus Proposed Water Usage

2.140 Water is abstracted from the River Anner for processing operations at the site. The abstraction rate is c. 50 m^3/hr. which is c. 1,200 m^3/day. The surface water abstraction from the river is registered with the EPA (Abstraction Registration No. R00013).

2.141 Although, a significant reduction in process water usage is likely to occur as a result of the new energy plant, this will depend on the final technology selected. As such the exact extent of the reduction cannot be estimated at this stage. Pending confirmation of the technology, it can be confirmed however that there will be no increase in current process water usage of 421,374m^3 per annum or the potable (mains) water usage of 15,000m^3 per annum at the site.

Current versus Proposed Ash Generated

2.142 It is anticipated that the plant will produce approximately 5,900 tonnes of ash per annum. This will consist of approximately 3,200 tonnes of bottom ash and 2,700 tonnes of fly ash. The actual tonnage leaving site will be dependent on quality of biomass fuel supplied to the plant.

2.143 The current systems generated a combined bottom & fly ash total of approx. 3,500 tonnes per annum.

2.144 Ash will be stored in dedicated covered facilities and transported by truck for disposal offsite at a licensed facility.

Overall Site Design and Landscaping

2.145 The existing mature vegetation along the western southern and eastern application site boundaries provides ample screening of the proposed development, in particular from the adjoining local roads and nearby residential dwellings (closest residential receptors are to the north and south along the local road to the east of the site, approximately 25m respectively).

2.146 To the north the Proposed Development is screened by a mixture of topography and intervening vegetation. Additional screening vegetation is not considered necessary from a visual perspective (note: it would not be possible to screen the tallest elements associated with the Proposed Development with any additional planting in views from elevated locations within 3km to the north and 6km to the south of the site – refer to Chapter 13 of this EIAR).

2.147 However, the stand of trees to be felled within Development Area 2 will be replaced by the planting of a native woodland belt along the northern boundary of the Proposed Development Site. Please see Planting Plan ***Figure 13.11***.

2.148 As outlined in Chapter 13 and **Appendix 2.1** Construction Environmental Management Plan (CEMP), landscaping will commence ahead of the main construction works to ensure early establishment.

Phasing

2.149 The Proposed Development will take place over a ten-year period which will include four distinct phases of development. The anticipated start date for each development phase will depend on the date permission is granted. The construction phases are as follows:

- **Phase 1 which will include the development of the Line 1 Energy Plant and fuel reception, storage and conveying/screening equipment (Proposed development identified for Areas 1 and 2). The anticipated timescale for this phase is 2025 – 2027[1]**
- **Phase 2 will include decommissioning of the two existing wood biomass fired boilers (18MW each) that serve Line 1 and the LPG Fuel Tank. The anticipated timescale for this phase is 2027-2029**
- **Phase 3 which will include the development of the Line 2 Energy Plant and associated storage area. The anticipated timescale for this phase is 2030-2033**
- **Phase 4 which will include the decommissioning of the existing single wood biomass fired Thermal Fluid Heater (19MW) serving Line 2. This existing Thermal Fluid Heater equipment will be dismantled and removed from the site. The anticipated timescale for this phase is 2034-3035.**

2.150 The Applicant is seeking a ten-year permission for the development to facilitate a phased development process which will allow existing manufacturing operations to continue at the site for the duration of the construction phase.

[1] The proposed fuel consumption (as per table 2.11 above) comes into effect as soon as the Line 1 replacement is completed

SITE INFRASTRUCTURE

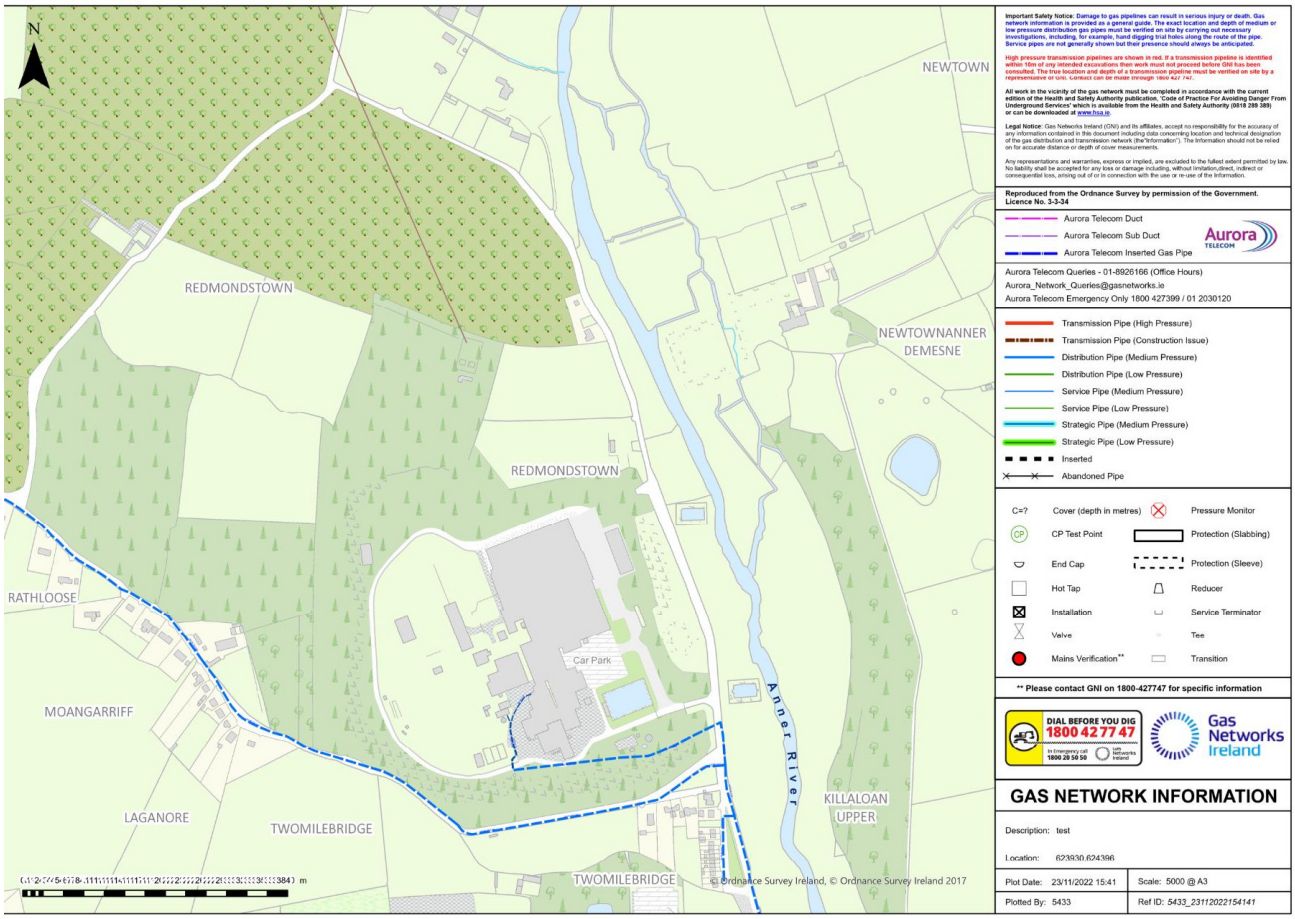
Electricity

2.151 The existing 110 kV electrical sub-station, located on the northern boundary of the site, provides power to the site.

Natural Gas

2.152 An existing medium pressure Gas Networks Ireland gas pipeline traverses the southern boundary of the site, refer to Figure 2-10 below.

Figure 2-10
Gas Network Ireland Pipeline Mapping



Telecommunications

2.153 Fibre is available to be provided from several sources, for security of supply. No above ground works are required as internet providers have infrastructure already in place.

Site Features

2.154 Following a desk-based review of the National Inventory of Architectural Heritage, the National Monuments Service and the Record of Monuments and Places, it is concluded that no protected structures or recorded monuments are located within the application site. There is a feature near

the application site, which is east of application area and west of the local road. This feature recorded under record number TS083-010 is classified as a Ringfort – rath. Chapter 12 assesses the Impacts arising from Proposed Development on Cultural Heritage.

2.155 The Chapter 13 assesses the Landscape and Visual Impacts arising from proposed development.

Site Access

2.156 The application site relates to Medite's manufacturing plant in Redmondstown, Co. Tipperary. The site lies 4 km east of the centre of Clonmel, Co. Tipperary and approximately 50m from a local access road connecting to the N24 National Secondary Road, which runs locally between Limerick and Waterford.

2.157 The existing manufacturing plant and application site is accessed via a local access road off the N24. The existing buildings in the Medite facility are situated approximately 50m back from this local access road.

2.158 The access arrangements and traffic impacts are considered in Chapter 14 of this EIAR.

Site Security

2.159 At the present time, the following measures are in place at the Medite facility to secure the external perimeter and restrict access in order to protect the property and safeguard public safety:

- Stockproof fencing has been erected along the site boundary (in accordance with Safety, Health and Welfare at Work Act 2005).
- Existing perimeter hedgerows species have been reinforced where required to provide an impenetrable barrier around the property;
- A large, robust metal gate is in place at the entrance to the site. The gate is locked, at times outside operational hours and when there is no ongoing activity at the site.

2.160 There is no other vehicular access to the site other than from the L2506 Local Road. Two access point are available from this point, the southern access gate and the northern access gate. The northern site access gate will be used for construction traffic.

2.161 All heavy good vehicles (HGVs) importing construction material for the proposed development will be required to pass through security before accessing the northern access road leading to the construction compound, refer to Figure 2-14 for details.

2.162 CCTV cameras are installed around the site and used to inspect all activities at the facility.

Site Roads and Parking

2.163 The internal access roads are surfaced/paved. There is a monitored barrier system with Number Plate Recognition cameras that prevents unauthorised access to the site. There are also Medite personnel located in the weighbridge building inside the entrance.

2.164 Vehicles entering the site keep left to access the existing asphalt carpark (**Item 1.18**). This car park has 112 spaces located adjacent to the Office/Stores/Workshop Area. Couriers and other van/truck deliveries to stores gain access through this carpark.

2.165 HGV accessing the site go through the security and either go to the loading bays to the south or east of the main warehouse or using the paved roads to the unloading areas. The northern site access gate will be the main entrance for construction traffic. The access arrangements and potential traffic safety impacts are considered in Chapter 14 - Traffic.

Off Site Traffic Movements

2.166 The Proposed Development will result in an increase in traffic owing to the delivery of materials to and from the site during construction and the delivery of additional fuel during the operational phase.

2.167 During the construction phase it is estimated that up to a maximum of 15 deliveries will be made to and from the site in any one day, with a daily average of 4 daily HGV trips to and from the site forecast. With an average of approximately 50 construction staff forecast for the duration of the construction period, rising to a peak of 240 expected over a period of 14 months of Phase 1, it is estimated that up to a maximum of 160 daily car trips will be generated by construction staff.

2.168 When fully operational, there will be no change from current situation where there are 120 employees on site each day. However, as a result of additional fuel requirements, it is predicted there will be a total of 25 HGVs per day (50 two-way movements) which is an increase of 10 HGVs per day (20 two-way movements) on the existing baseline of 15 HGVs per day (30 two-way movements).

2.169 The wider area has excellent links to the national primary routes. Further details in relation to the potential impact of the proposed development (construction and operation) in terms of traffic are presented in Chapter 14 - Traffic.

Lighting

2.170 All of the service roads and pathways are provided with low illumination levels of downward only lighting for use on an occasional basis, they will not be turned on normally and controlled from the gate house for specific usage. Vehicles coming to the site will use headlights to access the buildings. External plant areas are fitted with external lighting and task lighting sockets, but again these will be used for emergency maintenance support. There is lighting to the admin areas of each building, so some limited spill of lighting will occur to the admin area facades, but there are limited and all lighting are controlled.

2.171 In terms of security, the whole site will be covered by CCTV cameras but will not require external lighting to be on to operate, instead they will use infra-red coverage to allow the cameras to operate. External lighting is for safety reasons and not operational at night unless in an emergency and for site evacuation. There will be no light spill on any features suitable for bat foraging and commuting.

Fuel Storage

2.172 Fuel, comprising Diesel and LPG, is stored in the existing bunded fuel storage tanks on the site. All bunds are capable of containing 110% of the volume of the largest drum/tank within the bund or 25% of the total volume of the substance stored and are designed in accordance with the EPA's guidelines for the storage and transfer of materials for scheduled activities (EPA, 2004). Fuel oil will continue to be delivered to the site by HGV road tankers, with an average of one to two tankers expected to be travelling to and from the site per month. The Proposed Development will not result in any increase in fuel oil deliveries to the site. The two storage tanks for diesel have the capacity to store 22,000 litres and 2,750 litres of diesel.

Existing Equipment Storage Areas

2.173 Large mobile plant and equipment used in operations are stored on hardstand areas within the application site. As access to the site is restricted and monitored, it is not considered necessary to provide a dedicated, secure compound for plant and equipment within the facility.

2.174 Storage for small items of plant and equipment, replacement parts, minor quantities of hydraulic oil and/or lubricants, storage of minor quantities of liquid (oil) waste, safety clothing and equipment is

provided in the existing garage / workshop at the eastern side of the site, adjacent to the site entrance, at the location shown on the site layout plan in Figure 2-11.

2.175 In addition to providing for storage of potentially hazardous oils / waste liquids over spill pallets, internal bunding may also be provided to contain any potential leaks or spills of potentially hazardous oils or waste liquid.

Environmental Management and Monitoring

2.176 Medite Europe DAC operates under Industrial Emission Licence (P0027-04). It sets a range of emission limit values (ELVs) for air emissions, dust emissions, noise emissions, and surface water emissions, and it applies parameters regarding monitoring and reporting of the same.

Overall Site Drainage

2.177 Site drainage from the overall site (including the application area) is managed by Medite in compliance with existing licence.

2.178 Collected surface water is used in the ancillary manufacturing processes and for dust suppression. Excess overall site drainage water is collected and treated in the overall site water management system before being discharged to the local stream in accordance with a discharge licence obtained from Tipperary County Council (refer to EIAR Chapter 7 Water for further details).

Existing Water Management and Treatment Systems

2.179 There is an existing water management system at the site to manage, treat and discharge storm water runoff and process water used at the site.

2.180 Medite operates an Environmental Management System (EMS), required under Condition 2.1 of their licence (IE Licence no. P0027-04), which facilitates the management of the environmental impacts of their activities at the site. Medite's Environmental Management System is externally certified to the IS014001 Environmental Standard. Personnel at the site are trained in the implementation of the EMS at the site.

2.181 In addition, as part of the overall site management system, Medite implement a programme of Planned Preventative Maintenance (PPM) which includes:

- routine round the clock maintenance programme for plant equipment;
- routine 8-hour planned maintenance shutdown; and
- annual maintenance shutdown for one/two week per production line.

2.182 The site is composed of the main production plant building and materials storage areas. All areas associated with the facility's operations are located on hardstanding.

2.183 Surface Water Management will largely remain unchanged except for three areas of additional hard standing to facilitate the development of both energy plants and fuel infrastructure. The additional hard standing at the site is 1.1 ha. within an overall site application area of c. 29.7 ha. Therefore, the additional area or hard standing at the site is considered to be relatively insignificant in the context of the overall site.

2.184 In terms of additional non-permeable hard standing areas at the site the three additional areas are:

- Development Area 1 - Permeable Hardstanding to be replaced with non-permeable hardstanding area of 4640 m^2;

- Development Area 2 - New non-permeable hardstanding area of 6,400 m^2; and
- Development Area 3 - Permeable Hardstanding to be replaced with non-permeable hardstanding area of 410 m^2.

2.185 Approximately 1,154 m^3/day of water is abstracted from the Anner River to supply process activities at the site while approximately 41 m^3/day of potable (mains) water is used at the site. There is no plan to increase the current water usage at the site, however, the installation of the new more efficient boilers at the site will lead to a reduction in water abstracted from the Anner River, this will be a positive benefit for river flows.

2.186 The surface water abstraction at the site is registered with the EPA (Abstraction Registration No. R00013) is shown on Figure 7-2 in Chapter 7. The current abstraction rate of c. 1,154 m^3/day from the river is less than 1% of the lowest recorded mean daily flow in the river.

2.187 Support infrastructure relevant to Chapter 7 of the EIAR include the following:

- An activated sludge treatment plant to treat domestic sewage and process effluent (mostly water squeezed from the wood chip during the refining stage); and
- Surface water interceptor settling lagoons.

2.188 Raw and auxiliary materials/substances stored on site are outlined in this Chapter.

2.189 During the refining and drying processes, the wood chips / fibres are subjected to heating / wetting by the use of steam. Any excess water from the process is sent to the on-site wastewater treatment plant, which subsequently generates approx. 8,000 tonnes of wood sludge which is treated. Details of the MDF manufacture process is outlined above in this Chapter.

2.190 The water management at the site and the treatment process are shown in a process diagram on Figure 7-2. The onsite Waste Water Treatment Plant (WWTP) comprises Dissolved Air Flotation (DAF), followed by Moving Bed Biofilm Reactor (MBBR) tank and an aeriation basin. The wastewater treatment involves Primary Screening to remove larger solids, followed by the DAF and MBBR process, following this is an aeration basin and system of Active Sludge Clarifiers and settlement before the treated water is discharged off site to the Anner River.

2.191 There is a risk assessment and firewater management plan for the site, refer to Appendix 7-C Risk Management Report – Firewater.

2.192 There is a hydrocarbon separator at the site and all storm water runoff to SW2 passes through the separator prior to discharge, see Figure 7-1 and Chapter 7.

Surface and Ground Water Management

2.193 Surface Water Management will largely remain unchanged except for three areas of additional non-permeable hardstanding to facilitate the development of both energy plants and fuel infrastructure, refer to **Section 2.184** above.

2.194 There are also existing measures in place at the site to manage and treat storm surface water runoff and process water at the site.

2.195 The existing measures are designed to reduce the potential impacts associated with the operation of the site to acceptable levels, presenting a low risk to the receiving environment. These measures are designed to either reduce the likelihood of an event occurring or the magnitude of the consequences should the event occur. They are:

- Fuel is stored in bunded tanks;
- There are hard standing areas for refuelling and surface water runoff from these hard stands is directed to the surface water management systems and WWTP on-site.
- All plant and machinery is regularly maintained and inspected daily for leaks of fuels, lubricating oil or other contaminating liquids/liquors;
- A spill kit is kept on-site to stop the migration of any accidental spillages, should they occur;
- All wastewater generated on site is collected and passed through the on-site WWTP before being discharged from site via a licenced and monitored discharge point at the Anner River;
- The company Environmental Management System (EMS) is implemented at the site and which facilitates the management of the environmental impacts of their activities at the site

2.196 Measures are also in place to manage and reduce Suspended Solids discharged at SW1 to comply with the licence limit value. They include a silt trap on the open channel to catch solids before the discharge point.

MONITORING

2.197 There are monitoring programmes currently in place at the site as per the IE licence for both surface water and groundwater quality. These monitoring programmes are outlined below and will continue to be in place at the site in compliance with the licence requirements.

Groundwater

2.198 Groundwater monitoring under the conditions of the facility's IE licence will continue on a quarterly basis at all monitoring wells (AGW1 - AGW10). Annual groundwater monitoring reports are produced based on this monitoring and will continue to be submitted to the EPA.

2.199 The parameters included in the groundwater monitoring programme are those set out in Schedule 4(ii) of the EPA IE licence. These parameters are:

- pH;
- Trace organics (as per USEPA Method 524.4);
- Major anions;
- Major cations;
- Individual heavy metals;
- Ammonia.

2.200 The water levels in all monitoring wells will continue to be monitored on a quarterly basis to confirm the direction/variability of groundwater flow beneath the site.

2.201 The landfill gas and leachate level monitoring will also continue on a biannual basis.

Surface Water

2.202 Surface water runoff from the northern part of the site, including internal haul roads and the log storage area, is located on a permeable surface within the site, allowing for the natural infiltration of rainwater to the ground. Storm runoff from this location is collected and goes to a small drain before discharging to a drain leading to the Anner River at SW1, the Northern Discharge. The discharge is intermittent and dependent on rainfall.

2.203 Surface water runoff from the main process yard area and from the process plant is subject to both coarse and fine screening before discharge into three settlement lagoons. The treated surface water from the lagoons goes through a hydrocarbon separator before meeting the clarified effluent from the Waste Water Treatment Plant (WWTP) and the combined flow is discharged to the River Anner at SW2, the Southern Discharge.

2.204 Surface Water Management and Treatment systems in place at the site will continue to be adhered to. Discharge monitoring under the facility's IE licence requirements will continue at the two discharge points, SW1 and SW2 on a quarterly basis. Water quality results for these two sampling points are screened against the limits set out in the licence and the results are reported to the EPA.

2.205 Surface water quality in the Anner River will also continue be monitored upstream and downstream of these discharge points on a quarterly basis. Surface water quality results are screened against the environmental quality standards outlined in the Surface Waters (Amendment) Regulations 2009 (as amended). The results will be available for inspection by the EPA or TCC as required.

SITE PREPARATION WORKS

2.206 A Construction Environmental Management Plan (CEMP) has been prepared for the proposed development at Medite's site which is included in Appendix 2-1.

Health and Safety

Design and Construction Health and Safety

2.207 The Proposed Development has been designed in accordance with the Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005) as amended and the Safety, Health and Welfare at Work (General Application) Regulations 2007-2016 (S.I. 299 of 2007, S.I. 445 of 2012, S.I. 36 of 2016) as amended and associated regulations.

2.208 The Proposed Development has been designed by skilled personnel in accordance with internationally recognised standards, design codes, legislation, good practice and experience based on a number of similar developments.

General operational health and safety

2.209 During construction, there is the potential for temporary nuisance impacts from traffic, dust, noise and construction waste, if not carefully managed. All contractors will be required to implement a CEMP to ensure each of these potential impacts are minimised.

EXISTING ENVIRONMENTAL CONTROLS

General

2.210 Medite's operations have an Environment Management System Manual (ISO 14001:2015) in place which purpose is to gain a high-level understanding of all relevant internal and external issues that impact or have the potential to impact, positively or negatively, the ability of the EMS to achieve its intended outcomes, refer to **Appendix 2-2** for the contents of the EMS.

2.211 The scope of the EMS is the activities and products of the company.

- The scope of the EMS is also the external processes associated with the company over which it can exert a degree of control or influence.
- These processes/activities are:
    - Raw Material Inwards and Storage
    - Debarker and chipper
    - Refiner
    - Dryer
    - Fibre handling
    - Press
    - Sander, Saw, Packaging, Dispatch
    - Boilers
    - Yard, Chemical Storage, Waste Storage Area, Waste Transport
    - Air Conditioning Units
    - Engineering and maintenance activities
    - Offices, Canteens, Toilets.
- The spatial boundaries are as per the site boundaries of the Facility.
- The organisational personnel structures are as per EM 5.3 – Organisational roles, responsibilities and authorities of the Environmental Manual.
- This scope of the EMS is provided as **Appendix 2.2** of this EIAR.

Dust Control

2.212 The site measures and monitors, on a regular basis, the key characteristics of its operations and activities that can have a significant impact on the environment, as detailed in EM 8.1 – Operational planning and control and those as required by compliance obligations, at intervals as required.

2.213 Environmental measuring and monitoring is carried out by suitable testing equipment/facilities in accordance with approved environmental procedures. The results of environmental measuring and monitoring are recorded on the appropriate environmental records, refer to Chapter 8 for monitoring details.

2.214 Site's environmental performance is reported on a quarterly basis to the EPA.

Fire Control

2.215 Evacuation procedures, in case of fire or leak, are detailed in the Health and Safety Emergency response procedures.

2.216 Major incident handling is covered by the ERT Plan and training,

2.217 Chemical Spill response procedures are covered in Health and Safety Emergency response procedures.

2.218 Further assessment is contained within Chapter 15 of the EIAR.

RELATED DEVELOPMENT AND CUMULATIVE EFFECTS

2.219 The Proposed Development is designed to support energy demand for the existing development on site. A detailed description of the existing development and other applications on the site is provided in this Chapter.

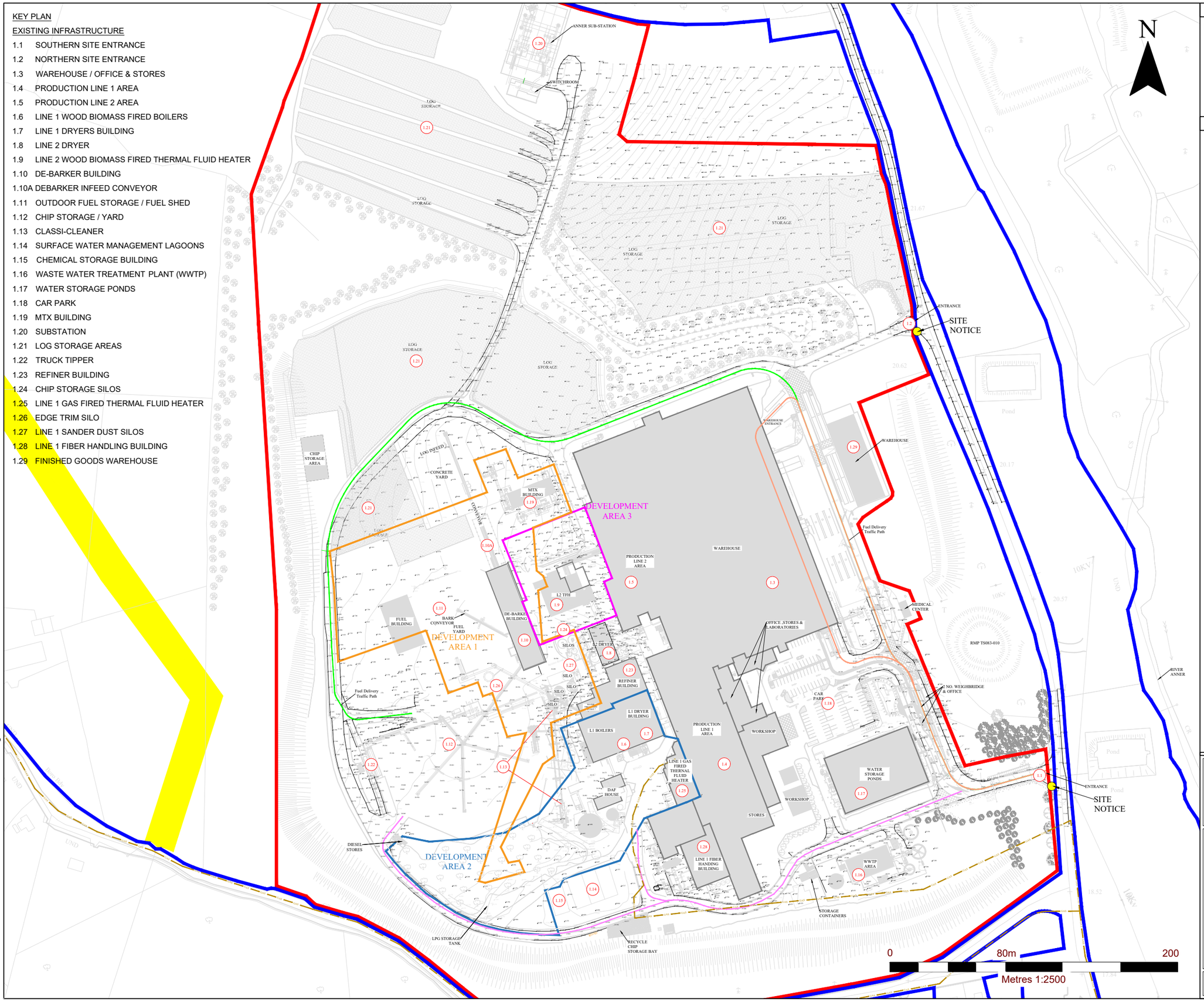
2.220 The Proposed Development's likely significant effects on the environment alone, and in cumulation with other developments that are currently permitted or under construction within the vicinity of the site, neighbouring industrial parks and surrounding areas have been assessed in each chapter of this EIAR. A list of these developments considered is provided in **Chapter 1** and **Appendix 1.4** using a study area of 10km. A zone of influence for each environmental discipline and the methodology for that zone of influence is identified in each individual chapter of this EIAR.

FIGURES

KEY PLAN

EXISTING INFRASTRUCTURE

1.1 SOUTHERN SITE ENTRANCE
1.2 NORTHERN SITE ENTRANCE
1.3 WAREHOUSE / OFFICE & STORES
1.4 PRODUCTION LINE 1 AREA
1.5 PRODUCTION LINE 2 AREA
1.6 LINE 1 WOOD BIOMASS FIRED BOILERS
1.7 LINE 1 DRYERS BUILDING
1.8 LINE 2 DRYER
1.9 LINE 2 WOOD BIOMASS FIRED THERMAL FLUID HEATER
1.10 DE-BARKER BUILDING
1.10A DEBARKER INFEED CONVEYOR
1.11 OUTDOOR FUEL STORAGE / FUEL SHED
1.12 CHIP STORAGE / YARD
1.13 CLASSI-CLEANER
1.14 SURFACE WATER MANAGEMENT LAGOONS
1.15 CHEMICAL STORAGE BUILDING
1.16 WASTE WATER TREATMENT PLANT (WWTP)
1.17 WATER STORAGE PONDS
1.18 CAR PARK
1.19 MTX BUILDING
1.20 SUBSTATION
1.21 LOG STORAGE AREAS
1.22 TRUCK TIPPER
1.23 REFINER BUILDING
1.24 CHIP STORAGE SILOS
1.25 LINE 1 GAS FIRED THERMAL FLUID HEATER
1.26 EDGE TRIM SILO
1.27 LINE 1 SANDER DUST SILOS
1.28 LINE 1 FIBER HANDLING BUILDING
1.29 FINISHED GOODS WAREHOUSE



NOTES

Extract from Ordnance Survey 2500 SCALE Map Series

ORDNANCE SURVEY IRELAND LICENCE NO. **CYAL50248253** (c) ORDNANCE SURVEY & GOVERNMENT OF IRELAND.

Site Survey Layout provided by Medite

LEGEND

- MEDITE LANDOWNERSHIP BOUNDARY
- PLANNING APPLICATION AREA (C. 29.7 HA)
- WAYLEAVES
- EXISTING BUILDINGS AND PLANT
- HGV DELIVERY TRAFFIC ROUTE
- HGV FINISHED PRODUCT TRAFFIC ROUTE
- OPERATIONAL ACCESS FOR MAINTENANCE TRAFFIC
- WOODLAND AREA
- EXISTING GAS LINE
- DEVELOPMENT AREA 1
- DEVELOPMENT AREA 2
- DEVELOPMENT AREA 3

SLR CONSULTING IRELAND
7 DUNDRUM BUSINESS PARK
WINDY ARBOUR
DUBLIN 14
T: +353-1-2964667
F: +353-1-2964676
www.slrconsulting.com

MEDITE EUROPE DAC

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

PROPOSED ENERGY PROJECT
AT THE MEDITE FACILITY,
REDMONDSTOWN, CLONMEL, CO. TIPPERARY

EXISTING SITE LAYOUT

FIGURE 2-11

Scale	Date
1:2,500 @ A3	DECEMBER 2023

ABP-311991-21.PL04-PL17.PLANNING DRAWINGS.dwg

KEY PLAN

EXISTING INFRASTRUCTURE

1.1 SOUTHERN SITE ENTRANCE
1.2 NORTHERN SITE ENTRANCE
1.3 WAREHOUSE / OFFICE & STORES
1.4 PRODUCTION LINE 1 AREA
1.5 PRODUCTION LINE 2 AREA
1.6 LINE 1 WOOD BIOMASS FIRED BOILERS
1.7 LINE 1 DRYERS BUILDING
1.8 LINE 2 DRYER
1.9 LINE 2 WOOD BIOMASS FIRED THERMAL FLUID HEATER
1.10 DE-BARKER BUILDING
1.10A DEBARKER INFEED CONVEYOR
1.11 OUTDOOR FUEL STORAGE / FUEL SHED
1.12 CHIP STORAGE / YARD
1.13 CLASSI-CLEANER
1.14 SURFACE WATER MANAGEMENT LAGOONS
1.15 CHEMICAL STORAGE BUILDING
1.16 WASTE WATER TREATMENT PLANT (WWTP)
1.17 WATER STORAGE PONDS
1.18 CAR PARK
1.19 MTX BUILDING
1.20 SUBSTATION
1.21 LOG STORAGE AREAS
1.22 TRUCK TIPPER
1.23 REFINER BUILDING
1.24 CHIP STORAGE SILOS
1.25 LINE 1 GAS FIRED THERMAL FLUID HEATER
1.26 EDGE TRIM SILO
1.27 LINE 1 SANDER DUST SILOS
1.28 LINE 1 FIBER HANDLING BUILDING
1.29 FINISHED GOODS WAREHOUSE

PROPOSED DEVELOPMENT

DEVELOPMENT AREA 1

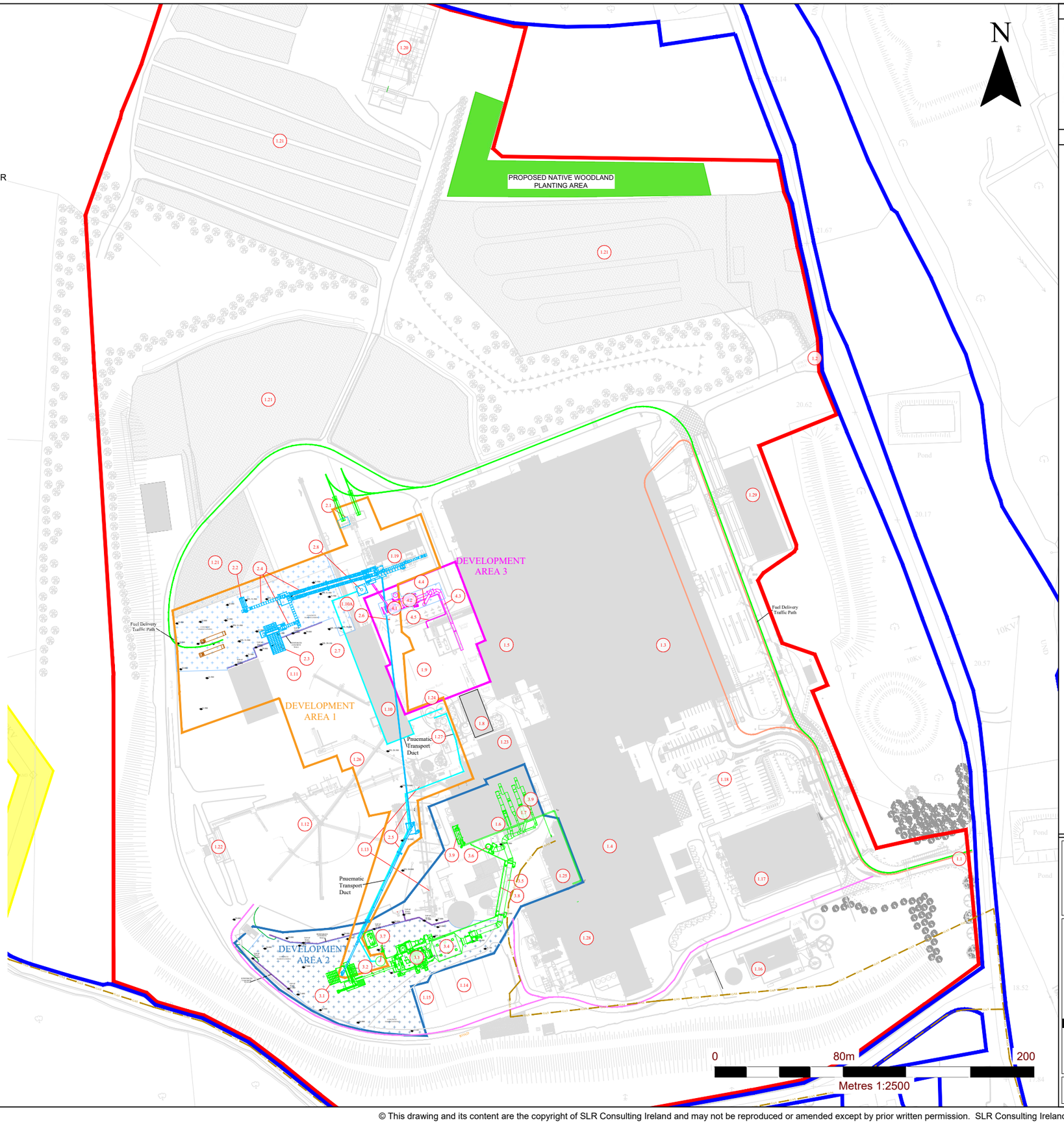
2.1 FUEL RECEPTION UNITS
2.2 FUEL INFEED HOPPER
2.3 WALKING FLOOR INFEED SYSTEM
2.4 CONVEYING SYSTEMS #1
2.5 CONVEYING SYSTEM #2 (to Line 1 Energy Plant)
2.6 CONVEYING SYSTEM #2 (to Line 2 Energy Plant)
2.7 PNEUMATIC (DRY FUEL) SYSTEM
2.8 EDGE TRIM SILO

DEVELOPMENT AREA 2

3.1 LINE 1 WET FUEL METERING BIN
3.2 LINE 1 ENERGY SYSTEM FUEL FEED CONVEYOR
3.3 LINE 1 ENERGY PLANT
3.4 LINE 1 DRY ELECTROSTATIC PRECIPITATOR
3.5 LINE 1 HOT GAS DUCT
3.6 LINE 1 START UP STACK
3.7 LINE 1 DUST SILO
3.8 Line 1 THERMAL FLUID PIPING
3.9 LINE 1 STEAM GENERATOR

DEVELOPMENT AREA 3

4.1 LINE 2 ENERGY PLANT
4.2 LINE 2 DRY ELECTROSTATIC PRECIPITATOR
4.3 LINE 2 HOT GAS DUCT
4.4 LINE 2 START UP STACK
4.5 LINE 2 THERMAL FLUID PIPING



NOTES

Extract from Ordnance Survey 2500 SCALE Map Series

ORDNANCE SURVEY IRELAND LICENCE NO. **CYAL50248253** (c) ORDNANCE SURVEY & GOVERNMENT OF IRELAND.

Site Survey Layout provided by Medite

LEGEND

- MEDITE LANDOWNERSHIP BOUNDARY
- PLANNING APPLICATION AREA (C. 29.7 HA)
- HGV DELIVERY TRAFFIC ROUTE
- HGV FINISHED PRODUCT TRAFFIC ROUTE
- PROPOSED ADDITIONAL NON-PERMEABLE HARDSTANDING
- WAYLEAVES
- EXISTING BUILDINGS AND PLANT
- OPERATIONAL ACCESS FOR MAINTENANCE TRAFFIC
- EXISTING GAS LINE
- DEVELOPMENT AREA 1
- DEVELOPMENT AREA 2
- DEVELOPMENT AREA 3
- PROPOSED NATIVE WOODLAND PLANTING AREA
- FFL 25.500 FINISHED FLOOR LEVEL

SLR CONSULTING IRELAND
7 DUNDRUM BUSINESS PARK
WINDY ARBOUR
DUBLIN 14
T: +353-1-2964667
F: +353-1-2964676
www.slrconsulting.com

MEDITE EUROPE DAC

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

PROPOSED ENERGY PROJECT
AT THE MEDITE FACILITY,
REDMONDSTOWN, CLONMEL, CO. TIPPERARY

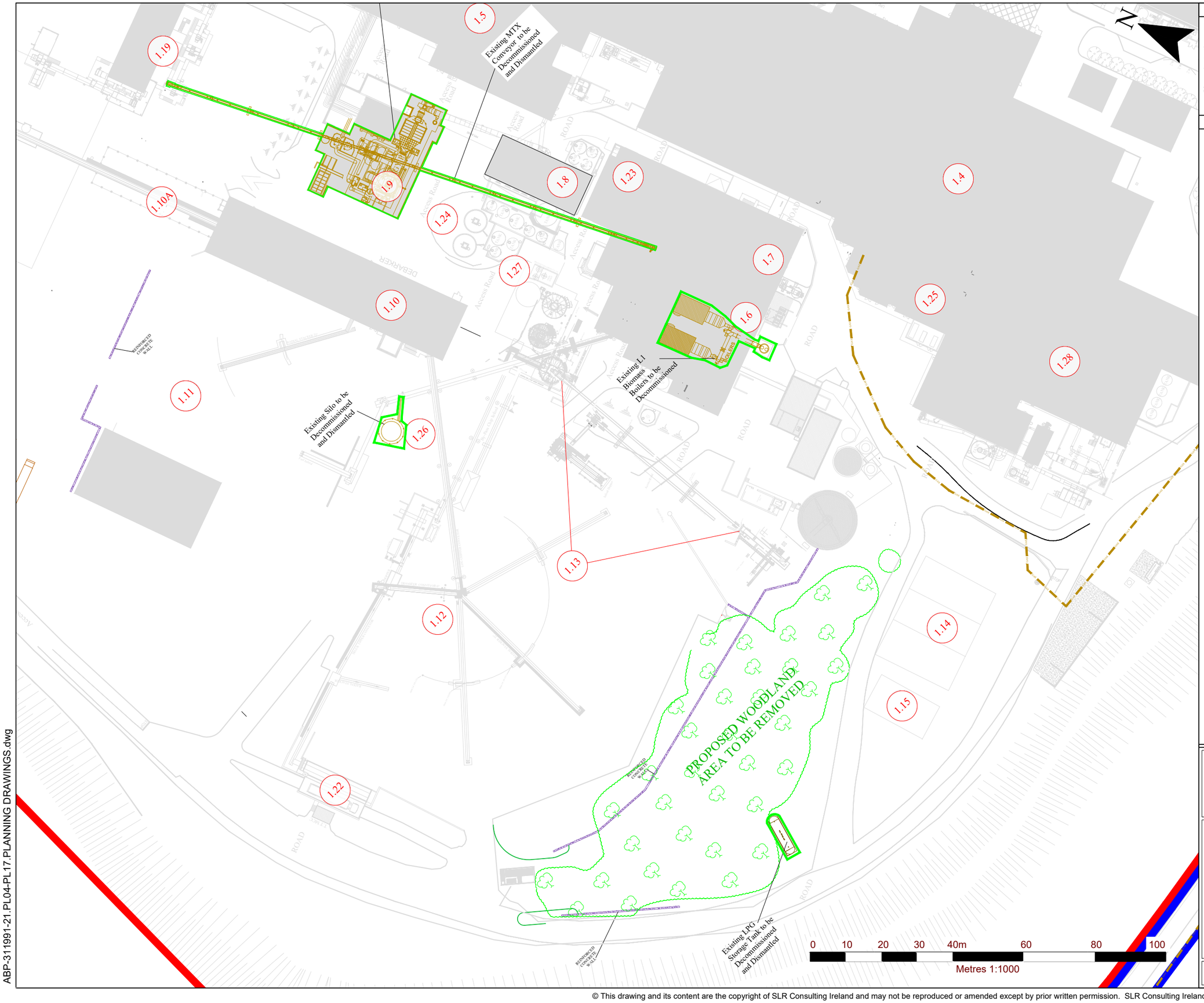
PROPOSED OPERATIONAL SITE LAYOUT

FIGURE 2-12

Scale: 1:2,500 @ A3

Date: DECEMBER 2023

ABP-311991-21.PL04-PL17.PLANNING DRAWINGS.dwg



NOTES

Extract from Ordnance Survey 2500 SCALE Map Series

ORDNANCE SURVEY IRELAND LICENCE NO. **CYAL50248253** (c) ORDNANCE SURVEY & GOVERNMENT OF IRELAND.

Site Survey Layout provided by Medite

LEGEND

- MEDITE LANDOWNERSHIP BOUNDARY
- PLANNING APPLICATION AREA (C. 29.7 HA)
- EXISTING BUILDINGS AND PLANT
- DECOMMISSIONING AND REMOVAL ITEMS
- WOODLAND AREA

KEY PLAN

EXISTING INFRASTRUCTURE

1.1 SOUTHERN SITE ENTRANCE
1.2 NORTHERN SITE ENTRANCE
1.3 WAREHOUSE / OFFICE & STORES
1.4 PRODUCTION LINE 1 AREA
1.5 PRODUCTION LINE 2 AREA
1.6 LINE 1 WOOD BIOMASS FIRED BOILERS
1.7 LINE 1 DRYERS BUILDING
1.8 LINE 2 DRYER
1.9 LINE 2 WOOD BIOMASS FIRED THERMAL FLUID HEATER
1.10 DE-BARKER BUILDING
1.10A DEBARKER INFEED CONVEYOR
1.11 OUTDOOR FUEL STORAGE / FUEL SHED
1.12 CHIP STORAGE / YARD
1.13 CLASSI-CLEANER
1.14 SURFACE WATER MANAGEMENT LAGOONS
1.15 CHEMICAL STORAGE BUILDING
1.16 WASTE WATER TREATMENT PLANT (WWTP)
1.17 WATER STORAGE PONDS
1.18 CAR PARK
1.19 MTX BUILDING
1.20 SUBSTATION
1.21 LOG STORAGE AREAS
1.22 TRUCK TIPPER
1.23 REFINER BUILDING
1.24 CHIP STORAGE SILOS
1.25 LINE 1 GAS FIRED THERMAL FLUID HEATER
1.26 EDGE TRIM SILO
1.27 LINE 1 SANDER DUST SILOS
1.28 LINE 1 FIBER HANDLING BUILDING
1.29 FINISHED GOODS WAREHOUSE

SLR CONSULTING IRELAND
7 DUNDRUM BUSINESS PARK
WINDY ARBOUR
DUBLIN 14
T: +353-1-2964667
F: +353-1-2964676
www.slrconsulting.com

MEDITE EUROPE DAC

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

PROPOSED ENERGY PROJECT
AT THE MEDITE FACILITY,
REDMONDSTOWN, CLONMEL, CO. TIPPERARY

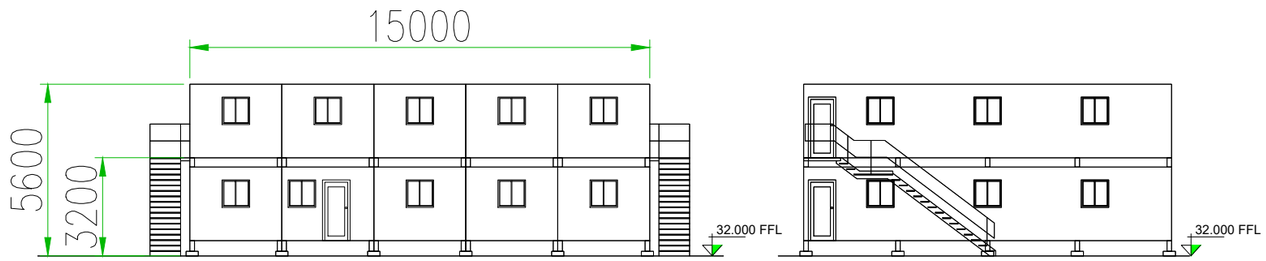
Decommissioning Layout Plan

FIGURE 2-13

Scale 1:1,000 @ A3

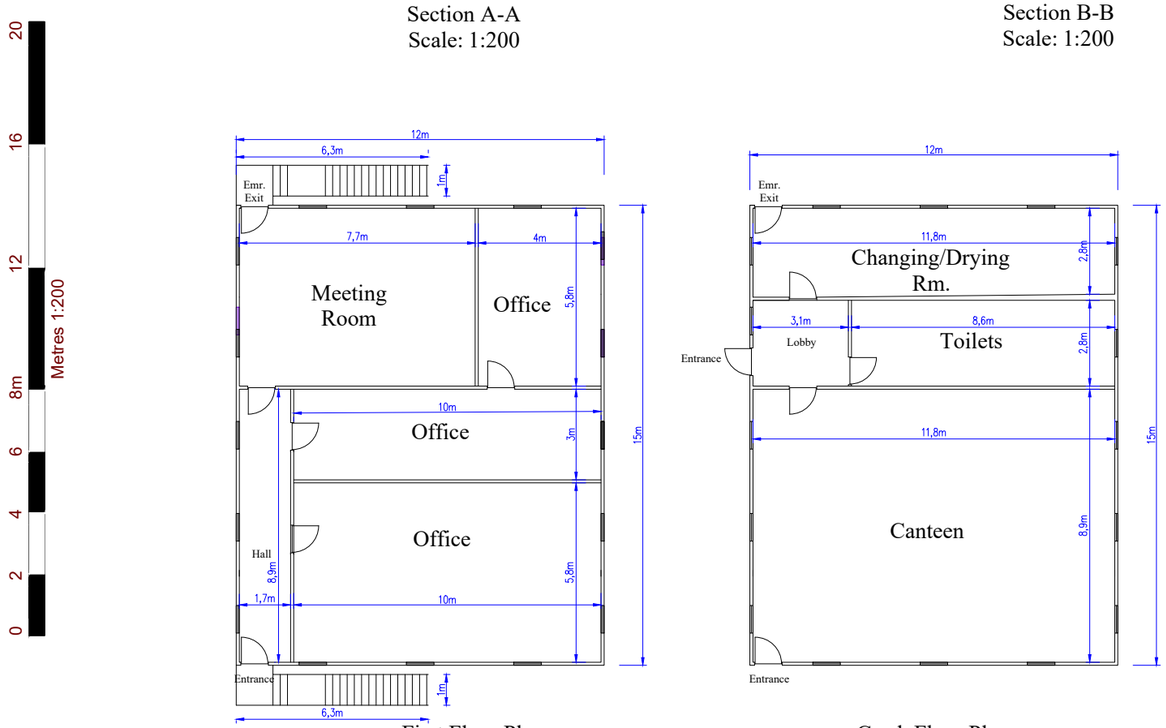
Date DECEMBER 2023

ABP-311991-21.PL04-PL17.PLANNING DRAWINGS.dwg



Section A-A
Scale: 1:200

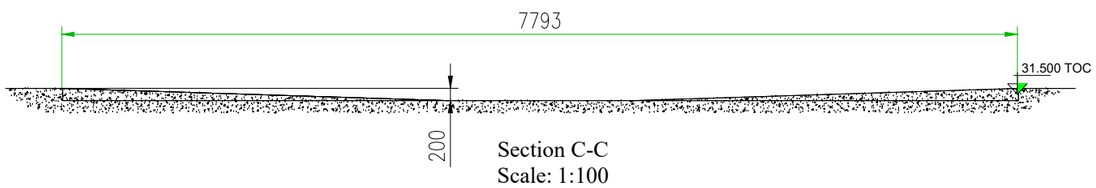
Section B-B
Scale: 1:200



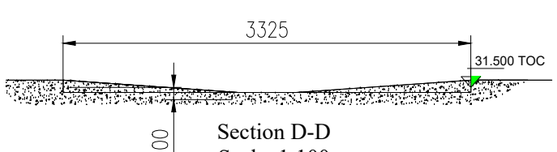
First Floor Plan
(Area = 172.3m²)

Grnd. Floor Plan
(Area = 172.3m²)

Construction Site office and Welfare Facilities

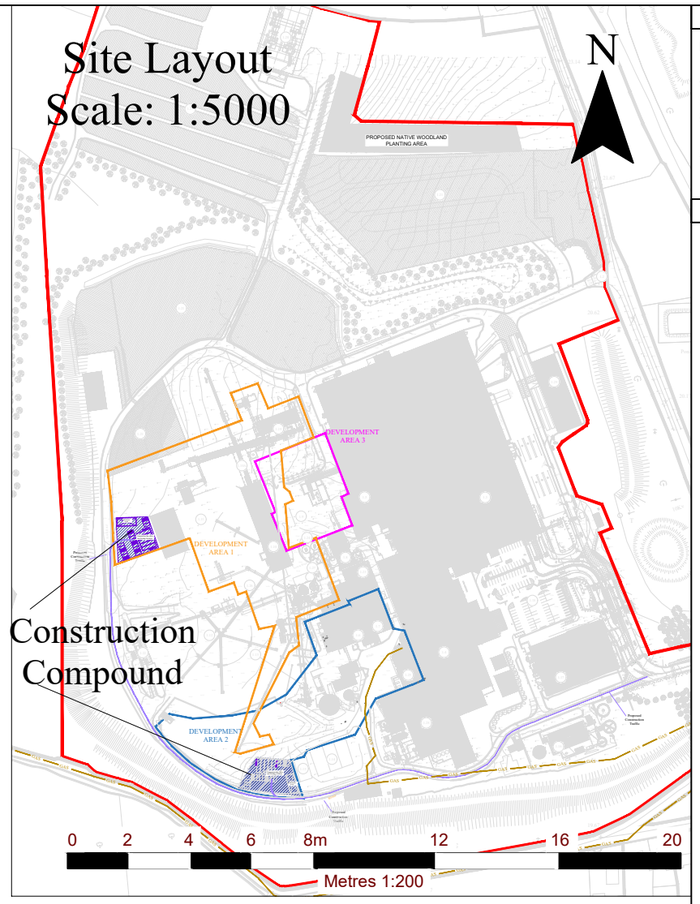


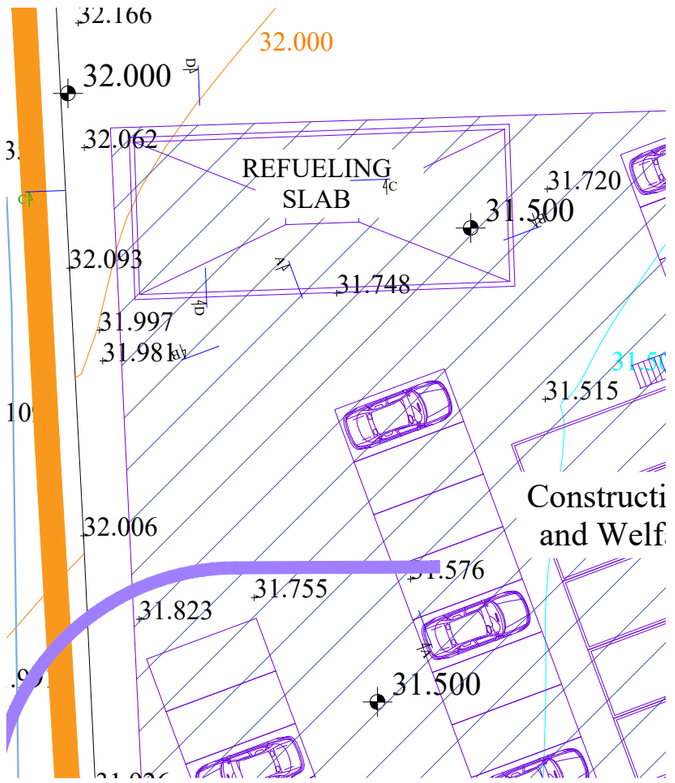
Section C-C
Scale: 1:100



Section D-D
Scale: 1:100

Site Layout
Scale: 1:5000





NOTES

Extract from Ordnance Survey 2500 SCALE Map Series

ORDNANCE SURVEY IRELAND LICENCE NO. **CYAL50248253** (c) ORDNANCE SURVEY & GOVERNMENT OF IRELAND.

Site Survey Layout provided by Medite

LEGEND

- MEDITE LANDOWNERSHIP BOUNDARY
- PLANNING APPLICATION AREA (C. 29.7 HA)
- HGV DELIVERY TRAFFIC ROUTE
- HGV FINISHED PRODUCT TRAFFIC ROUTE
- EXISTING BUILDINGS AND PLANT
- EXISTING GAS LINE
- CONSTRUCTION TRAFFIC ROUTE
- OPERATIONAL ACCESS FOR MAINTENANCE TRAFFIC
- CONSTRUCTION COMPOUND
- FFL 25.500 FINISHED FLOOR LEVEL

SLR CONSULTING IRELAND
7 DUNDRUM BUSINESS PARK
WINDY ARBOUR
DUBLIN 14
T: +353-1-2964667
F: +353-1-2964676
www.slrconsulting.com

MEDITE EUROPE DAC
ENVIRONMENTAL IMPACT ASSESSMENT REPORT

PROPOSED ENERGY PROJECT
AT THE MEDITE FACILITY,
REDMONDSTOWN, CLONMEL, CO. TIPPERARY

Construction Compound - Plan & Elevations

FIGURE 2-14

Scale	Date
1:200 @ A3	DECEMBER 2023

ABP-311991-21.PL04-PL17.PLANNING DRAWINGS.dwg

APPENDIX

Appendix 2-1 Construction and Environment Management Plan

Appendix 2-2 Environmental Management System Manual

Appendix 2-3 Industrial Emissions licence (P0027-04)

(Refer to EIAR Volume 3 for Appendices)