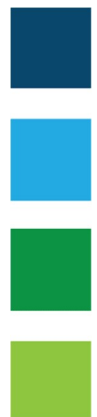




THORNTONS RECYCLING
IE LICENCE APPLICATION
OPERATIONAL REPORT



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Table of Contents

1.	Introduction	1
1.1	Site Description.....	1
1.2	Current and Proposed Facilities	2
2.	Unit Operations	4
3.	Description of Unit Operations.....	6
3.1	Composting Facility.....	6
4.	Description of Ancillary Operations.....	15
4.1	Odour Abatement.....	15
4.2	Laboratory Facilities	19
4.3	Other Services.....	19
5.	Site Infrastructure and Operations.....	20
5.1	Wastewater.....	20
5.2	Surface Water.....	20
5.3	Water Supply.....	23
5.4	Traffic Control and Security	23
5.5	Delivery, Reception of Waste, Quarantine and Inspection	25
5.6	Site Accommodation	26
5.7	Weighbridge.....	26
5.8	Wheel Wash.....	26
5.9	Maintenance and Welfare.....	27
5.10	Fuel Storage	27
5.11	Fire Control	28
5.12	Car Parking.....	29
5.13	Litter Control.....	29
5.14	Vermin Control	29
5.15	Bird Control.....	30
5.16	Hours of Operation.....	30
6.	Alternatives.....	32

Appendices

Appendix A Drawings

Appendix B Environmental Monitoring Locations



List of Tables

Table 3-1 Mass balance based on 40,000 tpa waste intake 12

List of Figures

Figure 1-1 Regional Site Location Map.....3

Figure 2-1 Product Flow Direction Diagram 5

Figure 3-1 Flow diagram for mass balance based on 50,000 tpa waste intake 14

Figure 5-1 Catchment Delineation and Surface Water Features Map 22



1. INTRODUCTION

TOBIN has been commissioned by Pádraig Thornton Waste Disposal Ltd. (trading as Thorntons Recycling) to prepare this Operational Report for the proposed expansion of an operational composting facility located in the townlands of Ballynalurgan and Newcastle in Kilmainhamwood, Kells, Co. Meath. The composting facility, owned and operated by Thorntons Recycling, operates under a Waste Licence issued by the Environmental Protection Agency (EPA) (Reg. No. W0195-02) and is currently authorised to process up to 40,000 tonnes of biodegradable waste per year. The facility also operates with approval from the Department of Agriculture, Food and the Marine (DAFM) in compliance with the European Union (Animal By-Products) Regulations 2014 (S.I. No. 187 of 2014), referred to as the ABP Regulations (Approval No. Comp 06).

Planning permission for the expansion has been granted by Meath County Council (MCC), and the application is now seeking the grant of an Industrial Emissions (IE) licence. The proposed License will allow an increase in waste intake at the existing facility from 40,000 tonnes per annum (tpa) to 50,000 tpa. No changes are required to the existing waste handling and treatment infrastructure to support this increase. However, additional odour abatement infrastructure and modifications to the existing odour abatement system will be necessary. This Operational Report outlines the proposed activities at the site and has been prepared in accordance with the guidance provided in the Licence Application Form Guidance published by the Agency in June 2021¹. It will be submitted to support the IE Licence application for the proposed waste intake, i.e., the proposed development.

1.1 SITE DESCRIPTION

The existing compost facility is situated in Ballynalurgan, Kilmainhamwood, Kells, Co. Meath. The site is located approximately 2.4 km northeast of Kilmainhamwood village, 6 km northwest of Nobber village in Co. Meath, and 4 km south of Kingscourt in Co. Cavan, as illustrated in the Regional Site Location Map provided in Figure 1-1. The applicant's land ownership covers an area of approximately 13.2 hectares (ha) and are located in the townlands of Ballynalurgan and Newcastle.

The site area, which encompasses the existing facility and is the subject of this application, is 4.6 ha, as delineated in red in Figure 1-1. The site's elevation ranges from approximately 80.7 m above ordnance datum (AOD) in the yard surrounding the main composting building to 87.0 m AOD along the access road. The road elevation at the site entrance is approximately 61.8 m AOD.

The lands are generally made up of two fields; one, measuring approx. 7.7 ha, extends from the R162 (Kingscourt to Nobber) Regional Road in a northeast direction. The second field, measuring approximately 5.5 ha, is situated north of the first field and connected at its southeastern corner. The first field includes the private access roadway to the compost facility, running parallel to an original passage/driveway set in permanent grass. A wire fence borders this field to the northwest. An earthen bank topped with shrubs and mature trees separates the

¹ EPA, *Licence Application Form Guidance – Industrial Emissions (IE), Integrated Pollution Control (IPC) and Waste, Version 2.1* (June 2021)



original passage/driveway from the field. At the southern end of this field, adjacent to the R162, a stream runs from east to west. The stream is culverted under the access road and further under the R162, descending into Newcastle Lough.

The main composting building is the primary structure on the site, with a gross floor area of approximately 6,460 m². It consists of a steel portal frame with a 3 m high mass concrete wall and green cladding above. The roof's highest point stands at 12.5 m above ground level.

Within the composting building, there are 29 composting bays, 2 bulking tunnels, and 2 pasteurisation tunnels. Each composting bay measures 5.75 m in width and 11.58 m in length, while each bulking tunnel spans 7.95 m in width and 25.43 m in length. The pasteurisation tunnels have dimensions of 6 m in width and 15 m in length. Additionally, the building includes a waste reception area, a compost screening area, and an odour abatement area.

The facility's ancillary infrastructure comprises an administration building with an approximate floor area of 135 m² and a weighbridge located adjacent to the administration building, as shown in the Site Layout Plan. There is also an ESB substation building adjacent to the composting building, covering an approximate floor area of 34 m².

1.2 CURRENT AND PROPOSED FACILITIES

The existing facility comprises the following main facilities and infrastructure:

- Composting Facility
- Administration Area
- Car Park
- Access Roads
- Weighbridge
- Ancillary Infrastructure

Thorntons Recycling propose to further develop the compost facility to provide for the critical indigenous treatment capacity for food and other organic wastes and the proposed development will support this capacity need in a direct and immediate manner. This will require the following facilities and infrastructure:

- Pre-treatment or processing of certain waste streams prior to compost;
- Increasing the capacity of the existing composting facility;
- Development of associated buildings, plant, infrastructure and landscaping;
- Upgrading of the existing odour abatement system.



Figure 1-1 Regional Site Location Map

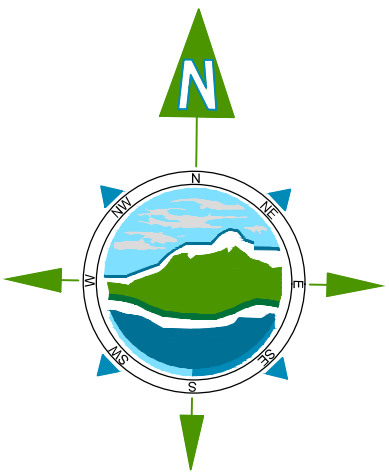




GENERAL LEGEND

PLANNING APPLICATION
BOUNDARY

SITE NOTICE LOCATION



NOTES:

- FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
- ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
- ENGINEER/EMPLOYERS REPRESENTATIVE, AS APPROPRIATE, TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
- THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES
- ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Co. Meath
OS DISCOVERY 1:50,000 Sheet No's: 2628, 2828
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Project:

THORNTONS COMPOST
KILMAINHAMWOOD

Title:

REGIONAL SITE
LOCATION MAP

Scale @ A1: 1:10,000

Prepared by: E. Beggs
Checked: R. Hunt
Date: September 22

Project Director: S. Tinnelly

Drawing Status: Planning

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2. UNIT OPERATIONS

The following is a list of the unit operations for the Kilmainhamwood facility:

- Composting Facility – increase the waste intake at the existing composting facility by 40,000 TPA to 50,000 TPA

Figure 2-1 and Figure 3-1 illustrates the flow of material through the compost facility.

A detailed description of the plant, methods, processes, ancillary processes, abatement, recovery and treatment systems is provided below. Facility operating procedures are also outlined. The Facility Master Plan is shown in Drawing No. 11223-2003 Appendix A.



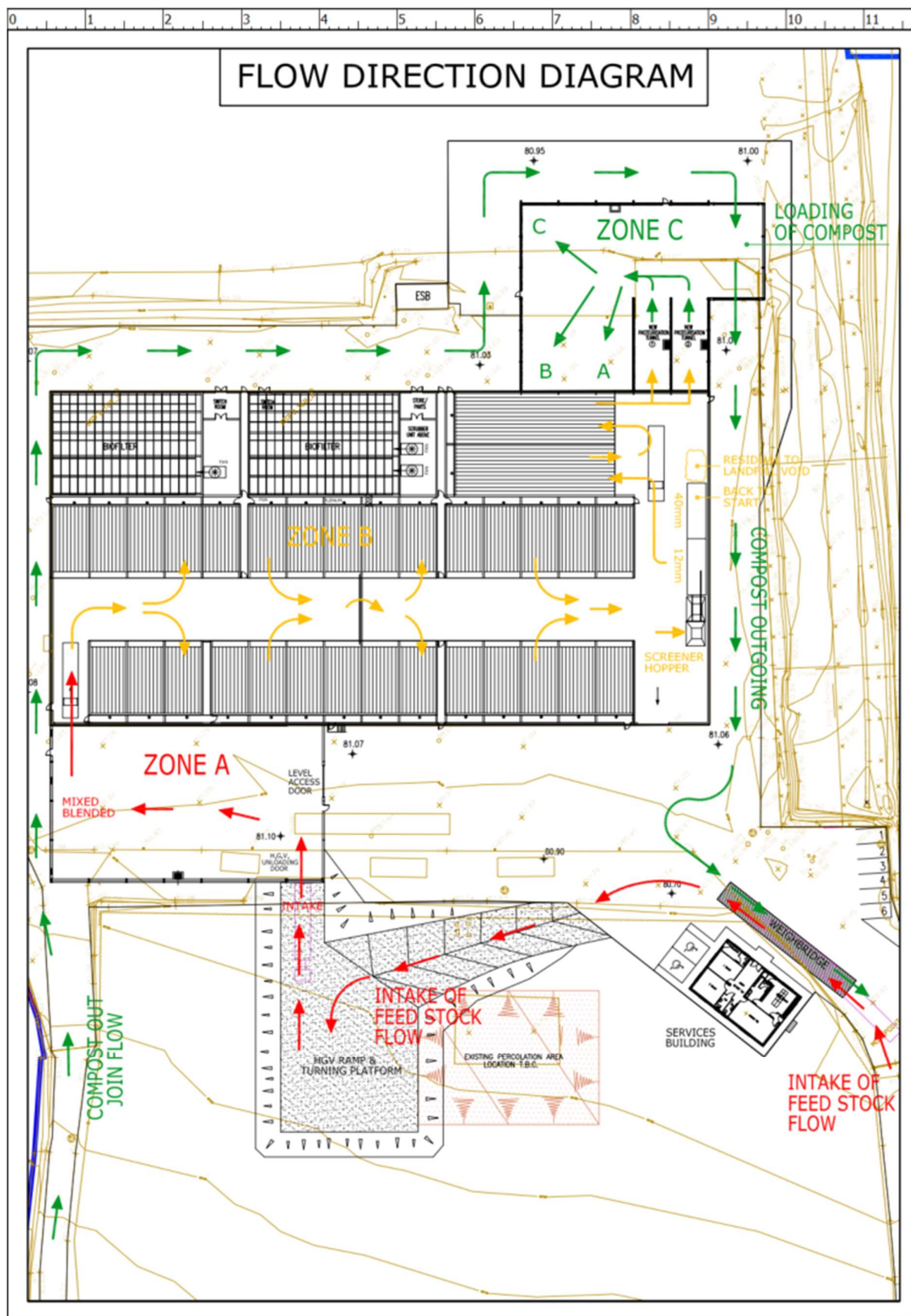


Figure 2-1 Product Flow Direction Diagram

3. DESCRIPTION OF UNIT OPERATIONS

3.1 COMPOSTING FACILITY

3.1.1 Incoming Feedstock

The composting plant in place at the facility is designed and operated to process a range of biodegradable wastes. At present, the composting feedstock accepted at the facility includes:

- Segregated brown bin biowaste;
- Sludges from wastewater treatment plants;
- Green/gardening waste;
- Grease trap waste; and
- Catering waste from hotels and restaurants.

In addition to the above, 'amendment' materials are required to provide optimum conditions for the composting process. Typical amendment materials accepted at the facility include clean uncontaminated sawdust and woodchip waste collected separately or generated from the pre-processing of other waste streams at off-site locations. The amendment materials are effective in reducing the moisture content of the blended feedstock, particularly where incoming waste has a high moisture content, such as sludges from wastewater treatment processes.

No hazardous waste is currently accepted at the facility and no hazardous waste is proposed for acceptance at the facility.

The increased waste intake of 50,000 tpa will be comprised of the same biowaste materials which are currently accepted at the facility. Due to their in-depth knowledge of the industry, Thorntons have identified the demand for additional waste treatment capacity for biodegradable waste and are in a position to respond to this demand with no further waste treatment development works at the facility. The market demand for biodegradable waste treatment capacity is driven by a number of factors, but primarily by the ongoing roll-out of brown bins to households for source segregation of this waste type and improvements in commercial segregation of food waste at source.

3.1.2 Waste Acceptance

Condition 8.4 of the current Waste Licence for the facility requires the preparation and maintenance of a detailed written waste acceptance procedure for all waste incoming to the facility.

All feedstock is delivered to the facility in covered or enclosed vehicles. On arrival at the site, all waste haulage vehicles are required to drive onto the weighbridge where the gross weight of the vehicle is recorded. The weighbridge operator records the vehicle registration, driver name, company name, waste category/description, List of Waste Code, date and the time on to a computerised software system called WIMS. The details are cross-referenced with the approved waste contractor list prior to allowing the vehicle to progress to the waste reception area. Similarly, the tare weight (i.e., the weight of the haulage vehicles when there is no waste in



the trailer) of waste haulage vehicles is recorded following tipping of the waste. The net weight of waste delivered by each vehicle is therefore recorded.

- Vehicles, owned and operated by Thorntons, currently deliver the majority of waste received and processed at the facility. All Thornton's waste haulage vehicles are appropriately permitted in accordance with the requirements of the Waste Management (Collection Permit) Regulations 2007, as amended, under permit number NWCPO-09-01190-06. Other contractors or operators delivering waste to the facility are also required to be holders of a valid waste collection permit. The facility does not accept waste from the general public.

Waste is only accepted from contractors who have a pre-existing contract with Thorntons. This ensures that all contractors have been assessed in advance and the general composition of the waste prior to arrival at the facility is known. Any contractors who arrive on-site without such a contracted agreement are refused entry and turned away.

All incoming waste is tipped into the waste reception area at the facility building as described in Section 3.1.1. There is no waste stored or processed outside the compost building. All processes take place internally in a controlled environment. Following tipping on the reception floor, the waste is inspected by an experienced operator for compliance with the required composition.

If the load is non-compliant in terms of feedstock category or if there are unacceptable levels of contamination, then the waste material is moved to a quarantine area within the waste reception hall pending removal off-site by the haulier that brought the waste into the site. The reasons and rationale for refusal are noted and advised to the relevant supplier of waste to reduce the likelihood of reoccurrence.

Prior to the haulage vehicle driving away from the doors at the waste reception area, the rear of the vehicle and the wheels are powerwash cleaned, with wash water collected and drained into the waste reception area for reuse.

3.1.3 Feedstock Blending

Moisture content and the carbon:nitrogen (C:N) ratio of the feedstock are the critical factors in determining the best composting conditions to facilitate high-rate aerobic composting. Accordingly, the incoming feedstock, is mixed with 'seed compost' and amendment materials. Seed compost refers to material in the range of 12-40 mm which has passed through the composting process but has not broken down sufficiently. This material is screened out after composting and returned to the waste reception area for blending. Amendment material, as described previously, includes clean uncontaminated sawdust and woodchip.

The seed compost and amendment materials provide a readily available carbon energy source to micro-organisms which work to break down the waste material. The facility operators are suitably experienced to assess the composition of each load of incoming waste with regard to moisture content, porosity and the C:N ratio. Accordingly, they determine the quantities of seed compost and amendment materials required for blending to produce an optimum feedstock for the composting process.



All blending/mixing is performed internally on the floor of the waste reception area by loading shovels. The pile of feedstock, comprising new waste, seed compost and amendment material, is turned over a number of times by the loading shovel in order to ensure uniform mixing. All operators receive relevant training in segregation and experienced operators are familiar with the locations of stockpiles within the waste reception area and ensure that the material passing from here into the composting part of the building is in the best condition to allow composting to occur.

Currently, feedstock is retained on average for seven days in the waste reception area to allow for inspection, blending and bulking of sufficient capacity to fill a composting tunnel. Under the proposed increase in waste intake, it is anticipated that feedstock will be retained on average for ten days in this area. There is sufficient capacity in the existing waste reception area to handle the increased rate of waste intake and increased holding duration.

3.1.4 Composting Process

After blending, the feedstock is transferred via loading shovel to the composting area, where it is placed in one of the empty composting bays for the initial composting phase, which typically lasts for ten days. Each bay measures 5.75 m in width, 11.58 m in length, and has an enclosed height of 6 m. The feedstock is piled approximately 3 m high within the bay. During this period, microbial activity and consequently, oxygen consumption - are at their peak.

The composting process utilises a forced aeration system with temperature feedback. A fan located in a corridor behind each composting bay directs air upward through the feedstock pile to regulate temperature. Air flows from the base of the static pile upwards toward the pile exterior. Temperature sensors embedded in the compost continually monitor conditions. If the temperature exceeds 60°C, the sensors trigger the SCADA management system, which reduces fan speed. Slower air circulation decreases microbial activity, thus lowering the temperature.

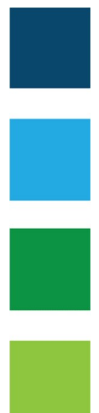
Air removal from the system is regulated by an odour abatement system that operates continuously. This temperature control mechanism ensures an efficient decomposition rate, as significantly elevated temperatures hinder microbial activity, reducing the decomposition speed.

Throughout the process, a negative air pressure is maintained in the remaining building space outside the composting bays to ensure controlled airflow.

Temperature probes inserted into the compost mix provide real-time feedback to adjust air/oxygen input and maintain a set-point temperature. Temperature is the primary controlled variable, while aeration rate is manipulated to achieve desired conditions. Aeration fans, linked to a pre-programmed control panel, adjust airflow based on the temperature within each bay.

Temperature probes monitor conditions throughout the composting process to ensure adequate aeration in the composting tunnels. Operators assess moisture content through a simple "squeeze test"—a handful of material is compressed, and if only a few drops of water are released, the moisture content is deemed appropriate for optimal composting.

High temperatures are maintained consistently during composting, complemented by the precise blending of feedstock and dry amendment materials, ensuring optimal moisture levels. This method reduces leachate generation under normal conditions. Any leachate produced, including from incoming feedstock, is captured and reintroduced into the system during the



blending phase. Excess leachate, particularly during wetter months, is collected and transported to a licensed wastewater treatment plant. Records of leachate management are maintained to meet regulatory requirements.

Upon completing the high-rate composting phase, the material is moved to additional composting bays in the maturation area, where it undergoes a secondary composting phase with aeration for approximately 10 days. These bays are identical to those in the high-rate area.

Material is then turned into another bay for further mixing and aeration, ensuring all compost is exposed to optimal conditions.

The residence time of materials in both the initial and secondary composting phases remains consistent, regardless of increased waste throughput. This duration is controlled by the temperature and microbial activity data from the probes. Under the current 40,000 tpa throughput, nine composting bays are filled weekly. Under a proposed increase to 50,000 tpa, an average of 12 bays per week will be filled.

Following maturation, the compost is processed through a trommel screen equipped with 12 mm and 40 mm meshes. Material smaller than 12 mm is directed to bulking tunnels, where it accumulates over 14–21 days until there is enough material to fill a pasteurisation tunnel. This timeline will not change under the proposed expansion. Material between 12 mm and 40 mm, known as "seed compost," is returned to the waste reception area, where it is blended with new feedstock to adjust the mix's porosity, moisture, and C ratio. Material larger than 40 mm, typically non-compostable contaminants such as plastic film, is stored separately and regularly removed for disposal at licensed facilities. Details on residual waste management are provided in Section 3.1.7.

Once a sufficient quantity has been processed, the compost is moved from the bulking tunnel to the pasteurisation tunnel, where it is assigned a unique batch number for traceability. The pasteurisation process requires the material to reach and maintain a temperature of 70.5°C for a minimum of one hour, in compliance with the composting licence (Approval No. Comp 06), issued by DAFM for Animal By-Product (ABP) material control. Continuous temperature monitoring is carried out with readings every five minutes. Typically, compost remains in the pasteurisation tunnel for 3–5 days, allowing a gradual rise to the required temperature, holding the peak temperature for at least one hour, followed by a gradual cooling phase.

After the material has been held at 70.5°C for the required time, the pasteurisation tunnel is gradually cooled and then emptied into the clean outgoing material area. During this process, samples are collected and sent for E. coli and salmonella testing at a DAFM-approved laboratory. Once negative test results for pathogens are received, the compost is ready for dispatch to customers. The final product is stored in the clean area and may remain there for 7–28 days depending on customer demand and transportation logistics.

These procedures will continue unchanged with increased waste intake, as the clean area provides sufficient capacity to handle the additional output.

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3.1.5 Composting Process Parameters

The key parameters which affect the composting process are temperature, moisture, oxygen, substrate availability and C:N ratio. These are described in more detail below.

3.1.5.1 Temperature

Micro-organism activity during composting releases large amounts of energy in the form of heat. Temperature can vary from ambient temperature to greater than 70°C. As temperature is the controlled variable, effective monitoring is necessary. Temperature is monitored by means of temperature probes and the automated process control system with feedback to a computerised system in the Facility Manager's office. Temperatures are maintained during the initial composting phase at 60°C so that the rate of decomposition is not compromised. Temperature is maintained at 70.5°C for 1 hour for pathogen destruction at the pasteurisation stage (as per ABP treatment requirements).

3.1.5.2 Moisture

The composting mixture, before being placed in the composting bays, is adjusted to between 55% and 65% moisture content by blending with amendment material. This ensures adequate water availability for the growth of micro-organisms while being sufficiently dry to prevent anaerobic conditions.

3.1.5.3 Oxygen

Oxygen levels throughout the process can range from 14% to 21% depending on the rate of activity within the composting pile. If there is insufficient oxygen, the process can go anaerobic which is not desired. The composting process operates by supplying air continuously to the pile and maintaining aerobic conditions.

3.1.5.4 Carbon to Nitrogen Ratio

The C:N ratio is used across the composting industry as a measure of a proper nitrogen balance. This is monitored regularly when samples of compost are sent for analysis. Generally, C:N ratios of between 25:1 and 30:1 are adequate at the beginning of the composting process and reduce during the process to between 12:1 and 20:1. This is a good indication of compost stability.

3.1.5.5 Substrate Availability

The amount of different substrate within a compost formulation depends on the moisture content of incoming wastes. The amendment materials typically have consistent moisture levels. The appropriate substrate mixtures are blended so that the initial moisture content ranges from 55% to 65%.

3.1.6 Compost Product

On completion of the pasteurisation process and obtaining successful laboratory test results, the final material produced is a high-quality compost which is suitable and approved for use as a soil conditioner in commercial agriculture, landscaping, organic fertiliser or as a custom growing media. Since the commencement of operations at the facility, bagged compost has, on occasion, also been provided to landscape gardeners and to local authorities for distribution to the public at civic amenity facilities.



Every batch of compost produced is tested for E. coli and Salmonella. The first batch in each month is also tested for an extended suite of parameters which includes nutrients, metals, oxygen uptake rate, organic matter, maturity and impurities.

Primarily, the compost product is used as a soil conditioner in commercial agriculture. The high-quality compost produced at the facility has the benefit of providing particular nutrients to nutrient deficient lands. The compost is applied to lands in accordance with dedicated Nutrient Management Plans (NMPs) which are specifically prepared in respect of defined parcels of land.

In conjunction with a local qualified agronomist, Thorntons has developed a land-bank (approx. 1,500ha) of local long-term arable land that can accommodate all compost currently produced at the facility. The agronomist liaises with landowners and, using maps and chemical soil analysis, recommends the spread rate of compost per acre and outlines buffer zones where compost should not be spread. Additionally, the agronomist monitors the crops at crop establishment and advises the farmer on nutrition in order to achieve optimum results. To ensure a uniform spread rate of compost, Thorntons has invested in a compost spreader which is used in conjunction with a dedicated tractor unit (see Plate 3-1).



Plate 3-1 Tractor and Compost Spreader

The lands identified for spreading compost are located within 50km of the composting facility and comprise about 20 no. individual landowners. The lands are primarily located in Dunsany in County Meath and Ardee in County Louth. Thorntons maintain a log of all landowners with approved NMPs where the compost material can be sent to. Soils analysis on the receiving lands identifies where particular nutrients may be lacking and where the application of compost can be beneficially applied. Typically, the compost product is transport from the composting facility to the relevant farmyards using articulated trucks.

To date, there has been more demand for compost product from the facility than there has been material available. Compost product was provided to 20 no. landowners in 2024 with a number of landowners requesting compost product but not receiving any. Landowners that received compost product and applied it on their lands in accordance with their NMPs had requested additional compost, but it was not available. As such, based on recent experience, there is significant demand for the compost product among the approved landowners with which Thorntons have engaged with to date. There is sufficient demand from the market for the



compost product which will be generated from the additional 10,000 tpa of waste intake at the facility.

A Mass Balance setting out the incoming waste, outgoing materials and process losses is provided in Section 3.1.7.

In regard to its use as a soil improver/fertiliser/growing media, once the composted material has been subject to pasteurisation and meets the criteria for safe use as set out in the ABP Regulations, the material is no longer classified as a waste and is considered to have reached End-of-Waste status. From this point, the compost product is no longer subject to the requirements of waste legislation in terms of its transport to and acceptance at off-site farms.

This land spreading activity will be carried out in accordance with the requirements of specific NMPs developed for individual land banks in accordance with the requirement of the Nitrates Action Programme 2022-2025 and the European Union (Good Agricultural Practice for Protection of Waters) Regulations 2022 (S.I. 113 of 2022).

3.1.7 Mass Balance

This section presents a summary of the mass balance of material inputs and outputs to the facility. The current mass balance, based on a permitted waste intake of 40,000 tpa, is set out in Table 3-1 as is typical of current operations at the facility.

Table 3-1 Mass balance based on 40,000 tpa waste intake

Description	Tonnes per Annum	% of Waste Intake
Incoming		
Waste Intake	40,000	-
Outgoing		
Compost Product (<12 mm)	11,933	29.8%
Residual Waste (incl. metals) (>40 mm)	3,819	9.5%
Leachate	1,309	3.29%
Process Losses		
Moisture and Dry Matter Losses	9,248	23.2%
Recirculated Materials		
Oversize/Seed Compost (12 mm-40 mm)	15,000	37.5%

Process losses are due to a combination of reductions in dry matter content and moisture content of the incoming waste. The microbial activity in the process consumes carbon, as an energy source, and releases carbon dioxide and heat. The heat generated results in the evaporation of moisture within the feedstock. In summary, the process losses are represented in terms of carbon dioxide and water vapour emissions at the biofilters.

The residual fraction (>40mm), which is not suitable for composting, is sent to landfill or other licensed facility for disposal or reprocessing. A small fraction of the residuals (c. 10 tonnes per annum) is made up of metals which are removed by magnets and sent off-site for recycling.

As discussed in Section 3.1.4, the oversize fraction (12 mm-40 mm also referred to as ‘seed compost’) is removed after the screening stage and returned to the waste acceptance area for blending with the incoming raw waste to adjust moisture content, porosity and to achieve an optimum C:N ratio. This quantity varies depending on the degradation of the feedstock at the composting stage but is typically in line with the quantity shown in Table 3-1.

The increased waste intake sought under this proposed development will be of a similar type and nature to the materials currently accepted at the facility. The processes described to treat the material will also remain the same with minor adjustments to handling practices as set out in the previous sections. As such, the mass balance set out in Table 3-1 can be applied to the proposed 50,000 tpa throughput. Figure 3-1 presents the mass balance for 50,000 tpa intake in a process flow diagram.



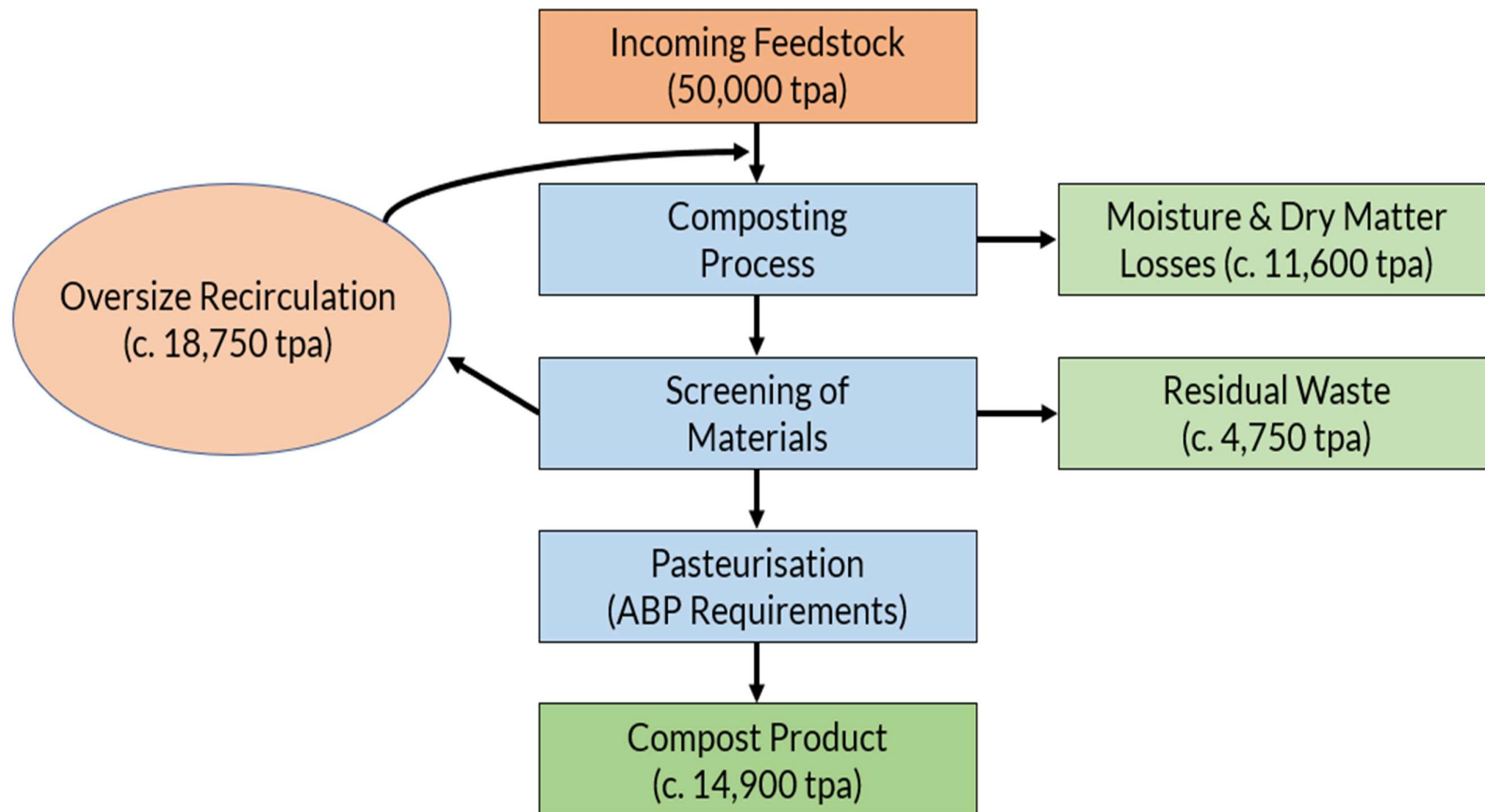


Figure 3-1 Flow diagram for mass balance based on 50,000 tpa waste intake

4. DESCRIPTION OF ANCILLARY OPERATIONS

4.1 ODOUR ABATEMENT

The two existing biofilters at the facility comprise a firm concrete floor and surrounding concrete walls. Each biofilter is 23.5 m long, 16.5 m wide and 2.1 m high. The floor falls towards a sump situated at one end of the chamber for water drainage. A false floor acts as the support for the biofilter media. A sump pump delivers rainwater and condensate from the base of the biofilters to the waste reception area where it is added to the compost feedstock to achieve the optimum moisture content for composting and to prevent the consumption of raw water from the on-site well. The biofilter is completely sealed to prevent the release of rainwater and condensate.

Under the proposed upgrade, Biofilter 2 will be decommissioned, and Biofilter 1 will be retrofitted into a dual-stage biotrickling filter system. This new configuration will use oyster shells (Stage 1) and scallop shells (Stage 2) as media, each with a bed depth of 2.5 m, providing a combined effective depth of 5 m. The media will be irrigated automatically, with up to 1,120 litres/min of recirculated water per bed, ensuring optimal microbial activity and odour removal.

The upgraded system will treat up to 100,000 Nm³/hr of wet gas, extracted via two duty/duty fans. The air extraction system will continue to separate the most odorous air from the composting bays and route it through the existing acid scrubber, which uses sulphuric acid to remove ammonia with a removal efficiency of >95%. This pre-treatment significantly reduces ammonia loading on the biotrickling filter media, enhancing overall odour control.

A new vertical exhaust stack, measuring 12.5 m in height and 1.3 m in diameter, will be installed to improve atmospheric dispersion and facilitate EPA-compliant monitoring. Sample ports will be included for stack testing in accordance with EPA Guidance AG4 and EN15259. All biofilter beds will be covered with impermeable flexible membranes to ensure full containment and redirection of emissions to the new stack. Internal extraction fans will be reconfigured to direct airflow accordingly.

The system will continue to operate in line with BAT as defined in the European Commission Implementing Decision (EC 2010/75/EU), with process guarantees including:

- Odour concentration < 2,000 OuE/m³
- Hydrogen sulphide < 5 ppmv
- Ammonia < 10 ppmv
- Amines < 5 ppmv
- Total mercaptans < 5 ppmv

Ammonium sulphate, a by-product of the scrubbing process, will continue to be safely recirculated into the composting process under controlled conditions, contributing to nutrient recovery and sustainable operation

4.1.1 Maintenance

Following installation, a maintenance and inspection program will be implemented in accordance with the manufacturer's guidelines. This will include routine checks to ensure the



biofiltration system is functioning effectively, with particular attention to moisture levels, airflow integrity, and media condition to prevent operational issues such as odorous emissions or airflow obstruction.

4.1.2 Odour control

The main reasons for the occurrence of nuisance odour emissions from composting facilities are:

- Existence of anaerobic conditions in the fresh biowaste or in the composting material;
- Composition of the biowaste in the composting process, especially:
- High concentrations of sulphur containing materials; and
- High concentrations of nitrogen containing components causing ammonia emissions.
- Temperatures in the composting process exceeding 65°C; and
- An ineffective odour abatement system.

Consequently, the measures for reducing odour emissions, which are employed at the facility, can be divided into five categories:

- Management of the fresh biowaste handling and influencing the composition of the feedstock delivered into the composting process;
- Prevention of anaerobic conditions, i.e., allow sufficient active aeration of the composting material and prevention of very wet process conditions;
- Monitoring and maintaining of temperature below 65°C during composting (increased to 70.5°C in a controlled environment in the pasteurisation tunnel to kill pathogenic material);
- Application of emission reduction techniques; and
- Implementation of an effective odour abatement system specifically designed for the composting process and feedstock which is in accordance with BAT.

4.1.2.1 *Management of fresh biowaste and material composition*

Upon delivery, fresh biowaste may exhibit partial anaerobic conditions due to prior storage at the production site and transportation. While the biowaste remains enclosed in the waste haulage vehicle, odour emissions are unlikely, as the material is not being handled or disturbed. However, upon unloading and further handling at the facility, there is potential for odour emissions. To mitigate this risk, an air curtain above the roller shutter door at the reception area activates when the door is opened. The air curtain creates a continuous stream of air from the top to the bottom of the open doorway, reducing the escape of warm air and potential odours. Once the shutter door is closed, the air curtain automatically deactivates.

Biowaste mixing prior to composting occurs within the same enclosed building. Air is extracted from this processing building, where the composting bays are located, creating a controlled inward airflow from the reception hall, through the composting area, and ultimately to the scrubber and biofilter systems. The composting bays are enclosed to a height of 6 m within the main building, allowing process air from the composting materials to be collected separately and



directed to an acid scrubber before passing through the biofilter. As the extraction fans in both the building headspace and the composting bays continuously draw in air, the entire building is maintained under negative pressure, thereby minimising odour emissions through open doors.

There is a second air curtain installed at the entrance to the composting area. This curtain automatically activates when the door to the composting area is opened, such as during the operation of a shovel for loading compost material.

To prevent the incoming biowaste from becoming anaerobic and generating undesirable odours, all incoming biowaste is sorted, blended, and subjected to pre-treatment within one day of arrival and acceptance at the facility.

Mixing of feedstock with seed compost and amendment materials is required to achieve the optimum composition of materials for the composting process. This process is also essential to minimise odour emissions and ensures that the feedstock going to the compost bays:

- Has the appropriate dry solids content (approximately 35%-45%) and has an adequate porosity, such as to facilitate the aeration process and prevent the formation of anaerobic zones in the feedstock mass during the composting process. This is achieved by mixing relatively dry and wet feedstock and, if required, adding of amendment material e.g., sawdust or woodchip; and
- Has the appropriate C:N ratio (approx. 25:1 or 30:1) to prevent excessive emissions of nitrogen (N) containing odour components. This is achieved by mixing feedstock which is low in N-content (such as green/garden waste) with feedstock that has a higher N-content (such as household biowaste).

4.1.2.2 Aeration of composting material

The first stage of composting is the most important with respect to odour emissions, since the easily biodegradable components, e.g., sugars, proteins and fats, are broken down at a high rate, thus generating gaseous by-products.

The entire composting process is carried out within an enclosed composting building which is maintained under negative pressure. Additionally, the 29 no. individual composting bays are further enclosed with dedicated air extraction to the acid scrubber. The interior of the main building is coated with an expanded foam membrane sealing to provide a near 100% seal.

Applying a high aeration rate to the composting bays, thus ensuring the supply of sufficient oxygen to the composting mass, prevents occurrence of anaerobic conditions in the first phase of the composting process. As the composting process proceeds in the maturation area, less easily biodegradable components are broken down (e.g., cellulose and lignin structures) at a lower rate, reducing the risk of anaerobic conditions. The aeration rate supplied to the maturation area in the later stages of the process is regulated, as required.

4.1.2.3 Monitoring of temperature

The composting process operates as a forced aeration temperature feedback system. Each composting bay is equipped with a fan, located in a corridor behind the bay, that forces air upwards through the feedstock pile, controlling the temperature. Air is introduced from



beneath the static pile, pushing upwards towards the outer areas of the pile. The system is designed to maintain a temperature threshold of 60°C, with the excess hot air removed through the roof of the composting bays. Increased airflow stimulates microbial activity, raising the temperature. When the internal temperature exceeds 65°C, odour emissions become significantly more pronounced due to biochemical changes in the composting process. This is particularly critical in the early composting stage, where rapid waste degradation releases significant energy.

To reduce the temperature, the fan's speed is lowered, thereby decreasing oxygen levels and slowing microbial activity, which in turn reduces the odour load in the process air. The aeration fans, linked to a pre-programmed control panel, adjust based on the temperature readings from each composting bay. Temperature sensors continuously monitor the compost pile temperature in both the composting bays and the maturation area. Temperature acts as the controlled variable, while the aeration rate is the manipulated variable in this system. The automated temperature feedback ensures that the composting temperature does not exceed 65°C by increasing the supply of fresh process air from beneath the composting pile when needed.

In the maturation stage, the rate of waste degradation slows, and temperatures typically remain below 60°C. Should temperatures rise above this threshold, the variable air blowers increase airflow to cool the maturing compost piles.

During the pasteurisation phase, the compost pile must reach and maintain a temperature of over 70°C for at least one hour to eliminate pathogenic materials, as required by ABP regulations. The temperature is carefully monitored to ensure this requirement is met. By this stage, the compost is significantly decomposed and produces fewer odours compared to earlier stages of the process.

4.1.2.4 Application of emission reduction techniques

All air extracted from the composting building is collected and treated, currently, in two biofilters. In addition, more odorous air generated in the enclosed composting bays is collected separately and treated with an acid scrubber prior to passing through the biofilter. Odour abatement monitoring is carried out on a monthly and quarterly basis as per Schedule C of the Waste Licence for the facility and shows odour removal efficiencies of c. 95% are achieved on a regular basis. It is proposed to upgrade the existing odour abatement system with the addition of further treatment capacity.

4.1.2.5 Implementation of an effective odour abatement system to BAT

An extensive and effective odour abatement system, which complies with Commission Implementing Decision (CID) (EU) 2018/1147 BAT conclusions for waste treatment 8, 12, 34 (b) will be installed and operational at the facility. The system will include a dual-stage biotrickling filter using oyster and scallop shell media, enhanced air extraction capacity, and a 12.5 m high stack to improve dispersion and monitoring. These measures will ensure efficient capture and treatment of odorous air from composting operations and building headspace, achieving the required odour threshold concentration in exhaust air. Key operational variables such as extraction volume, irrigation rates, and media composition will be adjustable to optimise system performance.



4.2 LABORATORY FACILITIES

During emptying of the tunnel, samples of the compost product are taken and sent for E. coli and Salmonella testing to a DAFM approved laboratory. Once the sample results come back as negative for the presence of pathogens, the compost product is ready for dispatch to customers. The material is stockpiled in the clean area on the outgoing side of the pasteurisation tunnel and may be held here for between 7 and 28 days depending on the customer demand and sufficient quantities for transport.

4.3 OTHER SERVICES

Additional services in place at the site include:

- Telephone system;
- 400v three phase electrical supply and on-site substation;
- Standby diesel generator; and
- Double skinned fuel bowser.



5. SITE INFRASTRUCTURE AND OPERATIONS

5.1 WASTEWATER

The domestic wastewater generated within the administration building arises from welfare facilities, including the kitchen, showers, and toilets. This wastewater is directed into the site's foul drainage network and routed to an existing proprietary wastewater treatment system, located west of the administration building (refer to Drawing No. 11223-2010 in Appendix A).

A 100m³ water storage tank, positioned west of the composting building in an elevated area (as shown in Drawing No. 11223-2010), is maintained full to ensure sufficient water is available for fire-fighting purposes. This tank is replenished via an adjacent groundwater well (BH3) and is equipped with an electric pump for water distribution around the site. Any water withdrawn from the tank is immediately replenished by the groundwater well (BH3), ensuring continuous availability, in the case of the rain-harvesting tank not sufficing for the needs on site. Further details on this supply is found in Section 5.3.

Typical daily water consumption for washdown activities within the composting building is approximately 0.6m³, while water usage within the administration building is around 0.3m³. These relatively low consumption levels allow the storage tank to remain fully charged, ensuring an adequate supply for fire-fighting, if required. The site's stormwater and foul drainage networks underwent integrity surveys in August 2022, with no significant defects identified. Additional integrity testing is scheduled for August 2025.

The site is not connected to a mains water supply. Potable water for staff consumption is provided in bottled form within the administration building.

Sludge from the wastewater treatment system is transported off-site to a licensed wastewater treatment plant. Process wastewater generated as leachate from the composting operations is not discharged into the wastewater treatment system. Instead, it is recirculated within the composting process to maintain optimal moisture levels in the composting tunnels. In the event of excess leachate production that cannot be reintroduced into the process, the surplus is stored in a designated holding tank for subsequent off-site removal by tanker to an authorised wastewater treatment facility.

5.2 SURFACE WATER

Surface water pipes serve the existing facility, both collecting roof water and collecting run off from the yard.

All surface water run-off from the roofs of the existing facility buildings is collected and discharged into a drainage ditch along the eastern boundary of the site and flows in a south-eastern direction prior to eventually discharging into the Dee River.

Discharge into the ditch is limited to an equivalent greenfield run-off rate of 13.54 litres/second (l/s) in accordance with sustainable drainage system (SuDS) principles by use a flow control device located on the final manhole prior to discharge. Where required, this flow control device diverts excess surface run-off to an attenuation basin located along the eastern boundary of the site as shown on Drawing No. 11223-2010 Appendix A. The attenuation basin allows for



controlled release of surface run-off from the site in a high rainfall event and allows for natural infiltration of water to ground while in storage.

All surface water run-off generated from the hard-standing areas and roofs passes through a grit trap and Class 1 fuel/oil interceptor prior to release from the site. The grit trap and interceptor are appropriately sized to treat run-off during high rainfall events. The interceptor has a nominal flow capacity of 10 l/s with a storm flow capacity of 100 l/s. The grit trap has a capacity of c. 1.6 m³.

The drainage ditch contains one outlet and one sampling point for environmental monitoring.

Collected material in the grit trap and sludge from the interceptor are emptied on a regular basis by Thornton's tanker services and removed off-site to suitably permitted/licensed facilities. Currently, this material is sent to Enva (formerly Rilta Environmental) in Rathcoole, Co. Dublin. Records of maintenance, cleaning and emptying of the grit trap and interceptor are maintained on site as required by the Waste Licence.

Discharge from the site to the drainage ditch is monitored and controlled in accordance with the requirements of the current Waste Licence for the facility (W0195-02). The Licence does not specify discharge limits on storm water but requires regular monitoring.

There are no changes to the roof or yard areas generating stormwater run-off, therefore there is no requirement to amend the existing grit and oil/water separator infrastructure.

Groundwater will continue to be used to top up the firewater storage tank. The groundwater potential and quality beneath the site was proven by exploratory drilling. There are no predicted impacts on the groundwater as a result of the increase in waste intake at the facility. Groundwater levels and groundwater quality is currently and will continue to be monitored as part of the EPA new IE licence. Roof rainwater was started to be collected from the roof into a 40,000L tanker. This was started in Quarter 4 of 2023. Roof rainwater is used to clean the yard and also to wash the vehicles after they have tipped in the reception area.



Figure 5-1 Catchment Delineation and Surface Water Features Map



5.3 WATER SUPPLY

There is a water storage tank with a capacity of 100 m³ located to the west of the compost building in an elevated area as shown on Drawing No. 11223-2010. This tank is filled from an adjacent groundwater well (BH3) and is maintained full at all times to provide sufficient water for fire-fighting purposes. There is an electric pump adjacent to the tank which is used to distribute water from the storage tank around the site.

Water from the storage tank is used for washing down and for non-potable uses in the administration building. Typical water consumption for washing purposes in the composting building is c. 0.6 m³/day while the water use in the administration building is c. 0.3 m³/day. These relatively low water demand quantities ensure that the storage tank can be maintained with a full volume for use in fire-fighting, if required.

There is no mains water supply to the site. Roof rain water was started to be collected from the roof into a 40,000L tanker. This was started in Quarter 4 of 2023. Roof rain water is used to clean the yard and also to wash the vehicles after they have tipped in the reception area. Potable water for consumption is provided in bottles in the administration building.

5.4 TRAFFIC CONTROL AND SECURITY

5.4.1 Traffic

All waste and non-waste traffic accesses the facility by turning from the R162 into the site entrance, and then travelling along the private access road until the inner facility entrance is reached.

Given the length of the access road (c. 0.85km) from the R162 and the extensive lay-by area at the site entrance, there is no possibility of traffic on the R162 being affected by vehicles queuing to enter the facility.

All waste vehicles, having passed the inner facility entrance gate, drive onto the weighbridge, where the weight, source, type etc. of waste (as per Section 5.7) are recorded and instructions are given as to where to proceed with the waste.

Clear signage is erected around the facility to direct hauliers and visitors to the relevant locations. Car parking is provided as discussed in Section 5.12.

Construction traffic will use the same entrance to the site from the R162 as operational traffic. Timings of construction deliveries will be co-ordinated with incoming waste traffic so as to efficiently manage the flow of traffic on the access road. Signage will be erected during the construction works to direct construction traffic to the rear of the building and to an exclusion zone away from operational vehicles.

The increase in waste intake can be achieved through minor changes in operational procedures at the facility, including extending the initial mixing period in the reception area and increasing the number of composting bays that are filled each week. Accordingly, there will be an increase in compost output and non-processable contaminant waste output from the facility.

The increase in incoming waste and the increase in outgoing compost/residual waste will result in increased heavy goods vehicle (HGV) movements into and out of the site. The increased HGV



movements can be accommodated at the site without any amendments to existing infrastructure, access road or facility entrance. The increased HGV movements will result in a slight increase in movements on the public road network.

The proposed operational development will generate a maximum level of traffic at its busiest case scenario of 38 HGV movements per day. Currently the facility caters for a maximum of 30 HGVs per day under the 40,000 TPA of waste being treated at the facility. In summary, treatment of an additional 10,000 TPA of waste at the facility through the operational upgrades, will generate a maximum of 8 additional HGV movements per day.

Extrapolation of Weighbridge data from the current site operations would indicate that during a typical day, the development will generate between 3-4 additional HGV movements per day in and out of the facility onto the R162.

The impact to the day-to-day operation of the existing facility and adjoining road network will be minimal (less than a 1.6% increase) leading to negligible additional disruption to the traffic in the area.

5.4.2 Security

Access to the facility from the public road network is via a wide private entrance on the R162 approx. 6km north of Nobber and approx. 5km south of Kingscourt. The access includes a large layby area for incoming vehicles to prevent queuing on the public road. The private access road from the site entrance is 5m wide and approx. 0.85km in length. It was constructed parallel to an existing passage/driveway and is separated from the original road by an earthen bank which is topped with shrubs and some mature trees. As the access road approaches the R162, it diverges (to the south) away from the original passage/driveway so as to provide adequate visibility along the R162 on both sides of the site entrance.

The access road is an unpaved road consisting of approximately 300 mm of granular material built on rock infill to the required formation level.

- Site security arrangements to prevent unauthorised access at the facility include the following:
 - Secure composting building involving mass concrete walls and lockable steel doors;
 - Fencing around the entire boundary of the composting facility;
 - A 2.4 m high by 7 m wide lockable gate that is closed outside normal operating times, located at the site entrance at the R162 along with stone pillars and walling;
 - A 2.4 m high by 7 m wide lockable gate that is closed outside normal operating times, located at the inner facility entrance; and
 - Stock proof fencing to the remainder of the facility boundary.

In addition to the above, site signage indicating opening times and contact details is maintained at the site entrance as per the requirements of the Waste Licence. All visitors to the site are required to sign in and out at the site office located at the end of the access road. The site security infrastructure is checked daily, and any damage identified is immediately repaired with temporary measures, if required, and further permanent measures executed within 48 hours.



5.5 DELIVERY, RECEPTION OF WASTE, QUARANTINE AND INSPECTION

The yard areas and access road leading into the facility from the R162 are constructed with compacted gravel and/or concrete to mitigate the potential for road vehicles to collect mud or dirt along access routes. These surfaces are subject to continuous monitoring, with debris removed immediately as necessary. A tractor and tanker are permanently stationed on-site, employed to dampen the access roadway during dry periods, thereby reducing dust emissions when trucks enter and exit the facility.

Additionally, a sweeper lorry is consistently present on-site, responsible for daily cleaning and maintenance of the hardstanding areas within the facility. A mobile power washing unit is also available, utilized for deep cleaning specific areas as required and for washing the loading shovels.

The waste reception area features an approximately 700 m² bunker designed for the reception of incoming waste from haulage vehicles. This bunker, along with its side walls, is constructed from mass concrete to ensure the containment of all waste materials. Incoming vehicles do not enter the building; instead, they discharge their loads into the reception area through a raised loading door situated on the southern elevation, accessed via a gravel ramp. Vehicles ascend the ramp, perform a turn at the top, and reverse towards the loading door until their wheels reach a designated wheel stop.

Upon opening the roller door, an air curtain is activated above the entrance, creating a downward airflow that minimizes the escape of warm air from the building. The air curtain deactivates automatically when the roller door closes. After the vehicle discharges its load into the waste reception area, the rear and wheels of the tipped vehicle are cleaned with the power washer before departing the tipping area. The wash water runoff is collected and directed back into the waste reception area. The driver then records the washing of the vehicle at the weighbridge.

A second roller shutter door is located on the south-eastern side of the waste reception area at bunker floor level, facilitating the movement of loading shovels in and out of the reception area.

In instances where a load is deemed non-compliant concerning feedstock category or exhibits unacceptable contamination levels, the waste material is relocated to a designated quarantine area within the waste reception hall. This material will remain there until it is removed from the site by the original haulier. The reasons for the non-compliance are documented and communicated to the relevant waste supplier to mitigate the likelihood of recurrence.

Currently, feedstock is retained in the waste reception area for an average duration of seven days to facilitate inspection, blending, and bulking prior to filling the composting tunnel. With the proposed increase in waste intake, it is anticipated that the average retention period will extend to ten days. The existing waste reception area possesses sufficient capacity to accommodate the anticipated increase in both the rate of waste intake and the duration of storage. Refer to Section 5.14 for further details on the Vermin Control Plan.



5.6 SITE ACCOMMODATION

Aside from the composting building, the only other building on the site is the administration building as shown on Drawing No. 11223-2008 Appendix A. The administration building incorporates the following:

- Offices;
- Kitchen/tea station (note there is no cooking facilities/food preparation provided);
- Locker room;
- Toilets; and
- Shower area.

This is a single storey building with a pitched and tiled roof. External walls are built from concrete blocks with a plastered finish. The administration building sits adjacent to the weighbridge to control waste acceptance and is located at the end of the access road into the facility to allow for staff and visitors to enter the building without encroaching on the operations at the composting building.

5.7 WEIGHBRIDGE

A proprietary weighbridge is located at the end of the access road and adjacent to the administration building. The weighbridge has a capacity of up to 50 tonnes and is maintained and calibrated on a regular basis to ensure the accuracy of data collection for incoming and outgoing materials.

The weighbridge is linked directly to the facility office and includes customised software (referred to as WIMS – Waste Information Management System) to allow for the recording of details of each waste movement into and out of the site as follows:

- Haulier name;
- Vehicle registration;
- Waste source;
- Waste type (List of Waste Code);
- Gross weight;
- Tare weight;
- Net weight;
- Time; and
- Date.

As well as recording data on waste accepted into the facility, the weighbridge is used to measure outgoing compost product and residual waste weights.

5.8 WHEEL WASH

Immediately after discharging the load, the rear end and wheels of the delivery vehicle are power washed prior to departing from the ramp. The resulting wash water runoff is collected



and directed into the waste reception area. The roller shutter door is promptly closed following the discharge of waste into the bunker. A second roller shutter door located on the south-eastern side of the waste reception area, at the bunker floor level, facilitates the movement of loading shovels in and out of the area.

To mitigate the deposition of mud and debris on the public road network, which can be both unsightly and hazardous, the wheels and rear of delivery vehicles are power washed after tipping their waste load into the reception area. This practice ensures that road-going vehicles do not enter the 'dirty' areas of the building, thereby preventing the collection of debris on their tyres.

The yard areas and access road leading into the facility from the R162 are constructed with compacted gravel and/or concrete to eliminate the potential for road vehicles to gather mud or dirt along the access routes. These surfaces are continuously monitored, and any debris is removed immediately as necessary. A tractor and tanker are permanently stationed on-site to dampen the access roadway during dry periods, thus reducing dust generation when lorries are entering and exiting the facility. Additionally, a sweeper lorry is consistently present on-site, utilised for the daily cleaning and maintenance of the hardstanding areas within the facility.

5.9 MAINTENANCE AND WELFARE

The primary concern of Thorntons is the safety and protection of employees, end users, the public and the environment, with regard to all aspects of the operation of this and other Thornton's facilities. This composting facility operates in compliance with all relevant health and safety legislation, including the Safety, Health and Welfare at Work Act, 2005, as amended.

All staff employed at the facility receive general EHS, site specific EHS and in-house composting process training. The facility is certified to International Standards for Environmental (ISO14001), Health and Safety (ISO45001) and Quality (ISO9001) and operates as part of an Integrated Management System (IMS) which is rolled out across the company portfolio.

Certification to the above three standards was retained in 2024 following an independent audit.

5.10 FUEL STORAGE

With regard to on-site storage facilities and activities, any raw materials, fuels and chemicals, are and will continue to be stored within structurally sound buildings and/or bunded areas to guard against potential accidental spills or leakages. All equipment and machinery have and will continue to have regular checks for leakages and quality of performance.

All site activities at the composting facility are conducted in an environmentally responsible manner so as to minimise any adverse impacts on the water environment that may occur as a result of works associated with the operational phase.

Mitigation measures include the collection, containment and recirculation of leachate generated from the composting process. This leachate is used as required to achieve an optimum moisture content in the waste material to promote composting. Excess leachate generated, which cannot be reused in the composting process, is collected in an underground concrete tank and removed off-site to a suitable wastewater treatment plant as required. Integrity testing on the leachate storage tank was most recently carried out in August 2023. No



defects were identified during the integrity testing. Further integrity testing is scheduled for August 2026. Monitoring of leachate levels in the tank is carried out to ensure there is no overspill. The tank is filled to a certain level from the top of the tank and measures that there is no drop over the 3 day period. Additional storage capacity for leachate is available within the composting building as there is a concrete upstand to the perimeter of the building providing a secure bunded environment.

There are no changes to the roof or yard areas generating stormwater run-off, therefore there is no requirement to amend the existing grit and oil/water separator infrastructure.

Groundwater will continue to be used to top up the firewater storage tank. The groundwater potential and quality beneath the site was proven by exploratory drilling. There are no predicted impacts on the groundwater as a result of the increase in waste intake at the facility. Groundwater levels and groundwater quality is currently and will continue to be monitored as part of the EPA new IE licence.

5.11 FIRE CONTROL

Note there is a low risk of fire on site. Material is typically wet and would need a significant volume of some accelerant to cause and fuel a fire on site. However, a number of fire control measures have been put in place at the site. These include the following:

- An emergency response plan is in place;
- All site operatives and employees are trained in fire prevention, control and emergency response procedures;
- Emergency response contact numbers (fire service, Gardaí, ambulance and other agencies) are posted in prominent locations;
- Fire extinguishers and smoke detectors are provided in all site buildings;
- Smoking is not permitted at the facility;
- A fire-fighting water storage tank is located at an elevated area of the facility. The capacity of this tank is 100 m³. In the event of a fire, an electric pump is available to displace water to all areas of the facility via dedicated fire hydrants; and
- In the event of a fire any generated firewater within the compost building will be contained within the building. This firewater will be analysed to determine any contaminants and tankered off-site to a suitable wastewater treatment plant where required.
- The surface water discharge pipe features a manual sluice valve, which can be closed off for reasons such as a fire emergency, in order to retain water on site for fire response measures.

A fire safety certificate is in place for the existing facility. As there are no changes to the buildings proposed in this application, there is no requirement to amend the existing fire



certificate. Thorntons will continue to liaise with the Fire Officer in Meath County Council with regard to the safe operation of the facility.

5.12 CAR PARKING

Car parking is provided for employees and visitors adjacent to the administration building and comprises an area of concrete paved surfacing. There are five designated car parking spaces at this location.

5.13 LITTER CONTROL

The following measures are employed at the site to control litter:

- All waste entering the facility is covered. Thorntons prevents any contractor failing to comply with this requirement from entering the site;
- The approach roads to the site are monitored on, at least, a daily basis and, in the event of litter being found on these roads, site staff promptly remove it and deposit it in an appropriate manner;
- The waste that is and will be composted on site consists of separately collected biowaste, which contains only very limited amounts of components that typically cause litter problems (e.g., plastic, paper);
- Waste is only stored within the facility buildings and never externally;
- Residual waste removed from the facility to landfill is in covered vehicles;
- All site areas are inspected and cleaned regularly; and
- The facility operators have access to a road sweeper, whenever required.

5.14 VERMIN CONTROL

It is recognised that poorly managed composting facilities have the potential to attract vermin such as rats and flies. Strict control procedures have been put in place at this facility in order to control the presence and population of vermin. The composting process is completely enclosed within the building and the material is turned frequently to reduce the risk of vermin existing in side the process.

A Vermin Control Plan is implemented at the facility as part of the Environmental Management Plan and in accordance with Condition 11.7 of the Waste Licence. This plan will be updated for the additional capacity and the new IE Licence. This Plan incorporates the following elements:

- A site map showing the positions and numbers of each bait point;
- A bait point monitoring routine has been established. A vermin control company inspects the facility eight times per year. Inspection records for the facility are filled up by the vermin control company following each inspection and signed by the facility manager;



-
- Inspection records for the bait points describe any signs of vermin and highlight any vermin attractions on site; and
 - The facility manager is responsible for acting on the findings of the monthly inspection records.

A vermin control manual containing the bait point location maps, product details/specifications for the baits used and the monthly inspection records is maintained and kept at the facility.

A professional vermin control company implement the Vermin Control Plan with inspections and results signed off by the facility manager. Baiting is undertaken in a professional manner and every precaution is taken to avoid non-target species. In particular, the bait is placed in areas, which are not accessible to non-target species. Dead or dying vermin are removed as soon as possible.

In response to a regular monitoring regime for the presence of unacceptably high fly populations, the facility is sprayed with a residual insecticide by a professional vermin control company.

5.15 BIRD CONTROL

The presence of scavenging birds, such as crows and gulls, is continuously monitored. Environmental nuisance resulting from the activities of scavenging birds at the facility is controlled and minimised by the following measures:

- All site areas are inspected and cleaned regularly; and
- The facility operators have access to a road sweeper;
- The composting process is completely enclosed inside the building, including the storage of biowaste, mixing of biowaste, compost refinement and temporary storage;
- Roller doors at the waste reception area are closed at all times other than when loaders are moving in/out or when a haulage vehicle is offloading; and
- Mature compost is not particularly attractive for birds, as it has the characteristics of a humus-like material and is comparable to peat rather than raw biowaste.

5.16 HOURS OF OPERATION

The facility operational hours are 8.00 am to 6.00 pm from Monday to Friday and from 8.00 am to 1.00 pm on Saturdays. There are no works in normal circumstances on Sundays or bank holidays. The facility operating hours will remain the same following a grant of permission for the proposed waste intake increase.

Whilst there is no waste handling at the facility outside of these hours, composting and pasteurisation is a continuous process and the aeration of the compost mounds as well as monitoring equipment in the tunnels operates and will continue to operate on a 24/7 basis all year round. The aeration and monitoring processes are automated and can be controlled remotely outside of core working hours allowing operators or staff to attend the site if needed.



Waste acceptance to the facility is only permitted during the above hours. Waste incoming at or close to closure is discharged into the waste reception area, doors closed and handled the following working day.



6. ALTERNATIVES

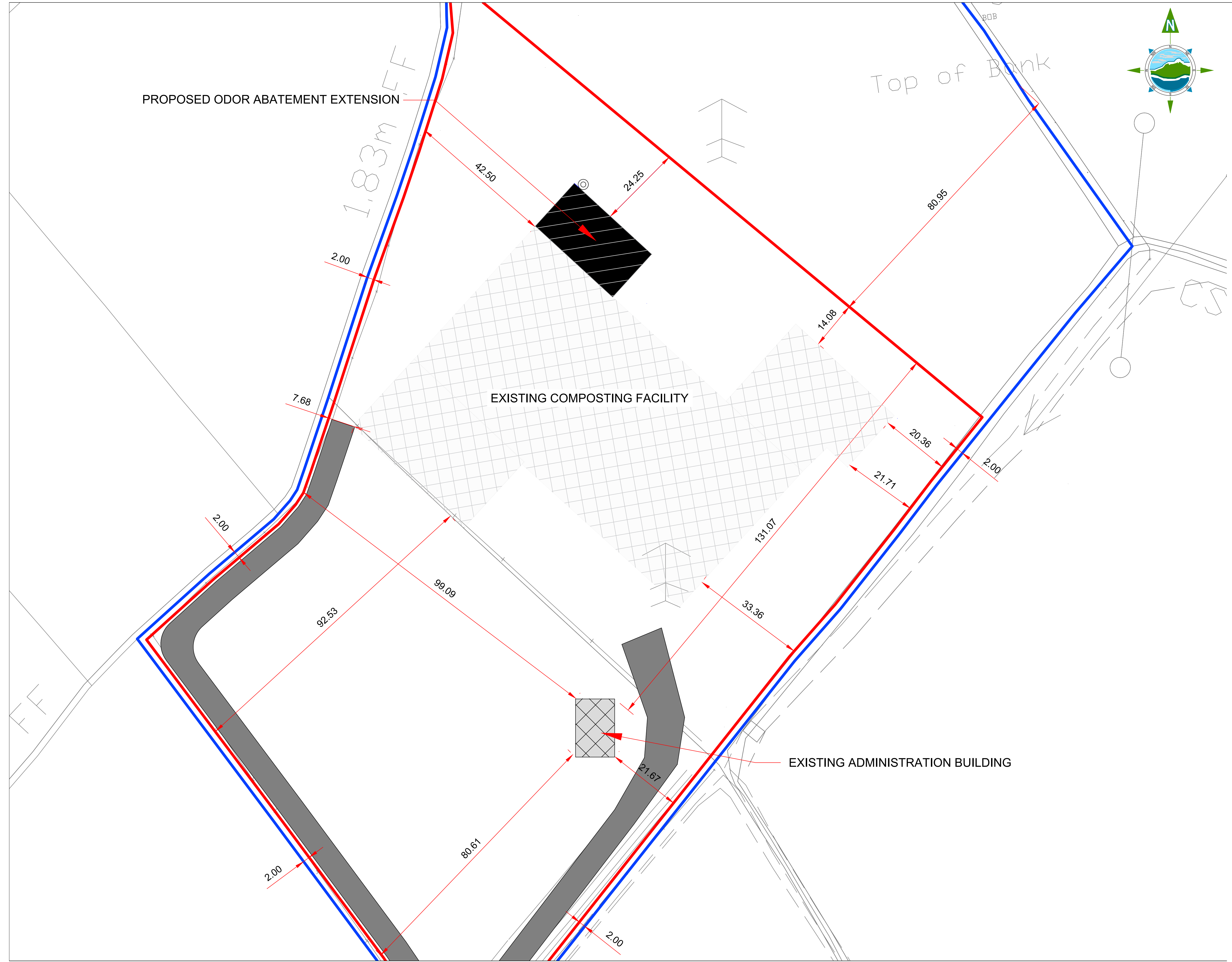
The Thorntons Recycling is an active waste facility with ongoing composting of suitable organic wastes. This waste activity is currently licenced by the Agency under Reg. W0195-02. The submission of this IED Licence application to the Agency includes permission to continue these current activities and, thus, there were no alternatives considered for these activities.

A detailed assessment of the reasonable alternatives to the Proposed Development has been carried out and is presented in Chapter 3 of the EIS carried out in 2009. This assessment of alternatives includes:

- Alternative Locations;
- Alternative Layouts;
- Alternative Size and Scale of the Development; and
- Alternative Technologies.

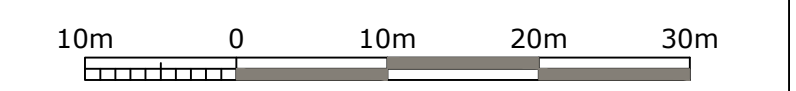
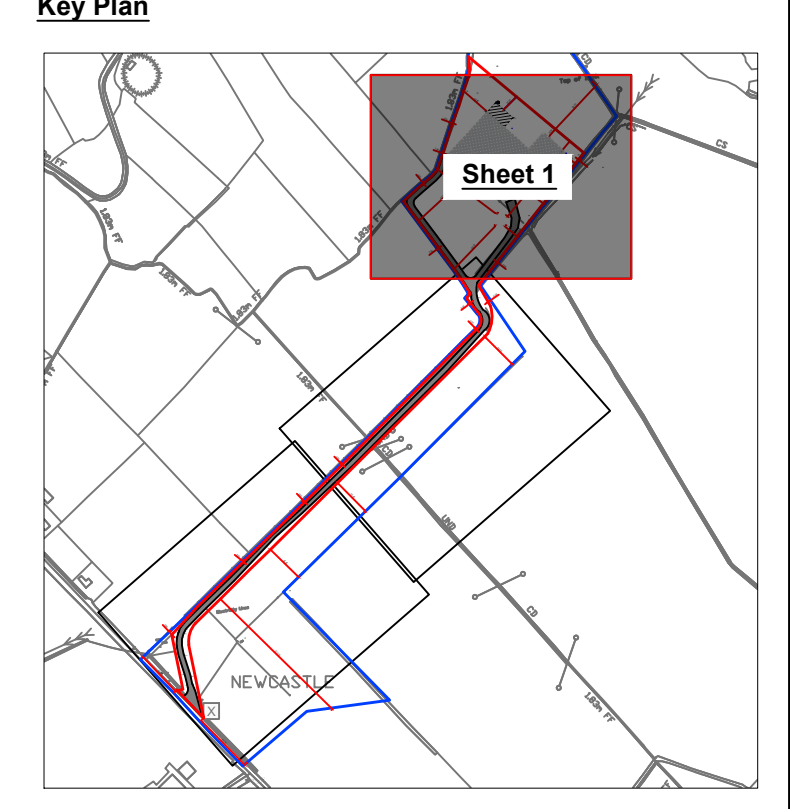






GENERAL LEGEND

LAND OWNERSHIP BOUNDARY	APPLICATION BOUNDARY
EXISTING ACCESS ROAD	EXISTING COMPOST FACILITY
EXISTING ADMIN BUILDING	PROPOSED ODOR ABATEMENT EXTENSION



B	14.09.22	Planning Issue	EB	RH
A	01.09.22	Planning Issue	EB	RH
Rev	Date	Description	By	Chkd.

Client:

Project:

THORNTON'S COMPOST
KILMAINHAMWOOD

Title:

SITE LAYOUT PLAN
- Sheet 1 of 3 -

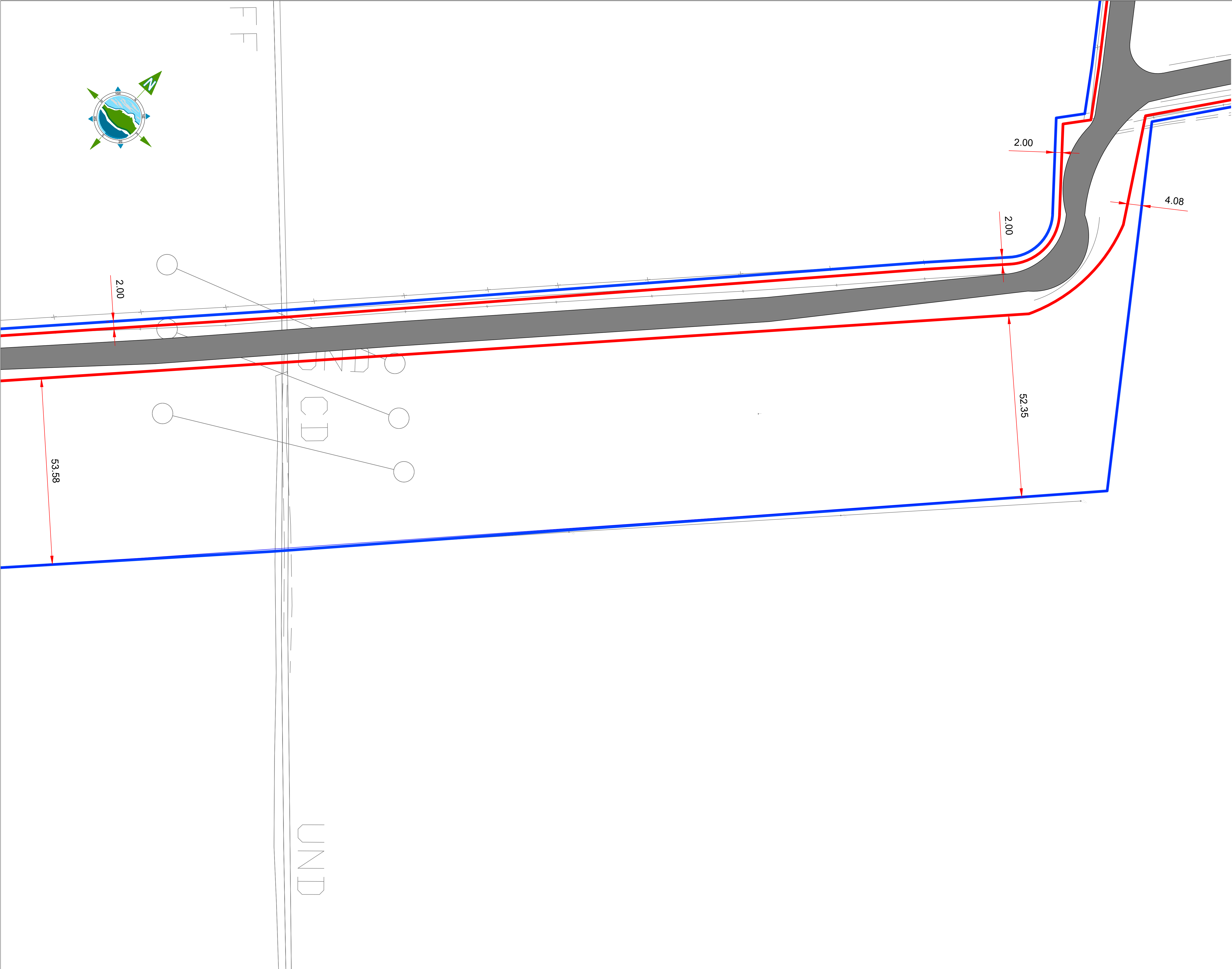
Scale @ A1: 1:500

Prepared by:	Checked:	Date:
E. Beggs	R. Hunt	September 22
Project Director:	S. Tinnelly	
Drawing Status:	Planning	

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e-mail: dublin@tobin.ie
www.tobin.ie

Drawing No.: 11223-2002

Revision: B



GENERAL LEGEND

LAND OWNERSHIP BOUNDARY

APPLICATION BOUNDARY

EXISTING ACCESS ROAD

Key Plan

10m010m20m30m

B	14.09.22	Planning Issue	EB	RH
A	01.09.22	Planning Issue	EB	RH
Rev	Date	Description	By	Chkd.

Client:

Thorntons
recycling

Project:

THORNTON'S COMPOST
KILMAINHAMWOOD

Title:

SITE LAYOUT PLAN
- Sheet 2 of 3 -

Scale @ A1:1:500

Prepared by: E. BeggsChecked: R. HuntDate: September 22

Project Director: S. Tinnelly

Drawing Status: Planning

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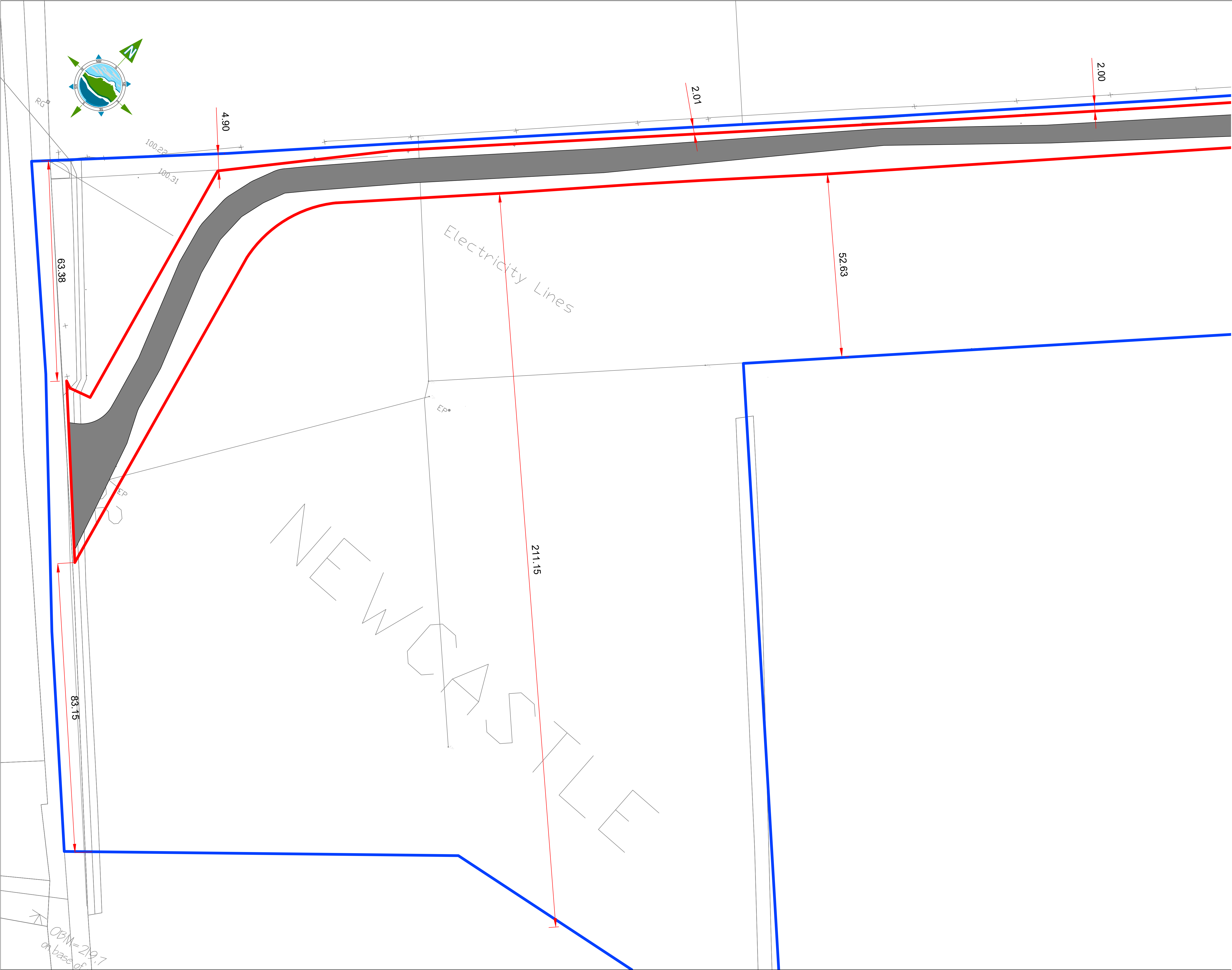
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Revision:

11223-2003B

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GENERAL LEGEND

LAND OWNERSHIP BOUNDARY APPLICATION BOUNDARY

EXISTING ACCESS ROAD

Key Plan

10m 0 10m 20m 30m

B	14.09.22	Planning Issue	EB	RH
A	01.09.22	Planning Issue	EB	RH
Rev	Date	Description	By	Chkd.

Client:

Thorntons
recycling

Project:

THORNTON'S COMPOST
KILMAINHAMWOOD

Title:

SITE LAYOUT PLAN
- Sheet 3 of 3 -

Scale @ A1: 1:500

Prepared by:	Checked:	Date:
E. Beggs	R. Hunt	September 22

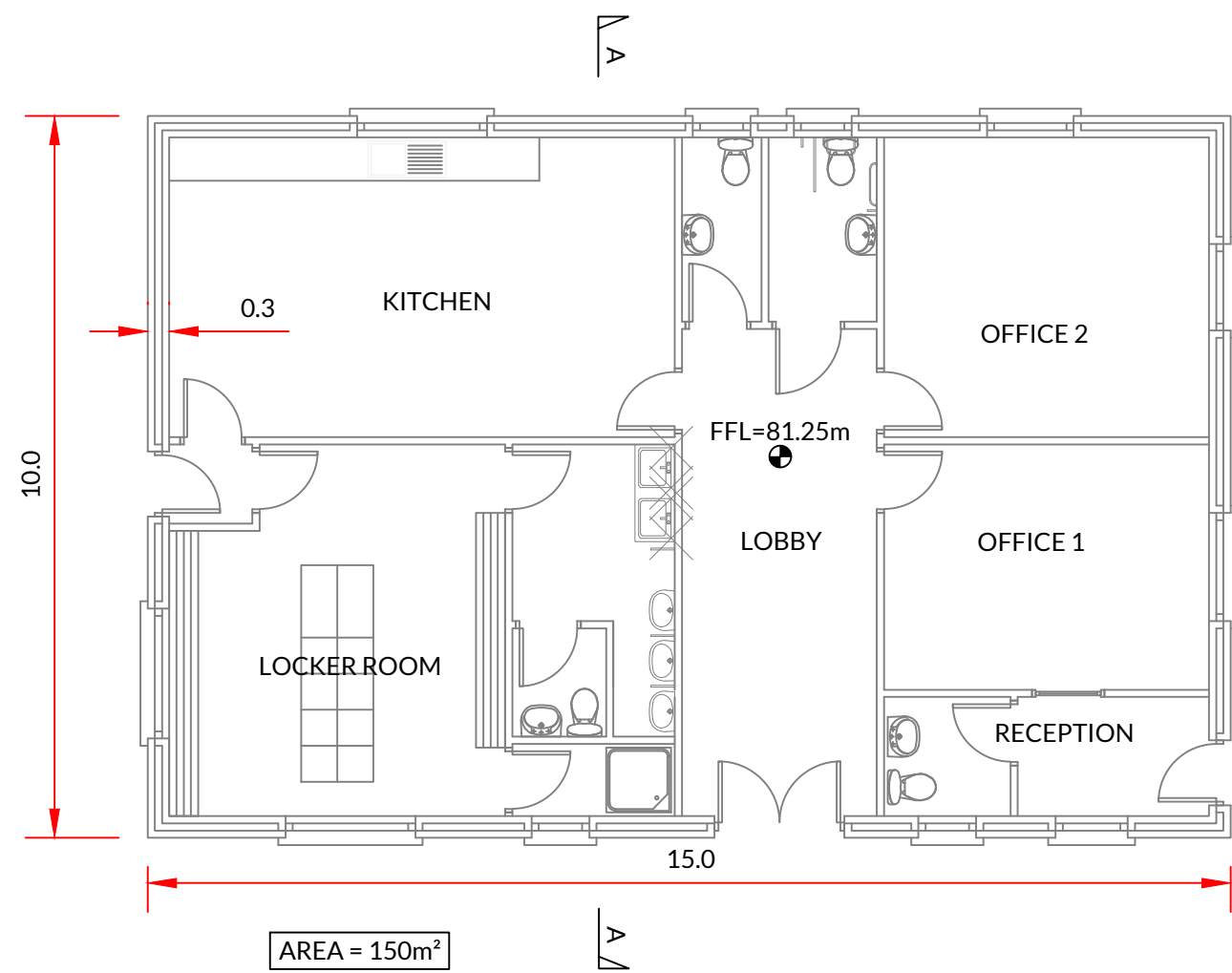
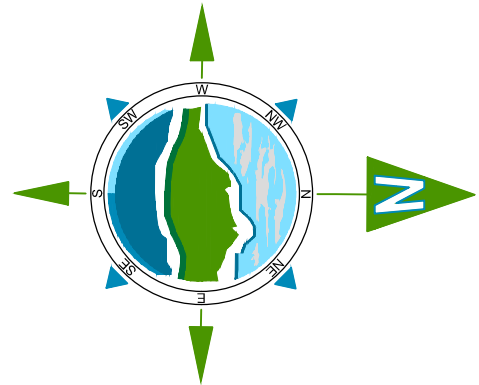
Project Director:	S. Tinnelly
Drawing Status:	Planning

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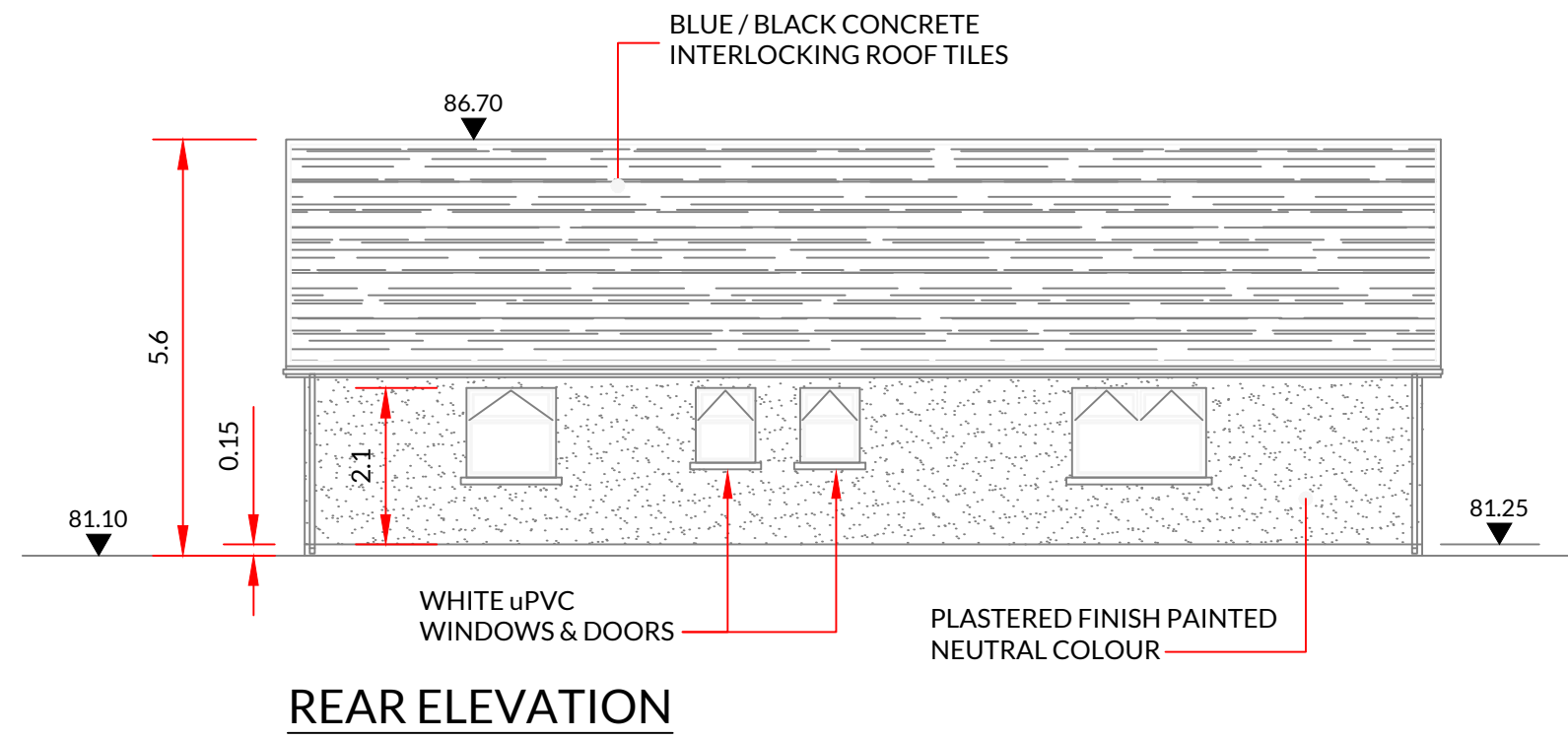
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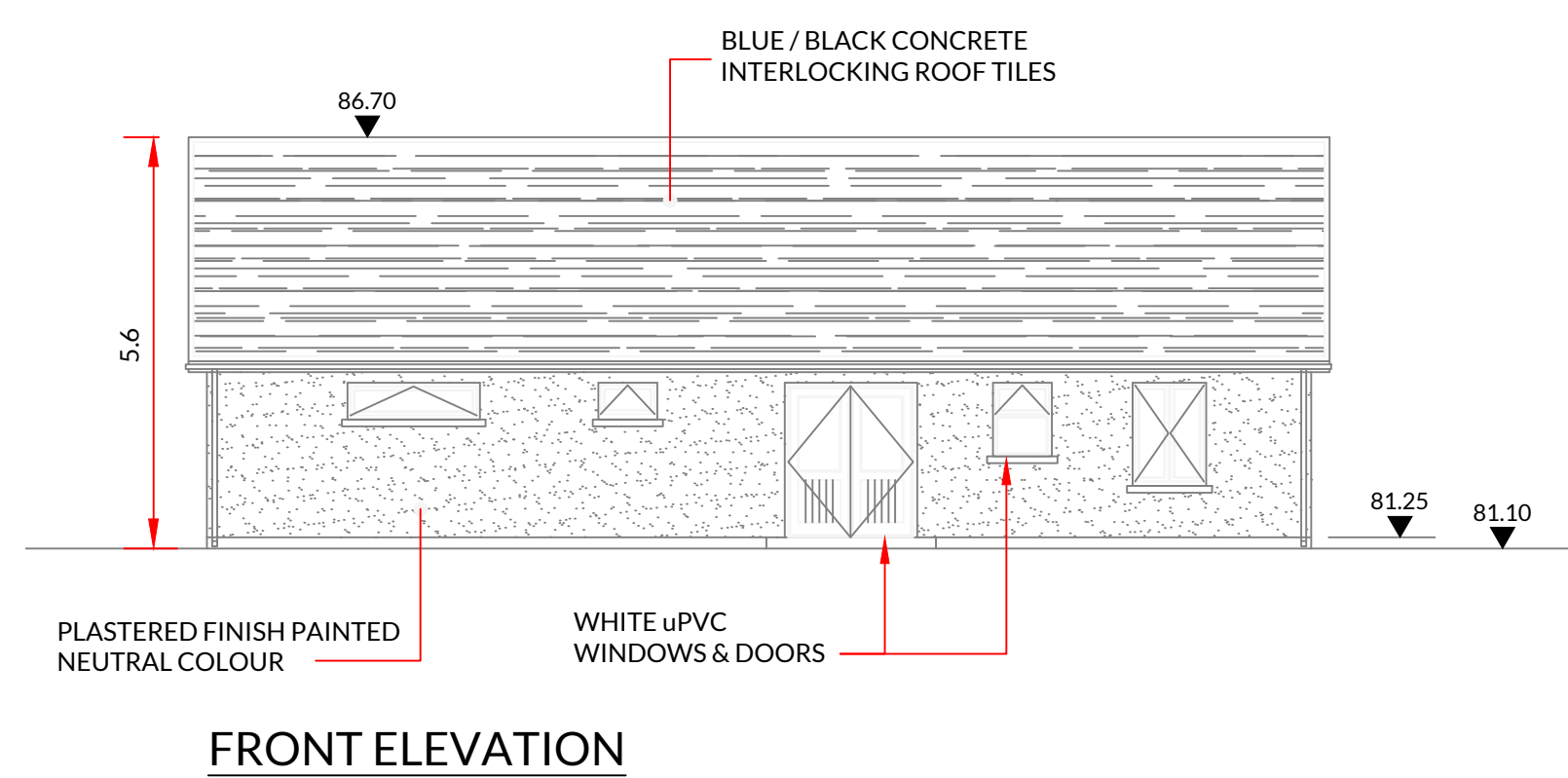
Drawing No.: 11223-2004 B	Revision:
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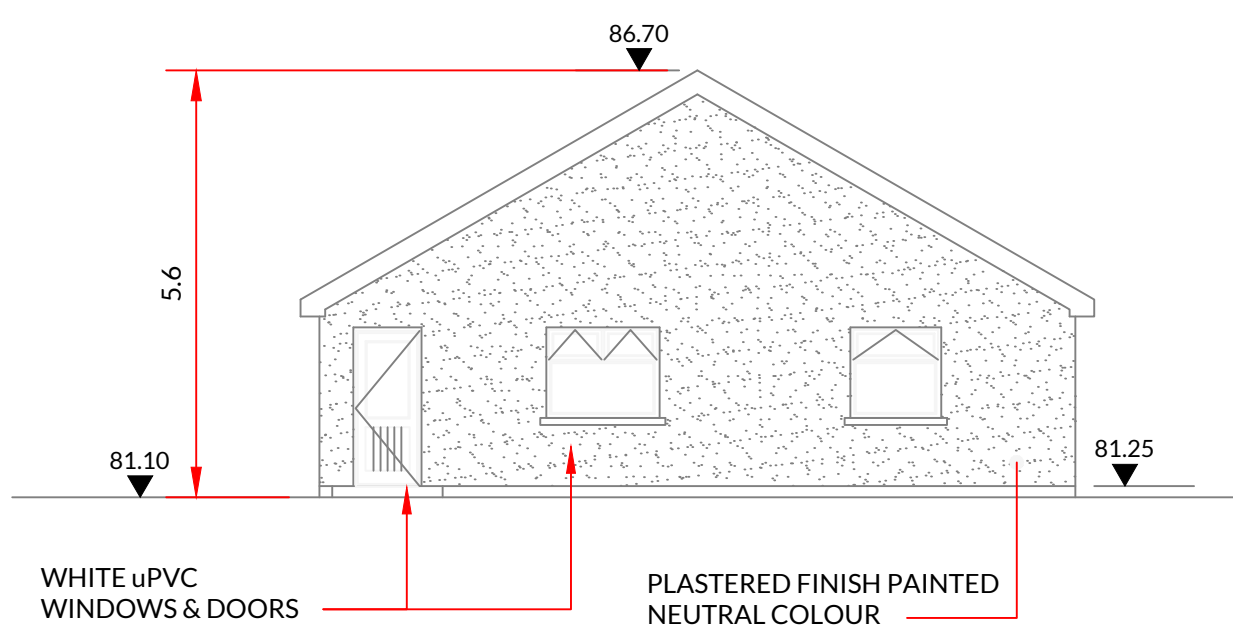
ADMIN. BUILDING FLOOR PLAN



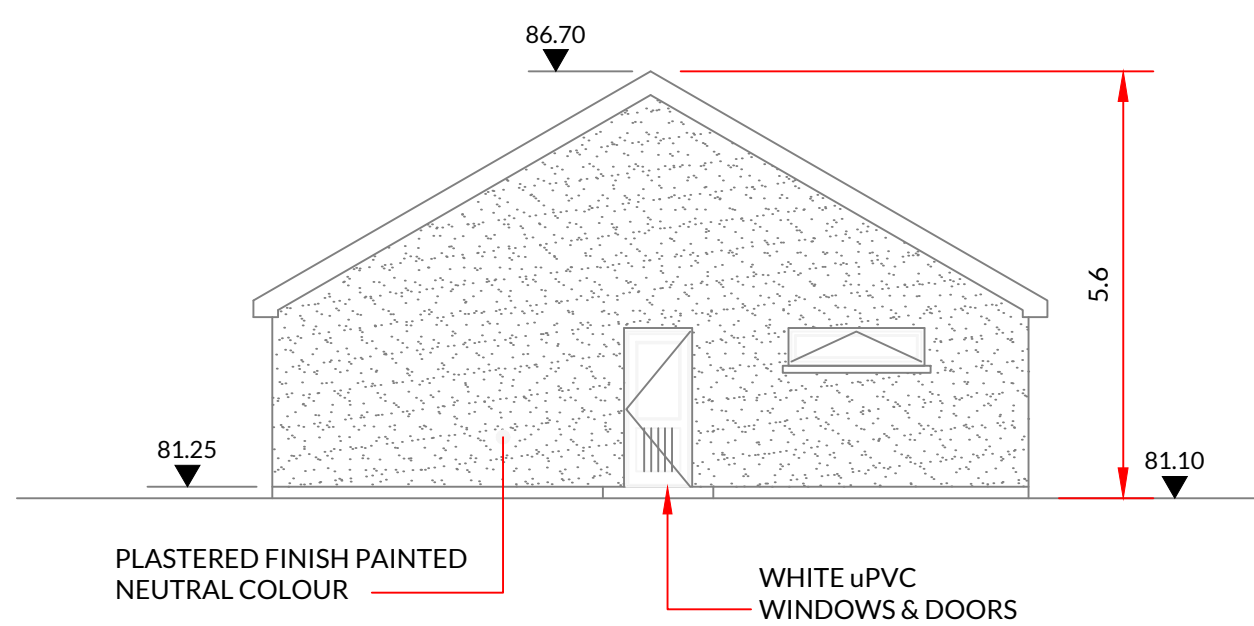
REAR ELEVATION



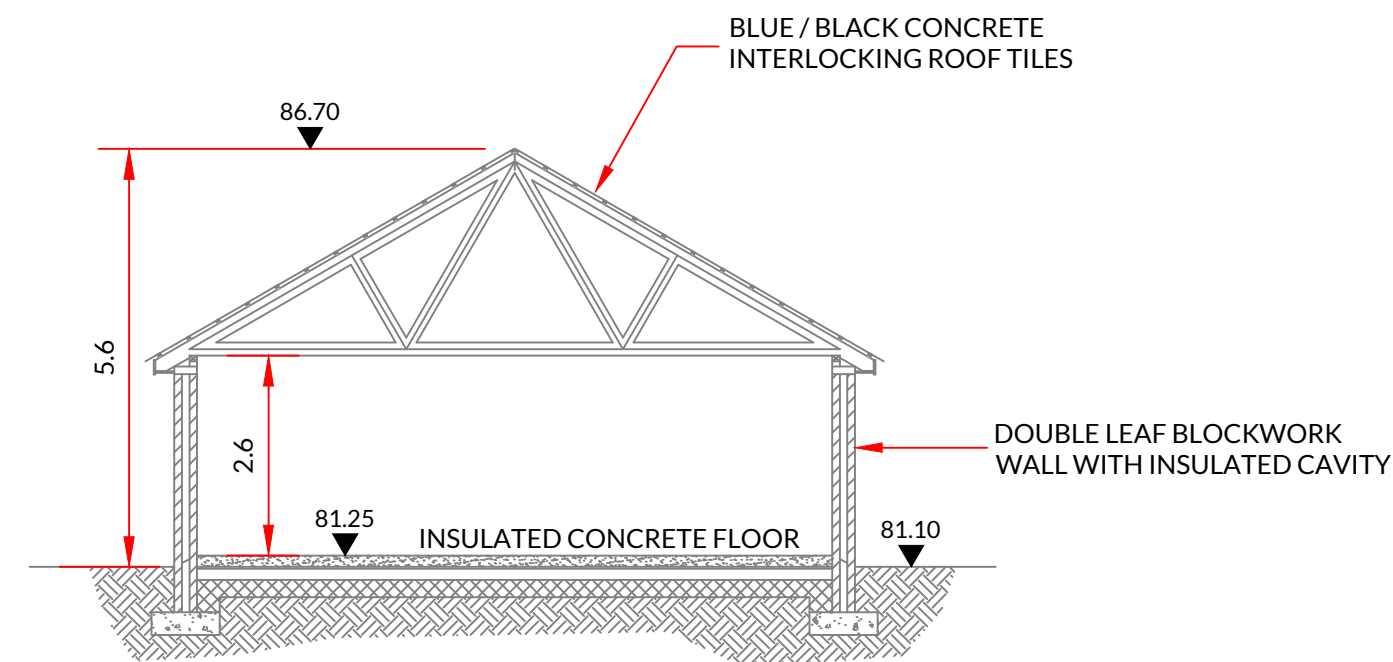
FRONT ELEVATION



SIDE ELEVATION



SIDE ELEVATION



SECTION A-A

- NOTES
GENERAL:
1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH RELEVANT DRAWINGS AND SPECIFICATIONS.
5. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Rev	Date	Description	By	Chkd.
B	14.09.22	Planning Issue	EB	RH
A	01.09.22	Planning Issue	EB	RH

Client: **Thorntons**
recycling

Project: **THORNTONS COMPOST
KILMAINHAMWOOD**

Title: **ADMINISTRATION BUILDING
PLAN, ELEVATIONS & SECTION**

Scale @ A1: **1:100**

Prepared by: **E. Beggs** Checked: **R. Hunt** Date: **September 22**

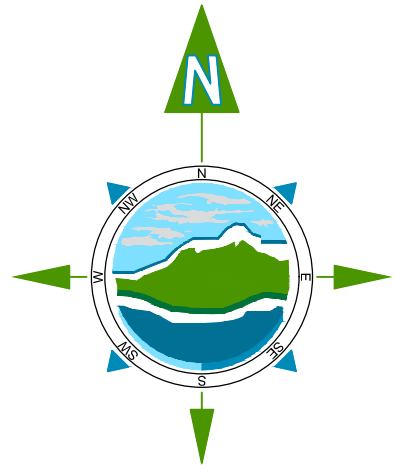
Project Director: **S. Tinnelly**

Drawing Status: **Planning**

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Drawing No.: **11223-2008** Revision: **B**



LEGEND:

- EXISTING SURFACE WATER PIPE
EXISTING SURFACE WATER MANHOLE
EXISTING WASTEWATER MANHOLE
EXISTING WASTEWATER PIPE

NOTES:

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER/EMPLOYERS REPRESENTATIVE, AS APPROPRIATE, TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES
5. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Rev	Date	Description	By	Chkd.
B	14.09.22	Planning Issue	EB	RH
A	01.09.22	Issued for Planning	EB	RH

Client:



Project:

THORNTONS COMPOST
KILMAINHAMWOOD

Title:

EXISTING SURFACE WATER
& WASTEWATER LAYOUT

Scale @ A1: 1:500

Prepared by: E. Beggs
Checked: R. Hunt
Date: September 22

Project Director: S. Tinnelly

Drawing Status: Planning

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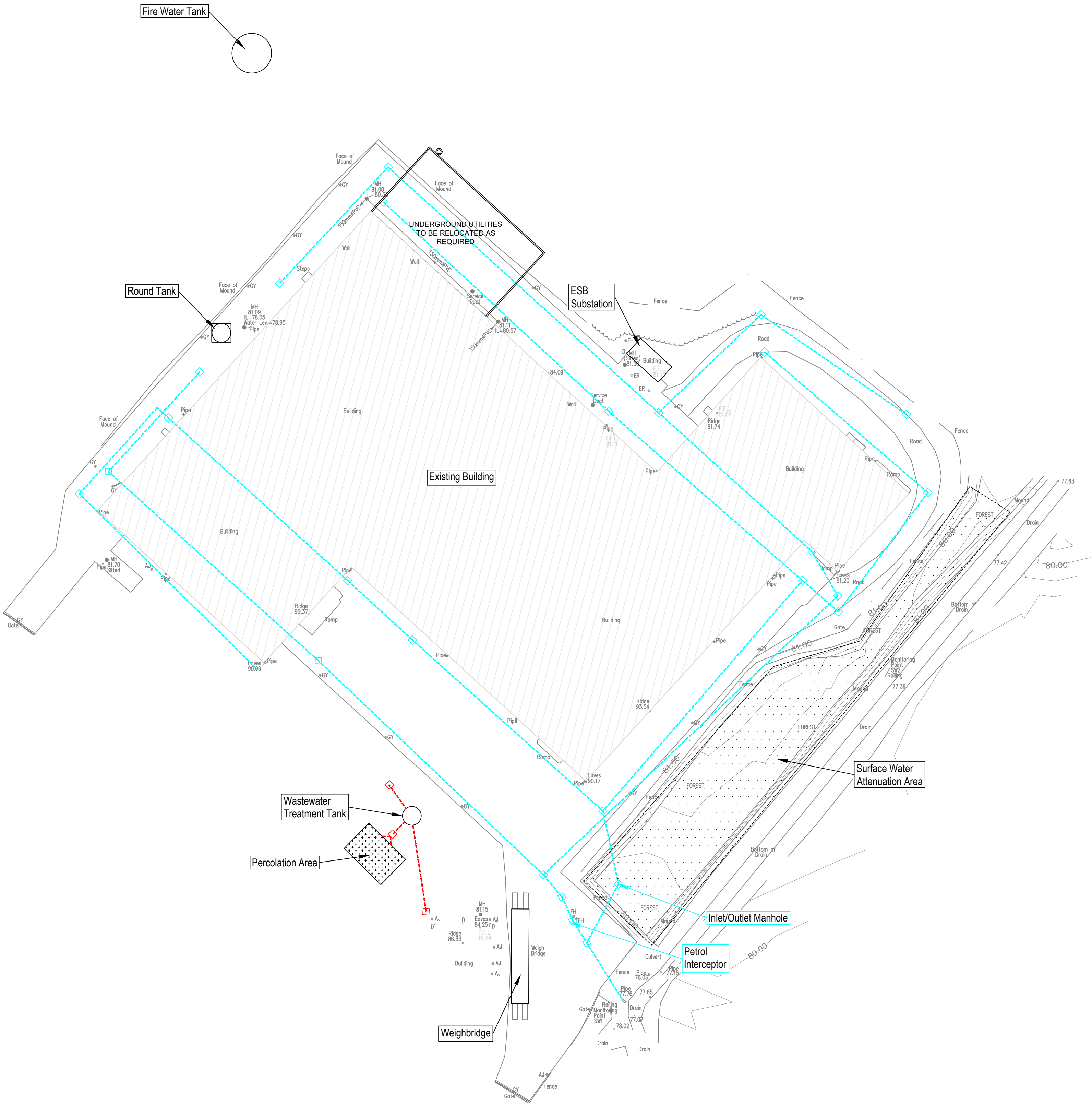
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Drawing No.: 11223-2010

Revision:

B



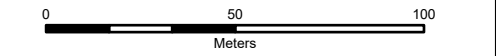
Appendix B ENVIRONMENTAL MONITORING LOCATIONS





Legend

- Application Boundary
- Existing Environmental Monitoring Locations
 - Dust Monitoring Point
 - Bioaerosol monitoring Points
 - Noise Monitoring Point
 - Borehole
 - Surface Water Monitoring Point
 - Biofilter



Spatial Reference
Datum: IRENET95
EPSG: 2157

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A	31/10/2025	First Issue	S.P	A.F
Rev	Date	Description	By	Chkd.

Client:

Project:

Kilmainhamwood Composting Facility

Title:

Existing Environmental Monitoring Points

Scale @ A3: 1:2,000

Prepared by: S.Pezzetta Checked by: A.Flanagan Date: October 2025

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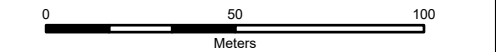
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Map Ref: 11223-001-Env..ML-S.BO-TOB-A Draft: A



- Legend
- Application Boundary
 - Proposed Environmental Monitoring Locations
 - Dust Monitoring Point
 - Bioaerosol monitoring Points
 - Noise Monitoring Point
 - Borehole
 - Surface Water Monitoring Point
 - Stack



Spatial Reference
Datum: IRENET95
EPSG: 2157

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A	31/10/2025	First Issue	S.P	A.F
Rev	Date	Description	By	Chkd.

Client:

Thorntons
recycling

Project:

Kilmainhamwood Composting Facility

Title:

Proposed Environmental
Monitoring Points

Scale @ A3: 1:2,000

Prepared by: S.Pezzetta
Checked by: A.Flanagan
Date: October 2025

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Map Ref: 11223-002-P.Env..ML-S.BO-TOB-A
Draft: A



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