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Odour Management Plan (OMP)

v2.0

Environmental and sustainability solutions provided to

Waste Organics (Leeds) Limited

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REVISION LOG

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1.0	First issue	21/01/2026
1.1	Minor draft update to tank details	24/02/2026
2.0	Second issue	27/02/2026

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1.0 BACKGROUND

The Environment Agency has a duty to regulate odour from certain industrial processes and waste sites. This is to protect and improve public health and wellbeing.

The British Standard EN 13725:2022 defines odour as a:

"sensation perceived by means of the olfactory organ in sniffing certain volatile substances."

The standard also defines an odorant as a:

"substance which, when volatilised in neutral gas, has the potential to stimulate the human olfactory system so that an odour is perceived"

The Environmental Permitting (England and Wales) Regulations 2016 define pollution as:
"any emission as a result of human activity which may:
(a) be harmful to human health or the quality of the environment,
(b) cause offence to a human sense,
(c) result in damage to material property, or
(d) impair or interfere with amenities or other legitimate uses of the environment"

The Environment Agency will treat odorous emissions in the same way as any other polluting emission.

"If odour pollution is happening and you are not taking appropriate measures, you may be breaching your permit condition, which is a criminal offence."

1.1 Site Details

Waste Organics (Leeds) Limited
Waste Treatment Station
Knowsthorpe Road
Leeds
LS9 0NX

Grid Reference: Easting 433155, Northing 431765

Environmental permit reference number: EPR/FB3701UA

1.2 Odour Management Plan (OMP) Availability

This OMP will be made available to:

- All staff
- Site visitors (incl. Regulators)
- Contractors working at the site

2.0 INTRODUCTION

2.1 Site Description

The site is situated on Knowsthorpe Road which is one of many roads present in the Crossgreen Industrial Estate. The industrial estate is located approximately 4km southeast of the centre of Leeds, near the Stourton and Knowsthorpe areas of the city. Knowsthorpe Road joins to Knowsthorpe Gate which itself is a main access road into the industrial estate from the A63 (Pontefract Lane) which is a main arterial road from the M1 motorway to the centre of Leeds. The site is surrounded by mixed-use industrial developments. Immediately north of the site is a vehicle bodycare workshop, to the east is a major waste water treatment works, to the south is a cement production facility and to the west is a chemical production facility. The River Aire is located approximately 600m south of the site and the nearest residential receptor is located approximately 1km north of the site. There are no sensitive ecological receptors within 750m of the site.

2.2 Site Activities

Waste Organics (Leeds) Limited (hereon referred to as Waste Organics) hold an environmental permit for the operation of a waste transfer and treatment station under environmental permit reference number EPR/FB3701UA. A wide variety of waste streams are accepted onto site for treatment before being transferred off site. The primary treatment activity is the depackaging and particle size reduction of solid biodegradable organic waste and blending with liquid waste to produce a “soup” suitable for feedstock into AD facilities off-site. Odour abatement systems are in place to treat any odorous air generated or displaced during the storage, treatment and transfer of this waste.

Other treatment activities, not intended to be carried out by Waste Organics, include, but are not limited to, manual sorting, separation, screening, baling, shredding, crushing or compaction of wastes such as inert waste, metals, end of life vehicles, refrigeration equipment and organic / inorganic materials.

2.3 Site Layout and Infrastructure

The site contains a large, inverted L-shaped building which is split internally into three buildings. The northern portion of the building which runs in a north to south orientation is the solid biodegradable waste reception and processing building i.e. Zone 1. The floor of this portion of the building is constructed of impermeable concrete and features a sealed drainage system. The solid waste is loaded into one of 2 attritors for depackaging and particle size reduction. Waste liquid collected in the sealed drainage system is added to the waste from the attritors as required to produce a pumpable material. This building features a roller shutter door, which is only opened to allow vehicles to enter or exit the building

The portion of the building which runs in an east to west orientation is the liquid waste reception hall i.e. Zone 2. This area contains a bunded tank farm which stores liquid wastes that are delivered to site via vehicle tanker. The liquid and pumpable solid wastes are mixed in a mixing tank. The “soup” produced is stored in a separate tank. Vehicle tankers collect the “soup” from this tank for removal from site. This portion of the building features an impermeable concrete floor with a sealed drainage system and a covered sump.

The third and final portion of the building is currently unused i.e. Zone 3. Should the site start accepting any other wastes that feature on the environmental permit, this portion of the building shall be re-used.

The external areas of the site between the site entrance and the solid and liquid biodegradable organic waste reception and treatment buildings are covered with impermeable concrete which features a sealed drainage system. This directs clean surface water into the surface water drain serving Knowsthorpe Road via a Class 1 interceptor with alarm. The exception to this is southern portion of the site where the site features made ground. This area of the site was previously used for inert waste storage and treatment but is currently redundant.

All “soup” production takes place within the existing buildings i.e. Zones 1 and 2. These buildings each contain roller shutter doors which are only opened to allow vehicles to enter or exit the building.

The site is configured to ensure segregation of activities, containment of materials and protection of sensitive receptors. Key infrastructure elements include:

- 1No. weighbridge.

- 2No. adjoining waste reception / treatment buildings.
- 1No. large lego-block waste storage bay.
- 1No. covered workshop.
- Site office and staff facilities.
- Solid waste reception building containing 2No. attritors for the depackaging and particle size reduction of solid biodegradable organic waste.
- Odour abatement system serving the solid waste reception building, displaced air from liquid storage tanks and vehicle tanker loading point.
- Bunded liquid waste tank farm for the storage of liquid waste and blending of liquid and pumpable solid waste for the production of a “soup”.
- Self-contained bunded water storage tank, containing a mixture of mains water and wash water, to act as a buffer for the liquid required to operate the attritors.
- Wheel wash areas within each building to prevent the transfer of waste off site on vehicle wheels.
- Sealed drainage system serving the solid waste reception/treatment building and liquid waste reception/treatment building to prevent run-off and for re-use in the blending process.
- Roller shutter doors serving the buildings on site.
- A number of car parking spaces.

All operational surfaces are maintained in good condition and inspected routinely to ensure integrity and containment.

2.4 Hours of Operation

Site operational hours for the facility will typically be identified the table below, including maintenance activities:

Table 1 - Hours of Operation

Day	Waste Acceptance	Waste Treatment
Weekday	00:00 – 24:00	07:00 – 20:30
Weekend	00:00 – 24:00	07:00 – 17:30

2.5 Permitted Waste

Waste loads shall only be accepted if they are a type and quantity specified in the permitted list of wastes, and the load conforms to the description in the documentation supplied by the producer and holder. For the purpose of producing a “soup” suitable for feedstock into AD

facilities off-site, only biodegradable organic waste shall be accepted on to site. The EWC codes permitted to be accepted match those that feature in the standard rules permits for anaerobic digestion resource framework. The wastes are typically packaged and unpackaged solid food waste and liquid food wastes. Any wastes that are not categorised as permitted materials should be considered contrary/non-conforming and dealt with appropriately.

2.6 Waste Treatment Description

Solid biodegradable organic waste is deposited onto the floor of the solid waste reception building. The floor is constructed of impermeable concrete and features a sealed drainage system to prevent any run-off from leaving the building. Any leachate collected by the drainage system will then be collected by the $10m^3$ drainage pit before being used in the “soup” production process. The waste carrying vehicles enter the building via a fast-acting roller shutter door which is opened only to allow vehicles to enter and exit the building. The building is served by an extraction system and odour control unit such that all air extracted from the building (there are at least 3 air exchanges per hour) is treated via the odour abatement system before being emitted to atmosphere via vertical stack. Solid waste is stored for as little time as possible before being processed. The maximum amount of time the solid waste is stored prior to treatment is 24 hours.

Liquid biodegradable organic waste is stored in the adjoining liquid waste reception building. There are 6No. liquid waste storage tanks, each with a capacity of $55m^3$. These tanks, along with the mixing tank and batch tank, are located in a bunded tank farm which offers secondary containment in line with the CIRIA C736 guidance. Vehicle tankers carrying waste shall park in the designated parking bays to connect to the liquid storage tanks via the external connection points via a hose, pump and valve to unload the liquid. The floor of the liquid waste reception building is constructed of impermeable concrete. A Waste Organics operator shall ensure that the liquid waste is being pumped into a tank with capacity to store all the liquid waste in the vehicle tanker. The bunded tank farm also contains a $2m^3$ sump to store any spillages within the bunded area. Again, this is pumped into one of the liquid waste storage tanks. Liquid waste is stored for a maximum of 24 hours on site prior to blending.

The solid waste which has been deposited an accepted on to site is transferred into one of two attritors via mobile plant for treatment. The waste is deposited into a hopper which feeds the attritors. The purpose of the attritors is to reduce the particle size of the solid waste to make it pumpable and to remove any packaging from the waste. The packaging removed is stored in sealed containers prior to removal from site. The pumpable waste is mixed with waste liquid collected in the drainage pit from the waste reception hall as required before

being pumped into the mixing tank in the tank farm. A 60m^3, self-contained bunded water storage tank is located in the liquid waste reception building. This tank contains a mixture of mains water and washwater and it serves as a buffer for the liquid required to operate the attritors. The tank is constructed of glass reinforced plastic (GRP).

The liquid waste being stored in storage tanks in the tank farm is also pumped into the mixing tank. The mixing tank has a capacity of 494m^3 and the site operators control the blending process to ensure a "soup" suitable for anaerobic digestion off-site is produced. The mixing tank features agitators to ensure the waste is well blended. The feed of the different waste types into the mixing tank is controlled by the site operators via the use of a SCADA system which ensures wastes are well blended according to composition and the fill levels are never exceeded. The blended "soup" is then pumped into the batch tank, with a capacity of 218m^3, ready for removal from site.

2.7 Environmental Risk Controls

2.7.1 Odour Management

Odour is controlled through the use of an odour abatement system, which consists of four carbon filters, to treat potentially odorous air prior to the release to atmosphere. The solid waste reception and treatment building operates under negative pressure with a minimum of three air exchanges per hour. The air removed from the building is treated via carbon filters before being emitted to atmosphere via an external vertical stack. The liquid waste reception tanks and vehicle loading points are served by the same carbon filters before the treated air is discharged via an external vertical stack. Waste is only stored on site for a maximum of 24 hours before being treated.

2.7.2 Dust and Emissions

There are activities on site that have the potential to create aerial emissions which could possible drift off-site and cause an amenity nuisance. Such activities include:

- Delivery vehicle movements (vehicles may lead to the aerosolisation of dust during dry weather).
- The reception and pre-treatment of waste materials.
- The treatment of waste materials. (e.g. screening, attrition).
- The loading of materials into vehicles for export to other licensed facilities.

In order to minimise potential generation of dust from the site, the following preventative or reactive control measures shall be implemented by the Site Manager for the separately identified potential dust generating activities. In addition to these, general measures shall also be undertaken. Site staff supervising individual material handling operations and unloading of waste shall, during the carrying out of those operations, undertake visual monitoring of aerial emissions. On detection or notification of visible aerial emissions that are likely to be transported beyond the site boundary, immediate action shall be taken to stop the material handling operations giving rise to the emission and suppress the aerial emission from the material as required. The incident and the remedial action shall be recorded in the site diary.

The on-site concrete pad will also be washed if deemed to be dusty or dirty and showing visible signs of contamination

Please note, due to the site possessing a full impermeable concrete surfacing and the type of waste material largely received at site (solid and liquid biodegradable organic waste), the potential for aerial emissions of dust, fibres and particulates as a result of handling/transportation is greatly reduced.

2.7.3 Leachate and Runoff

The site features sealed drainage systems. Those in the solid and liquid waste reception and treatment buildings prevent any liquid from leaving the building. All liquid waste collected is used in the “soup” making process such that no liquid from the building leaves site other than as part of the “soup”. The tank farm within the liquid waste reception / treatment building is bunded. The containment is designed to CIRIA C736 guidance, offering containment of 110% of the largest tank or 25% of all the tanks by volume.

The drainage system which serves the external areas of the site ensures that clean surface water is discharged to the surface water drain serving Knowsthorpe Road, via a Class 1 interceptor with alarm.

2.7.4 Noise and Visual Impact

Plant and equipment are maintained to reduce noise emissions. The activities take place within buildings and the site has held an environmental permit for waste transfer and treatment since 2004.

2.7.5 Storage and Material Processing

Waste accepted onto site are stored only within designated areas and for durations consistent with operational need. Storage arrangements ensure:

- Continued containment and stability of material.
- Maintenance of clean and dirty areas in line with Animal By-Products Regulations.
- Capacity limits are not breached via use of SCADA system.

2.7 6 Management Systems and Competence

The site operates under a documented management system that includes:

- Defined roles and responsibilities for site staff.
- Training in waste handling, liming operations, and environmental protection.
- Procedures for normal operations, maintenance, and abnormal events.
- Competence is maintained through refresher training and supervision.

2.7.7 Incident and Contingency Management

The OMP includes provisions for managing foreseeable incidents, such as:

- Equipment failure.
- Spillage of waste.
- Non-conforming waste deliveries.
- Adverse weather conditions.

Contingency measures are designed to always maintain environmental protection and regulatory compliance.

2.7.8 Record Keeping and Review

Operational records include waste transfer documentation, monitoring data, maintenance logs, and incident reports. The OMP is reviewed periodically and updated to reflect changes in operations, regulation, or best practice.

2.8 Responsibility for the Odour Management Plan and Training

Overall responsibility for the preparation, implementation, and ongoing effectiveness of this Odour Management Plan (OMP) rests with the Site Manager.

The Site Manager is responsible for:

- Ensuring the OMP is implemented in full during site operations.
- Ensuring that all site personnel involved in waste reception, handling, storage, treatment and dispatch are trained and competent to undertake their duties.
- Reviewing operational performance and initiating updates to the OMP where required.

Day-to-day compliance with the OMP is supported by the Site Supervisor, who is responsible for supervising operational activities and verifying that procedures are followed on site. This allocation of responsibility satisfies the intent of Appropriate Measures (AM) 5.1–5.3 regarding defined management roles and competence.

2.9 Location and Availability of the OMP

The OMP is:

- Held electronically within the operator's document management system; and
- Available in hard copy within the site office.

All operational staff have access to the OMP and are required to be familiar with the procedures relevant to their role. The document is made available to Environment Agency (EA) officers upon request during inspections or audits. This arrangement aligns with AM 5.9 on document control and accessibility.

2.10 Review frequency of the OMP

The OMP is formally reviewed:

- At least annually; and
- Following any of the following triggers:
- Material changes to the "soup" production process or site layout.
- Changes to permit conditions or regulatory guidance.
- Identification of improvements following incidents, complaints, or compliance assessments.
- Introduction of new waste streams or changes to waste acceptance criteria.
- Re-commencement of any of the activities that feature on the environmental permit which are not currently carried out.

Reviews are recorded, and where amendments are required, the updated OMP is re-issued to site staff. This satisfies AM 5.1.5 regarding periodic review and continuous improvement.

2.11 Training received by site staff

All staff involved in site operations have received training appropriate to their role, including:

- Waste acceptance and verification procedures for incoming material.
- "Soup" production process principles, including:

- Safe handling of waste materials
- Process control parameters (using SCADA system).
- Environmental protection measures, including odour, dust, and runoff control.
- Spill prevention and response procedures.
- Site-specific health, safety, and emergency arrangements.

Training is designed to ensure staff understand both the operational requirements and the environmental risks associated with the soup production process. This meets AM 5.3 on competence and training.

2.12 Training Frequency and Delivery

Training is delivered:

- As part of site induction for new staff.
- Through periodic refresher training, typically on an annual basis or more frequently where operational changes occur.
- Following any incident, non-conformance, or regulatory feedback where learning outcomes are identified.

Training is delivered by:

- The Site Manager or a suitably competent senior member of staff; and/or
- External training providers should specialist instruction be required (e.g. health and safety).

Training records are maintained and made available for inspection. This approach reflects the proportional, risk-based expectations of AM 5.5.

2.13 Relevant Sector Guidance on Which This OMP is Based

In developing this OMP the following guidance documents, regulatory frameworks, and best practice references were consulted and applied:

Table 2 - Relevant Sector Guidance Used for this OMP

Guidance / Document	Source / Publisher	Publication date	Relevance to OMP
Odour management: comply with your environmental permit	Environment Agency	Dec 2025	Defines odour permit condition requirements and outlines how the EA assesses odour pollution and compliance. Describes the structure and essential content of an OMP, including odour risk assessment, odour source inventory, control measures, monitoring, and contingency planning. Explains “appropriate measures” and their proportionate application to odour control. Directly supports the odour risk assessment, appropriate measures selection, and monitoring and review sections of this OMP.
OMP template (v2)	Environment Agency	May 2021	Provides a template for assessment by the EA.
Appropriate Measures for Waste Treatment and Transfer – Non-Hazardous and Inert Waste	Environment Agency	August 2023 (latest revision)	Provides the primary framework for the design, operation, and monitoring of waste treatment sites. AMs were specifically used to structure odour risk controls, staff competence requirements, storage, handling, and process monitoring.
Biological waste treatment: appropriate measures for permitted facilities	Environment Agency	November 2024 (latest revision)	Explains the standards (appropriate measures) that are relevant to permitted waste management facilities that handle organic waste, also known as biowaste.

			Sewage sludge means residual sludge from sewage plants treating domestic or urban waste waters. It also includes sewage sludge from other sewage plants treating waste waters that have a similar composition to domestic and urban waste waters.
Waste Management: The Duty of Care – A Code of Practice	Environment Agency	2016	Informs site procedures for waste acceptance, segregation, and minimisation of environmental impact, including odour management.
BAT Guidance Notes: Waste Treatment (BREF / European Best Available Techniques)	European Commission / JRC	2018	Inform proportional application of best available techniques (BAT) to odour control and process stabilisation.

2.14 Other Relevant Information

The OMP has been prepared using current and up-to-date guidance to ensure both compliance with regulatory requirements and adoption of proportionate risk-based measures.

Guidance selection was targeted toward biological waste treatment, odour mitigation, and operator competence, aligning with EA expectations for Appropriate Measures.

The OMP integrates these references into a site-specific framework, combining process design, operational control, staff training, and monitoring measures.

Where guidance documents have been superseded, the latest versions have been applied, and any material deviations have been justified in line with risk-based principles.

3.0 RECEPTORS

Identification and assessment of sensitive receptors is a fundamental component of effective odour risk management and forms a key part of the Source–Pathway–Receptor (SPR) model applied within this OMP. The purpose of this section is to identify who may be affected by odours arising from the site, to understand the potential pathways by which odour could travel beyond the site boundary, and to inform the selection of appropriate measures and Best Available Techniques (BAT) to prevent or minimise odour pollution.

Receptors are defined as people, property, or locations that may experience adverse effects as a result of odour emissions. These may include residential properties, commercial premises, public buildings, outdoor recreational areas, workplaces, and other locations where people may reasonably be expected to be present for extended periods.

The identification of receptors has been undertaken with reference to:

- the nature of the activities carried out on site;
- the odour potential of materials handled and processes operated;
- the extent to which odorous activities are contained or otherwise controlled;
- prevailing and seasonal meteorological conditions;
- topography and local land use;
- the frequency and duration of site operations.

The distance of receptors from the site boundary has been considered as an indicative screening factor only. Distance alone does not determine odour risk; rather, risk is influenced by a combination of factors including:

- the effectiveness of odour prevention measures at source;
- whether activities are undertaken indoors or outdoors;
- the presence or absence of point source emissions (e.g. stacks);
- the duration, timing, and intensity of odour-generating activities;
- atmospheric dispersion conditions.

Accordingly, receptors located closer to the site boundary are not automatically considered to be at higher risk, nor are more distant receptors excluded from consideration where site characteristics or meteorological conditions could reasonably give rise to off-site odour effects.

Details of identified receptors are provided in Table 3, including receptor type, approximate distance and direction from the site boundary, and a qualitative sensitivity assessment. This information is supported by Figure 1, a scaled location plan showing the position of each receptor listed.

The receptor assessment presented in this section provides the basis for:

- the odour risk evaluation in Section 3;
- the selection of appropriate odour control measures and BAT in Section 4;
- the design of odour monitoring and complaint response procedures.

Through this structured approach, the Operator ensures that odour risks are assessed proportionately, managed effectively, and reviewed in the context of potential impacts on neighbouring receptors.

The sensitive receptors are based on the following distances from the site:

- landfill – 2km
- biowaste – 1.5km
- farming – 1km
- food – 1km
- waste treatment – 0.5km

Table 3 - Sensitive Receptor List

Receptor Reference	Business Name / Receptor Description	Direction From Site (From true North)	Approximate Distance to Site Boundary (m)	Sensitivity to Odour
HR 01	Vehicle Bodycare Centre / Industrial	North	23	Medium
HR 02	Sunbed Rentals / Industrial	North	98	Medium
HR 03	DHL Express / Industrial	North	298	Medium
HR 04	Richard Austin Alloys / Industrial	North	616	Medium
HR 05	Residential dwelling on Halton Moor Road	North	907	Medium
HR 06	OTL / Industrial	North-northeast	295	Medium
HR 07	Speedy Services / Industrial	North-northeast	444	Medium
HR 08	Mercado / BMK Flooring / Industrial	North-northeast	750	Medium
HR 09	Residential dwelling on Halton Moor Road	North-northeast	911	High
HR 10	AO / Industrial	Northeast	295	Medium
HR 11	ACS Stainless Steel Fixings / Industrial	Northeast	446	Medium
HR 12	Symington's Ltd / Industrial	North-northeast	554	Medium
HR 13	Residential dwelling on Halton Moor Road	North-northeast	943	High
HR 14	Residential dwelling on Halton Moor Avenue	North-northeast	964	High
HR 15	Floorstore Trade Counter / Industrial	Northeast	591	Medium
HR 16	Roberts Mart & Co / Industrial	Northeast	753	Medium
HR 17	McMullen JRL Facades Manufacturing / Industrial	Northeast	368	Medium

Receptor Reference	Business Name / Receptor Description	Direction From Site (From true North)	Approximate Distance to Site Boundary (m)	Sensitivity to Odour
HR 18	Samuel Grant Packaging / Industrial	Northeast	615	Medium
HR 19	Perspex Distribution / Industrial	Northeast	818	Medium
HR 20	Vickers Oils / Industrial	East-northeast	345	Medium
HR 21	BCA Leeds / Industrial	East-northeast	584	Medium
HR 22	Farnell UK Distribution / Industrial	Northeast	942	Medium
HR 23	Curio Fulfilment / Industrial	East-northeast	837	Medium
HR 24	Workplace Amazon / Industrial	East-northeast	926	Medium
HR 25	Wastewater Treatment Works / Industrial	East	50	Medium
HR 26	Amazon DLS2 / Industrial	East	977	Medium
HR 27	Amazon LBA5 / Industrial	Southeast	803	Medium
HR 28	Skelton Grange EFW / Industrial	South-southeast	575	Medium
HR 29	Cement Manufacturer on Knowsthorpe Road / Industrial	South	32	Medium
HR 30	TCV Skelton Grange / Industrial	South	373	Medium
HR 31	Sigma Fixtures / Industrial	South	881	Medium
HR 32	Skelton Ltd / Industrial	Southwest	144	Medium
HR 33	Royal Mail Fleet Workshop / Industrial	South-southwest	801	Medium
HR 34	Everlast Scaffold / Industrial	South-southwest	650	Medium

Receptor Reference	Business Name / Receptor Description	Direction From Site (From true North)	Approximate Distance to Site Boundary (m)	Sensitivity to Odour
HR 35	Froch Foods / Industrial	South-southwest	774	Medium
HR 36	Bestway Stourton / Industrial	Southwest	939	Medium
HR 37	Egger Timberpak / Industrial	West-southwest	412	Medium
HR 38	Srcl / Industrial	Southwest	660	Medium
HR 39	Sika Everbuild / Industrial	West	60	Medium
HR 40	CID Group / Industrial	West	292	Medium
HR 41	Tarmac / Industrial	West	824	Medium
HR 42	TRAD UK / Industrial	West-northwest	662	Medium
HR 43	Newross Impex / Industrial	West-northwest	951	Medium
HR 44	Sika Everbuild / Industrial	Northwest	97	Medium
HR 45	O.C.O Technology / Industrial	Northwest	280	Medium
HR 46	Global Material Sourcing / Industrial	West	357	Medium
HR 47	Lawcris Trade Counter / Industrial	Northwest	399	Medium
HR 48	Core Plant / Industrial	Northwest	820	Medium
HR 49	Thomas Armstrong (Concrete Blocks) Ltd / Industrial	North-northwest	192	Medium
HR 50	Shire Timber Group / Industrial	North-northwest	423	Medium
HR 51	Football World Leeds / Recreational	Northwest	641	High

Receptor Reference	Business Name / Receptor Description	Direction From Site (From true North)	Approximate Distance to Site Boundary (m)	Sensitivity to Odour
HR 52	Private Rented Sector Housing Services / Industrial	North	371	Medium
HR 53	Recycling and Energy Recovery Facility / Industrial	North-northwest	689	Medium
HR 54	Compak Group / Industrial	North-northwest	475	Medium
HR 55	Euro Car Parts / Commercial	Northwest	832	Medium
HR 56	Fenton Packaging / Industrial	North-northwest	871	Medium
HR 57	Freshways Dairy / Industrial	North	557	Medium
HR 58	EHRLE UK Ltd / Industrial	North	870	Medium
HR 59	William Cook Rail / Industrial	Northwest	885	Medium

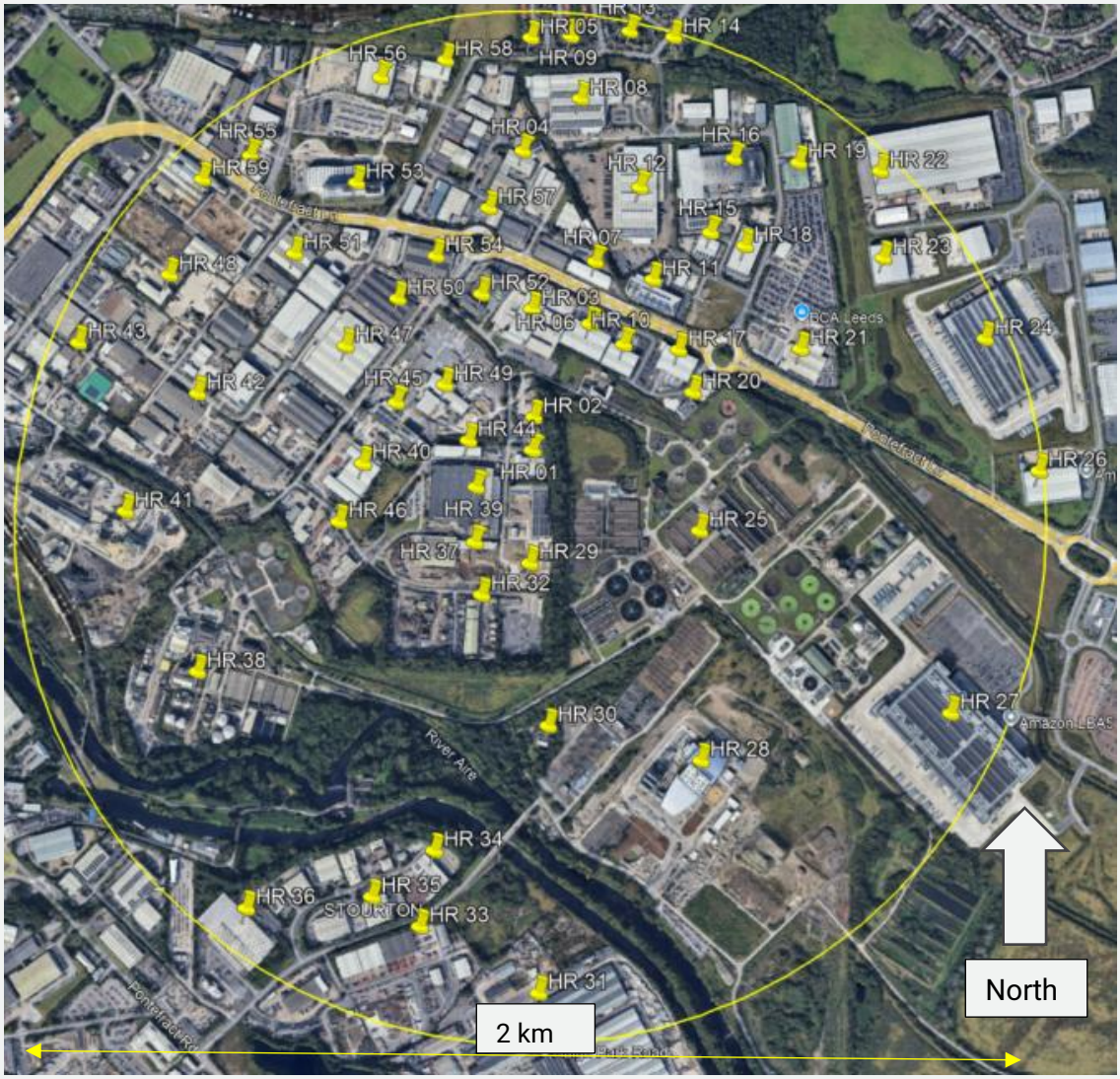


Figure 1 - Map of Sensitive Reception

3.1 Wind Direction

The following section identifies the prevailing weather conditions on site, in particular the wind direction, in order to predict the path of likely aerial dispersion of dust generated on site. Information on wind direction has been derived from Leeds over the last 30 years. This data is illustrated by the wind rose in Figure 2 and is sourced from Meteoblue. Wind data is collected daily as part of the routine monitoring on site. 8-point wind directions are provided below, note that calm days are also included to provide a complete data record. Figure 2 demonstrates that the predominant wind direction in the region is from the southwest to west directions.

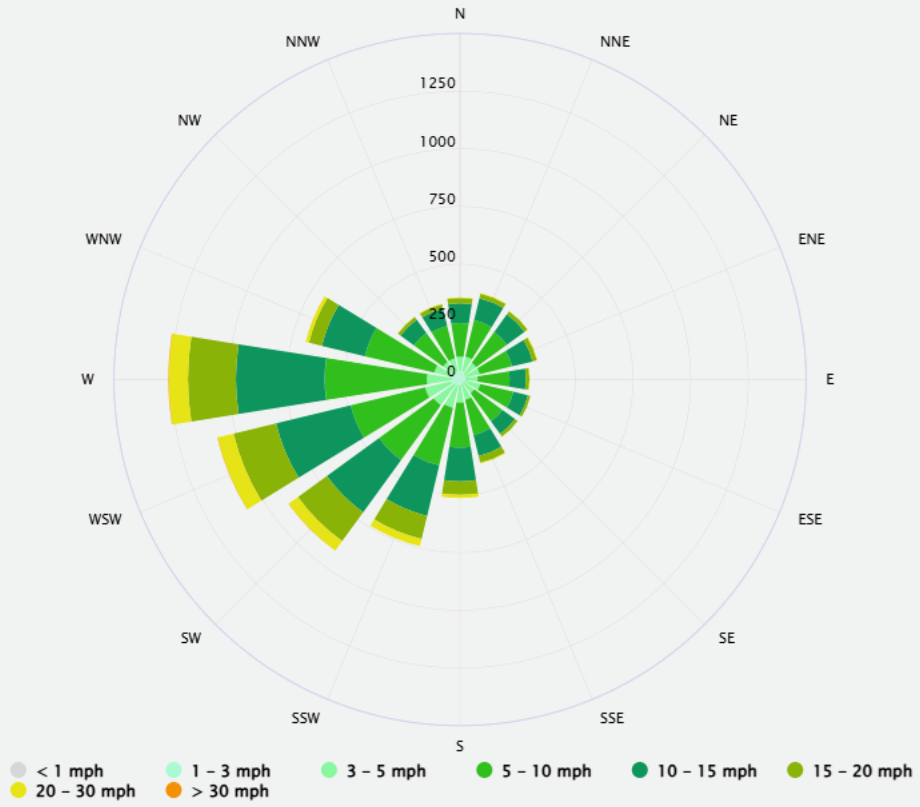


Figure 2 - Windrose for Leeds

4.0 SOURCES OF ODOUR AND SITE PROCESSES

The site undertakes the treatment of dewatered non-compliant biosolids through the controlled addition of alkaline reagents (typically quicklime or hydrated lime) to achieve stabilisation, sanitisation, and odour reduction prior to onward recovery. While the liming process itself is an effective odour mitigation measure, odour may arise from specific activities, materials, or operational conditions, particularly during the handling and reception of non-compliant biosolids.

This section identifies the potential sources of odour associated with site operations and provides an overview of the processes through which odour could be generated or released. It forms the foundation for a risk-based assessment of odour impacts and the implementation of proportionate control measures in accordance with EA guidance on odour management and the principles of AM 6, 7, 8 and 11 (biowaste).

4.1 Key Considerations

4.1.1 Incoming Waste

- Untreated biodegradable organic waste may carry inherent odour due to biological activity, residual organic matter and microbial decomposition.
- Potential odour generation is highest during unloading and temporary storage prior to treatment.

4.1.2 Reception and Storage Areas

- Areas where biodegradable organic waste are temporarily held prior to blending are a primary potential source of fugitive odours if material remains exposed or untreated for prolonged periods.
- Site design i.e. in a building, and operational controls aim to minimise exposure and odour dispersion.

4.1.3 Waste Treatment Operations

- Solid waste is processed through one of two attritors with waste being transferred via conveyor belts.
- The resulting pumpable waste is transferred via sealed pipework into the liquid waste tank farm.
- Liquid wastes are stored and mixed within sealed tanks.
- Solid waste reception building is served by an air extraction system with 3 air exchanges per hour and treatment via an odour abatement system consisting of carbon filters.
- Potentially odorous air displaced during filling and emptying of liquid waste tanks is treated via carbon filters prior to release to atmosphere.

4.1.4 Treated Material Storage

- Potentially odorous air displaced during filling and emptying of blended “soup” waste tank is treated via carbon filters prior to release to atmosphere.
- Potentially odorous air displaced during filling of vehicle tanker with blended “soup” is treated via carbon filters prior to release to atmosphere.
- Storage areas are designed to prevent dust or fugitive odours, in line with EA guidance on containment and appropriate measures.

4.1.5 External Factors

- Weather, wind direction, and ambient temperature may influence odour dispersion.

- Operational procedures take these factors into account when planning deliveries, unloading, and treatment activities.

The assessment of sources and processes presented in this section supports the proportionate selection of odour control measures, including procedural controls, staff training, containment infrastructure, and monitoring arrangements. It ensures that all reasonably foreseeable odour emissions are identified, managed, and minimised, consistent with the Environment Agency's expectation for risk-based, proportionate odour management.

4.2 Odorous Materials Entering and Leaving Site

Both solid and liquid biodegradable organic waste are delivered exclusively by road vehicles to site. There is no use of rail or canal transport for this operation.

Waste delivery vehicles follow approved access routes to the respective reception and treatment buildings to minimise exposure to sensitive receptors and reduce potential odour impacts during transit.

Deliveries can be received on site 24 hours a day, 365 days a year. The business model of the waste transfer and treatment activity is based on blending the waste to produce a "soup" and transferring it off site as quickly as possible. This ensures that odour risk from prolonged storage of untreated material is minimised, satisfying the proportionality principle under Control and monitor emissions for your environmental permit - GOV.UK guidance.

This arrangement is consistent with Appropriate Measures 6 and 7 (biowaste).

4.3 Container Types for Material Delivery

All vehicles delivering biodegradable organic waste to site are sealed and/or covered, as per statutory and EA requirements. Vehicle drivers are instructed to maintain vehicle integrity during transit and unloading to prevent odour release. This is consistent with the *prevent odour emissions during transfer* principle in EA Odour Management guidance and AM 6.3.

4.4 Instructions Provided to Drivers

Drivers are provided with site-specific instructions prior to delivering potentially odorous material, which include:

- Maintaining vehicle seals until material is unloaded.
- Using designated access routes to minimise exposure to off-site sensitive receptors.
- Observing hygiene, health, and safety protocols on site.

- Reporting any leaks, damage, or unexpected odour emissions immediately to the site supervisor.
- Instructions are provided via written site induction, driver briefings, and included on any waste acceptance documentation.

This measure ensures compliance EA odour guidance (risk communication and operational control).

4.5 Protocol for Unacceptable or Non-Conforming Materials

All incoming biodegradable organic waste is subject to a Waste Acceptance Procedure (WAP) that includes verification against pre-agreed source, quality, and odour characteristics.

The waste rejection procedure to be complied is:

- Any incoming loads that do not meet Waste Organics' waste acceptance standards will be either not unloaded or reloaded and removed from site. For loads which are rejected prior to deposit, the driver will be instructed to park the vehicle as an interim measure for closer inspection. The competent manager will be contacted prior to the rejected materials being removed from the compost site and, if appropriate, the ticket and billing rate amended;
- For loads which are rejected following deposit, the unsuitable materials or the whole load depending upon the degree of contamination, will be isolated and stored on an impermeable concrete holding or quarantine area is present on site. Subsequent actions will be dependent upon the reason for rejection and would be similar to those outlined above;
- In the event that the waste material should be determined to be Hazardous Waste then the relevant consignment notification form will be prepared, in conjunction with the haulier or producer and the material will be transported to an appropriate treatment or disposal site;
- Rejection procedure information will be sent to all suppliers and signed by them before intake of any loads begin on-site; and,
- Records to be retained for review by the Environment Agency if required .

This ensures odorous or otherwise unsuitable material does not enter the treatment area or compromise odour management measures. This approach is aligned with AM 6.3 and EA guidance on prevention of odour from incoming waste.

4.6 Odour Release During Treatment

Solid biodegradable organic waste is deposited onto the floor of the solid waste reception hall. From here it is loaded into the hoppers of one of the two attritors before depackaging, where required, and having its particle size reduced in the attritor. This turns the solid waste into a pumpable form. The highest risk of odour being released is during the disturbance of the waste which could be up to 72 hours old meaning decaying could have commenced. Any leachate generated during the storage of waste is collected in the sealed drainage system and incorporated into the waste to make it more pumpable. All of this activity takes place within a building under negative pressure. All air extracted from the building is treated via carbon filters before being emitted to atmosphere.

Liquid biodegradable organic waste is pumped directly from the vehicle tanker into one of the liquid waste storage tanks. From here, the waste is pumped into the mixing tank where it is mixed with the solid waste that has passed through one of the attritors. From the mixing tank, the waste is pumped into the batch tank from where it is pumped into a vehicle tanker for removal from site. deposited onto the floor of the solid waste reception hall. The highest risk of odour being released is the displacement of air from the tanks during the filling and emptying of them. Any spills are captured by the sealed drainage system within the liquid waste storage building and pumped into the liquid waste storage tanks.

The air displaced from the tanks during filling and the air displaced from the vehicle tanker during filling is directed through the odour abatement system (carbon filters) prior to release to atmosphere.

The biodegradable organic waste blending process is managed by the SCADA system on site to ensure that tank levels remain below capacity.

4.7 Additional Relevant Information

The site is open 24 hours a day, 365 days a year, with waste treatment operations taking place between 07:00 – 20:30 on weekdays and 07:00 – 17:30 on weekends. This ensures that waste is stored for the minimum time possible (less than 24 hours) before being treated, further reducing the odour potential.

Solid biodegradable organic waste is stored and initially processed in a separate part of the building to the liquid waste until processed into a pumpable form at which point it is mixed with the liquid waste.

All waste transfer and treatment takes place on impermeable surfaces with sealed drainage system. No waste liquid, including leachate, leaves the site other than as part of the blended "soup".

All sumps are covered with solid lids and spill kits are available in case of accidental release during unloading. The liquid waste tank farm is fully bunded to ensure containment in the event of a catastrophic tank failure or spillage.

All deliveries, waste verification, and rejection actions are logged for auditability, as required under AM 6.9 and EA Odour Management guidance.

Table 4 - Odorous Materials

Odorous and potentially odorous material (any solid, liquid or gas)	Odour potential High Risk / Medium Risk / Low Risk	Maximum quantity on site at any given day (tonnes per day or litres per day)	Maximum time held on site (hours or days)	Location of odorous materials on site	Additional comments
Solid biodegradable organic waste	High risk	600 tonnes	24 hours	Solid waste reception / treatment building	Waste could be up to 72 hours old
Liquid biodegradable organic waste	Medium risk	1,050 m^3	24 hours	Liquid waste reception / blending building	Waste could be up to 72 hours old

4.8 Overview of Odorous Processes and Emissions

The site is designed for the reception, treatment (via attrition and blending) and storage of biodegradable organic waste. The layout ensures odour sources are identified, segregated, and managed in accordance with risk-based odour control principles.

The site features an air extraction system which serves the solid waste reception and treatment building and the headspace of the liquid storage tanks. The volume of the solid waste reception and treatment building is 12,600m^3, whilst the headspace volume of all the liquid waste tanks is 521m^3, working on a principle that each tank is 50% full of liquid waste.

This means that the total volume is 13,121m^3. In order to guarantee three air exchanges per hour, the air extraction system has to be able to handle 39,363m^3 of air per hour. The fan unit maximum volume of the extraction system is 47,500m^3 per hour which is 20% larger than the minimum requirement.

The air extraction system runs the length of the building with inlet grilles at set spaces that target areas of expected odour release such as the attritor and waste storage area. The ductwork includes legs to the high load point sources with the legs to each area being fitted with a variable control damper (VCD) to adjust and balance the flow. The air extracted from the liquid holding tanks and the solid waste reception and treatment building are combined prior to being abated before release to atmosphere.

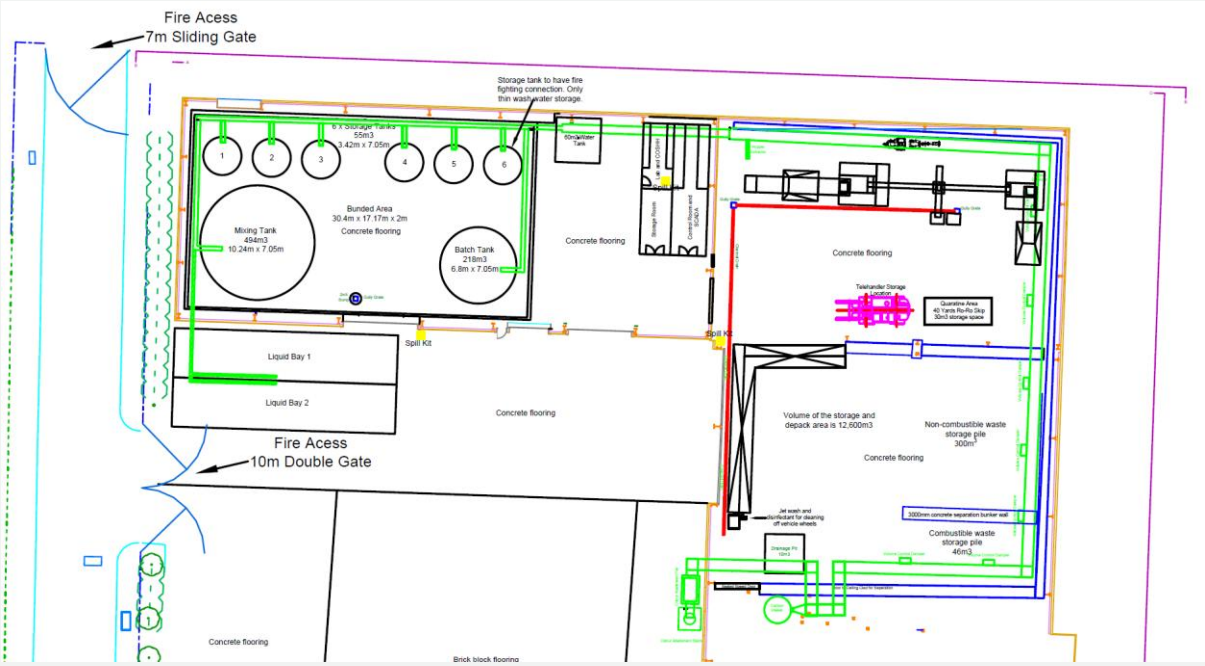


Figure 3 - Site Layout

Table 5 - Sources of Odour and Site Processes

Odour Source	Process Description / How Odour Arises	Control / Mitigation Measures	Monitoring / Verification
Incoming biowaste	Biological activity in solid and liquid biowaste; residual microbial decomposition; odour may release during unloading	All deliveries sealed or covered; drivers instructed on odour management procedures. Reception area is within a building located on impermeable surfacing with minimal exposure to public areas. Building operates under negative pressure with carbon filters to treat air removed from the building. Processing within 24 hours to minimise amount of time waste is stored on site prior to treatment.	Visual inspection of incoming loads. Record of vehicle seal integrity and waste acceptance procedure compliance.
Reception / storage areas	Untreated solid biowaste held prior to treatment may emit odours if exposed or stored for prolonged periods	Designated, segregated storage area for solid waste. Minimised storage duration (transfer to attritor within 24 hours). Liquid waste stored within sealed tanks. All storage and treatment activities take place within the building. Building operates under negative pressure with carbon filters to treat air removed from the building.	Daily inspection logs of storage areas. Record of storage duration for each delivered load. Visual and olfactory checks by staff.
Treatment and mixing operations	Disturbance of decaying material during attrition; potential for fugitive odours during loading of hopper and attrition. Disturbance of liquids during filling of tanks and displacement of potentially odorous air out of the tanks.	Operations undertaken within buildings. Solid waste storage and treatment section of building served by air extraction system and carbon filters. Pumpable solid material transferred to liquid storage tanks via sealed pipework. Filling and emptying of liquid tanks controlled by SCADA system.	Process records (SCADA system). Daily operational supervision. Incident log for any odour complaints or deviations.

Odour Source	Process Description / How Odour Arises	Control / Mitigation Measures	Monitoring / Verification
		Air displaced from liquid waste storage tanks treated by carbon filters prior to release to atmosphere.	
Treated material storage	Blended biowaste has potential to be odorous.	Storage area designed for containment and minimal exposure. Carbon filters treatdisplaced air from batch tank and vehicle tanker during loading.	Process records (SCADA system).
Spillage or accidental release	Minor spillage during unloading or transfer can lead to odour emissions	Spill kits readily available. Staff trained in immediate containment and clean-up- procedures for reporting and recording incidents. Sealed drainage systems serve solid and liquid waste reception areas. Liquid waste tank farm is fully bunded.	Incident reporting log. Follow-up inspection to confirm complete remediation. Review of procedures after any event.
External factors (weather / wind)	Wind direction, temperature, or inversion conditions can affect odour dispersion	All activities related to the production of a blended “soup” take place within the building. Appropriate stack height for odour abatement systems.	Staff visual/olfactory checks. Recording of meteorological conditions. Incident or complaint log correlated with meteorological conditions.

Table 6 - Odour Controls / Mitigation

Site Area / Infrastructure	Description / Purpose	Processes Carried Out	Odour Potential	Controls / Mitigation	Notes / Mobile plant
Weighbridge & access roads	Site access control and vehicle weighing; access roads lead directly to unloading.	Vehicle movement; tracking of deliveries	Low	Restricted vehicle routes to avoid sensitive receptors Vehicle hygiene and spill prevention	N/A
Solid biodegradable organic waste reception / delivery area	Building designated for solid waste reception and treatment with impermeable concrete surface and sealed drainage system. Area designated for vehicle unloading.	Unloading of solid biodegradable organic waste deliveries.	High (waste could be up to 72 hours old)	Vehicles sealed and covered. Drivers instructed on odour control procedures Roller shutter doors on building mean doors only opened to allow vehicles to enter or exit building. Building operated under negative pressure with 3 air exchanges per hour. Air removed from the building is treated through carbon filters before being released to atmosphere. Wheel wash facilities ensure any waste is removed from vehicles wheels before leaving the building. Sealed drainage system captures leachate.	Loading shovel for transferring solid waste from storage area to attritors.

Site Area / Infrastructure	Description / Purpose	Processes Carried Out	Odour Potential	Controls / Mitigation	Notes / Mobile plant
Storage area (untreated solid biodegradable organic waste)	Building designated for solid waste reception and treatment with impermeable concrete surface and sealed drainage system. Waste stored on impermeable surface. Area designated for vehicle unloading.	Short-term storage of solid waste prior to treatment	High (waste could be up to 72 hours old)	Storage times minimised. Roller shutter doors on building mean doors only opened to allow vehicles to enter or exit building. Building operated under negative pressure with 3 air exchanges per hour. Air removed from the building is treated through an odour abatement system carbon filters before being released to atmosphere. Wheel wash facilities ensure any waste is removed from vehicles wheels before leaving the building. Sealed drainage system captures leachate. Regular housekeeping and inspection	Loading shovel for transferring solid waste from storage area to attritors.
Solid biodegradable organic waste treatment area	Building designated for solid waste reception and treatment with impermeable concrete surface and sealed drainage system.	Loading of solid waste into hopper prior to particle size reduction of waste via attrition.	High (waste could be up to 96 hours old and is disturbed)	Building operated under negative pressure with 3 air exchanges per hour. Air removed from the building is treated through carbon filters	Fixed plant: 2No. attritors with hoppers and associated conveyor belts.

Site Area / Infrastructure	Description / Purpose	Processes Carried Out	Odour Potential	Controls / Mitigation	Notes / Mobile plant
	Includes mechanical mixing equipment – 2No. attritors. Pumpable waste then pumped to liquid mixing tank via sealed pipework.			before being released to atmosphere. Pipework which transfers pumpable material to liquid mixing tank is sealed.	
Storage area (untreated liquid biodegradable organic waste)	Building designated for liquid waste reception and treatment with impermeable concrete surface and sealed drainage system. Area designated for vehicle unloading. Liquid waste stored in sealed tanks within bunded area.	Waste unloaded from vehicle tankers directly into liquid storage tanks.	Medium	Waste pumped from vehicle tankers into liquid storage tanks via sealed pipework. Air displaced from liquid storage tanks treated via carbon filters before being released to atmosphere.	No mobile plant in this building.
Liquid biodegradable organic waste treatment area	Building designated for liquid waste treatment with impermeable concrete surface and sealed drainage system. Liquid waste mixing takes place within sealed tank within bunded area.	Liquid wastes from storage tanks mixed with pumpable solid waste in a mixing tank with agitators.	Medium	Waste pumped from attritors and liquid storage tanks via sealed pipework. Air displaced from mixing tank during filling treated via carbon filters before being released to atmosphere.	No mobile plant in this building.
Blended “soup” storage	Building designated for blended “soup” storage with impermeable concrete surface and sealed drainage system.	Blended “soup” storage prior to dispatch off-site.	Medium	Waste pumped from mixing tank to batch tank via sealed pipework. Air displaced from batch tank during filling treated via carbon	No mobile plant in this building.

Site Area / Infrastructure	Description / Purpose	Processes Carried Out	Odour Potential	Controls / Mitigation	Notes / Mobile plant
	Blended “soup” storage takes place within sealed tank within bunded area.			filters before being released to atmosphere.	
Dispatch of blended “soup”	Building designated for blended “soup” storage with impermeable concrete surface and sealed drainage system. Vehicle tanker connects to pipework connecting to batch tank for loading of vehicle tanker.	Loading of blended “soup” waste onto vehicle tankers for transport off-site.	Medium	Waste pumped from batch tank to vehicle tanker via sealed pipework. Vehicle tankers are sealed. Air displaced from vehicle tanker during filling treated via carbon filters before being released to atmosphere. Waste material accepted on to site, blended and dispatched from site in as short a time as possible.	Vehicle tanker.
Plant & equipment locations	Fixed plant includes 2No. attritors, hopper, conveyors, sealed pipework, liquid waste tank farm. Mobile plant: loaders.	Supports storage and treatment of waste to produce a blended “soup”.	Medium-High	Routine inspection and maintenance. All activities take place within buildings with the appropriate odour controls.	Odour abatement stack of an appropriate height to aid dispersion of residual odours.
Odour emission points	Potential odour sources include: Unloading of biodegradable organic waste, short-term storage of waste, attrition of solid waste, mixing of pumpable and liquid waste and dispatch of blended “soup”.	Temporary odour release during material handling and movement between tanks.	Medium–High	Control measures as above. All activities take place within buildings. Monitoring and housekeeping.	Odour abatement stack of an appropriate height to aid dispersion of residual odours.

5.0 CONTROL MEASURES AND PROCESS MONITORING

5.1 Appropriate Measures (AM)

The Appropriate Measures considered to be relevant to the creation of a blended “soup” is the Biological waste treatment: appropriate measures for permitted facilities - Guidance - GOV.UK. This is on the basis that the waste material is biological and the blended “soup” shall be used a feedstock to anaerobic digestion facilities.

5.2 H4 Guidance

This guidance sets out what the EA expect an operator to do to manage odour from an environmental permit operation. This includes the following:

- a risk assessment and odour management plan for approval
- comply with the odour permit condition
- prevent serious pollution
- what the law says must be done to manage odour
- how the EA assesses odour from regulated activities, including permit compliance
- how to carry out an odour risk assessment
- what must be included in an odour management plan
- what serious odour pollution is
- the best available techniques (BAT) and appropriate measures for activities that are potentially odorous

Additionally, the EA have a guide titled Odour management: comply with your environmental permit - 6. Writing an odour management plan - Guidance - GOV.UK.

5.3 Odour Abatement System

All solid waste reception and treatment activities take place within a building. This building has fast-actin roller shutter doors that only open to allow a waste carrying vehicle to enter or exit the building and they immediately close behind it. This building is served by an air extraction system which ensures that there are three air exchanges per hour in the building and that the building operates under negative pressure. This reduces the likelihood of any potentially odorous air leaving the building for the short periods that the roller shutter doors are open.

All liquid waste storage, mixing and transfer, including from vehicle tankers, the attritors, between the tanks themselves and into vehicle tankers, take place within sealed tanks and sealed pipework. This serves to contain any odorous air which may be present within the tanks and pipework. This air may be released by displacement during the filling of these tanks and the vehicle tanker. As such, the headspaces of these tanks have fixed connections to the air extraction system which serves the solid waste reception and treatment area. The vehicle tanker loading point is served by a tanker extraction arm mounted on a 4m high stanchion. Vehicle operators locate the extraction arm over their vehicles vent. The tanker extraction arm is also connected to the air extraction system. The specification of the air extraction system is set out in Section 4.8 above. The air extraction system is designed to ensure there are at least three air exchanges per hour from the building.

All air extracted by the air extraction system is processed through an odour abatement system. This consists of 4 specially converted 20ft International Organisation for Standardisation (ISO) containers containing activated carbon (SA76 blend for hydrogen sulphide and ammonia), a fan and peripheral equipment. The containers will be set out in parallel with each container will be capable of handling a flow of 12,000m^3/h and will contain 6.25m^3 of a blended activated carbon media that is suitable for hydrogen sulphide, ammonia and mercaptans removal. The face velocity over the activated carbon will not exceed 0.25m/s and provides a contact time of two seconds. The fan is able to handle the maximum flow of 47,500m^3/h. The fan is fitted with a 75kW engine and provides 3000Pa of pressure at maximum flow. Proven technology is used and attention shall be given to system design to ensure high reliability in operation. The performance of the system meets all the Performance Guarantees.

The containers are located inside the site building, albeit on the opposite side of the internal wall to the solid waste acceptance and treatment area. The ducting carrying all air extracted from the tanks and building shall pass through this internal wall before splitting to provide four ducts that direct the air into the four containers containing the activated carbon. The outlets from each container combine into one single outlet duct which passes through the building's external wall before turning vertically into a chimney stack. The treated air emits to atmosphere at a height of 12m above the ground.

The materials used in the odour abatement system are suitable for a working life of over 15 years with design conditions. All components and materials in contact with the extracted air are constructed of plastic and/or steel which are resistant to process conditions.

The following certifications apply:
a) Machine Directive 2006/42/EC
b) Electrical equipment and assemblies are in accordance with NEN 1010 and EN 50110.

The following materials and standards have been followed in design and construct:

- Piping : Galvanised mild steel, uPVC, uPVC/GRP, GRP/PVC
- Flanges : DIN if applicable
- Control panel & housing : IP55 for safe area
- Sub supplier equipment : Contractor standard

5.4 Monitoring and Trigger Levels

The duration of storage is monitored to prevent unnecessary decomposition-related odour emissions occurring. Visual and olfactory inspection provides practical early-warning for fugitive emissions. Regular inspections are also carried out on the air extraction system and odour abatement system to ensure continued correct operation. The SCADA system is used to control the operation of the tank farm, including the filling and emptying of tanks and operation of the agitators in the mixing tank.

Online monitoring systems are in place before and after each carbon filter to monitor the performance. The abatement system is designed to remove 90% of the input concentrations of hydrogen sulphide and ammonia. Should the online monitoring show that the removal efficiency of any carbon filter drops below 90%, a more detailed investigation shall be carried out. The removal efficiency is calculated by subtracting the filter output concentration from the filter input concentration and then dividing this figure by the input concentration and multiplying it by 100. This does not mean that any emission limit values are being breach rather it provides an indication that the effectiveness of the abatement is reducing. Should the online monitoring show that the removal efficiency of any carbon filter drops below 90%, an alarm shall be sent via the system to indicate this. The online monitoring also includes the temperature of the flue air and the back pressure.

In addition to the online monitoring, periodic monitoring of odour, ammonia and hydrogen sulphide shall take place from the stack that serves the abatement system. A monitoring schedule for point source emissions has been developed in accordance with Environment Agency guidance for monitoring stack emissions and the Appropriate Measures for biological waste treatment. Sampling ports are fitted to the exhaust stack at a location at which the exhaust gas is well mixed and is also safely accessible. The table below details the monitoring approach to be followed for monitoring from the stack serving the odour abatement system:

Table 7 - Point Source Emissions Monitoring Plan

Substance	Emission Limit	Monitoring Type	Monitoring Method	Monitoring Frequency
Odour	1,000 OUe/m^3	Manual extractive testing	EN 13725	Annually
Ammonia	20 mg/Nm^3	Manual extractive testing	EN ISO 21877	Annually
Hydrogen Sulphide	None set	Manual extractive testing	US EPA M11 / CEN TS 13649	Annually

Table 8 - Sources of Odour, Processes, and Mitigation Measures

Process / material	Control measures/Appropriate Measures	Frequency of monitoring	Process parameters monitored	Trigger levels / limits	Corrective actions if outside limits
Receipt of solid biodegradable organic waste	Delivered in covered vehicles. Unloading on impermeable, dedicated reception area within a building. Building operates under negative pressure with a minimum of 3 air exchanges per hour. Extracted air treated via odour abatement system prior to release to atmosphere. Drivers instructed on odorous material handling. Minimise storage duration before treatment. Spill kits available.	Visual inspection of vehicle integrity upon arrival. Each load of waste accepted / rejected on its own merit. Daily inspection of unloading area, including integrity of roller shutter doors. Inspection of odour abatement system in line with manufacturers recommendations.	Integrity of each vehicle. Visual assessment of spills or leaks. Integrity of building and odour abatement system.	Damaged vehicle. Spills observed. Compromised integrity of building or odour abatement system. Odour complaint. Pollutant removal efficiency drops below 90%.	Immediate containment and clean-up using spill kit. Record incident and notify site manager. Retain spares on site to fix roller shutter doors if broken. Service level agreement with contractor for building and odour abatement system management. Investigate odour complaint and apply corrective actions if required. Investigate and replace carbon.
Receipt of liquid biodegradable organic waste	Delivered in sealed vehicles. Unloading in impermeable, dedicated reception area within a building. Liquid transferred from vehicle tankers into sealed liquid waste storage tanks via sealed pipes. Displaced air treated by odour abatement system prior to release to atmosphere.	Visual inspection of vehicle integrity upon arrival. Each load of waste accepted / rejected on its own merit. Daily inspection of unloading area, including integrity of roller shutter doors.	Integrity of each vehicle. Visual assessment of spills or leaks. Integrity of building. Integrity of liquid waste storage tanks. Integrity of odour abatement system.	Damaged vehicle. Spills observed. Compromised integrity of building or waste storage tank. Odour complaint. Pollutant removal efficiency drops below 90%.	Immediate containment and clean-up using spill kit. Record incident and notify site manager. Retain spares on site to fix roller shutter doors if broken. Service level agreement with contractor for building management.

Process / material	Control measures/Appropriate Measures	Frequency of monitoring	Process parameters monitored	Trigger levels / limits	Corrective actions if outside limits
	Drivers instructed on odorous material handling. Minimise storage duration before treatment. Spill kits available.	Integrity of liquid waste storage tanks and odour abatement system checked at regular intervals.			Take damaged waste storage tank out of commission until repaired or replaced. Investigate odour complaint and apply corrective actions if required. Investigate and replace carbon.
Storage of solid biodegradable organic waste	Segregated storage area on impermeable surface within a building. Building operates under negative pressure with a minimum of 3 air exchanges per hour. Extracted air treated via odour abatement system prior to release to atmosphere. Rapid transfer to waste treatment area. Good housekeeping.	Daily inspection of storage area, including integrity of roller shutter doors. Inspection of odour abatement system in line with manufacturers recommendations.	Storage duration. Integrity of building and odour abatement system.	Material held <24h. Compromised integrity of building or odour abatement system. Odour complaints from beyond site boundary. Pollutant removal efficiency drops below 90%.	Immediate transfer to attritors. Removal of waste from site if necessary. Retain spares on site to fix roller shutter doors if broken. Service level agreement with contractor for building and odour abatement system management. Investigate odour complaint and apply corrective actions if required. Investigate and replace carbon.
Storage of liquid biodegradable organic waste	Storage tanks located in impermeable, dedicated bunded tank farm within a building. Sealed storage tanks. Displaced air treated by odour abatement system prior to release to atmosphere. Spill kits available.	Continuous monitoring by SCADA system of filling and emptying. Daily inspection of liquid waste building, including integrity of roller shutter doors. Integrity of liquid waste storage tanks	Visual assessment of spills or leaks. Integrity of building. Integrity of liquid waste storage tanks. Integrity of odour abatement system.	Spills observed. Compromised integrity of building or waste storage tank. Odour complaint. Pollutant removal efficiency drops below 90%.	Immediate containment and clean-up using spill kit. Record incident and notify site manager. Retain spares on site to fix roller shutter doors if broken. Service level agreement with contractor for building management.

Process / material	Control measures/Appropriate Measures	Frequency of monitoring	Process parameters monitored	Trigger levels / limits	Corrective actions if outside limits
		checked at regular intervals.			Take damaged waste storage tank out of commission until repaired or replaced. Investigate odour complaint and apply corrective actions if required. Investigate and replace carbon.
Solid biodegradable organic waste treatment area	Controlled transfer of solid waste into attritor hopper. Use of 2No. attritors for particle size reduction and depackaging. Waste treatment takes place in a building which operates under negative pressure with a minimum of 3 air exchanges per hour. Extracted air treated via odour abatement system prior to release to atmosphere.	Continuous operator supervision during use of attritors. Daily inspection of waste treatment area, including integrity of roller shutter doors. Inspection of odour abatement system in line with manufacturers recommendations.	Throughput of solid waste through attritors. Integrity of building and odour abatement system.	Malfunction of attritors. Compromised integrity of building or odour abatement system. Odour complaints from beyond site boundary. Pollutant removal efficiency drops below 90%.	Retain spares on site to fix roller shutter doors if broken. Service level agreement with contractor for attritors, building and odour abatement system management. Investigate odour complaint and apply corrective actions if required. Investigate and replace carbon.
Liquid biodegradable organic waste treatment area	Mixing tank located in impermeable, dedicated bunded tank farm within a building. Sealed storage tank. SCADA system controls tank filling, emptying and mixing. Displaced air treated by odour abatement system prior to release to atmosphere.	Continuous monitoring by SCADA system of filling, emptying and mixing. Daily inspection of liquid waste building, including integrity of roller shutter doors.	Visual assessment of spills or leaks. Integrity of building. Integrity of liquid waste mixing tank. Integrity of odour abatement system.	Spills observed. Compromised integrity of building or waste mixing tank. Odour complaint. Pollutant removal efficiency drops below 90%.	Immediate containment and clean-up using spill kit. Record incident and notify site manager. Retain spares on site to fix roller shutter doors if broken. Service level agreement with contractor for building and odour abatement system management.

Process / material	Control measures/Appropriate Measures	Frequency of monitoring	Process parameters monitored	Trigger levels / limits	Corrective actions if outside limits
	Spill kits available.	Integrity of liquid mixing tank checked at regular intervals.			Take damaged waste mixing tank out of commission until repaired or replaced. Investigate odour complaint and apply corrective actions if required. Investigate and replace carbon.
Blended “soup” storage	Batch tank located in impermeable, dedicated bunded tank farm within a building. Sealed batch tank. Displaced air treated by odour abatement system prior to release to atmosphere. Spill kits available.	Continuous monitoring by SCADA system of filling and emptying. Daily inspection of liquid waste building, including integrity of roller shutter doors. Integrity of liquid batch tank checked at regular intervals.	Visual assessment of spills or leaks. Integrity of building. Integrity of liquid batch tank. Integrity of odour abatement system.	Spills observed. Compromised integrity of building or batch tank. Odour complaint. Pollutant removal efficiency drops below 90%.	Immediate containment and clean-up using spill kit. Record incident and notify site manager. Retain spares on site to fix roller shutter doors if broken. Service level agreement with contractor for building and odour abatement system management. Take damaged batch tank out of commission until repaired or replaced. Investigate odour complaint and apply corrective actions if required. Investigate and replace carbon.
Dispatch of blended “soup”	Loading only into designated waste tanker vehicles via sealed pipework. Displaced air in vehicle tanker treated by odour abatement system prior to release to atmosphere. Staff trained in odour handling.	Continuous monitoring by SCADA system of filling and emptying. Inspection of vehicle tanker integrity prior to loading each vehicle.	Visual assessment of spills or leaks. Integrity of vehicle tanker. Integrity of odour abatement system.	Vehicle integrity compromised. Loading duration excessive.	Reject loading. Reschedule to reduce exposure. Record incident. Service level agreement with contractor for building and odour abatement system management.

Process / material	Control measures/Appropriate Measures	Frequency of monitoring	Process parameters monitored	Trigger levels / limits	Corrective actions if outside limits
		Spot checks during loading.		Compromised integrity of odour abatement system. Odour complaints from beyond site boundary. Pollutant removal efficiency drops below 90%.	Investigate odour complaint and apply corrective actions if required. Investigate and replace carbon.
Spillage / Accidental Release	Spill kits and containment procedures Staff trained in immediate clean-up. Wheel wash facilities within buildings. Sealed drainage systems within buildings. Liquid waste tank farm is bunded.	Inspection of spill containment areas weekly. Following each incident.	Presence of residual material outside containment. Clean-up completion.	Material outside containment. Odour complaints from beyond site boundary.	Immediate clean-up. Apply corrective containment measures. Incident logged and reviewed. Investigate odour complaint and apply corrective actions if required.
Monitoring and records	Maintain odour logbook Record all inspections and incidents.	Continuous during operations. Weekly review of all records.	All process parameters (exposure duration, equipment function, odour intensity).	Any deviation from optimum performance parameters.	Implement site corrective action plan. Investigate root cause. Update procedures as necessary.

6.0 ODOUR REPORTING

The site is committed to proactive and reactive management of odour in line with its environmental permit and the principle of being a good operator. All odour complaints or observations are taken seriously, investigated promptly, and recorded systematically. Records of complaints are used to review and improve site operations, in line with Develop a management system: environmental permits - GOV.UK guidance.

6.1 Complaints Reporting

Any odour pollution notification, whether by telephone, email, or in-person, is recorded immediately in the site Odour Complaint Log. The complainant is acknowledged within 24 hours, confirming that the complaint has been received and will be investigated.

The site team will investigate within 48 hours of the notification, in accordance with permit conditions. Investigation includes:

- Inspecting relevant process areas (reception, storage, attrition, storage tanks).
- Reviewing process records (SCADA system, storage duration, odour monitoring logs).
- Conducting olfactory assessment at the site boundary and near sensitive receptors if required.

The complaint, investigation findings, and actions taken are logged in the Odour Complaint Log, which includes:

- Date/time of complaint
- Complainant details
- Description of odour (source, intensity, duration)
- Investigation steps and results
- Corrective actions implemented
- Follow-up with the complainant

Complaints are reviewed monthly to identify trends or recurring issues. Actions are implemented to prevent recurrence (e.g. scheduling changes, additional containment, process parameter adjustments). Findings are incorporated into staff training and OMP updates as part of a continual improvement cycle.

6.2 Community Engagement

The site maintains an open channel with neighbouring businesses, residents, and community representatives. Communication methods include:

- Email or phone contact for complaints or enquiries.
- Periodic updates/newsletters for local stakeholders where appropriate.
- Availability of the site manager for meetings or discussions regarding odour management.

Engagement is proactive and responsive, ensuring community concerns are addressed promptly and respectfully. Feedback received is reviewed alongside complaints and odour monitoring records to inform operational adjustments and OMP improvements. This approach fosters good neighbour relationships and can pre-empt complaints through early notification of operational activities that may result in odour.

6.3 Pro-Active Odour Monitoring

Daily olfactory inspection ('sniff test') of 4 boundary points is conducted, regardless of complaints. There is one monitoring point on each of the 4 sides of the site (see the plan in Section 9). Observations are recorded in the Odour Monitoring Log, including odour intensity, direction of prevailing wind, and any unusual odours.

During periods of high odour risk (hot weather, high wind speeds, backlog of deliveries), additional monitoring rounds are performed. Staff are trained to recognise odours associated with the waste accepted onto site. Proactive monitoring allows early identification of potential odour events, supporting timely corrective actions before complaints are received.

6.4 Reactive Odour Monitoring

In addition to the investigation described in 5.1, reactive monitoring following a complaint includes:

- On-site inspection of process areas associated with the suspected source.
- Boundary odour assessment at sensitive receptor locations if accessible.
- Verification of process parameters (e.g., SCADA data, storage time) to identify deviations.
- Recording environmental conditions such as wind speed and direction, temperature, and precipitation.

Following a complaint, the findings of reactive monitoring are logged and corrective actions implemented immediately (e.g. removal of material from site, reduced storage duration). Follow-up monitoring confirms that corrective actions have resolved the odour issue. Results are reviewed alongside the complaint log and inform updates to site procedures and the OMP.

6.5 Summary

The site adopts a robust and proactive approach to odour management:

- Complaints are recorded, investigated within 48 hours, and form part of a continuous improvement process.
- Community engagement ensures stakeholders are informed and concerns are addressed.
- Proactive monitoring identifies odour risks before they affect receptors.
- Reactive monitoring ensures complaints are investigated thoroughly, and corrective actions are implemented.

This integrated system ensures compliance with EA permit conditions, odour management guidance.

7.0 ABNORMAL EVENTS

This section identifies reasonably foreseeable abnormal events that could place pressure on site operations and increase the risk of odour pollution. For each event, the table below sets out the planned recovery steps and control measures in place to prevent, minimise or mitigate odour impacts should such events occur.

Abnormal events are managed in accordance with the following site procedures:

- Odour Management Plan (this document).
- Site Management System.
- Waste Acceptance Procedure.
- Business Continuity and Emergency Response arrangements.

Where relevant, this section cross-references existing procedures rather than duplicating them. All abnormal events are recorded, reviewed, and used to inform continual improvement of odour control measures.

In all abnormal events, the following general principles apply:

- Odour prevention takes precedence over throughput or operational convenience.
- Incoming waste acceptance is restricted or suspended if odour risks cannot be adequately controlled.
- On-site material residence time is minimised.
- Enhanced monitoring (including sniff testing) is implemented.
- Sensitive receptors and prevailing meteorological conditions are considered.
- The EA is notified where required by permit conditions.

Table 9 - Abnormal Events and Recovery Steps

Abnormal Event	Planned Recovery / Mitigation Steps
Inability to remove blended “soup” from site (e.g. outlet closure, contractor failure)	Suspend or significantly reduce incoming biodegradable organic waste deliveries. Prioritise treatment and dispatch of the most odorous or oldest material first. Increase odour inspections and sniff testing frequency. Notify waste producer and haulage contractors of intake restrictions. Escalate to management if storage capacity thresholds are approached.
Delayed collections / increased backlog of blended “soup”	Activate intake control procedures and impose delivery caps. Reschedule deliveries to avoid adverse meteorological conditions (e.g. low wind, temperature inversions). Prioritise immediate treatment of untreated biodegradable organic waste upon arrival. Reject loads if safe and compliant processing cannot be guaranteed. Record event and corrective actions in site log.
Failure or breakdown of attritors or mixing equipment	Immediately suspend acceptance of untreated biodegradable organic waste. Isolate any partially treated material and prevent disturbance until treatment can resume. Arrange rapid repair or deployment of standby/mobile equipment where available. Apply interim containment measures (sheeting, sealing, minimising handling). Increase odour monitoring frequency. Resume operations only once equipment functionality and odour control are restored.
Power failure	Suspend waste acceptance and processing activities. Secure untreated and treated materials to minimise exposure and disturbance. Deploy backup power where available for critical treatment and odour control systems. Monitor for odour release during outage and record findings. Resume normal operations only once power is stable and systems are fully functional.

Abnormal Event	Planned Recovery / Mitigation Steps
Adverse weather conditions (e.g. high temperature, low wind speed, temperature inversion)	Reduce or pause odorous activities during high-risk meteorological conditions. Re-schedule non-essential operations to more favourable conditions. Document decisions and monitoring observations.
Equipment fire (including external fire impacting operations)	Follow site procedures detailed in Emergency Response and Accident Prevention and Management and Plan. Cease waste acceptance and processing immediately. Secure odorous materials and prevent disturbance unless required for safety reasons. Liaise with emergency services and regulators as required. Conduct post-incident odour risk assessment prior to restarting operations.
Flooding or extreme rainfall	Suspend waste acceptance where floodwater could contact odorous materials. Prevent mobilisation of contaminated runoff and odorous leachate. Relocate or secure stored material to higher ground if required. Inspect site drainage and containment systems following the event. Resume operations only once odour and pollution risks are demonstrably controlled.
Spillage or accidental release of biodegradable organic waste	Stop the source of the spillage immediately. Contain and recover material promptly. Clean affected surfaces without generating additional odour. Record incident, root cause and corrective actions.
Receipt of unusually odorous or non-conforming waste	Quarantine load and carry out rapid assessment. Reject or return waste if it does not meet Waste Acceptance Criteria. If accepted, arrange for collection as soon as practicable. Notify waste producer and update acceptance controls as necessary. Record incident and review supplier performance.
Short staffing or absence of key trained personnel	Implement minimum staffing thresholds for odorous activities. Suspend non-essential or high-risk odorous operations if competence cannot be assured. Deploy trained backup staff where available.

Abnormal Event	Planned Recovery / Mitigation Steps
	Prioritise odour-critical activities only. Record staffing impacts and any operational limitations applied.

Table 9 - Abnormal Events Aligned to Appropriate Measures

Abnormal Event	Relevant EA Appropriate Measures clauses	Compliance explanation / linkage
Inability to remove blended "soup" from site (e.g. outlet closure, contractor failure)	AM 5 (Management systems) AM 5 (Contingency planning) AM 7 (Waste storage – quantities and duration) AM 11 (Odour risk management)	Intake restrictions, prioritisation of oldest material, and suspension of acceptance demonstrate effective contingency planning and control of storage duration. Actions explicitly minimise odour risk at source in line with AM 7.1.
Delayed collections / increased backlog of blended "soup"	AM 6 (Waste acceptance procedures) AM 7 (Storage limits) AM 11 (Odour control)	Waste acceptance caps and rejection protocols ensure storage capacity and residence time are not exceeded. Immediate treatment aligns with odour prevention at source rather than reliance on end-of-pipe controls.
Failure or breakdown of attritors or mixing equipment	AM 5 (Contingency and abnormal operations) AM 12 (Process control and monitoring) AM 11 (Odour risk management)	Suspension of acceptance and isolation of untreated material reflect proportionate control during abnormal operations. Restart only after odour risk is demonstrably controlled aligns with AM expectations.
Power failure	AM 5 (Emergency and abnormal events) AM 11 (Monitoring and control) AM 11 (Odour risk management)	Immediate cessation of odorous activities and securing of materials demonstrates compliance with emergency planning and odour prevention obligations.
Adverse weather conditions (e.g. high temperature, low wind speed, temperature inversion)	AM 5 (Contingency and abnormal operations) AM 11 (Odour – consideration of meteorological conditions)	Adjusting or suspending activities during adverse meteorology is explicitly supported by EA odour guidance and reflects AM for outdoor waste treatment operations.

Equipment fire (including external fire impacting operations)	AM 5 (Emergency planning) AM 11 (Odour management during abnormal events)	Emergency response procedures prioritise safety while preventing unnecessary disturbance of odorous material, consistent with AM expectations.
Flooding or extreme rainfall	AM 5 (Contingency planning) AM 7 (Containment and protection of materials) AM 11 (Odour risk management)	Suspension of acceptance and securing of materials prevents odour generation and uncontrolled emissions during abnormal environmental conditions.
Spillage or accidental release of biodegradable organic waste	AM 5 (Management systems) AM 5 & 7 (Containment and housekeeping) AM 11 (Odour risk management)	Rapid containment, recovery, and transfer demonstrate AM and prevents secondary odour impacts.
Receipt of unusually odorous or non-conforming waste	AM 6.3 (Waste acceptance procedures) AM 6 & 11 (Odour risk management)	Quarantine, rejection, or immediate treatment demonstrates effective waste acceptance controls and prevents odour pollution from unsuitable inputs.
Short staffing or absence of key trained personnel	AM 5 (Competence and training) AM 5 (Operational resilience) AM 11 (Odour risk management)	Minimum staffing thresholds and suspension of high-risk activities demonstrate compliance with competence and odour prevention requirements.

7.1 Summary

The Operator has identified all reasonably foreseeable abnormal operating conditions that could increase the risk of odour pollution from the installation. These include, but are not limited to, restrictions on waste removal, equipment or power failure, adverse meteorological conditions, staffing shortages, equipment fire, flood and the receipt of unusually odorous or non-conforming waste.

For each identified abnormal event, proportionate and pre-planned recovery measures are in place. These measures are designed to ensure that odour emissions are prevented where practicable and otherwise minimised, and that the risk of off-site odour impact is controlled at all times.

During abnormal operating conditions, the Operator will:

- Restrict or suspend waste acceptance where odour risks cannot be adequately controlled;
- Limit the quantity and duration of waste storage on site;
- Prioritise the treatment and removal of the most odorous materials;
- Avoid or suspend odour-generating activities during adverse meteorological conditions;
- Implement enhanced odour monitoring, including increased sniff testing and inspections;
- Ensure that only trained and competent personnel undertake odour-critical activities.

The recovery measures set out in Table 9 align with the Environment Agency Appropriate Measures for biological waste treatment. In particular, the measures demonstrate compliance with requirements relating to:

- effective management systems and contingency planning;
- control of waste acceptance, storage capacity, and residence time;
- prevention of odour emissions at source; and,
- management of odour risk during abnormal and emergency situations.

Where abnormal events occur, details will be recorded, investigated, and reviewed in accordance with the site management system. The effectiveness of the response actions will be assessed, and the Odour Management Plan will be updated where necessary to reflect lessons learned and to ensure continual improvement.

8.0 CONCLUSION

These measures collectively demonstrate that the site applies proportionate, risk-based controls over odour from deliveries, consistent with EA Odour management: comply with your environmental permit - Guidance - GOV.UK (Dec 2025), and the relevant sections within Appropriate Measures.

8.1 Operation overview

The existing buildings on site are used to house all equipment associated with the treatment of biodegradable organic waste and production of a “soup”. Solid packaged and unpackaged food waste is tipped onto the floor of the reception building. From here, it is loaded into a series of de-packaging lines and attritors to be converted into a pumpable form. The floor of the waste reception hall is constructed of impermeable concrete and is served by a sealed drainage system. Any leachate collected by the drainage system shall be re-used in the “soup” production process. Vehicles that have delivered the waste to the reception hall shall also be washed out, with the dirty water again being collected by the sealed drainage system and used in the “soup” production process. The waste reception hall operates under negative pressure, with a minimum of three air changes per hour. The air removed from the waste reception hall is directed to an odour abatement system prior to emission to atmosphere.

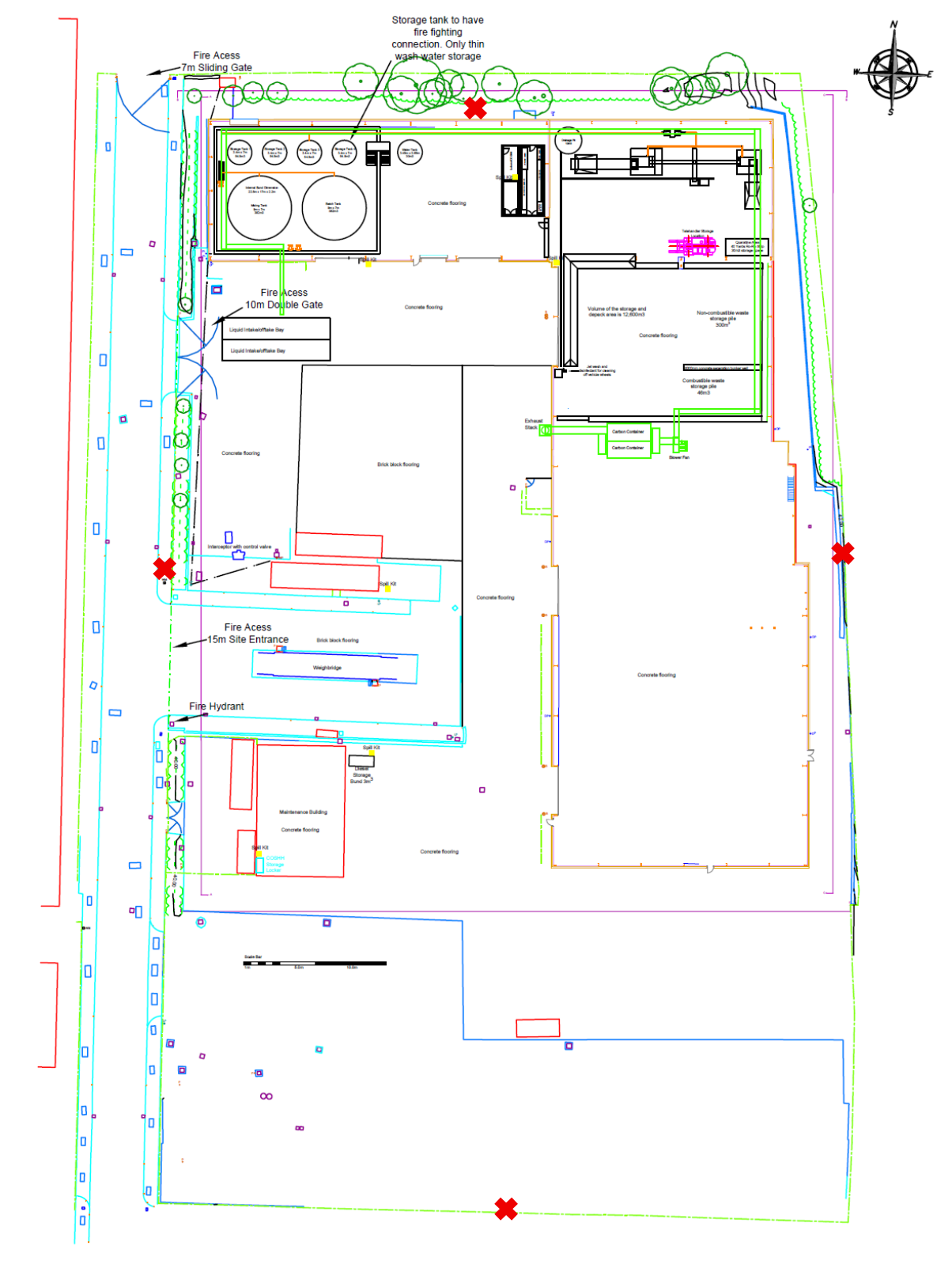
The pumpable waste produced in the waste reception hall shall then be pumped to a small tank farm located within the adjacent building where it is mixed with liquid wastes to produce a “soup”.

Liquid biodegradable organic wastes shall be accepted onto site in the building adjacent to the solid waste reception hall. The liquid waste is pumped directly from the vehicle tanker into one of the liquid waste storage tanks in the tank farm. The tank farm is fully bunded to ensure containment of the liquid wastes. The containment is designed to CIRIA C736 guidance, offering containment of 110% of the largest tank or 25% of all the tanks by volume. The floor of the liquid biodegradable organic waste hall is constructed of impermeable concrete and shall be served by a sealed drainage system. Any liquid waste collected by the drainage system shall be re-used in the “soup” production process.

The individual tanks in the tank farm and the vehicle “soup” loading point are served by the same odour abatement unit as the solid waste reception and treatment building to treat air displaced from the tanks and vehicle tankers prior to release to atmosphere.

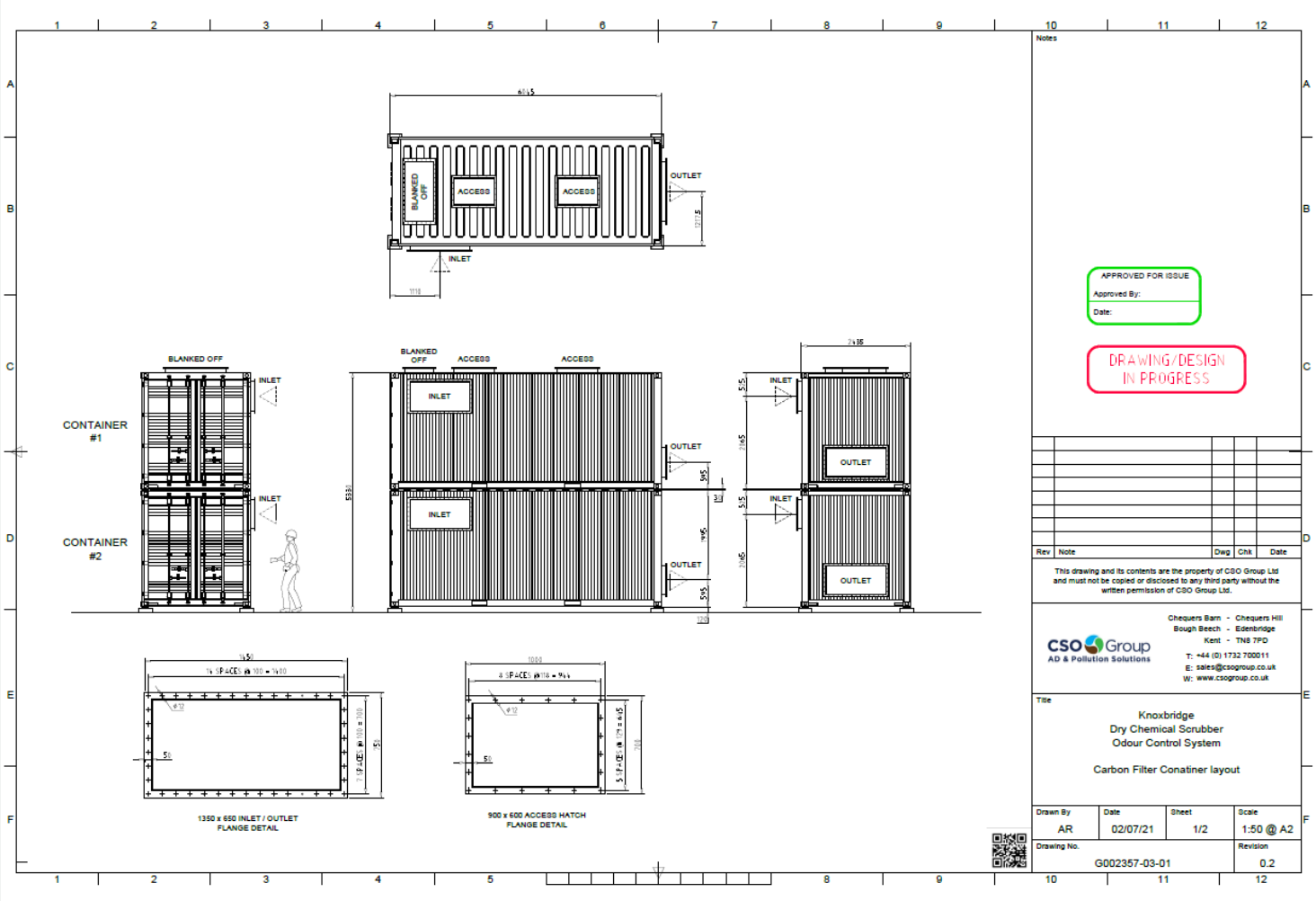
The Operator considers that, with the implementation of the measures described in this section, odour pollution is unlikely beyond the site boundary, including during abnormal operating conditions.

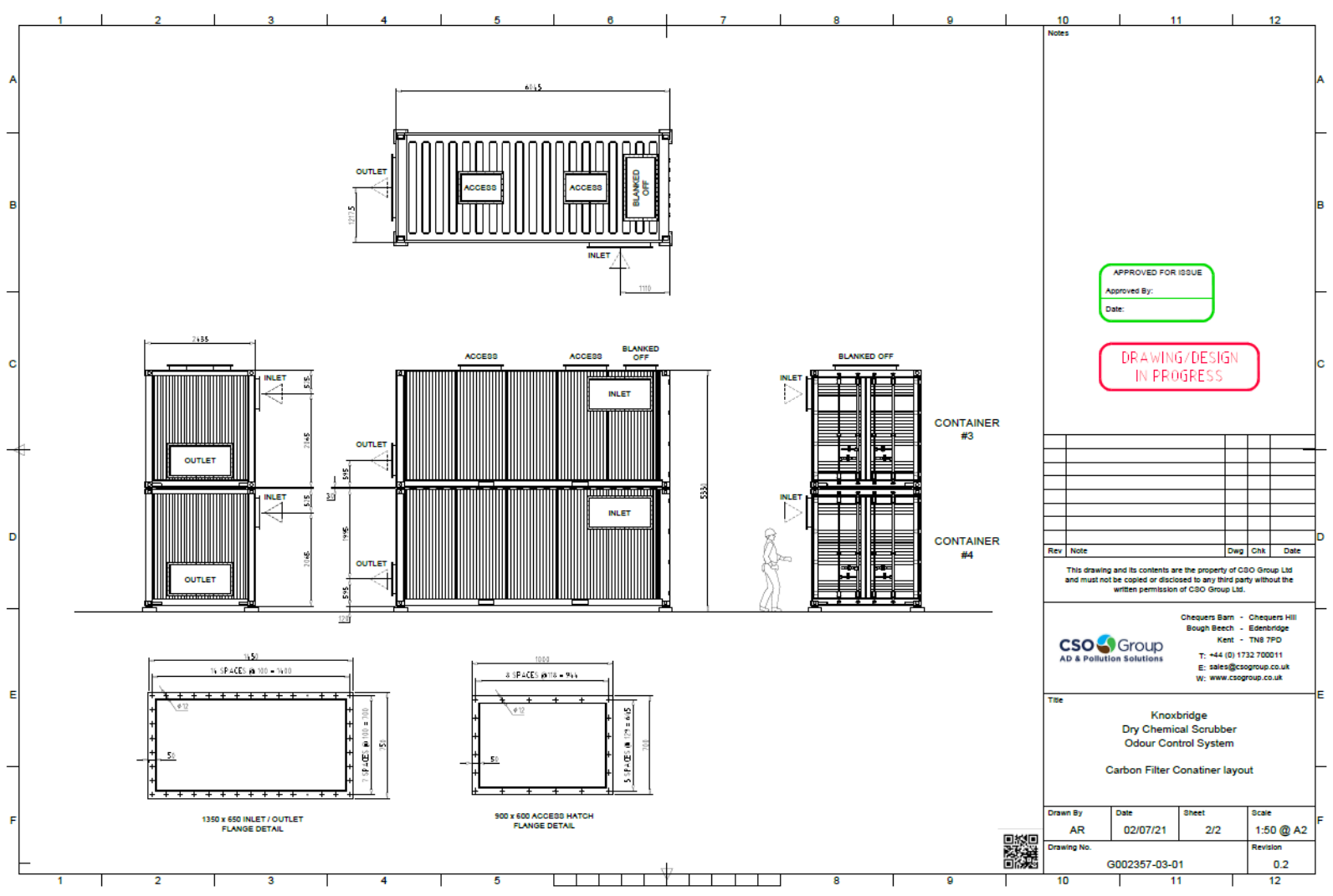
9.0 SITE LAYOUT PLAN



✖ = boundary sniff test monitoring locations

10.0 ODOUR ABATEMENT CONTAINMENT LAYOUT

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900 x 600 ACCESS HATCH FLANGE DETAIL
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APPROVED FOR ISSUE
Approved By:
Date:
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Rev Note Dwg Chk Date
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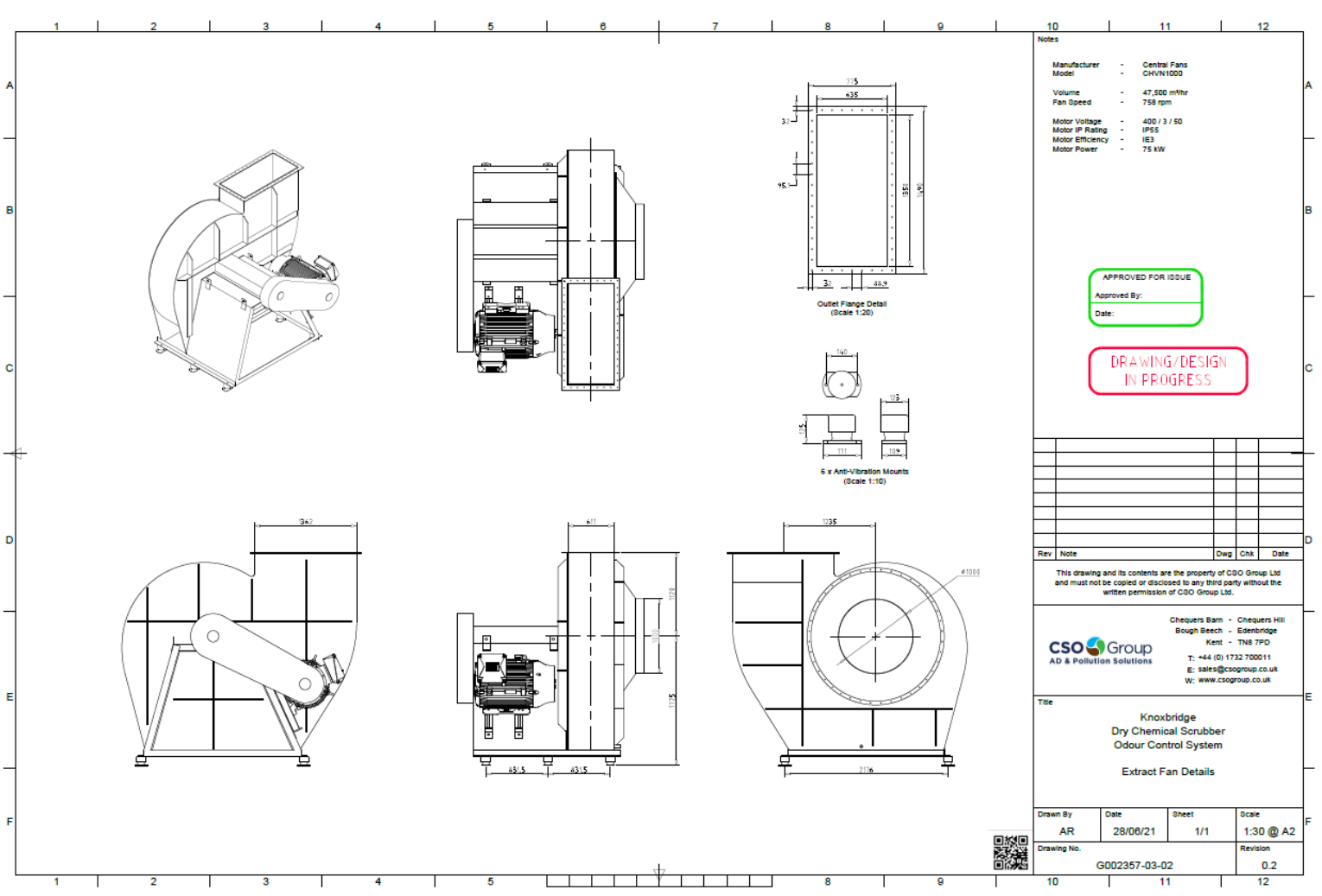
Revision 0.2

11.0 EXTRACTION FAN DETAILS



12.0 DUCTWORK LAYOUT